PACIFIC PETROLEUM GEOLOGIST

1960

January
"Trap Barriers -- Hydrodynamic, Stratigraphic, WettabilitY" By Gillman A. Hill
"Phenomenology of Underground Nuclear Explosions" By Milo Nordyke
"Plowshare Applications Related to Geology" By Nannette Jaffee
"Regional Geology of the Cook Inlet Area, Alaska" By Marshall G. Ayres

February
"The Mohole Project" By Willard Bascom
"The Role of Bacteria in Sedimentation" By I. R. Kaplan

March
"The Evolution of California Cretaceous Stratigraphic Nomenclature" By Stewart Chuber
"Discovery and Geologic History of the Grand Canyon" By E. R. Bush
"The Earth's Changine Climate" By Dr. Erling Dorf
"An Exploration Program for Borate Minerals- Mojave Desert" By Bob Maynard

April
"Pre-History of Santa Rosa Island" By Phil C. Orr
"Formation of Petroleum in Southern California Offshore Basins" By Dr. K. O. Emery
"Some Non-Metallic Mineralx Deposits in and near the Matanuska Valley" By Richard A. Eckhart
"Geology of Water and Its Importance to our Industrial Civilization By George B. Maxey

May
"Alaska" ?
"Geologic Features of Surface Faulting in Recent Earthquakes" By Dr. Gordon B. Oakeshott
"Cretaceous Stratigraphy of Northern California and Southern Oregon" By David Jones
"Submarine Slump Deposits, West-Central Sacramento Valley" By Messrs. Robert Brown and Ernest Rich

June
"The Principles of Biostratigraphy" By Dr. Robert M. Kleinpell
"The Geology and Oil Possibilities of the Santa Ynez Range and Topa Topa Mountains" By Dr. Tom Bailey
"A Terrestrial Theory of Ice Ages" By Dr. William L. Donn

July
"Geomagnetic Surveys off the Coast of California" By Victor Vacquier
"Continental Drfit" By Bernardo Grossling

August
"Spanish Sahara" By Robert Dyk

September
"Interpretation of Size Frequency Distributions and Classification of Sediments" By Dr. D. J. Doeglas

October
"Walnut Grove Gas Field" By Michael R. Rector
"Arbuckle Gas Field" Richard Vaughn
"Sedimentological Studies of Recent and Old Sediments, A Comparison" By Dr. D. J. Doeglas

November
"Lower Tertiary of the Pacific Coast" By Boris Laiming
"Liquefaction of Natural Gas" By Charles E. Smith
"Geology along the Roman Wall, England" By Prof. W. H. Easton
"Evidence for Strike-Slip Faulting in Alaska" By Bus Ivanhoe
"Stratigraphy and Structural History of the Canadian Arctic Archipelago" By Edward A. Tozer

December
"The Franciscan Formation as an Example of Eugeosynclinal Sedimentation" By Dr. Edgar Bailey

1960

December "The Chile Earthquake of May, 1960" By David Leeds
"Geology of the Lower McKenzie Basin, N.W.T., Canada" By Walter Record

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGIST

ASSOCIATION ACTIVITIES

Vol. 14 January 1960 No. 1

DISTINGUISHED LECTURER

Dr. Erling Dorf, A.A.P.G. Distinguished Lecturer, will speak on "The Earth's Changing Climates" at a dinner meeting at Rodger Young Auditorium January 27 at 7:00 P.M. The subject is one which will undoubtedly be of interest to all, and members and wives are cordially invited to attend.

Dr. Dorf is Professor of Geology at Princeton University. His experience in paleobotany as well as his world-wide travels make him a recognized authority on his subject. He is a consultant for the Life Magazine series and book, "The World We Live In".

Reservation return cards will be mailed in the near future.

SAN JOAQUIN GEOLOGICAL SOCIETY

A very interesting and informative talk was presented by Gillman A. Hill to the San Joaquin Geological Society at the El Tejon Hotel in Bakersfield on Thursday, Dec. 10, 1959. Mr. Hill, an AAPG distinguished lecturer from the Petroleum Research Corp., Denver, talked on the subject of "Trap Barriers -- Hydrodynamic, Stratigraphic, Wettability." His presentation included slides and laboratory models showing the movement of fluids under various hydrodynamic conditions.

Abstract

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

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

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

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

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

SACRAMENTO GEOLOGICAL SOCIETY

Two members of the University of California Radiation Laboratory (Livermore), Miss Nannette Jaffee and Mr. Milo Nordyke, presented timely and thought-provoking talks at the Society meeting of December 8.

The first talk, "Phenomenology of Underground Nuclear Explosions ", was presented by Mr. Nordyke. Since 1952, eight nuclear explosions have been fired underground at the Atomic Energy Commission's Nevada Test Site. The explosions have varied in energy release from 55 tons to 19,000 tons of TNT equivalent (.055 to 19 Kilotons) and were carried out at depths varying from shallow burial (17 feet) to produce cratering to those depths at which no visable effects appeared on the surface (840 feet). The major experimental results as well as a description of the pre-shot and post-shot geology was summarized. It has been shown that underground detonations may be accomplished with no detectable release of radioactivity to the atmosphere or tunnel system.

PACIFIC PETROLEUM GEOLOGIST

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San Joaquin Correspondent	George Rudkin

NEXT DEADLINE: January 27, 1960

Based on the post-shot drilling, two drifts which have been driven through the region of the detonation point, and a calculational program, it has been possible to construct a description of the Rainier cavity (second explosion in series) at various times during the explosion. Initially the shot room was filled with a gas at 1,000,000°C and a pressure of 7 million atmospheres. After about 100 milliseconds, a 60 foot radius cavity had been produced, lined with 4 inches of molten rock. This cavity collapsed after an interval of about 30 seconds to 2 minutes with a chimney of broken rock 386 feet high being found. Based on these nuclear shots, a 1 kt detonation in tuff will produce 500 tons of fused rock and 120,000 tons of broken, permeable rock.

Miss Jaffe's presentation, "Plowshare Applications Related to Geology", touched on several of the possible applications of underground nuclear detonations. Included among these were harbor building experimentations, uses pertinent to the flow and control of groundwater, and applications directly related to oil recovery. A project (Operation Chariot), aimed at building a harbor on the west coast of Alaska north of the Arctic circle is currently under study. Miss Jaffe's comments concerning oil recovery were of particular interest to members of the petroleum fraternity.

Underground nuclear detonations appear to have at least three possible applications for the petroleum industry: (1) oil shale, (2) tar sands, (3) secondary recovery in conventional reservoir rocks.

The most valuable role that nuclear detonations may play in oil-shale exploitation is the breaking up of large quantities of the shale, and inducing a mass permeability in an otherwise impervious strata. In such a region, an in-situ recovery process may be feasible. The ideas under study are similar to those methods already employed in conventional reservoirs. Conversion of the kerogen in the oil shale to shale oil starts at 225°C, is optimum at 500°C and is completed at 600°C. After a permeability has been created by a nuclear explosion, a combustion process which would convert the organic matter to oil would be initiated. Injected air would be used to drive the oil and gas mixture to recovery wells. Research is presently being carried on at the USBM Petroleum Research Center at Laramie, Wyoming, to determine to what extent oil may be recovered from shale which has been fractured by nuclear explosives.

The "Tar Sands" of Alberta, Canada, also present possibilities for the utilization of nuclear explosives. Here one would capitalize more upon the thermal properties of the detonation rather than its mechanical effects. It is not as important to induce a mass permeability in the oil sand formation as in the oil shale, since the sands have a natural permeability. Raising the temperature of the tar sand to 90°C renders the oil fluid enough to be pumpable. If the heat from a nuclear explosive can be efficiently utilized, an economic production of petroleum may be possible.

Finally, an underground nuclear detonation in the vicinity of a petroleum reservoir which has ceased to flow at a desirable rate, may effect an increased permeability, thereby making it vulnerable to secondary recovery. Such methods are well known in the petroleum industry and the only innovation would be the use of nuclear instead of chemical explosives, and the advantages which are attendant, such as economy of space in emplacement, and a greater concentration of heat and pressure.

INTERNATIONAL GEOLOGICAL CONGRESS

The Houston Geological Society is chartering a DC-8 jet (economy fare) from Houston to Amsterdam for 80 to 120 geologists attending the International Geological Congress in Copenhagen this summer. The flight is scheduled to leave on July 23rd from Houston for Amsterdam. The planned arrival, some three weeks before the meetings, is to allow time for sightseeing on an individual basis. Roundtrip fare from Houston to Amsterdam will be about $700.

Anyone interested in the flight and willing to leave from Houston should contact C. D. Speed, 711 Houston Club Building, Houston, for further details.

DIRECTORY TO BE REPRINTED

At a recent meeting of the Executive Committee it was decided to withdraw the newly issued 1960 Pacific Section Directory, and print a revised, corrected, and expanded volume at an early date. This action was taken in response to many comments pointing out omissions and errors in the present volume. It is planned to card the membership for corrections and additions, and to exchange the new edition for the present edition at no charge to those who have already purchased one.

NEW SACRAMENTO GEOLOGICAL SOCIETY OFFICERS

Two new officers were elected at the December meeting of the Sacramento Geological Society: Bill Adent (Consultant) Vice-President, and George Brown (Ohio) Treasurer.

NOTICE - CONTROVERSIAL ISSUES

The Executive Committee of the Pacific Section A.A.P.G. intends to poll the membership by card on a number of controversial issues which will be discussed at the annual business meeting during the National Convention at Atlantic City. The opinions of the membership, as expressed by this poll, will be forwarded to the respective district representatives so that they may adequately express the opinions of their electorate at this meeting. The Southwestern Federation of Geological Societies has taken similar action on the specific issue of professional registration as reported in the news item below.in an excerpt of a letter mailed to members of the Federation.

"Because of the recent interest in the question of registration or licensing of geologists, the Chairman of the Executive Committee of the Southwestern Federation of Geological Societies appointed a committee to study the need for registration. In their report this committee summarized opinions for and against licensing:

For Registration

1. Charlatans abound in the profession causing the public to be fleeced and causing competent Geologists to lose consulting jobs and fees.

2. The Profession of Geology is undergoing gradual erosion by Engineers due to the lack of an adequate Registration law.

3. Geologists are at a disadvantage when testifying before the Railroad Commission, State and Federal Courts, Congressional committees and other legislative bodies.

4. Doctors, Lawyers, Engineers, Architects, etc., have raised the general standing of their respective professions by the use of Registration laws.

5. Students studying in our colleges and universities would have a definite goal to work toward.

6. Nothing is enforceable without a State law, not even a code of ethics.

7. If all national organizations and all local societies could arrive at a mutually satisfactory draft of a "model law", then all States could have "reciprocal registration".

8. A code of ethics could be incorporated in the law so that unethical conduct could be controlled. It cannot be effectively controlled by the A.A.P.G.

9. An official seal, used with the signature of a Registered Geologist, could become a valuable asset in raising the general standing of the Profession in the eyes of the public.

10. Geologists have been forced to qualify and become Registered Engineers before they could legally accept certain types of work for which they were uniquely qualified.

Against Registration

1. There is no pressing need for Registration.

2. Every time the government (Federal or State) enters into our affairs in any way we lose something.

3. Registration could never be made uniform in all States. Engineers have tried for forty-five years and have not succeeded.

4. Geologists operating in several states would be faced with an intolerable burden of red tape in conforming to the changing pattern of regulations from state to state.

5. Certainly Engineers, Lawyers, Doctors, Architects, etc., are licensed but this is primarily for the protection of the public. Public health and welfare are not affected to any degree by Geologists.

6. We have been very fortunate in Texas in having a scrupulously honest Railroad Commission to control our affairs. Other states have not been so fortunate. Corruption and dishonesty have been commonplace. We don't have to travel far to find notable examples.

7. There would be no protection of minorities as provided for in our Federal Constitution.

8. There is a definite feeling that many geologists overcome their personal basic objections because they feel that such a law would offer them more job security and allow them to charge higher fees. This leans toward socialism and certainly does away with the rugged individualism that has been an integral part of the Profession of Geology.

9. The registration laws, in effect, would dictate to colleges and universities what they should teach.

10. The charlatans would continue to exist but they would just go underground or hide behind some registered Geologist for a very small fee.

11. In spite of everything the politicians could not be kept out of our affairs.

Committee Conclusions

1. There is a definite need for raising the professional standing of Geologists.

2. If this problem of Registration ever reaches the point where disunity and dissention will be created throughout the ranks of the Profession by the overzealous activity of some members, then more harm will have been done to the Profession than any possible good that would result from Registration. One possible solution to this "disunity problem" would be to strengthen and revitalize the A.A.P.G. and attempt to achieve the same end through the existing machinery of our National Organization."

CHRISTMAS DANCE

On Saturday, December 26, two hundred and forty-six holiday-spirited, fancy-footed members and guests danced to the music of Ivan Scott following a cocktail party which got things rolling in the proper direction.

This year's cocktail party was financed without requesting contributions and the following companies which contributed so generously last year were invited as guests:

Baker Oil Tools, Inc.
Baroid Well Logging
B. J. Service, Inc.
Economy Blueprint & Supply Co.
Fairchild Aerial Surveys, Inc.

Formation Logging Service Co.
Geophysical Service, Inc.
Johnston Testers, Inc.
Lane-Wells Company
Macco Corporation
Mercury Oil Tool Co., Inc.
Pacific Towboat & Salvage
Petroleum Technologists, Inc.
Rapid Blue Print Co.
Read & Co.
Robert H. Ray Co.
Schlumberger
Seismic Explorations, Inc.
United Geophysical Corporation
Welex, Inc.
Western Geophysical Co.
California Well Logging Co.
Petroleum Information
Seismograph Service Corporation

LOS ANGELES LUNCHEON MEETING

At the noon meeting on December 7th, Mr. James Bailey of Standard of California presented color slides of his travels through western Africa in a talk entitled "From the Congo to Timbuktu". Highlights of the program included interesting photographs taken along the Niger and Congo Rivers, the famed Stanley Falls, and scenes in Dakar, Timbuktu, and Leopoldville. A few of the many countries visited were French West Africa, Belgian Congo, Portuguese Guinea, French Guinea, Ghana, the Cameroons, and French Equatorial Africa.

Pictures taken in some of the oilfields were of particular interest, especially the French operations on the Nigerian delta. The French oil companies not only provide living accommodations in the field for the families of their personnel, but also allow a three month paid vacation in France for each year spent in Africa.

ALASKAN GEOLOGICAL SOCIETY

The Alaskan Geological Society met December 8 at the Loussac Library in Anchorage. Marshall G. Ayres (Standard of California) presented a well-illustrated and interesting paper entitled "Regional Geology of the Cook Inlet Area, Alaska".

ABSTRACT

The geologic history has been interpreted according to current hypotheses on mountain building. Surface studies and a literature survey constitute the basic data used in the interpretation.

The Cook Inlet area is geologically similar to both the western Pacific island arc system and the orogenic belts of western North America. Late Paleozoic to early Mesozoic eugeosynclinal sediments were deposited in linear troughs subparallel to the present southern coast of Alaska. In Early Jurassic time this area underwent a period of orogeny. The site of the Alaska Range was uplifted and subjected to volcanism and plutonism. The site of the Chugach and Kenai Ranges was concurrently downbuckled into a tectogene and intruded by plutonic rocks. Epeirogenic marine Mesozoic sediments and nonmarine Tertiary sediments were deposited in the intermontane basin between the Chugach Range and the Alaska Range. Minor volcanism and plutonism has continued to Recent time in the Alaska Range.

Post-orogenic deformation in areas extensively intruded by plutonic rocks has occurred by warping and faulting. This later faulting cuts across former orogenic trends in order to adjust to the new continental edge formed by the Early Jurassic orogeny. This trend is not recognizable in the southwestern Chugach Range because movements are taken up by folding and bedding plane shear in metamorphic rocks.

1961 NATIONAL CONVENTION

Gordon B. Oakeshott, General Chairman for the 1961 A.A.P.G. -S.E.P.M. Convention, is pleased to announce that Graham B. Moody has been appointed Technical Program Chairman. Theme for the San Francisco meeting will be "Circum-Pacific Exploration for Petroleum". Mr. Moody will soon be requesting papers falling under this theme.

CENTRAL CALIFORNIA OIL SCOUTS

The 1960 officers for the Central California Oil Scouts Association are as follows:

Dale Rodman, Ohio - President
Pat Wright, Superior - Vice-President
Jim Miller, Sunray - Secretary
John Ray, Conservation Committee - Treasurer

PERSONAL ITEMS

Pam Exendine, with Richfield in Los Angeles, returned from a holiday visit to Oklahoma City reporting that air travel is great. Oklahoma is wet, and visas to get back into California are now issued without a court order.

Shirley is still waiting for an invitation to hunt shark's teeth with Joe Arndt, with Richfield in Long Beach. No, Joe, she won't go skin diving for them.

Les Brockett, with Richfield in Anchorage, returned to the southland for a holiday season vacation. Les can't get used to that bright light in the sky during the day, but he has thawed out somewhat.

The Ed Hall family of Union in Santa Paula spent the Christmas holidays in Sonora which, according to Ed, is the only place you can look for lost golf balls and gold nuggets at the same time.

Jerry Williams, Ohio in Ventura, and Don Hagen with Texaco in Santa Maria, spent their recent vacations skiing at Alta.

Friends of Dr. Max Birkhauser will be pleased to hear that he is feeling better after his recent sustained illness.

Western Gulf Los Angeles Exploration Department has moved from the Roosevelt to the Statler. Reportedly, the move was made at midnight, but whether this hour was chosen for reasons of security or poverty, is not known.

Howard Level of Union in Santa Paula, resumed his bowling practice while Roy Martin, Union's scout, was on vacation.

At Standard's Ventura office Christmas luncheon, Ed Dryden said he would settle for a blueberry muffin if he could have four bourbons. The Colonial House is reported to be considering closing its buffet luncheon after seeing Frank Smith put away the calories.

Loose change isn't safe in Union's Santa Paula office since coin collecting has taken over.

The white streak seen on the Santa Paula streets recently is Dick Lyon's, Union geologist, new white MG sports car.

Don Henricksen and Eric Lindvall of Richfield's Ojai office are finishing off the year on vacation. Eric is spending his vacation "sheing" in a winter resort.

The Ojai Chamber of Commerce had the skinniest Santa Claus on record this Christmas when Dale Duley of Richfield did the honors.

Rumor has it that, after an exhaustive study by Richfield's Bakersfield office, the stereoscope failed to disclose any hidden anomalies on Schlumberger's new 1960 calendar for August.

One of Shell's recent deportees from Ventura, Roy Cline, has found it necessary to join the L.A.A.C. No big city waist line for this spartan. Additional self-imposed punishment includes driving the freeways in a new MG.

Inspection of results of John Carter's recent quail hunt in the Paso Robles area revealed one extraordinary mutation. John's Shell friends at Ventura claim that the plucked body was so slender and powerful of leg that a restoration would resemble a road runner.

Ventura's east end kissing bandit has struck again. This time at a party thrown by Charley Booth of Shell. Suspects include none other than the host who professes ignorance of the whole affair.

Bill Zajic, geologist, is a newcomer to Sacramento. Bill, until recently in Denver, represents Snee and Eberly, Oil & Gas Producers, Uniontown, Pennsylvania.

Sarg Reynolds, consultant, recently returned to Sacramento from a 20-month tour of duty in Turkey where he directed Bolsa Chica's exploration program.

Members of Sacramento's oil fraternity enjoyed the party life during the festive Holiday Season. The Petroleum Wives held their annual Xmas dance on December 5 at the Elk's Club. Exploration Logging's gala was held on December 11 at the Del Norte Country Club. Lastly, John Evers (Evers' Drafting Service) hosted a New Year's Eve party.

Shortly after Bruce Brooks became the geological staff for Brazos Oil and Gas in Isleton, he decided he didn't favor the situation of having his home in Sacramento and his office in Isleton. Results..... sometime in January, Brazos will move its offices to downtown Sacramento.

C. V. Fulmer (Standard of California) has been transferred from Anchorage to Seattle effective December 1.

If anyone has noticed the early afternoon exodus of geologists from Richfield's Los Angeles office during the holiday season, it isn't a new work schedule. It's because all the bosses are away on vacation.

Walt Record, with Richfield in Los Angeles, wishes to thank all those who wrote him about statistical probabilities of matching for coffee. It hasn't helped. He is still losing. Maybe 1960 will be a good year, Walt.

John Loofbourow, Richfield's intrepid foreign explorer, now has a new chapeau which will take care of all emergencies in remote foreign areas. It includes a flag, compass, and title. No brandy flask.

Pearls Log Cabin adjacent to Richfield in Bakersfield, was burgled of $900± on Dec. 1. The proprietor said the reason he had so much money on hand was to cash Richfield pay checks.

Report for bachelors -- Lum Lovely, Union, Anchorage, reports that there is no longer a female shortage in Alaska. Don't wait, sign up now fellas.

Joe Parmenter who has been working with Geological Petroleum Corp. (Geopet) is now working on land acquisition for Brazos Oil & Gas Co.

It is said that Cutler Webster and Bob Nelson, Honolulu, Bakersfield, celebrated Christmas in a rather unusual fashion. For details consult a certain bespectacled deputy sheriff.

During the Richfield Geological Dept. Christmas party in Bakersfield a telegram was received from Warren Stoddard, who is sitting on a well in the Yakataga area of Alaska. It read "Merry Christmas from the Abominable Snowman." The rigors of the party must have been too much for Bob Wells, Jack Nisbet, Tom Brady and Milt Norton who all went on vacation immediately following the affair.

Ida Dobler, girl geologist - Standard, Bakersfield, finally traded in her 1901 Maxwell for a new Rambler with a built-in wolf whistle.

About 60 couples (performers all) attended the Standard Oil Christmas party in Bakersfield at the Elks Club.

John Thrailkill, Continental, Bakersfield, spent the Christmas holidays gliding down the smooth Colorado slopes among the quaking aspen.

Bob Herron, Signal, Bakersfield, went sailing Christmas weekend in a 29' Danish folkboat out of Los Alamitos Bay. He said the visibility was fabulous as he sailed around the Monterey drilling island. Some people just can't stay away from the oil business even on holidays.

Two members of Mobile Oil's Sacramento geological staff were recently transferred. Both Bob Beatie and Hal Dunn are now in Durango, however, Hal's stay there will only be temporary.

Bob Teitsworth has resigned as geologist with Amerada in Rio Vista. Bob has accepted a position with Occidental Oil.

NURSERY NEWS

Richard and Marilyn Malloy wish to announce the birth of Annemarie on the 28th of December. Annemarie weighed 7 lbs., 3 oz. Congratulations Dick ------ just in time for tax exemptions.

Betty and Bruce Brooks welcomed Dinah Lee (number 3) on December 10. Dinah weighed 6 lbs., 10 oz.

Bruce Brooks of Brazos Oil & Gas Co., is the proud father of a new baby girl born Dec. 15, 1959. That makes it two girls and a boy for Bruce.

Hal Levin, Standard, Bakersfield, has a new boy in the family. Stephen was born in December.

Mr. & Mrs. Henry Dawson, Humble, Bakersfield, are the parents of a new baby boy named Craig. Craig arrived on Dec. 2, 1959.

Frank and Nancy Smith, Standard at Ventura, welcomed their third son, Brian Lee, into the family on December 7, 1959. He was a lightweight tipping the scales at 9 lbs., 8 oz.

CALENDAR

January 12, 1960: Tuesday, 7:45 P.M. Geological Society of Sacramento Meeting, Room 150, Personal Board Building, Sacramento. "Geology of the City of San Francisco and Vicinity", Dr. Julius Schloker, U.S.G.S., Menlo Park.

January 13, 1960: Wednesday, 6:30 P.M., Junior Group Society of Petroleum Engineers A.I.M.E., Dinner Meeting Michaels' Restaurant, Washington Blvd. and Santa Ana Freeway, Los Angeles. "Water Injection Operations, Wilmington Field", Mr. N. Van Wingen, Consultant and "Methods of Determining Water Injection Profiles in the Wilmington Field", Mr. William Sauer, Production Engineer, Long Beach Development Company.

January 14, 1960: Thursday Noon, S.E.G. Luncheon Meeting at location not yet announced, followed by tour of Techno Instrument Company, 6666 Lexington Avenue, Jim Cunningham, Manager.

January 18, 1960: Monday, 7:30 P.M., Paleontological Biostratigraphy Seminar, Room 56, Science and Engineering Building, Bakersfield College, Bakersfield, "California Cretaceous Microfossils and Stanford University Cretaceous Project", Dr. Joseph J. Graham, Stanford University.

January 25, 1960: Monday Noon, A.I.M.E., Petroleum Forum, Rodger Young Auditorium, 936 W. Washington Blvd., Los Angeles. Mr. John S. Bell, President of the Society of Petroleum Engineers of A.I.M.E. will discuss "The Contribution of the Petroleum Engineers to the Petroleum Industry."

January 27, 1960: Wednesday, 7:00 P.M., Joint A.A.P.G.-S.E.G. Dinner Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. "The Earth's Changing Climates", Dr. Erling Dorf, A.A.P.G. Distinguished Lecturer.

January 29, 1960: Friday Noon, Joint S.E.G.-A.A.P.G. Luncheon Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. "The Mohole Project", Mr. Willard Bascom, S.E.G. Distinguished Lecturer.

January 29, 1960: Friday, 6:30 P.M., San Joaquin Geophysical Society and San Joaquin Geological Society combined dinner meeting, El Tejon Hotel, Bakersfield, "The Mohole Project", Mr. Willard Bascom, S.E.G. Distinguished Lecturer.

January 29-30, 1960: Friday and Saturday, two-day conference on Fluids in Rocks at U.C.L.A., sponsored by Dept. of Geology, Dept. of Engineering, and University Extension. Information and registration forms may be obtained from Engineering Extension, University of California, Los Angeles 24 (BR 2-6161, Ext. 307).

February 11, 1960: Thursday, 3:30 P.M., Room 3656, U.C.L.A. Geology Building, "Glacial Geology of the Central Sierra Nevada", Dr. Joseph Berman, Occidental College.

February 15, 1960: Monday Noon, A.I.M.E. Luncheon Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. "The Training of Technical Men for Management Positions", Mr. R. W. Doeman, Coordinator of Executive Development, General Petroleum Corp.

BIBLIOGRAPHY OF RECENT PUBLICATION

U. S. GEOLOGICAL SURVEY

Bulletin 1082-C: Iron-ore resources of the U. S. including Alaska and Puerto Rico, 1955, by M. S. Carr and Carl E. Dutton .... $ .30

Bulletin 1106-C: Geophysical abstracts 178, July-September 1959 ..... $ .40

Map I-288: Reconnaissance geologic map of the Unalakleet quadrangle, Alaska, by John T. Cass ..... $ .75

Map I-298: Former shoreline features along the east side of San Francisco Bay, California, by Dorothy H. Radbruch ..... $ .50

Map 203-B: Geographic map of Wadi Al Batin quadrangle, Kingdom of Saudi Arabia, by Richard A. Bramkamp and Leon F. Ramirez. $1.00

Base map of Utah (1:500,000)..... $1.00

Topographic map of Utah (1:500,000)..... $2.00

Circular 416: Water-resources summary for southern California, 1958, by William C. Peterson ..... free

Open file: Geologic map of the Inyokern quadrangle, California, by T. W. Dibblee... Inspection only

Open file: TEM-836: ± "Granite" exploration hole, Area 15, Nevada Test Site, Nye County, Nevada - Interim report, part A, structural, petrographic, and chemical data, by F. N. Houser and F. G. Poole ..... Inspection only

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PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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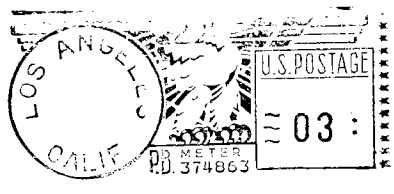
Vol. 14 No. 1



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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Vol. 14 February 1960 No. 2

MEMORIAL

George Clark Gester
1884 - 1959

George Clark Gester was stricken with virus pneumonia at his home in Berkeley on November 26, 1959.

Clark was born in Buffalo, New York, on June 16, 1884, and moved to California at an early age. He received the degree of Bachelor of Science in mining engineering and geology from the University of California in 1909. While at California he was elected to Sigma Xi, Theta Tau, and Phi Lambda Upsilon.

Clark's career was varied and colorful. He began his professional career doing land classification work for the Southern Pacific Company from 1909 to 1912. From 1912 to 1914 he served as chief development geologist for Kern Trading and Oil Company, a subsidiary of the Southern Pacific Company. He was a pioneer in foreign oil exploration serving as geologist for Standard Oil Company of New York from 1914 to 1916, working in Mexico, Colombia, Venezuela, India, and Egypt. In 1917 Clark returned to California where he joined Standard Oil Company of California. He became chief development geologist for that company in 1918. In 1920 he was appointed chief geologist serving in that capacity until 1943 when he was made consulting geologist for the company. Clark retired from Standard of California in 1949.

As chief geologist of Standard Oil Company of California he was in charge of all domestic and foreign exploration. Much of his time was spent on organization and supervision of foreign exploratory activities which required trips to the Middle East, the Dutch East Indies, Egypt, India, Netherlands, Canada, Mexico, Central America, and South America.

He continued in geological work after retirement by contributing his services, on numerous projects, to the California Academy of Sciences and to the Division of Mines of California.

Clark joined the AAPG in 1920, was elected vice-president in 1921, president in 1927, and became an honorary member in 1949. He served at various times on the Constitution Committee, the General Committee, the Business Committee, the Research Committee, the Medal Award Committee, and as Trustee of the Research Fund.

He was also active in other organizations. Clark was a Fellow of the Geological Society of America and the California Academy of Sciences and a member of the Paleontological Society, the American Petroleum Institute and the American Institute of Mining and Metallurgical Engineers. A few years ago the AIME honored Clark by designating him a life member.

An outstanding characteristic was Clark's warm friendliness and his helpfulness to those who worked with him. He gave the initial practical training in oil finding to a host of young geologists who spread out over the world to become not only top-flight oil finders, but also voluntary goodwill ambassadors of the United States. Perhaps his greatest contribution to our profession was the inspiring assistance that he gave so freely to those embarking on their life work. His personal influence on the course of petroleum exploration has been augmented immeasurably by those men on whom he impressed his own high ideals.

He is survived by his widow, Helen, by three sons, George, William, and Harry, by six grandchildren, and by his brother Howell. A myriad of friends throughout the world will miss him sadly.

(This is a digest of a memorial written by Graham B. Moody and soon to be published in the Bulletin of the AAPG.)

SAN FRANCISCO CONVENTION 1962

The announcement of the "1961" national AAPG-SEPM convention in San Francisco in the last P.P.G. should have read 1962. Convention committee members feel that March 1962 is approaching fast enough, without setting the date forward a year. We recommend that you go to Denver in 1961 and see us in San Francisco in 1962.

L. A. (Alex) Tarbet, Standard Oil Company, has been asked by General Chairman Gordon Oakeshott to head field trip activities and preparation of a guidebook for 1962. Emphasis will be on the

PACIFIC PETROLEUM GEOLOGIST

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Editor	Bradford K. Johnson
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Activities	Dwight J. Laughlin
Personal Items	Darren Wales
Selected Bibliography	Lucy Birdsall
Calendar	Hershell H. Nixon
Cartoonist	Mort Kline
	Harold Sullwold
Coast Correspondent	Charles F. Green
	John B. Jacobson
Alaska Correspondent	Donald D. Bruce
Los Angeles Correspondent	Frank Exum
Northwest Correspondent	Maurice Price
Sacramento Correspondent	Roland Bain
San Francisco Correspondent	D.H. Pfeiffer
San Joaquin Correspondent	George Rudkin

NEXT DEADLINE: February 24, 1960

Sacramento Basin and its margins, an airplane trip over central northern California, and a series of short Bay area field trips on local structure and stratigraphy, particularly in the San Andreas and Hayward fault zones.

!!! 1960 DUES ARE DUE !!!

To those of you who have not yet paid your 1960 Pacific Section dues.... This is the last issue of the Pacific Petroleum Geologist that will be sent until your dues are paid. Mail your $3.50 check to Mr. R. B. Haines, Continental Oil Company, 1137 Wilshire Blvd., Los Angeles 17, California. Support your society!

SIDNEY POWERS MEMORIAL MEDALIST NAMED

Henry V. Howe, Director of the School of Geology, Louisiana State University, Baton Rouge, Louisiana, has been chosen to receive the Sidney Powers Memorial Medal, highest honor in petroleum geology, according to Lewis G. Weeks, president of The American Association of Petroleum Geologists. Dr. Howe is the 13th recipient of this award, which was established by the Association in 1943. The award is made in recognition of distinguished and outstanding contributions to or achievements in petroleum geology. The gold medal and scroll will be formally presented Tuesday, April 26, 1960, at the 45th annual meeting of the Association in Atlantic City, New Jersey. The presentation will be made by Harold N. Fisk, Humble Oil & Refining Co., Houston.

LOS ANGELES LUNCHEON MEETING

Mr. Willard Bascom, Technical Director of the American Miscellaneous Society Committee, addressed a joint meeting of the A.A.P.G. and S.E.G. at Roger Young Auditorium on Friday, January 29th. Mr. Bascom, Distinguished Lecturer of the S.E.G., presented an interesting talk entitled "The Mohole Project".

Interest in deep drilling within the crust of the earth is not new. Both Charles Darwin, who wished to test his theory of Atoll formation, and G. K. Gilbert proposed that deep holes be drilled. Several wells have been drilled on Pacific atolls, but none have reached great depths. Prior to nuclear tests on Eniwetok Island, Mr. Bascom participated in the drilling of two holes, one of which penetrated the reef material and entered basalt.

In 1957 several members of the Earth Sciences Review Panel met informally in Washington, D.C., to discuss possible methods for making a substantial increase in geophysical and geological knowledge. It was here that a hole to the Mohorovicic Discontinuity was proposed. The Mohole Project was subsequently taken up by the American Miscellaneous Society Committee and a deep-drilling committee was formed. Funds were obtained from the National Academy of Sciences and others for a feasibility study.

The crust of the earth, estimated by seismic methods, is believed to have an average continental thickness of 32 km. and an average oceanic thickness of 6 to 7 km. The underlying mantle may consist of a dunite-like material and could most easily be reached by drilling on the sea floor. A drillsite on an oceanic island would be undesirable because the root system of an ancient volcano would have to be penetrated and a record of oceanic sediments would not be obtained.

Two areas are being studied which have promise as possible drillsites. One is located east of Guadalupe Island off the coast of Baja, California where the water is 12,000 feet deep. The other area is off the coast of Puerto Rico. Seismic studies have shown that over most of the ocean floor there are three layers above the Moho, each with a distinctive seismic velocity. The first layer (1.8 to 2.0 km/sec) consists of sediments. The second layer (4.5 to 5.5 km/sec) may consist of limestone, basalt or consolidated sediments. The third layer (6.5 to 7.0 km/sec) is believed to be basalt.

The most difficult problems remaining to be solved in the drilling of the Mohole are of an engineering nature. Recent experience with offshore drilling, however, indicates that techniques and equipment now in use can be adapted, modified and improved for deep-sea drilling.

No official estimates of the cost of the Mohole Project have been released. As a "horseback" guess, however, Mr. Bascom suggested that the first experimental hole may cost about $1,000,000 and that the entire project may cost in the neighborhood of $15,000,000.

PACIFIC SECTION GUIDEBOOK

We still have available copies of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" published by the Pacific Section for the 1958 National Convention in Los Angeles. This guidebook of 204 pages contains maps, cross sections, stratigraphic charts, and road logs. It may be ordered from Mr. Harry Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Ave., Long Beach 6, Calif. Price is $4.50, plus $.50 mailing and handling.

10S (1958) 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 (1959) Santa Maria Basin (1 sheet). From Lompoc to Nipomo Hills through Lompoc, Orcutt and Santa Maria Valley Fields.

GEOLOGICAL SOCIETY OF SACRAMENTO

Dr. Julius Schlocker, U. S. G. S. (Engineering Geology Branch), addressed the meeting of January 12. Dr. Schlocker's paper, "Geology of the City of San Francisco and Vicinity", was accompanied by an excellent series of slides.

The talk touched on subjects including the reasons for geologic mapping of urban areas and the methods and problems involved. Schlocker discussed the structure and stratigraphy of the San Francisco city area, including a brief resume of the age-dating problems of the Franciscan formation. Through the use of slides, he also showed the relations of civil engineering to geology in the San Francisco area.

ALASKA GEOLOGICAL SOCIETY

On Saturday, January 30, 1960, the Alaska Geological Society held its Annual Social Dinner at the Westward Hotel. Preceding the dinner was a No Host cocktail party beginning at 7:00 P.M.

PERSONAL ITEMS

Recent victims of a Mobil Oil Co. reshuffling were Bob Heiner, scout, and Dan Flynn, geologist. Bob had been with Mobil about 5 years and Dan about 22 years.

Chuck Reynolds and Dean Kleinkopf, geophysicists with Standard in Bakersfield have been transferred to Salt Lake City.

Ed Welge and Bob Kropschot, Bakersfield, have been transferred to Standard's La Habra office.

Jack Bainton, paleontologist with Standard in Bakersfield, is in Libya, North Africa on a 6-8 month special assignment tour.

Orrin Wangsness, exploration manager for Palomar Oil & Refining Co. has been battling valley fever in the Mercy Hospital in Bakersfield for the past month.

A good time was had by all on a flight from Bakersfield to Sacramento by Bill Horsley, Ed Wellbaum and Dave Calloway in the Richfield Beechcraft.

Alaska was well represented at the recent International Symposium on Arctic Geology held in Calgary, Alberta. Those attending from Anchorage were: Bill Osborn, Conoco, Hal Lian, Union, Dick Eckhart, Sunray, Don Bruce, Alaska Mines & Minerals, Ric Shoemaker, Ohio, Fred Sollars, Gerry Graham, Al Hartwig and Armour Winslow, all of Humble, Roger Waller, USGS, Roger Gahring, Sinclair and Bob Kenyon, British-American.

Jim Learmont, Texaco, formerly from the Bakersfield office, returned for a visit with some of his old friends.

Gene Tripp, Texaco, Bakersfield, is the unwavering and stalwart nucleus of the Texaco bowling squad. He's miffed because a cut-rate hamburger drive-in team is leading eight oil company teams in the league and he's trying to do something about it. Check with the Union Oil Co. team Gene!

Things are looking up in the Union Oil Company's Bakersfield Bowling League since the geophysics department team traded in a tired old dirty geologist for the beautiful young vivaceous new exploration secretary. The scores may not be any higher but a more fun-loving group can't be found.

Harold G. Billman, Union, Bakersfield, and president of the San Joaquin Geological Society presented an interesting talk entitled "Exploring for Oil" to the McFarland Lions Club in January.

A few friends of John Terpening threw a going away poker party for him recently and John astutely managed to take a goodly amount of Bakersfield remembrances with him to Santa Fe Springs where he has been transferred. It should at least create, for him, a lasting memory of his generous Bakersfield buddies.

Over at the Tidewater office in Bakersfield an old face is missing as Bob Hoffman quit to go into consulting. However, a familiar face has popped up belonging to Ernest Rennie who has been transferred back to Bakersfield from Calgary, Canada.

Dick Atchison, Ohio, Bakersfield, was sick a few days with a new virus called the "Texas flu" - a more virulent strain of the Asian variety.

Eric Phillips has been transferred to Western Gulf's Tyler, Texas field office, there to be senior geologist in charge.

Warren Stoddard is due to take a trip back to Bakersfield and try to thaw out. He has practically worn out one heavyweight parka and is probably going south until Richfield gets him a new one.

Ray Sturdevant recently resigned as Geologist with Shell (Sacramento). Ray is now affiliated with the Sacramento County Department of Sanitation.

Jim Wylie (Gulf Oil, Sacramento) and family will soon start a tour of duty in the wilds of Alaska. Jim expects to travel north early in February. He will be stationed in Anchorage.

Ray Knight, Franco Western, has been transferred to Bakersfield from the Four Corners area.

Jack Swafford, Senior Landman for Mobil in Anchorage is being transferred to a new and as yet indetermined assignment. Pretty shaky, eh! Jack and family will vacation in Seattle until the assignment is picked out of the hat.

O. Lee Wix, Staff Landman for Gulf in Anchorage will retire from the company effective March 1. Lee plans to return to Bakersfield and, what else, enter the real estate business.

Rich Rowland, Ohio, Los Angeles, returned after 4 months hard labor in Ohio's Jackson, Michigan office.

Congrats to Max Greene, Shell, Olympia on his recent marriage to Carol Scott, steno, Shell, Seattle.

NURSERY NEWS

Born to Bernice & Mike Rector, Consultant, Bakersfield, on January 11 - one boy - bearing the name William Roy.

Mr. & Mrs. Ralph Kraetsch, Standard, Bakersfield, have a new baby girl in the family. Carey was born on January 20.

CALENDAR

February 9, 1960: Tuesday, 7:45 P.M., Geological Society of Sacramento meeting, Board Room, Public Works Building, 1120 "N" Street. "Evolution of California Cretaceous Stratigraphic Nomenclature", by Mr. Stewart Chuber, Geologist, Socony-Mobil Oil.

February 9, 1960: Tuesday, 7:30 P.M., Coast Geological Society Dinner meeting, Montecito Country Club. This is Ladies Night. Wives and Desk and Derrick Club members are invited. "Arctic Slope of Alaska", Mr. John Sprague.

February 15, 1960: Monday, 6:30 P.M., San Joaquin Geological Society dinner meeting, El Tejon Hotel, Bakersfield, "An Exploration Program for Borate Minerals, Mojave Desert". Mr. R. G. Maynard, District Geologist, Sunray Mid-Continent Oil Co.

February 15, 1960: Monday, 7:00 P.M., Geology Forum, Union Oil Company Auditorium, Los Angeles, Symposium on Dipmeter and a discussion on Registration of Geologists by various speakers.

March 3, 1960: Thursday Noon, AAPG Luncheon Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. "An Oceanographer Looks at Europe", Dr. Robert E. Stevenson, Allan Hancock Foundation.

March 8, 1960: Tuesday, 7:45 P.M., Geological Society of Sacramento dinner meeting, location to be announced. "Geology of Water and its Importance to Industrial Civilization", Dr. George B. Maxey, Illinois Geological Survey, A.A.P.G. Distinguished Lecturer.

April 15 and 16, 1960: Friday and Saturday, Pacific Section SEPM Annual Spring Field Trip, Panoche Hills, San Joaquin Valley, Friday evening dinner meeting, Hacienda Motel, Fresno, California.

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K-Feldspar content of Jurassic and Cretaceous graywackes of northern Coast Ranges and Sacramento Valley, California, by Edgar H. Bailey and William P. Irwin.

Prospecting for stratigraphic traps, by Daniel A. Busch.

Pigeon Point formation of Late Cretaceous age, San Mateo County, California, by C. A. Hall, Jr., D. L. Jones, S. A. Brooks.

Effect of sea water on properties of liquid hydrocarbons, by George V. Chilinger.

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Geologic map of Cochise County, Arizona. Univ. Arizona, Scale 1:375,000, 1959.

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Bulletin 1028-M: Geology of southern Adak Island and Kagalaska Island, Alaska, by G. D. Fraser and G. L. Snyder $1.00

Bulletin 1028-N: Some effects of recent volcanic ash falls with especial reference to Alaska, by Ray E. Wilcox $1.25

Professional Paper 316-C: Regional geophysical investigations of the Lisbon Valley area, Utah and Colorado, by P. Edward Byerly and H. R. Joesting $1.25

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The AMSOC hole to the earth's mantle, by H. H. Hess, vol. 40, No. 4, December 1959.

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GEOLOGICAL SOCIETY OF AMERICA

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The desert booms (Libya), Ernestine Adams, General Section, December 1959, vol. 31, No. 13.

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Major discoveries spur huge play in Canadian north, vol. 149, No. 7, December 1959.

Geologist's interpretation of drilling mud requirements, by Dr. Hamilton M. Johnson, vol. 149, No. 7, December 1959.

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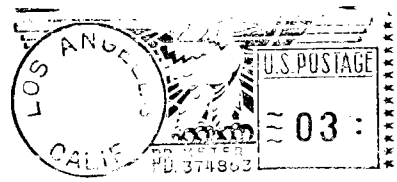

Vol. 14

No. 1

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 March 1960 Number 3

BALLOTS DUE

Postcard ballots mailed to members late in February should be returned by Monday, April 4, 1960. This will give the tally committee time to count ballots and advise the various district representatives of the results before the National A.A.P.G. Meeting in Atlantic City, April 25-28.

LOS ANGELES FORUM MEETING

The first forum meeting of the year was held in the Union Oil Auditorium on the evening of February 15. A full program of five speakers presented papers on two subjects: 1) the stereographic net and solution of dipmeter problems, and 2) registration of geologists - pro and con.

John M. Christie, Asst. Prof. of Geology at U.C.L.A., spoke first on stereographic projection, demonstrating the use of the stereo net in simplifying descriptive geometry techniques for the representation of planar and linear structures. An explanation of the theory and use may be found in the following references:

"The Stereographic Projection", W. H. Bucher, Journal of Geology, vol. 52, p. 191 (1944).

"The Use of Stereographic Projection in Structural Geology", S. C. Phillips, Edw. Arnold, Publisher, London (1954).

"Angular Relations of Lines and Planes", Tunnell and Higgs, Wm. Brown & Co. (1959).

Following Christie, Doug Crawford discussed two methods of computing dipmeter; first using a copyrighted Union Oil nomograph, and secondly using formulas. The third speaker, Frank Parker, commented on dipmeter interpretation in steeply dipping beds, emphasizing the desirability of having the dipmeter run both in and out of the hole. As the sonde does not generally have the same orientation on both runs, a double check is provided. This might avoid misinterpretation in a massive unit where concretions could yield a correlation mistaken for bedding on a single run only.

Tex Richards began discussion of the registration issue by taking the pro stand, and suggesting that the most serious objections to registration could be eliminated by a law that was uniform from state to state. This might be achieved by a national organization (AAPG?) acting at state or national level in a manner not defined by the speaker. If enacted such a law could define four categories of geologists: petroleum, mining, engineering, and academic. Richards also suggested that professional experience might be used to qualify individuals lacking a degree in geology.

The opposing view was taken by Bob Patterson who recognized two broad objections to licensing, one ethical or philosophical and the other practical. Under the philosophical considerations he enumerated the following:

1. Unlicensed geologists cannot be considered a threat to health or welfare, nor would licensing prevent fraud if fraud were the intent of an individual.

2. The definition of a geologist would restrict the scope of our practice inasmuch as a basic science is difficult or impossible to define.

3. Qualifying examinations would soon dictate the curricula in universities and colleges, at least to some extent.

4. Any acceptable and non-restrictive registration that might be totally voluntary in the beginning would likely be followed by increasing interference and restriction through more and more state control. This has happened in engineering where voluntary registration has been followed by laws and proposed laws with greater controls.

5. Many geologists feel that the state has no rights to regulate pure science.

Among the practical considerations Patterson mentioned:

1. There has been no concentrated effort by geologists to have a licensing bill passed, and in fact, most of our efforts are defensive. The caliber of proposed legislation is very poor and an estimated $25,000 - $50,000 would be needed to draft and pass an acceptable bill.

2. Assuming that a good bill is written and passed, we then can expect yearly attempts to amend and abort the existing law. Such action would be attempted by chemists, engineers, and others who overlap into our field.

3. Licensing would not necessarily eliminate charlatans. They could hide behind a registered geologist or they could avoid the law by calling themselves something other than a geologist.

4. Nonuniformity of law between states, which is almost a certainty, would be highly restrictive in the interstate practice of geology.

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NEXT DEADLINE: March 30, 1960

5. The writing of a registration bill would stir up other professions and make them aware of infringement by the geologist in the fields of chemistry, physics, etc.

6. The cost to the taxpayer of an examination board and policing agency would be out of line with the benefits derived.

In lieu of registration Patterson suggests that perhaps a fee equal to a licensing fee could be paid to the A.A.P.G. to be used for:

A stronger code of ethics.

Evaluation of membership standards.

Publicity campaign on our behalf.

Following the scheduled speakers, Bob Paschall pointed out the need for a membership policy or viewpoint toward registration. This need was demonstrated at a recent court inquiry into the matter of registration of several occupational groups. At this meeting Paschall was unexpectedly asked to state the majority opinion of his profession, which he was unable to do. Paschall concluded that we cannot continue to take defensive measures only, but that we must have an opinion and policy for or against registration, backed up by a membership poll and constructive suggestions.

In the discussion it was also mentioned that the petroleum engineer licensing act of 1947 includes geologists by definition. However, the teeth in the law apply only to signing or practicing as a petroleum engineer. Should means of enforcement be provided for all provisions of this registration law (as was attempted in 1955), we as geologists would be directly affected. Legislative watchdog efforts on this score are necessary or we may be dragged in with their group by the broad definition of petroleum engineer.

SPRING PICNIC FEATURES FIELD TRIP

Co-chairmen Ed Gribi and John Elliott announce the scheduling of the Annual Spring Picnic June 10, 1960 at Britt Park. In addition to the usual golf game, there will be a concurrent field trip to areas of interest along the San Gabriel fault zone. The field trip, tentatively set to begin about 10:00 A.M., is being handled by Andy Vidos, John Crowell, Bill Corey, and Ted Off.

Other chairmen include:

Bill Castle - Golf
Joe Ernst - Contributions
Jack Wood - Food and beer

GEOLOGICAL SOCIETY OF SACRAMENTO

Mr. Stewart Chuber, geologist with the Mobil Oil Company, addressed the February 9 meeting of the Geological Society of Sacramento. The title of his paper was, "The Evolution of California Cretaceous Stratigraphic Nomenclature".

The terminology which evolved since California Cretaceous studies began may be grouped in four categories:

1. Reconnaissance Classifications (1864-1902).
2. Cartographic Classifications (1903-1931).
3. Refined Classifications (1932-1950).
4. Synchronized Classifications (1951-present).

Reconnaissance Classifications (1864-1902)

During the early years of geologic studies in California, surveys were rapid and stratigraphic classifications were broad. Controversies arose because of variable interpretations of fossils on which the stratal taxonomy was based; for example, one author called the fossils from the type Chico on Chico Creek Tertiary, and a Tertiary species he judged was Cretaceous. Some of the arguments resulted from the stratigraphic mislocation of fossils, scarcity of well-preserved fossils, etc. Others were due to erroneous interpretations of contacts and structures. The use of rock unit terms (ie, group, formation, member, bed, etc) to denote time created confusion, some of which remains today.

Cartographic Classifications (1903-1931)

Most of the Cretaceous studies during this arbitrarily-chosen epoch were by-products of the mapping of Tertiary rocks. With the discovery and subsequent prolific production of oil from Tertiary sands, an economic stimulus soon had geologists making maps which helped fill the void of factual data inherited from the age of reconnaissance.

During the age of geologic cartography, classifications of the California Cretaceous showed the stratigraphic relations of rock units carefully observed in the field. A shift in emphasis had taken place from the age of reconnaissance when classifiers used for the most part only the fossils from the strata, overlooking the rocks themselves. Unfortunately the classifications still lacked the necessary distinction between time, time-rock, and rock units.

A possible genetic association of lithium and boron was noted and a semi-quantitative scale of the gamma-neutron log was used to determine the content of B_2O_3 in a borate enriched zone.

PACIFIC COAST SECTION, S.E.P.M.

ANNUAL FIELD TRIP

April 15-16, 1960

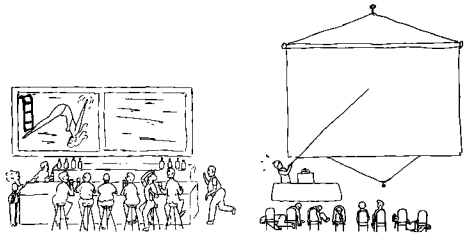
The Pacific Coast Section, S.E.P.M., will sponsor their annual dinner meeting and field trip on Friday and Saturday, April 15 and 16, 1960. Registration and a dinner meeting will be held on Friday, April 15th, 6:30 P.M., at the Hacienda Motel, Fresno, California. Mr. Max Payne, Norris Oil Company, will give a talk on "The Stratigraphy of the Panoche Hills". He will also lead the field trip on Saturday morning.

The caravan will assemble at the Hacienda, at 7:45 A.M., and will depart at 8:00 A.M. sharp. The geology and paleontology of rocks of Cretaceous age will be studied in the vicinity of the Panoche Hills, west side of San Joaquin Valley, Fresno and Merced Counties, California. Dr. Alfred R. Loeblich, Jr., California Research Corporation, is the Field Trip Chairman. Each person must make arrangements for his own accomodations.

The Field Trip Committee consists of Weldon Rau, U.S.G.S., Richard Brooks, Richfield Oil Corporation, Max Payne, Norris Oil Company, and Alfred R. Loeblich, Jr., California Research Corporation.

APRIL 15TH

HACIENDA WATER BALLET & DINNER MEETING



APRIL 16TH

PANOCHE HILLS

NOTICE

The 1959 list of California Fields and Pools compiled by the A.A.P.G. and Conservation Committee is now available.

Copies may be obtained by contacting C. V. Bird, Humble Oil and Refining Company, 612 South Flower Street, Los Angeles 17 (Phone MAdison 6-7701).

S. E. G. LUNCHEON

Outer space variations of the earth's magnetic field will be revealed by Dr. C. P. Sonett of Space Technology Laboratories, Incorporated, for the Pacific Coast Section of the Society of Exploration Geophysicists at the monthly luncheon meeting, March 10, 1960, at Rodger Young Auditorium.

Dr. Sonett, who is head of space physics for STL, will discuss magnetometer experiment results obtained from Pioneer I, lunar probe satellite, and Explorer VI, paddle-wheel earth satellite. These results indicate oscillations and current flow in the magnetic field which may be a link to better understanding of various phenomena, notably the Aurora Borealis.

Nolen Webb, southern vice-president of the section, announces appointment of W. C. Kellogg of Fairchild Aerial Surveys, Incorporated, as registration chairman for the year. Kellogg will handle all luncheon reservations.

PERSONAL ITEMS

Don Gillespie, Shell, Bakersfield, was struck down by a case of chicken-pox. Likewise, Lew Nelson, Ohio, Ventura.

Transferred to Bakersfield from New Orleans is paleontologist Jack Gouty of Shell.

Announcement: Grand Opening - "Wayward Home for Bachelor Geologists & Displaced Husbands," featuring - 24 hour care and wholesome meals? - quiet, restful surroundings and intellectual discussions? Write: Wayward Home, 1028 Chattuck Ave., Bakersfield.

Wanted: Cook & housekeeper - age 20-30 - shapely - no ties - must be good conversationalist. Write: Wagner's Wayward Home, 1028 Chattuck Ave., Bakersfield.

Fred Knight, District Geologist, Ohio, Bakersfield, is spending Spring in Pittsburg, Pa., where he is attending a "Charm School".

Ed Miller, Ohio, Bakersfield, is carrying on a one-man campaign to alter Air Force policy.

Jean Senteur de Boue, French consultant, is in the news again. Jean, in an exclusive interview (and another scoop for the A.A.P.G.) informed this correspondent that of late, a great deal of his time had been spent on a submarine mapping program involving skin-diving in the Golfo Nuevo.

Ray Pearson, regional geologist for Richfield in Los Angeles is recuperating at home following a bout with Asian flu. Ray lost a decision to the bug and is not clamoring for a return match.

Mason Hill, Bill Mathews, and John Loofbourow have just returned from a two week tour of the Spanish Sahara.

Ben Ryan has returned from a three year stint in Caracas, Venezuela, to geologize in Los Angeles for Richfield's foreign department. Ben made some kind of record in buying a house, furniture and car all in two weeks after his return. There's an example of a man who thinks for himself and does something about it!

A golf tournament between the exploration departments of Union and Standard was held Feb. 13 at Buena Vista course in Taft. Standard came out on top 36-20. Union is still trying to figure out the complex handicapping system applied by Standard's scorers.

Standard's Bowling teams continue to hold down bottom honors in the Petroleum League but, "Look out Standard, here comes Ohio Exploration."

Warren Stoddard, Richfield, Alaska, was seen thawing out on the Kern River Golf course in Bakersfield recently. His stay was short-lived because his wife sent him back to Yakataga to set trap lines. She needs three more Martin to complete her fur coat.

Harold Billman, Union Division Geologist in Bakersfield has been transferred to the Canary Islands, 85 miles northwest of the coast of Africa, where he will be Resident Geologist in charge of Union's exploration in the Spanish Sahara. Its a sure bet that the natives on this lush tropical island will soon be playing handball.

Jerry Rickels will be northern division geologist for Union and Joe Dunwoody of Tidewater, vice-president of the San Joaquin Geological Society, will take over the duties of president of that organization in Harold's absence.

Frank Exum (Ohio) was married to Patricia Conroy (late Ohio secretary) on February 27th. They're honeymooning with skis and skates somewhere in the near north.

The word from Signal's Bob McConville is that the weather in Calgary is just like that in Bakersfield except slightly cooler.

Jerry Knowles, geologist for Richfield's foreign department in Los Angeles, is literally on the wagon. Jerry attempted to teach his wife to drive and now refuses to get in the same car with his spouse. There's always somebody who doesn't get the word.

Vern Crackel is being transferred to Durango and Carl Kennedy to Salt Lake - both with Western Gulf. Ed U'Ren has left Western Gulf and is planning to go into the consulting business.

On the Mobil end of things, Bob Orwig is now Exploration Superintendent for the Coastal District and John Terpening is District Geologist for the Coastal District. Both are based at Santa Fe Springs. Warren Addicott is now in Bakersfield as District Geologist for the valley.

John Forman, Mobil's geologist in Anchorage is growing a beard for the Fur Rendezvous ("an armpit with teeth" according to T. Wilson, Ohio).

On February 6th a "wake" was held at the Petroleum Club for Jack Swafford, landman for Mobil, who has been transferred to Salt Lake City. A week later Lee Wix (Western Gulf) and Bob Brace (Standard of Calif.) were similarly honored. Lee is returning to Bakersfield and Bob has been transferred to ?????. It is anticipated that in the near future a "wake" will be held in Anchorage for all those who must remain.

Lum Lovely of Union (Anchorage) was recently observed doing pushups with one hand while holding three martinis with the other.

A rumor is being circulated that "soft shoe" Jack Crooker of the Standard production dept. in Anchorage will soon open a dance studio in Alaska.

Outside visitors in Alaska during the month of February were: Cutler Webster, Honolulu, Jim Wylie, Western Gulf, and Joe Neely and Bob Orwig of Mobil.

Ken Jones, after five years with Formation Logging Service Company, has joined Andre Robitaille and Bob Burns of Geological Exploration.

Paul Harris, District Geologist for Texaco in Bakersfield has been transferred to Denver, Colorado where he will be Assistant Division Geologist.

Don Six, District Geologist for Texaco in Santa Maria will come back to Bakersfield as District Geologist.

In line with their current national reorganization program, Mobil Oil has closed its Sacramento office. Unfortunately, this means transfers for Jim Alkire and Stew Chuber, both going to Bakersfield. Jim will assume the duties of District Geophysicist.

Wico Oil Company (Hdqs. in Oklahoma City) has opened a Western Division Office in Sacramento (Room 1008, 926 "J" Bldg.). Bill Adent (Consultant) represents Wico as their Exploration Manager.

A bottle of giggly water was won by Standard geologist George Starke and his wife for the most humorous attire at the Annual March Costume dance sponsored by the Bakersfield Petroleum Wives. George and spouse came in red Long Johns representing pseudo-ballet dancers. Joy Miller (Ed's wife, Ohio) and Warren Gillies won the prize for Musical Chairs in what turned out to be a major upset.

Neil Smith, Standard Geophysicist has been transferred to Seattle from Bakersfield.

Les Brockett of Richfield (Alaska) has been declared the Yakataga National Pingpong champion after eliminating a trapper, two roughnecks and a bear.

Jim Wylie, Western Gulf's geologist who will soon assume Lee Wix's duties in Anchorage, is apparently assuming Lee's old pastime of chasing waitresses at the Chart Room.

NURSERY NEWS

Born to Mr. & Mrs. Tom Gross, Standard, Taft - a baby girl on Jan. 10. Her name is Dianne Elizabeth and she weighed in at 6# 4-1/2 oz.

Mr. & Mrs. Rex Young, Texaco, Bakersfield, have a new Young daughter named Susan Carol Young. Young Susan was born on Feb. 5 and weighed 7 lbs 14 oz.

CALENDAR

March 7, 1960: Monday, 7:30 P.M., Paleontological Biostratigraphy Seminar, Rm. 56, Science & Engineering Bldg., Bakersfield College, Bakersfield, "Ecology - Gulf of California", Dr. Orville Bandy, University of Southern California.

March 8, 1960: Wednesday, 6:30 P.M., Society of Petroleum Engineers of AIME Junior Group, Michael's Restaurant, Santa Ana Freeway at Washington Blvd, "South Belridge Thermal Recovery Experiment", H. J. Ramey, Project Engineer, Mobil Oil. For reservations call OX 8-2201 or RA 3-8631.

March 14, 1960: Monday evening, Alaska Geological Society, Z. J. Loussac Library, Anchorage. "Some Non-Metallic Mineral Deposits in and near the Matanuska Valley, Alaska", R. A. Eckhart, Sunray Mid-Continent Oil Co.

March 14, 1960: Monday, 6:30 P.M., San Joaquin Geological Society Dinner Meeting, El Tejon Hotel, Bakersfield, "Geology of Water and Its Importance to Our Industrial Civilization," A.A.P.G. Distinguished Lecturer, George B. Maxey, Illinois State Geological Survey.

March 15, 1960: Tuesday, 7:30 P.M., Coast Geological Society dinner meeting, Wagon-wheel Restaurant, Oxnard. "Pleistocene Geology and Pre-History of Santa Rosa Island." Phil C. Orr, Santa Barbara Museum of Natural History.

March 17, 1960: Thursday, 6:30 P.M., Northwest Geological Society dinner meeting. Location to be announced, "The Geology of Water and its Importance to Industrial Civilization". George B. Maxey, Ground-water Geological Survey, State of Illinois.

March 21, 1960: Monday, 7:00 P.M., Geology Forum, Union Oil Company Auditorium, "Formation of Petroleum in Southern California Offshore Basins". K. O. Emery, Professor, University of Southern California.

March 21, 1960: Monday noon, A.I.M.E. Petroleum Forum, Rodger Young Auditorium, 936 W. Washington Blvd., Los Angeles. "Government is your Business", Patrick J. Hillings, Attorney, Ford Motor Co.

April 4, 1960: Monday, 7:30 P.M., Paleontological Biostratigraphy Seminar, Rm. 56, Science and Engineering Bldg., Bakersfield College, Bakersfield, "Zoologist's Concept of Paleontology," Zach Arnold, University of California, Berkeley.

April 7, 1960: Thursday noon, A.A.P.G. luncheon meeting, Rodger Young Auditorium. "Characteristics of Surface Faulting in Connection with Recent Earthquakes in the Western Cordillera". Gordon B. Oakeshott, California State Division of Mines.

April 8, 1960: Friday, all day, S.E.G. Annual Spring Meeting, Hacienda Motel, Bakersfield.

April 15 and 16: Friday and Saturday, Pacific Section S.E.P.M. Annual Spring Field Trip, Panoche Hills, San Joaquin Valley. Friday dinner meeting 6:30 P.M. Hacienda Motel, Fresno. "Stratigraphy of the Panoche Hills." Max B. Payne, Norris Oil Company. Field Trip Chairman, Alfred R. Loeblich, Jr., California Research Corporation, Field Trip Leader, Max B. Payne, Norris Oil Company.

April 21, 1960: Thursday noon, A.A.P.G. luncheon meeting, Rodger Young Auditorium, "Principles of Biostratigraphy". Robert M. Kleinpell, University of California, A.A.P.G. Distinguished Lecturer.

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CALIFORNIA DIVISION OF MINES AND GEOLOGY

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GEOLOGICAL SOCIETY OF AMERICA: Bulletin, vol. 71, no. 1, January, 1960.

Knickpoint behavior in noncohesive material: a laboratory study. By Lucien M. Brush, Jr. and M. Gordon Wolman.

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PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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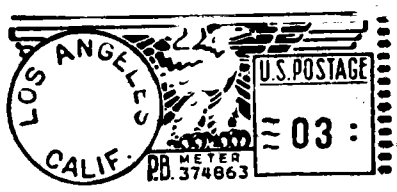

Vol. 14 No. 3

Richard L. Hester DA
Pauley Petroleum, Inc.
1054 Wilshire Boulevard
Los Angeles 17, California

Form 3547 Requested

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 April 1960 Number 4

REORGANIZATION OF A.G.I.

As Topsey grew, so grew the factors considered by the Committee laboring to reorganize the AGI. The results have not been helpful to the Committee, in fact, the member Societies (of AGI) seem to be splitting into camps for or (and mainly) against such reorganization.

B. W. Beebe, Chairman of the Executive Group of the Reorganization Committee, has clarified the misunderstanding moving through the Societies as regards the problems of "registration" or licensing and professional standards.

Possibly, it might east a few minds to quote Beebe: ".....there is nothing in the proposal for reorganization of the AGI which treats with legal regulation or which remotely suggests that any type of internal regulation will fill all of the needs and requirements of local groups or individuals in any particular area."

"My position remains unchanged in this particular matter. I am not opposed to legal regulation where necessary, but I do not like the idea personally, and will not be a party to attempting to force it on the entire profession."

"It should also be realized that professional ethics is a policy matter of the Committee for Study of Professional Standards and not the Reorganization Committee. The latter does recommend that the reorganized AGI have a standing committee on professional standards to carry out the purposes of the Institute."

Briefly, we arrive at the following:

1. The AGI needs reorganization.
2. An adequate financial structure is needed.
3. A constitution and by-laws acceptable to all member societies is badly needed.
   a. The controversial issues of licensing or registration and professional standards or ethics will be the responsibility of separate committees, whose being will be provided for in the constitution and by-laws. Such committees will function as the Board of Directors of AGI see their need.

IN MEMORIUM

Members of the Sacramento Valley oil fraternity were greatly saddened upon learning of the death of one of its members, Tom Wilson. Tom, Land man with Brazos Oil and Gas during the past 10 years, suffered a fatal heart attack on the morning of March 29. The funeral was held on April 1.

COAST GEOLOGICAL SOCIETY

On Tuesday, March 15, 1960, Mr. Phil C. Orr of The Santa Barbara Museum of Natural History gave an interesting and descriptive talk on the "Pre-History of Santa Rosa Island." This meeting of the Coast Geological Society was held at the Wagonwheel Cafe in Oxnard.

The Prehistory of Santa Rosa Island has been investigated by the Santa Barbara Museum of Natural History and the Western Speleological Institute during the past 14 years in annual expeditions and study of the archeology, paleontology, geology and climate supported by radiocarbon dating.

The Recent period is represented by both erosional and depositional features, relict plant life, and Indian mounds representing three climatic changes during the past 9,000 years. The Pleistocene forms an arbitrary boundary of about 10,000 years and is represented by canyon fill and fanglomerates along the sea coast, and contains bones of the unique dwarf mammoth, and it is believed, evidence of man. This Late Pleistocene formation is composed of three members separated by a terrestrial unconformity and a wave-cut platform at 75 feet and lies unconformably on a 25 foot wave-cut platform on the Miocene shales, indicating several periods of fluctuating higher-than-present sea levels during the Third Interglacial or very Early Wisconsin.

PACIFIC COAST SECTION, S.E.P.M.
ANNUAL FIELD TRIP
APRIL 15-16, 1960

The Pacific Coast Section S.E.P.M. Annual Spring Dinner Meeting and Field Trip will be held April 15-16, 1960. The Dinner Meeting will be Friday, April 15th, 6:30 P.M., at the Fresno Hacienda, Fresno, California (on Highway 99 at Clinton Ave., just North of town). Following the dinner, Max Payne, Norris Oil Company, will give a talk on "The Stratigraphy of the Panoche Hills".

The choice for dinner will be Roast Prime Rib of Beef or Lobster Thermidor, at a cost of $4.75 including tax and tip. Dinner and box-lunch reservations are a must, and there will be a group breakfast, in order that the field trip can start on time. Reservation cards for these meals have been mailed out. However, each person must make arrangements for his own accomodations.

The Field Trip will be on Saturday, April 16th, with the caravan assembling at the Fresno Hacienda at 7:45 A.M., and departing at 8:00 A.M. sharp. The Field Trip will cover the geology and paleontology of rocks of Cretaceous age in the vicinity of the Panoche Hills, west side of San Joaquin Valley, Fresno and Merced Counties, California. Max Payne will lead the group.

NEXT DEADLINE: April 26, 1960

The Field Trip Committee consists of Weldon Rau, U.S.G.S.; Richard Brooks, Richfield Oil Corporation; Max Payne, Norris Oil Company; Alfred R. Loeblich, Jr., Max A. Furrer and Carol Grice, California Research Corporation; and Margaret McKenzie, Richfield Oil Corporation.

LOS ANGELES FORUM MEETING

On March 21st Professor K. O. Emery of U.S.C. discussed the "Formation of Petroleum in Southern California Offshore Basins". Dr. Emery is the author of the recently published book, "The Sea off Southern California, a Modern Habitat of Petroleum". The problem of oil generation relates to diagenesis, and the question of whether oil is formed because of diagenetic changes or in spite of these changes. In learning more about this the speaker studied present day Southern California offshore basins considering the geochemistry, the topography, the characteristics of the sediments, and the characteristics of the water.

Cores from the Santa Monica Basin and other nearshore basins show a progression seaward from the submarine canyon heads through coarse material, graded sands, and graded silts. As one would expect, the sands are not only coarsest, but also thickest near shore. Observations confirmed the further point that fine materials have a higher organic content, like they do in the onshore Los Angeles and Ventura Basins. The organic content is partly a function of the nutrient content of waters, which in turn is related to surface water temperatures and currents. A greater concentration of nutrients occurs over areas such as the Cortes Ridge. Diatoms are therefore more abundant in such localities, and the organic concentration and potential oil source material is accordingly higher.

Another important factor is the oxygen content of the water. Minimum values occur at depths of about 2000 feet, increasing both upward and downward from this level. Silled basins have a low O_2 content only if their sill depth corresponds to an open ocean depth for minimum oxygen. Waters in Cortes Basin have a relatively high O_2 content because the sill depth corresponds to an open ocean oxygen maximum. Santa Monica, Santa Barbara, and San Pedro Basins have sill depths near the O_2 minimum and so contain oxygen-poor waters that support very few bottom dwellers. This results in accumulation and preservation of plankton on the bottom with relatively slight destruction by the anaerobic bacteria.

If these optimum conditions for preservation on the basin floor are combined with a relatively rapid rate of sediment deposition, we can expect the most complete preservation of organic material. Rates of deposition were estimated from 15' cores using Carbon 14 to date the bottom of the core. These ages ranged from 3,000 to 30,000 years; the rate of deposition was greatest in those basins nearest shore (90 mg. per sq. cm. per yr.) and least in those farthest from shore (5 mg. per sq. cm. per yr. or less). This line of evidence suggests that the nearer shore basins are better future oil prospects. Among these, Santa Barbara basin has the highest rate of hydrocarbon accumulation, in large part because of the rapid burial.

Gas analyses were made on many of the 10 to 15' cores. Methane, ethane, and other gases were found to increase with depth. Methane was by far the most important of these, being 100,000 times more abundant than the others. This contrasts with oil field gases which commonly contain 20% ethane.

Analysis of the Carbon 13 to Carbon 12 ratio as well as the lipid content in cores from offshore basins suggests a survival of shale and lipid components through diagenesis to oil accumulation. No analogous correlation can be made with the aromatics. The latter along with methane appear to be products of diagenesis. Dr. Emery concluded that petroleum appears from this evidence to have an origin in part the result of diagenesis and in part pre-diagenetic.

GEOLOGICAL SOCIETY OF SACRAMENTO FIELD TRIP

The Geological Society of Sacramento will conduct its Spring field trip in northwestern California the weekend of June 3-5, 1960. The trip will include a traverse of the Northern Coast Ranges and Klamath uplift, between Redding and Eureka, and will end on Sunday, June 5, with an examination of the Eel River basin. Additional details will be published in the near future.

Dr. George M. Maxey, AAPG Distinguished Lecturer, talked on the "Geology of Water and Its Importance to our Industrial Civilization", at the March 15 meeting of the Geological Society of Sacramento.

NORTHERN CALIFORNIA PETROLEUM ROUND TABLE

The annual barbecue of the Northern California Petroleum Round Table will be held on Friday, May 20, 1960, at the Yolo Flyer's Club (near Woodland, Calif.). Charlie Guion (Humble-Sacramento) is in charge of arrangements.

LOS ANGELES LUNCHEON MEETING

Members and guests were treated to a picture tour of Europe on Thursday, March 3rd, with Dr. Robert E. Stevenson, Director of Inshore Research, University of Southern California. At the request of the Office of Naval Research Dr. Stevenson spent several months during 1959 on the northeast coast of England studying marine climatology.

In commenting on support for basic research, Stevenson noted that many European countries carry on fundamental investigations rather than supporting University research as we do in this country. In Great Britain this work is done by the National Institute of Oceanography. A surprising amount of co-operation at high levels exists among the various governments including Russia, and a central organization publishes the reports of any and all European countries doing oceanographic research. Commercial vessels belonging to several of the countries are outfitted for oceanographic and climatological observations. Russia is especially well-organized along these lines with 400 trawlers so equipped. Information supplied in this way is fed into an IBM tabulator and cataloged.

In Germany a unique organization housed in Hamburg is responsible for everything done on the oceans by the German government. The information-gathering feeders for this agency include some 700 commercial vessels, many of which are fitted for observations on water temperature, wave information, fish sightings, etc. This organization coordinates its activities with the nearby offices of the German weather bureau which provides complete forecasts wired 4 times daily to all German ships at sea.

ALASKA GEOLOGICAL SOCIETY

On March 8, 1960, Mr. Richard A. Eckhart, geologist for Sunray Mid-Continent Oil Company, presented to the Alaska Geological Society a talk titled "Some Non-Metallic Mineral Deposits in and near the Matanuska Valley". Accompanying the paper were Mr. Eckharts' personal slides on the area under discussion.

Abstract

Three types of non-metallic mineral deposits in or near the Matanuska Valley were described. The first consists of a series of marl deposits found in and adjacent to Four Lakes in the Susitna Flats near Wasilla. The marl occurs in sheltered embayments and shallow marginal areas, and appears to be absent under the open, deeper waters of the lakes. It is believed that algae, possibly a shallow water bottom-rooted variety called Chara, may have been the precipitating agent responsible for the marl. Chemical analyses indicate that the calcium carbonate content of marl samples varies from 12 to 77%. Aggregate inferred reserves of the deposits are about one million tons. The greatest known thickness of marl within the deposits is 21 feet. It appears quite possible that other marl deposits may occur in or adjacent to more of the lakes within the Cook Inlet Basin.

The second type consists of two haydite raw material deposits in the Matanuska Valley. Haydite is the commercial term for a vesicular lightweight expanded product which results from the controlled heating of suitable clays or argillaceous rocks in a rotary kiln to temperatures generally between 1000 and 1300 degrees Centigrade. The term is synonymous with the terms expanded shale and expanded clay. Haydite is used as a lightweight high-strength aggregate in construction materials. Both deposits consist of shale or argillite of the Upper Cretaceous Matanuska formation and contain an aggregate of about 60 million tons. Physical and chemical conditions necessary to produce a satisfactory haydite product were discussed.

The third type consists of a deposit of gypsiferous rock located on Sheep Mountain at the head of the Valley. This rock contains 11 to 61% gypsum and is believed to be a hydrothermal alteration product of enclosing volcanics of the Lower Jurassic Talkeetna formation. Six of the largest pods within the deposit have an aggregate reserve of about 600,000 tons. Mafic dikes associated with the gypsiferous rocks may be related to Tertiary volcanism which is evident elsewhere within the Valley.

DISTINGUISHED LECTURERS

Mr. J. Ben Carsey, AAPG Distinguished Lecturer will address the geologists of the Los Angeles area on Thursday, April 14, at a dinner meeting at the Rodger Young Auditorium at 7:00 P.M. Mr. Carsey will lecture on "The Geology and Oil Developments in Alaska". Mr. Carsey's lecture will review the regional geology of Alaska from the point of view of possible oil production. He will discuss the more important sedimentary basins and the petroleum development and exploration connected with these basins. While on his frequent trips to Alaska he accumulated an impressive collection of Kodachrome pictures showing details of the stratigraphy and structure and the more spectacular physiographic features. His lecture will be illustrated by a selection of the most significant and impressive of these pictures.

Dr. Robert M. Kleinpell, 2nd Distinguished Lecturer of the month, will speak on Thursday, April 21, 12:00 at a noon luncheon meeting at the Rodger Young Auditorium. His subject will be "Principles of Biostratigraphy". Professor Kleinpell will review the scientific principles stemming from the data of biostratigraphy and will emphasize the historic approach to the development of these principles. His talk will feature the nature and distribution or organisms in time and space and the bearing which the principles involved may have upon the application of this phase of natural history to the professional practice of petroleum geology.

SACRAMENTO PETROLEUM ASSOCIATION

A new petroleum association has been organized in Sacramento. The Sacramento Petroleum Association (S. P. A.) held its first official meeting on March 2, 1960. The SPA was established for the specific purpose of developing coordination and cooperation between all people active in the petroleum industry in the Sacramento Valley. The association holds weekly luncheon meetings, the meeting locations alternating between the Sacramento Inn and Scheidel's Bavaria (both in northeast Sacramento). Annual dues are two dollars ($2.00).

Officers of the Sacramento Petroleum Association are:

Pres. Bruce D. Brooks (Brazos Oil & Gas Co.)
V. Pres. Swiss Holmes (Shell Oil Co.).
Sec-Treas. Ron Ackley (Exploration Logging).
Sergeant-at-arms Don Gladden (Western Gulf Oil Co.).

At the March 23rd meeting, a discussion was held on the subject of registration of geologists. The group unanimously opposes registration.

SAN JOAQUIN GEOLOGICAL SOCIETY

The monthly dinner meeting of the San Joaquin Geological Society was held at the El Tejon Hotel, Bakersfield, on March 14, 1960. Featured speaker for the evening was George B. Maxey, AAPG distinguished lecturer from the Illinois State Geological Survey. Mr. Maxey's topic was "Geology of Water and Its Importance to our Industrial Civilization."

Abstract

Water is the most necessary mineral commodity used by man. Its availability in adequate quantity and quality undoubtedly has been one of the chief factors in the placement, growth, and maintenance of most of the works of man. Continued economic expansion of western civilization and its extension into heretofore undeveloped areas present a stimulating challenge to hydrogeologists throughout the world--a challenge that is only partly met by present methods and developments.

The general principles of the geology of water which were developed during the late nineteenth and early twentieth century are still valid but, in many instances, are still ignored, misunderstood, and misused not only by laymen but by engineers and geologists. Meinzer, on the basis of his and many other investigators' work, clearly and accurately described the types of water and their origin; the movement and occurrence of ground water; the close relationship between soil water, surface water, and ground water; and the development and other economic aspects of ground water. His work was based on a conservative but sound knowledge and deep understanding of geological phenomena and principles. Meinzer was also chiefly responsible for initiation and support of those quantitative studies of a primarily mathematical and engineering nature which are the chief basis for present-day evaluation of ground water supplies.

Concurrently, many other workers were collecting and interpreting facts and formulating ideas bearing on the areas of surface water and soil moisture. This work was done primarily by engineers, physicists and pedologists and was not always based on sound geologic thinking - indeed, it was often conducted in ignorance of geologic fact and principle.

Recent progress by later workers in clarifying, refining, amplifying and applying these principles has been impressive and has resulted in broader, more accurate understanding of them. However, many problems still remain to be solved and the responsibility of the geologist in water resources studies has increased rather than lessened. Actually, the advances in quantitative studies following the introduction of methods based on the Theis non-equilibrium formula, the theory of image wells, relaxation and other numerical analysis methods, flow nets, and various analogs have tremendously increased the need and have justified expenditure for highly detailed and definitive geologic information. Undoubtedly this need will increase rather than slacken in the next few decades for the economic expansion of our national life demands far more efficient conservation and development of water resources than has heretofore been practiced.

The petroleum industry uses large quantities of water for industrial and domestic purposes. Thus, it faces supply and distribution problems similar to those of other industries. Unique hydrologic problems are encountered in the practice of secondary recovery of oil which is most commonly accomplished by water-flooding. The most efficient and successful water-flooding project requires an adequate supply of water of a quality that is compatible with the formations into which it is to be injected. These formations are not very permeable as compared with the water-supply aquifers which are frequently recharged artificially, therefore problems of compatability of water, complete saturation of the formations, and other factors involving permeability are more critical than in ordinary recharge projects. It is believed that greater use of geohydrologic methods may help in the solution of difficulties faced in secondary recovery projects.

ANDY CLINE by Sollwold

ANNUAL FALL MEETING

General Chairman Doug Traxler announces the following committee chairmen who will help him with arrangements for the November 3-4 meeting at the Ambassador:

Arrangements: Bob Badger and Dick McCullough (Pauley Petroleum).
Dinner Dance: Mike Maxwell (McCulloch Oil).
Exhibits: Bob Ottman (Humble).
Finance: Dick Haines (Continental).
Program: Bob Knapp (Standard).
Program Advertising: Cris Nelson (Mobil).
Program Editor: Jack Van Amringe (Union).
Projection: Tex Richards (City of L.A.).
Publicity: Jim Jackson (Shell).
Registration: Howard Stark (Richfield).
Women's Activities: Elizabeth Johnston (G. Oliver Cons.).
S.E.G. Rep.: Nolen Webb (Richfield).
S.E.P.M. Rep.: Al Loeblich (Calif Research). Dick Brooks (Richfield).

PACIFIC SECTION GUIDEBOOK

The Pacific Section still has copies of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" published for the 1958 National Convention in Los Angeles. This guidebook of 204 pages contains maps, cross sections, stratigraphic charts, and road logs. It may be ordered from Mr. Harry Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Ave., Long Beach 6, Calif. Price is $4.50, plus $.50 mailing and handling.

U.S.G.S. CHANGES OF ADDRESS

The following are new addresses for U.S.G.S. offices in Anchorage:

Public Inquiries Office, U.S. Geological Survey
503 Cordova Building
Anchorage, Alaska

Conservation Division, Branch of Mining, USGS
507 Cordova Building
P.O. Box 259

Conservation Division, USGS
Branch of Mineral Classification
509 Cordova Building

Water Resources Division, Branch of Ground Water
501 Cordova Building
P.O. Box 259

PERSONAL ITEMS

Transfers at Mobil in Bakersfield include -- Ben Phillips to Santa Fe Springs to become an engineer -- John Sprague back to Bakersfield from Los Angeles -- Stu Shuber and Jim Alkire from Sacramento to Bakersfield -- Bob Chapman from Durango will be the new scout in Bakersfield -- and Les Schultz, who probably established a record by being transferred twice in one week; first from Ventura to Santa Fe Springs, and then a few days later to Bakersfield.

Bob Plum of Mobil is on temporary assignment to Durango where he took his fishing, skiing and portable transmitter equipment. Sounds like he's planning to get lost.

Bakersfield trash collectors are glad that Tidewater quit working nights and Mobil employees may again pass through the alley behind the two offices without dodging bottles and beer cans.

With the arrival of their fourth child, Dale and Sally Rodman (Ohio, Bakersfield) moved into their modern new house on the hill. Exposed during construction, were some of Dale's hitherto hidden talents such as floor plan designer, painter, cabinet finisher and electrical technician.

Fred Knight, Ohio, Bakersfield, returns to sunny California from the University of Pittsburgh Management Training course April 9, after eight weeks of hard winter weather.

Friends of Bert Thach, Shell's L. A. Basin Scout in Long Beach, will be sorry to learn of his recent automobile accident and wish him a speedy recovery from his injuries.

Stan Siegfus of Tidewater is back at work part-time after treatment for an ulcer.

Doyle Graves was this month transferred from Caracas to Sydney, Australia as Manager of Operations for Tidewater. Some "blokes" have all the luck!

Dick Ohrbom resigned from Western Gulf to go into the building business.

Peter Grimstad, Ralph Rudeen and James D. Moore, Shell, moved from Olympia to Seattle.

Bert Nunn is locating in Auburn and opening a Sacramento office for Pacific Oil Well Logging, Inc. Friends say Bert is settling in the foothills so that he can "scout" the Sacramento Valley for new rigs moving in and never have to leave the house.

Bob Patterson, Pacific Oil Well Logging, Inc. just returned from a business trip to Mexico. He swears that he can prove the bullfights are fixed and the bulls are paid to throw the fight. How was that again???

Jim Eke of Union's Bakersfield paleo lab was transferred to the Dominguez office in Los Angeles.

A note from Harold Billman, Union, written as he sipped a Margarita in a Spanish Cantina, indicated that he went to the Spanish Sahara by way of London & Madrid. His only comment -- "Bakersfield was never like this".

Seismograph Service Corp. has pulled out of California entirely. Bud Lehner, formerly with S.S.C. as their area manager, is now with the New York Life Insurance Co. in Bakersfield.

Dick Pierce, Richfield, paleontologist in Bakersfield, has returned to work after having a case of the chicken-pox.

Harold (Diz) Deane, geologist for Standard, has been transferred from Bakersfield into the producing department at Taft.

Bill Barlow, bachelor paleontologist in the Standard Bakersfield office, has purchased a new house trailer. He finds it practical for a variety of uses and is prepared for future transfers.

Arlo Oden is coming back to Standard's Taft office after spending three years in Salt Lake City.

Ed Bolin, formerly with Standard, has signed up with Cal-Tex for work in Sumatra. He is presently awaiting orders to leave with his family.

Tom McCroden, recently transferred from the "Riviera of Southern California" home of Standard's Ventura office to "Smogville, U.S.A.", was greeted by a sign on his new La Habra office door - "Welcome to Uncle Tom's Cabin".

At a recent Coast Geological Society Meeting, some wag posed the impertinent question that if licensing geologists should put the charlatons out of business, who would be left to drill the wildcats?

Bill Castle of Richfield's Ojai office has rapidly recovered from an appendectomy and soon will be back on the "lanes".

Dod Hendricksen, Jack Nesbitt, and Dale Duley, Richfield geologists, are busy studying Spanish and camel driving in preparation for their new assignments in the Spanish Sahara.

L. K. Schultz of Mobil Oil's Ventura office has been transferred to Bakersfield.

Don Six, District Geologist of Texaco's Santa Maria office, has been transferred to Bakersfield as District Geologist.

Roy Miley of Texaco in Ventura has returned to work after a minor operation at the Foster Memorial Hospital.

Shell's T.O.M. (Tired Old Men's) baseball league in Ventura is preparing to open the 1960 season.

Roger Dungan, Conoco, has been returned to Houston after a little over a year of exile in Anchorage.

Dick Eckhart, Sunray, and George Wheatley, Superior, recently spent the weekend sunning at Circle, Alaska.

Charlie Lundgren, Exploration Logging, and family returned to Anchorage after a four month vacation in California.

Visitors to Anchorage during the month of March were: Hal Rainey, Union, Don Gidden, Hunt Oil Co., Charlie Titus, Colorado Oil & Gas Corp., John Sloat, Union, Jack Adriance, Shell, and Flint Agee, United Geophysical.

For all those anticipating a first trip to Anchorage this summer, please contact Lum Lovely for the "Fourth Avenue Grand Tour".

Bill Osborn, Conoco, has returned to Alaska after an extended visit in the southland.

Dr. W. H. Easton is on sabbatical leave from his teaching duties in the Geology Department at the University of Southern California. He has been working at the British Museum and at Museums in Paris and intends to visit several other countries before ending his leave at the International Geological Congress in Copenhagen in August. He will be back on regular teaching schedule in September. Bill was fortunate enough to obtain a Fulbright Grant to study abroad and has his family with him also.

The "Stick" has got himself a girl! To the joy and relief of all his friends, George Brown (Ohio Oil Co. - Sacramento) recently announced his engagement to Miss Joyce Roach of Sacramento. The nuptial ceremony will take place in June.

"Double-deduction" Bain (Roland Bain, Texaco-Sacramento) is recovering nicely from the initial impact of becoming the father of twins.

Dick Stewart of Union's Santa Paula office has been transferred to Santa Fe Springs.

Dick Glenn, "The meanest man in Standard's Ventura office" won't buy his children an air pump for their fish tank so the polliwogs they caught in Mirror Lake will have a fighting chance.

Standard's Ventura office wasn't sure if the sleeping bag in the back seat of Roger Alexander's (Standard's new District Geologist) car was an indication of the difficult housing situation in Ventura or the Company's austerity program. Roger has been busy burning the midnight oil trying to complete the plans for the new house he and his family are planning to build in Ventura.

It has been rumored that Tom O'Neill of Shell's Ventura office owns a considerable interest in the "Gay 90's" and "Roaring 20's" night club in Los Angeles. It has not been determined if the beer or scantily dressed waitresses are the main attraction.

Grant Valentine, Shell, Olympia, has joined the Shell "keglers".

Larry Kuenzi, Standard, Seattle, is recovering from a "bout" with the mumps.

Friendships have reached a breaking point in the Shell Olympia office. The fellows have a hard time jockeying for a favorable position to talk (?) to the new stenographer at coffee break.

Recent transfers from Shell's Ventura office to Los Angeles are: Manuel Castro, Joe Egan, and Frank Webster.

NURSERY NEWS

Standard's Ventura office has a celebrity in their midst. Jim McIntyre was the recent parent of six new white-faced herefords on his Oregon ranch and is expecting twelve more in the near future.

The Manuel Castros of Shell's Ventura office had a new addition to their family, a baby girl, Claire Elizabeth.

Kay and Bill Hannah of Shell's Ventura office are the proud parents of a new baby girl, Karen Louise.

A little girl weighing 7 lbs. 8 oz. was born on March 4, 1960 to Dale and Sally Rodman, Ohio, Bakersfield. Her name is Leslie Gay and this makes two boys and two girls in the Rodman family.

Bill and Jane Hamlin, Shell, Bakersfield, had their 2nd child - a girl - born March 10, 1960. Sarah Jane weighed 6 lbs., 8 oz.

Born March 2, 1960 to Jim and Frankie Alkire, Mobil, Bakersfield, was their first boy and third child, Robert Jay.

Twins were born to Sylvia and Roland Bain (Texaco-Sacramento) on March 15. James Spencer weighed 8 lbs., 11 oz. and Julie Anne weighed 7 lbs. 6-1/2 oz.

CALENDAR

April 12, 1960: Tuesday, 7:45 P.M., Geological Society of Sacramento meeting, Board Room, Public Works Building, 1120 "N" Street. 1) "Cretaceous Stratigraphy of Northern California and Southern Oregon", by David Jones, U.S.G.S., 2) "Submarine Slump Deposits, West-Central Sacramento Valley", R. Brown and E. Rich, U.S.G.S.

April 14, 1960: Thursday, 7:00 P.M., A.A.P.G. Dinner Meeting, Rodger Young Auditorium, "The Geology and Oil Developments in Alaska", Mr. J. Ben Carsey, A.A.P.G., Distinguished Lecturer.

April 15 and 16, 1960: Friday and Saturday, Pacific Section S.E.P.M. Annual Spring Field Trip, Panoche Hills, San Joaquin Valley. Friday dinner meeting 6:30 P.M. Hacienda Motel, Fresno. "Stratigraphy of the Panoche Hills." Mr. Max B. Payne, Norris Oil Company. Field Trip Chairman, Dr. Alfred R. Loeblich, Jr., California Research Corporation, Field Trip Leader, Mr. Max B. Payne, Norris Oil Company.

April 16, 1960: Saturday, 1:30 P.M., Le Conte Geological Club, Cubberley Auditorium, Stanford University, "Symposium on the San Andreas Fault", J. C. Crowell, E. H. Bailey, C. G. Higgins, W. M. Gibson, D. Tocker. Evening address: "A Visit to Burma, with a Stopover in Thialand", R. E. Stevens.

April 20, 1960: Wednesday, 6:30 P.M., San Joaquin Geological Society Dinner Meeting, El Tejon Hotel, Bakersfield, "Principles of Biostratigraphy", Dr. Robert M. Kleinpell, Professor of Paleontology, University of California.

April 21, 1960: Thursday noon, A.A.P.G. luncheon meeting, Rodger Young Auditorium, "Principles of Biostratigraphy". Dr. Robert M. Kleinpell, University of California, A.A.P.G. Distinguished Lecturer.

April 21, 1960: Thursday, 7:30 P.M., Coast Geological Society Dinner Meeting, Carrillo Hotel Santa Barbara. "Principles of Biostratigraphy", Dr. Robert M. Kleinpell, University of California, A.A.P.G., Distinguished Lecturer.

April 28, 1960: Thursday, U.C.L.A. Geology Lecture. "The Explosive Volcanism in Iceland", S. Thorarinsson, Museum of Natural History, Reykjavik, Iceland.

May 2, 1960: Monday, 7:30 P.M., Paleontological Biostratigraphy Seminar, Rm. 56, Science and Engineering Bldg., Bakersfield College, Bakersfield, "Zemorrian - Refugian Stages", Dr. Robert M. Kleinpell, Professor of Paleontology, University of California.

May 9, 11, 12, 1960: U.C.L.A. Geology Lecture, "Flysch in Alpine Orogeny", "The Molassic Series in the Alps", "The Structure of the Himalaya", Augustin Lombard, University of Geneva.

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Dakota group of Colorado Plateau, by Robert G. Young.
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Stratigraphy of Cement Pool and Adjacent Area, Caddo and Grady Counties, Oklahoma, by Bruce H. Harlton.

CALIFORNIA DIVISION OF MINES AND GEOLOGY

Special Report 58, "Geology of limestone and dolomite deposits in the southern half of Standard quadrangle, Tuolumne County, California," Earl W. Hart...$ .75

Special Report 60, "Tertiary volcanic domes near Jackson, California," by Robert L. Rose.....$ .50

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Industrial minerals and rocks, 3rd edition, 1960, New York. Includes - Borax and borates.
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GEOLOGICAL SOCIETY OF AMERICA

Memoir 80: Stillwater Igneous Complex, Montana - A quantitative mineralogical study, by Harry H. Hess. (Members: $3.50 (Non-Members: $5.50

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Note on computation of ocean wave elements by convolution methods, by Gordon W. Groves.
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U. S. GEOLOGICAL SURVEY

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Bulletin 1071-D, "Geology of the Huerfano Park area, Huerfano and Custer Counties, Colorado," by R. B. Johnson.....$1.25
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PACIFIC PETROLEUM GEOLOGIST
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799 SUBWAY TERMINAL BLDG.
LOS ANGELES 13, CALIFORNIA

Volume 14 Number 4

Fred R. Neumann
381 E. Fourth Street
Chico, California

GA

Form 3547 Requested

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 May 1960 Number 5

1960 NATIONAL BUSINESS MEETING

During the annual A.A.P.G. Convention (Atlantic City), the National Business Committee Meeting and the General Business Session, influenced sharply by the recent Pacific Section ballot, concurred in all points presented by the District Representatives from the Pacific Section. The Pacific Section had the largest unified delegation in attendance at the meetings.

(Twelve District Representatives, or alternates, attended). At the beginning of the session it was pointed out that our delegation represented the viewpoint of the A.A.P.G. members resident in the states of California, Oregon, Washington, Alaska and Hawaii, these members having expressed their opinion on the various critical issues by means of a 70% return on our card ballot. The National Executive Committee (previously presented with the minutes of our District Representatives Meeting at Los Angeles and the resolutions formulated from our card ballot), acceded to some of our resolutions prior to the meeting and to the essence of all of them while the meeting was in process.

FIRST PACIFIC SECTION DISTRICT REPRESENTATIVE MEETING

As an experiment in A.A.P.G. processes the Pacific Section Executive Committee called a meeting with all District Representatives from the area on April 7, 1960, to discuss the results of our "National Problems" ballot. Twenty Committee members and representatives were present. Bakersfield, Santa Barbara, Ventura, San Francisco and Los Angeles areas were represented. Alaska and Pacific Northwest areas forwarded comments for the meeting by letter. The group debated the various issues for three and one-half hours and unanimously resolved as follows:

(1) Members of the Pacific Section do not favor the National A.A.P.G. initiating a "Model Law" for geological registration.

(2) The Pacific Section firmly supports the newly revised National Code of Ethics, but insists upon the critical revisions added by our Pacific Section [illegible]dies.

(3) The Pacific Section favors support of the modest changes proposed in membership requirements.

(4) Regarding a proposed new constitution for the American Geological Institute, to provide that body with increased authority and stronger financing, we approve in principle the proposed revisions but feel that further study of the details is necessary. We therefore, wish to retain our present control over A.A.P.G. contributions to A.G.I. financing until we can wholeheartedly approve the performance of the organization.

(5) The Executive Committee, Pacific Section, shall call another general meeting of District Representatives in late May to discuss the results of the first meeting and the political effect of our resolutions at the National Convention.

RESULTS OF "NATIONAL PROBLEMS" BALLOT

Approximately 700 replies to the recent questionnaire show that Pacific Section A.A.P.G. members are opposed to registration of geologists under codes similar to the California Civil & Professional Engineers Act (399 opposed - 279 for). Our membership is firm in the belief that the proposed National Code of Ethics should be adopted and that the requirements for active membership in our association should be raised modestly. 151 members added personal comments to their ballots. The chart below, analyzing the results by area and for the total Pacific Section, was prepared by Secretary Gordon Bell from tabulations furnished by the Tally Committee composed of Ed Karp, Kern Oil California Ltd., Tom Brady, Richfield Oil Corp., and Jim Bigelow, Western Gulf Oil Co.

The Executive Committee feels that this experiment in carrying the business of our organization to the individual members has been highly successful since somewhat over 70% of the Pacific Section membership participated.

TOTAL PACIFIC SECTION

	Reg. Acts		Code of Ethics			Mem. Req.			
	Yes	No	Adop.	Amend.	Rej.	Rad.	Mod.	Not at all	Comments
Los Angeles	123	186	214	60	26	62	164	78	76
Bksf.	71	86	114	21	15	33	84	41	29
S.Barb.	27	37	54	7	8	7	41	20	15
N. Calif.	12	36	42	1	6	3	28	19	17
Pac.NW	2	16	13	2	2	2	7	7	4
Sacramento	17	11	19	2	2	5	18	4	5
Alaska	5	9	[illegible]		0	3	9	2	2
Misc.	12	18	20	9	0	4	18	5	3
TOTAL	270	399	484	107	59	119	369	176	151

ALASKA GEOLOGICAL SOCIETY

On April 19, 1960, Mr. P. F. Sollars, Regional Geologist for the Humble Oil & Refining Company, presented to the Alaska Geological Society a talk titled "History of the Humble-Shell Bear Creek Unit No. 1." At the conclusion of the talk movies of the drilling operations were shown and Mr. Sollars exhibited cores, electric log and a lithologic log.

Abstract

The Bear Creek anticline, which is located south of Becharof Lake on the Alaska Peninsula, has been known for several years and the presence of numerous oil seeps in the area encouraged early oil exploration of the area. The Humble Oil & Refining Company, after studying the surface geology, negotiated a farmout from the Shell Oil Company and spudded the Humble-Shell Bear Creek Unit No. 1 on September 23, 1957. Oil shows were first encountered at 2,033 feet near the base of the Upper Jurassic and occurred intermittently to a depth of 12,280 feet in the Upper Triassic. Nine open hole drill stem tests were made between 2,034 and 9,893 feet. Five of the tests flowed small amounts of gas but none of them recovered any free oil. The maximum amount of gas recovered was from the interval of 6,080 to 6,200 feet. On a one hour and eleven minute open hole drill stem test using a 3/4" top choke and a 5/8" bottom choke the well flowed at an estimated rate of 450 Mcf per day of gas and on pulling the tool approximately 5,800 feet of salt water was recovered. All of the oil and gas shows are considered to have been adequately tested during the drilling of the well. During the entire operation severe weather conditions were experienced, with wind velocities exceeding 130 mph.

The section drilled consists primarily of marine shales, siltstones and water lain volcanics. The lithologic and fossil data indicate shallow water sediments deposited in a rapidly subsiding basin during the Upper Jurassic. Deep water clastics in a subsiding basin interrupted by intermittent volcanics were encountered from Middle Jurassic to Upper Triassic rocks. Due to the depositional environment reflected by the sediments, suitable reservoir rocks were not developed to entrap hydrocarbons. On March 18, 1959, at a depth of 14,374 feet the well was abandoned.

The Bear Creek well certainly did not condemn the entire Alaska Peninsula and it is possible that this one dry hole did not even condemn the Bear Creek structure. This well is believed to be an adequate test to the depth penetrated and a great deal of information was gained. While oil possibilities in this area still exist, anyone contemplating drilling should realize the hazards imposed by the sedimentary conditions and the severe weather which must be endured.

1960 AAPG SPRING PICNIC

"All things for all people" - that's the theme of the 1960 Annual AAPG Spring Picnic on June 10. For those who need a good academic excuse to take the whole day off, there's a field trip starting at 9:30 AM. For the athletic types, a golf tournament will fill the day. And for everybody, there's beer, beef and convivial bedlam at Britt Park from mid-afternoon until bottle fatigue takes over.

Co-Chairmen John Elliott and Ed Gribi report that Bill Castle has Las Posas Country Club lined up again for a tournament replete with valuable prizes. Tee-offs will start at 8:00 AM and the fee will be $5.00.

The San Gabriel Fault in the Newhall-Castaic area will be examined under the leadership of some experts (see more details elsewhere). The caravan will rendezvous near the Humble Oil Co. office northwest of Tip's at Castaic Junction at 9:30 AM, and spare cars can be parked across the highway. Lunch and refreshments will be provided at the Oak Flat Campground for a buck. The trip will finish about 3:00 PM. Field Trip Chairman Andy Vidos has two requests: (1) Be prepared to fill cars (small cars and jeeps will be most welcome) because the parking spaces at several stops are very limited; and (2) Please plan to save your geologic arguments until Britt Park where the first can of beer will undoubtedly sharpen your wits and soften your tongue (and eventually your head?).

Many familiar faces will contribute to your good times, if you follow Doug Traxler's road signs to Britt Park where Homer Steiny will take your money and you can watch Jack Wood barbecue the meat while Dick Triplett tosses the salad. Backing up these regulars are Jack Leach in charge of the grounds, Gene Johnson providing cigars, cards, dice, horseshoes, etc., and finally Joe Ernst in charge of getting donations from the service and supply companies that are still in business.

MORE ON THE SPRING FIELD TRIP

The strike-slip displacement of faults in California has been a problem of interest for many years. Because of the location of the San Gabriel fault zone in an area of intensive drilling and good outcrops, it would appear that this is a good place to test some of the hypotheses concerning large scale lateral movement. John Crowell and others have suggested that, on the basis of apparent offset of upper Miocene coarse clastic sediments, there has been about 20 miles left slip on the fault since late Miocene time (Crowell, 1952 & 1954). A recent paper by Bob Paschall and Ted Off presents evidence against such an interpretation and describes the rather complex history of this fault zone on the basis of dip slip only (Paschall & Off, 1959).

With these two opposing views in mind, the spring field trip has been planned to stimulate further interest in the area by examining some of the critical exposures of the fault zone and the rocks associated with it. In the morning the fault zone will be seen in the Placerita region and its trace noted at a few places toward the northwest. Otto Hackle of Intex Oil Co. will be our guide. Lunch will be at the Oak Flat campground overlooking the Ridge Basin. This will be accompanied with a short talk on that area by John Crowell. In the early afternoon exposures along the Townsend Peak fire road will be visited with briefing by geologists familiar with the area. We will then adjourn to Britt park and the picnic.

Those going on the trip will convene at the Newhall Land and Farming Co. office which is located immediately to the west of Tip's Restaurant at Castaic Junction (intersection of State highway 126 and US 99) at 9:30 AM, Friday, June 10th. Please indicate whether you are coming on the picnic cards which will be mailed out shortly so we know how many will be along for lunch. A road log and guide will be given out at the start of the trip. For anyone who would like to do some reading beforehand, the following references are suggested:

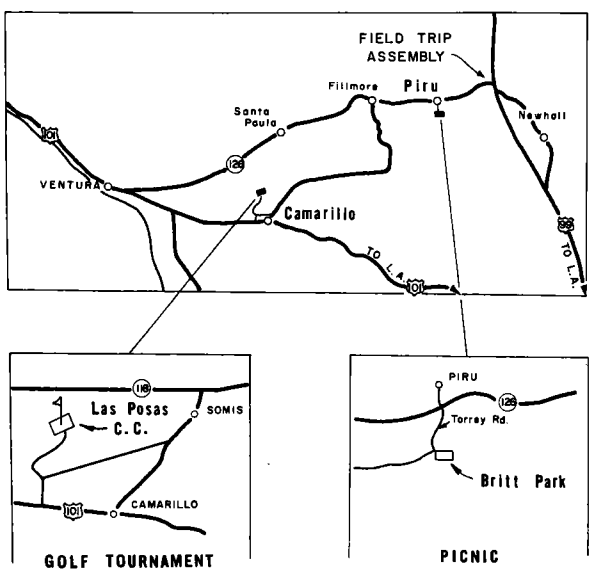
Crowell, J. C., 1954, Strike-slip displacement of the San Gabriel fault, southern California, Calif. Div. Mines Bull. 170, Chap. 4, pp. 49-52. (see also Crowell, J. C., 1952, Probable large lateral displacement on San Gabriel fault, southern California, AAPG Bull., vol. 35, pp. 2026-2035).

Crowell, J. C., 1954, Geology of the Ridge Basin area, Los Angeles and Ventura Counties, Calif. Div. Mines Bull. 170, Map Sheet 7.

Paschall, R., and Off, T., 1959, San Gabriel fault problem in the Castaic area, Coast Geol, Soc. Occasional Papers #1.

Winterer, E. L., and Durham, D. L., 1958, Geologic map of a part of the Ventura Basin, Los Angeles County, California, USGS OM 196.

The California Division of Mines Bulletin 170 also has several other papers and maps covering the eastern Ventura basin (see especially those by Higgs; Chap. VII #8; Durham et. al., Chap. III #7; and Jahns and Muehlberger, Map Sheet 6).



LOS ANGELES LUNCHEON MEETING

Dr. Gordon B. Oakeshott, Deputy Chief, Division of Mines, State of California, presented an interesting and informative talk entitled "Geologic Features of Surface Faulting in Recent Earthquakes" at the regular luncheon meeting at Rodger Young Auditorium on Thursday, April 7.

Abstract

Most strong earthquakes (Richter magnitude 6, plus) in the Western Cordillera have been accompanied by surface faulting. Hebgen Lake, Montana, the most recent of these, occurred in a region known to be seismically active, but less so than much of California, Nevada, and the Pacific coast of Alaska. Surface faulting occurs only in shallow-focus earthquakes (5 to 10 miles deep); the length of fault trace and the height of scarp (in a fault with predominant vertical movement), or apparent lateral displacement (along a fault with predominant horizontal movement), are related to magnitude. In the west's largest earthquake (San Francisco, 1906, magnitude 8-1/4), surface ruptures occurred for over 250 miles along the trace and maximum right lateral movement was 21 feet; in the smallest earthquake with surface faulting (Herlong, California, 1950, magnitude 5-3/4), maximum height of scarp was about one foot and length of fault trace was 5 miles. Of the earthquakes studied which are known to be related to episodes of surface faulting, the majority of the faults had a relatively large right lateral component and a northwesterly strike (San Francisco earthquake, 1906, San Andreas fault, and Lituya Bay earthquake, 1958, Fairweather fault) roughly in conformity with regional structure; one had left lateral reverse movement and northeasterly strike (Arvin-Tehachapi earthquake, California, 1952, White Wolf fault); several had predominantly vertical movement (Dixie Valley, Nevada, 1954); and a few had wholly vertical movement (Pleasant Valley, Nevada, 1915). Thus, most of the earthquakes were caused by oblique-slip fault movements. Dips of the fault planes range from 60° to vertical.

It is unknown whether repeated movements in the same fault zone are always in the same sense; Tocher's computation showing vertical movement, east block up, on the San Andreas fault causing the 1957 San Francisco earthquake suggests the sense of movement may not always be the same. In all surface faults which have been seen in the field, geological evidence was conclusive that movements causing the earthquakes were but the latest in an active, established fault zone.

Fault movement, which causes an earthquake, appears to start by rock rupturing at a focal point and progresses in two dimensions to form a rough plane. If the focus is shallow and the energy of the earthquake is sufficient, this fault plane is extended to the surface. As the break approaches the surface, more heterogeneous rock, weathered rock, soil, and finally, irregular topography are encountered. Consequently, surface ruptures along a fault trace are discontinuous, a single fracture often extending for only a distance of a few feet to as much as a mile or more. En echelon arrangement of fractures within a fault zone is common and a single fracture with large displacement may be replaced along strike by multiple parallel fractures of lesser displacement. In faults with an appreciable vertical component of movement, the height of scarp developed along the trace is highly variable. Maximum scarps are formed in shallow alluvial materials in small valleys crossed by the fault trace; minimum scarps are developed in bedrock and where a fault

trace crosses a ridge; fault ruptures are apt to be completely absorbed before reaching the surface in a deeply-alluviated area. Scarps formed on a hillslope in loose rock or alluvium are readily exaggerated by headward slumping at the time of the earthquake and by formation of a tensional, gravity graben at the base of the scarp. Weathering and erosion of a scarp operate to extend it upslope and to fill in the graben at its base. It is thus evident that the height of the scarp is no measure of the net slip on the fault plane below the zone of weathered rock. Since a rupture proceeding to the surface in a fault zone breaks out along the shortest route with least resistance, most scarps are vertical or steeply inclined downhill and do not give a true measure of fault dip. In a fault dipping into a hillslope, apparent surface dip in loose rock may be very much lower than true dip of the fault plane.

Attitude of the fault plane and direction and amount of movement can be reliably determined by geologic mapping and observations along the fault trace; however, a very evident vertical movement may cause a horizontal component to go unrecognized. Criteria for recognition of normal faults are (1), steep or vertical scarp; (2), straight or broad-curved fault trace; (3), graben; and (4), parallel tension cracks. Reverse faults develop (1), mole-track scarps (pressure ridges); (2), low-dipping fractures with no scarp; (3), sinuous traces; and (4), evidences of compression (such as shortened fences) across the strike. Lateral faults may be recognized by (1), en echelon fault ruptures which readily show a consistent right- or left-lateral pattern; (2), furrows or trenches, instead of scarps; (3), offset roots and surface features; and (4), obliquely-striking, en echelon tension cracks consistent with right- or left-lateral fault movement.

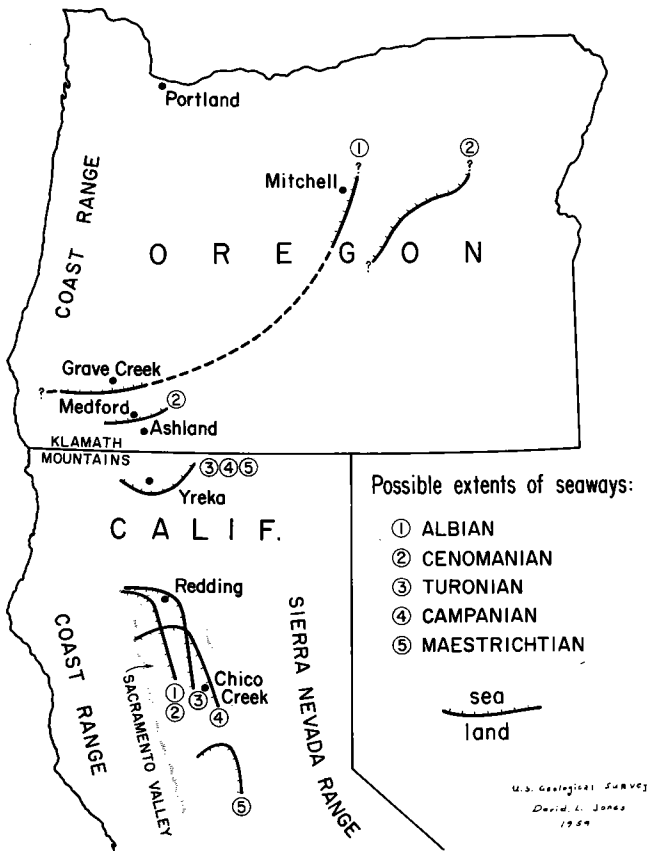
SACRAMENTO GEOLOGICAL SOCIETY

On Tuesday, April 12, 1960, two papers were presented before the Sacramento Geological Society by members of the U. S. Geological Survey of Menlo Park. The first: "Cretaceous Stratigraphy of Northern California and Southern Oregon", by Mr. David Jones; the second: "Submarine Slump Deposits, West-Central Sacramento Valley", by Messers Robert Brown and Ernest Rich.

Mr. Jones' interpretations concerning the Klamath Straits postulate no seaway during early Cretaceous time. He believes that the southern Oregon-Yreka-Hornbrook sequence was deposited in a sea which transgressed from north to south, beginning in Albian and ending in Coniacian. At this time, there was a nearly opposite transgression in the northern part of the Sacramento Valley, where a transgression in the Redding area from the west occurred in the Turonian. In the Yreka-Hornbrook area post-early Coniacian time is represented by either erosion or nonmarine deposition. At the same time marine deposition continued in the Redding area.

In late Campanian, marine deposition again took place in the Yreka-Hornbrook area, but no deposits of this age exist in the northern end of the Sacramento Valley.

Mr. Jones concluded that although available evidence does not definitely prove the absence of a connection through the Klamath Straits, it does not offer much support for a continuous seaway.



The second paper described lenticular bodies of submarine slump deposits, up to one mile long and 100 feet thick, occurring at the base of the Upper Cretaceous Venado sandstone along the west side of the Sacramento Valley. These deposits are lenses in easterly dipping strata which comprise a syncline which laps eastward on igneous and meta-volcanic basement. These lenses are discontinuous but are found for more than 10 miles along strike.

The lenses consist of rotated blocks of relatively undeformed sedimentary rock, massive, unsorted pebbly mudstone with contorted segments of resistant beds, exotic blocks of quartz diorite and reworked fossils. These lenses overlie siltstone of Cenomanian age and are overlain by sandstone and silts of Turonian.

Blocks of massive, jointed quartz diorite associated with the lenses were carried with sedimentary debris at the time of slumping. The presence of these blocks suggests the slump began in an area where late Albian sediments rested on the quartz diorite basement.

The mechanism initiating the slumping is unknown, but the size and extent suggest tectonic movement.

GEOLOGICAL SOCIETY OF SACRAMENTO - FIELD TRIP

The Geological Society of Sacramento will conduct its annual field trip in Northwestern California the weekend of June 3-5, 1960. The trip will comprise a traverse of the Klamath uplift and northern Coast Ranges between Redding and Eureka, and an examination of the Tertiary section in the Eel River basin. The program and schedule is as follows:

Friday, June 3, 1960

Morning: Sale of guidebooks begins at 11:00 AM in the parking lot at the State Museum in the town of Shasta (5 miles west of Redding on Highway 299). There are no eating places in Shasta, so plan to bring lunch or eat before arriving at assembly point.

Afternoon: Auto caravan will leave assembly point at 12 noon. This part of the traverse will be in Paleozoic rocks of the Klamath Mountains province between Shasta and Weaverville. It will include points of general interest in the Trinity project and a visit to the Trinity dam construction site. Leader is Ira Klein of the U. S. Bureau of Reclamation, Sacramento.

Evening: Dinner meeting at The Gables Restaurant (2 miles south of Weaverville on Highway 299). Chuck wagon dinner approximately $2.75.

Saturday, June 4, 1960

Assemble at The Gables for breakfast. (Buffet breakfast approximately $1.00, box lunch approximately $1.00). Tour begins at 8:30 AM. W. P. Irwin of the U. S. Geological Survey, Menlo Park, will lead the group through the western Paleozoic and Triassic belts of the Klamath Mountains province, and across the northern Coast Ranges, concluding the day in Eureka. Those who wish to examine the Trinity project in greater detail may take the Saturday trip sponsored by the California Association of Engineering Geologists. This tour will leave The Gables after breakfast, tour various features of the project, and end in Redding Saturday afternoon.

Sunday, June 5, 1960

Assembly point to be announced. Dr. B. A. Ogle, of Wm. Ross Cabeen and Assoc., Denver, Colorado, will lead a tour of the marine Tertiary section of the Eel River basin south of Eureka. Trip will conclude Sunday afternoon.

Please address inquiries to Mr. Glen C. Ware, Jr., c/o Texaco Inc., P. O. Box 4096, T & C Branch, Sacramento 21, Calif. Participants may wish to make advance reservations in Weaverville where overnight accommodations are somewhat limited. A list of hotels and motels will be furnished on request.

The many friends of Orrin Wangsness, Exploration Manager of Palomar Oil & Refining Company, Bakersfield, will be pleased to hear that he is making good recovery from his Valley Fever and will soon be on the job again.

1962 NATIONAL CONVENTION

Gordon P. Oakeshot, general chairman for the 1962 AAPG-SEPM National Convention at San Francisco, announces the following appointments to head the Field Trip Committee:

Parke D. Snavely, USGS Menlo Park, Chairman
Jack E. Schoellhamer, USGS Menlo Park, Co-Chairman

SEPM GUIDEBOOK

Supplements to the Guidebook for the SEPM spring field trip to the Panoche Hills are available from Earl M. Price & Co., 16th and G Sts., Bakersfield ($1.00 plus 10¢ postage and handling). The supplement has an introduction and history of the type Panoche group, a Foraminifera stratigraphic distribution chart, and a columnar section of the Panoche group. A few copies of the Guidebook itself are still available from R. L. Brooks, Richfield Oil, 5900 Cherry Ave., Long Beach 5 ($1.50 plus 10¢ postage).

COAST GEOLOGICAL SOCIETY

On Thursday, April 21, 1960, Dr. Robert M. Kleinpell spoke before the Coast Geological Society at their monthly meeting held at the Carrillo Hotel in Santa Barbara. Dr. Kleinpell reviewed the scientific principles stemming from the factual observations of bio-stratigraphy, and traced the historic development of these principles by earlier workers in paleontology and bio-stratigraphy. The application of these principles to the correlation of strata, as well as the problems and limitations connected were discussed.

OIL SCOUTS

An estimated 450-500 oil scouts will attend the three-day convention of the International Oil Scouts Association that opens June 16 at the Biltmore Hotel in Los Angeles.

Scouts are expected from throughout the United States, Canada, Mexico and South America, according to Henry Charles, Humble Oil & Refining Company (Los Angeles), scout and convention manager.

Following opening-day registration, a golf and bowling tournament, tours of the Los Angeles area, and an afternoon business session have been scheduled.

Speakers at the June 17 sessions will include W. M. Jacobs, executive vice president, Pacific Lighting Corporation, and senior vice president, Pacific Lighting Gas Supply Company; Leo Newfarmer, manager of exploration, Pacific Coast Area, Shell Oil Company; Joseph Shell, speaker, House of Representatives, State of California; Paul Sullivan, vice president, Bank of America (oil division); Vernon Taylor, director, Imperial Oil, Ltd., Toronto, Ontario, Canada; Ray Walters, former exploration manager, Standard of France, retired.

PACIFIC SECTION GUIDEBOOK

The Pacific Section still has copies of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" published for the 1958 National Convention in Los Angeles. This guidebook of 204 pages contains maps, cross sections, stratigraphic charts, and road logs. It may be ordered from Mr. Harry Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Ave., Long Beach 6, Calif. Price is $4.50, plus $.50 mailing and handling.

PERSONAL ITEMS

Anybody want to buy half an airplane? With Joe Johnson's transfer to Shell's Los Angeles Office, a happy flying club known as Aero-Sports, Inc., has been split up with two owners of their four-place Stinson located in Bakersfield and the other two in Los Angeles. How about commuting, Joe? It would be faster and safer than the Hollywood freeway.

Phillip Ryall, geologist, has joined Shell's geological staff as a laboratory technician. Phil was formerly with Core Lab.

Scenes from the recent SEPM field trip to Panoche Hills: geologists and paleontologists watching scantily clad beauties perform a water ballet through the window of the Fresno Hacienda bar; same individuals next day consuming gallons of beer while discussing the natural habitat of ammonites; Don Gillespie at Mercy Hot Springs trying to swap last year's sweepstake ticket for a gallon of sulphur water.

Joe Dunwoody has been elected AAPG district representative by the San Joaquin Geological Society.

Gene Tripp and Rex Young, Texaco, Bakersfield, have gone to Alaska for the summer to do field work.

A chain letter known as "News for Booze" circulated through several oil companies in Bakersfield and then died, leaving many geologists waiting eagerly by their phones to be called and told where to pick up their free jugs. Among them were Bill Bedford and Warren Gillies.

Ray Arnett (R - Calif.), Richfield, Bakersfield, "the People's friend", is running for U. S. Congressman representing the 14th district including Kings, Tulare, and Kern Counties.

Norm Stark, Standard, is temporarily bidding adieu to his paramour efforts in Bakersfield to learn the more advanced techniques at the University of Utah (working on his Ph.D.).

Brad McMichael, Standard, enjoyed a week's vacation spring skiing with his family at Mammoth Mountain. He returned intact - no busted limbs.

For the third year in a row, a geologist won the Standard interdepartment San Joaquin Valley tourney at Buena Vista Golf Course. Dick Meditz shot a neat 99 with an "honest" 34 handicap to cop low net honors.

With the retirement (finally) of the "old center fielder", Harold "Diz" Deane, the Standard Oilers softball team is busy with tryouts for a replacement. A few of the younger fellows aspiring to the job include Bob Lindblom, Bob Ortalda, and "Ace" Parker.

Out-of-circulation department: The following brave souls have volunteered (?) for a summer in Alaska with Texaco: Don Herring, Karl Rogers, Bill Hughes, Lou Canut, Phil Patton, Jim Vernon, Dave Pasta, Gene Tripp, and Rex Young.

Two geologists recently joined Shell's Sacramento staff. Jack Weldon comes from Bakersfield and Walt Smith has transferred from Ely, Nevada.

Standard Oil Company detectives are trying to find out what Bob Knapp has on his management. He is the only non-brass employee to attend the recent national A.A.P.G. convention in Atlantic City. Standard geologists without an "in" are awaiting Knapp's return for word concerning his future. They have noticed with some interest the installation of an Alaska-type heater in his new company wagon.

Places, action, camera! The make-up was appealing, the setting spellbinding, and the action dynamic. As T. V. co-stars, Bob Seltzer and Don Fissell (Standard) held the audience spellbound in a recent Seahunt commercial. Due to actor strikes, these two were drafted to act the part of geologists.

Billy K. Reid, recently of Ventura and the Air Force, came into the office 5 weeks to the day after the wedding, inquiring as to what would be a suitable Mother's Day gift.

Matt Carson and Bill Gold (Standard) have taken a long-term lease on an L. A. apartment, immediately following a census survey in Orange County.

Elmo W. Adams, Consultant, Burlingame, California, J. Wyatt Durham, University of California, Berkeley, California have been elected District Representatives to the AAPG from Northern California.

L. A. (Alex) Tarbet, Standard San Francisco staff geologist, has been transferred to the "Promised Land." Alex views with mixed emotions his chance to do geology in the field rather than shuffle papers in the office.

B. H. (Ben) Burma, California Exploration Company, San Francisco, plans an all expense paid tour of Guatemala for the next three months. There is some talk that a small amount of work will be connected with the trip.

Bob Maynard, Sunray, Bakersfield, spent his Easter vacation nursing his family back to health. Ron Heck, Sunray, had better luck and spent a week skiing at Mammoth Mountain.

That crew-cut silhouetted against dawns early light at Stockdale Country Club is none other than Dave Calloway getting in "a quick nine" before breakfast.

Cutler Webster, Honolulu, Bakersfield, has again given the Eskimo squaws a break by appearing briefly in Alaska. While in Anchorage, Cut had dinner and cocktails at the Rabbit Creek Inn with the Tom Wilsons of Ohio, Anchorage.

Recent transfers at Shell in Bakersfield included: Ted Bergen, paleontologist, to Los Angeles after eight years in Bakersfield; Jack Weldon geologist, to Sacramento; Bill Roberts back to Bakersfield from Farmington, New Mexico. Bill was formerly with Union in Bakersfield. His present crisis is finding a house to rent that will accomodate his five children.

As John Griffiths, Shell, Olympia, was preparing to depart for the A.A.P.G. National Convention, his garage door fell on him; fortunately (?) his new Ford station wagon took the main force of the blow. (Rumor has it that is only a sample of what will happen to him if he brings home a 5' 4" souvenir.)

Kay Molenaar, Shell, was transferred from Eugene, Oregon to Durango, Colorado.

Tom McCroder, preparing for a strenuous field season in the L. A. Basin, broke his leg while weeding his green asphalt lawn.

R. G. Alexander, recently of La Habra and now in Standard's Ventura office, gave a statement to the press: "I like it." This leaves room for your own imagination. John Mann, who took Alexander's place - not to be confused with the geologist J. F. Mann, when asked about Alexander's comment, said: "I seldom have much to say."

Marshall Mason of Union Oil has been transferred from West Texas to the L. A. Office as Assistant to George Feister, Geological Coordinator.

John Kirkpatrick of Superior is stocking up on mosquito repellent in preparation for a summer in Alaska.

Ten Braun has resigned from Superior.

Art Huey, Signal Oil & Gas, has just returned from a thirty-day tour of Europe and North Africa. Signal paid.....

Whit Stucker of the Gulf Overseas interests, has been visiting home base whilst on vacation from Ankara, Turkey.

Under the threat of having to listen to Bob Knapp, Standard, talk for two continuous days at the fall convention, prospective speakers are urged to contact him. Bob is Chairman of programs and says he'll take anything.....even discarded plays on the Beverly Hills area!

Mark Ferguson, Sunray, was recently transferred from Newhall to the L. A. Office as Reservoir Engineer.

ERRATUM: Doyle Graves, whose transfer to Australia was reported in the last issue, is still with Union, not Tidewater as erroneously stated.

Harry Jamison and Dick Malloy, Richfield, are wandering through Utah's wastes heavily disguised as geologists. Actually they are Viceroy-smoking mechanics, specializing in clutch repairs and field testing.

Herb Mann, Shell is now taking reservations for summer guided tours of Fairbanks. Said tours vary from the serene night life at the Polaris Bar & Grill to the Casbah's exotic dancing girls.

Ernie Bush of Mobil has fled Anchorage for a short vacation in Pennsylvania, minus family.

Visitors in Alaska during April have been: Russ Simonson, Ohio; Loren Ware and C. D. Johnston Sinclair; Les Roth, Consultant; Roland DeCaen, B. P. Exploration; and Mason Hill, Richfield.

Gerry Ganopole, Texaco, recently came to the financial aid of a certain state geologist, who will remain nameless, when said state employee was arrested for possessing a California driver's licence and not an Alaskan one.

Peter Gestef, Standard in Anchorage, is preparing for an extended trip to Europe.

The big question in Anchorage cabarets is: 'Is Jim Wylie really over 21?'

A rumor that Anchorage "hoods" were holding an "appalachian" meeting in Fairbanks almost kept Tom Wilson of Ohio on the plane. The Fairbanks police wouldn't let him off.

NURSERY NEWS

Born April 22, 1960, to Conrad and Wanda Howard, Shell, Olympia, their third girl, Vicki Janine.

The Warren Hagists, Superior, Denver, recently had a son. No details available.

Mr. and Mrs. Ernie Rennie welcomed their second girl into the family on April 14. Jil weighed 7 lbs. 10-1/2 oz. at birth.

CALENDAR

May 16, 1960: Monday, 7:00 PM., Los Angeles Forum Meeting, Mobil Auditorium, 612 S. Flower, Los Angeles. Three papers presented at the Cordilleran Meeting of the G.S.A. in Vancouver: 1) "Foraminiferal Ecology of the Gulf of California", Orville L. Bandy, 2) "Garlock and Death Valley Fault Zones in the Avawatz Mountains, Calif.", R. H. Jahns and L. A. Wright, 3) "Geology of the Escalante-Boulder Area, South-Central Utah", C. C. McFall.

May 19, 1960: U.C.L.A. Geology Lecture. "Fossil Vertebrates from the Imperial Valley Area", by Theodore Downs, Los Angeles County Museum.

May 20, 1960: Northern California Petroleum Round Table annual barbecue, Yolo Flyer's Club (Woodland, Calif.). Arrangements made by Charlie Guion (Humble-Sacramento).

Stanford Journal Club, Room 320, Geology corner.

May 16, 1960: Monday, 4:00 PM, "Petrology of the Fallen Leaf Lake Area, California", Alden Loomis.

May 23, 1960: Monday, 4:00 PM, "Geology of the Santa Rosa Mountain, Riverside County, California", Samuel J. Sims.

May 30, 1960: Monday, 4:00 PM, "Correlation Problems in the Standard North American Mississippian Section", Charles Collinson.

May 26, 1960: Thursday, U.C.L.A. Geology Lecture. "Cenozoic Vertical Movements and the Crust of Coastal Southern Calif.", Thane McCulloh, University of California, Riverside.

June 1, 1960: Wednesday, 6:30 PM, Joint Dinner Meeting of the San Joaquin Geological Society and the Society of Exploration Geophysicists at the El Tejon Hotel, Bakersfield. Featured distinguished lecturer, Dr. William A. Donn, Professor of Geology and Research Associate at Lamont Geological Observatory, New York, will speak on "Theory of the Ice Ages".

June 3, 1960: Friday, Los Angeles Basin Chapter A.P.I. Annual Golf Tournament and Barbeque, Vessels Ranch, Los Alamitos, Katella Ave., 1/2 mile east of Hwy. 35.

June 8, 1960: Wednesday, 6:30 PM, Junior Group of Soc. of Pet. Engineers of A.I.M.E., Michael's Restaurant, Washington Blvd. and Santa Ana Freeway, Los Angeles. "Capillary Pressure and Hydrodynamic Relationships to Oil Accumulation", Ben Haberman, Research Engr., Union Oil.

June 10, 1960: Friday, A.A.P.G. Pacific Section annual Spring picnic and field trip. Details elsewhere in issue.

June 16-18, 1960: Convention of the International Oil Scouts Association, Biltmore Hotel, Los Angeles.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 294-M: Foraminifera of the Monterey shale and Puente formation, Santa Ana Mountains and San Juan Capistrano area, California, by Patsy Beckstead Smith.....$ .40

Professional Paper 332: Cretaceous and Tertiary formations of the Book Cliffs Carbon, Emery and Grand Counties, Utah, and Garfield and Mesa Counties, Colorado, by D. Jerome Fisher, Charles E. Erdmann, and John B. Reeside, Jr..... 1.50

Professional Paper 334-D: Late Paleozoic Gastropoda from northern Alaska, by Ellis L. Yochelson and J. Thomas Dutro, Jr..... .50

Professional Paper 356-A: Oil yield and uranium content of black shales, by Vernon E. Swanson..... .30

Bulletin 1072-O: Geology and oil-shale resources of Naval Oil-Shale Reserve No. 2, Uintah and Carbon Counties, Utah, by W. B. Cashion..... 1.00

MGI-Map I-300 Paleotectonic maps, Triassic System..... 5.00

Open-file reports (for inspection only):

TEI-642: Engineering geology bearing on harbor site selection along the Gulf of Alaska from Point Whitshed to Cape Yakataga, Alaska, by Reuben Kachadoorian.

TEI-755: Geology of Dolomite Hill, Nevada Test Site, Nye County, Nevada, by D. D. Dickey and F. A. McKoewn.

TEM-1033: Thickness, character, and structure of upper Permian evaporites in part of Eddy County, New Mexico, by C. L. Jones.

Reconnaissance of ground water in the western part of the Mojave Desert region, California, by Fred Kunkel.

Data on wells in the west part of the middle Mojave Valley area, San Bernardino County, California, by R. W. Page, W. R. Moyle, and L. C. Dutcher.

BULLETIN OF THE GEOLOGICAL SOCIETY OF AMERICA
Volume 71, Number 2, February 1960:

Tertiary geology of a portion of the Central Cascade Mountains, Washington, by Robert J. Foster: pp 99-126.

Criteria for recognition of laharic breccias, Southern Cascade Mountains, Washington, by Robert V. Fisher: pp 127-132.

Transcurrent faulting and volcanism in Owens Valley, California, by L. C. Pakiser: pp 153-160.

Thrust faulting and chaos structure, Silurian Hills, San Bernardino County, California, by Donald H. Kupfer: pp 181-214.

Volume 71, Number 3, March 1960:

Geology of the La Victoria area, Aragua, Venezuela, by J. C. MacLachlan, Reginald Shagam, and H. H. Hess: pp 241-248.

Geology of the Central Aragua, Venezuela, by Reginald Shagam: pp 249-302.

High-temperature alpine-type peridotite from Venezuela, by D. B. MacKenzie: pp 303-318.

Volume 71, Number 4, April 1960:

Geophysical investigation of Mono Basin, California, by L. C. Pakiser, Frank Press

Volume 71, Number 4, April 1960:

Geophysical investigation of Mono Basin, California, by L. C. Pakiser, Frank Press, and M. F. Kane: pp 415-448.

Foothills fault system, western Sierra Nevada, California, by Lorin D. Clark: pp 483-496.

Clay mineralogy of the sediments of the Great Salt Lake, Utah, by Ralph E. Grim, Georges Kulbicki, and Albert V. Carozzi: pp 515-520.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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Volume 14 Number 5

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Pauley Petroleum, Inc.
1054 Wilshire Boulevard
Los Angeles 17, California

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 June 1960 Number 6

LOS ANGELES LUNCHEON

Dr. Robert M. Kleinpell spoke on "The Principles of Biostratigraphy" before a noon meeting April 21st at Rodger Young Auditorium, Los Angeles.

A few definitions basically pertinent to the topic were provided at the outset of the lecture in order clearly to distinguish between the descriptive and the interpretive phases of science, between fact, principle, and theory, and between science and those contemporary fashions encompassed by the apt designation of "scientism". Employing among others one of Darwin's definitions of science itself ("...science consists in grouping facts so that general laws or conclusions can be drawn from them"), these distinctions then served to point up the role of principle in rendering objective the interpretive classifications that are required by scientific natural history. Stressed especially among these were the time-relationships of the varied data of descriptive biostratigraphy and the functional relationships of prehistoric life itself, since neither of these relationships may be ascertained through sheer description alone. Emphasizing the significance of an historical approach to these matters, Kleinpell traced the Hellenic origins and the revival and post-Renaissance development of these principles, and stressed the nature and significance of their interrelationships.

It was noted that fossils, however important a role they play in correlation, were still not synonymous with time itself. Their role in the recognition, description, classification, and interpretation of physical rock-stratigraphic units as such (groups, formations, members) was touched upon in emphasizing the significance of fossils in the classification of prehistoric time. Scientific principles stemming from the data of biostratigraphy were then reviewed under three major categories: the principles of phylogeny, of biochronology, and of chorology.

The major portion of the lecture was devoted to tracing the origin and development of the geological time-scale and the historic basis for the growth of its five-fold division as employed today. Attention was called to a few anciently demonstrated principles which are today still valid and fundamental to scientific natural history, though all too often lost sight of.

The principle of Uniformitarianism was recognized by Hutton as it applied to the inorganic, and Lyell applied the same approach to the organic world as well. This principle literally breathes life into fossil occurrences.

Two other phylogenetic principles are that of the natural entity of the organism and that of descent. The fact that the environment operates on the whole organism (and not on its genes alone) and that organisms descend through time were well-grasped by Aristotle and again by Linnaeus in the 1700's. Linnaeus expanded Aristotle's original list of organisms from 400 to 4000, and more important, he discarded the medieval designation of phyletic entities in favor of a new system of binomial nomenclature, which permitted the classification of organisms without telescoping either their individualism or their relationships.

The second category is that of biochronology, the study of the organism in its relation to time. Historically, biochronology begins with Steno in the 7th century and his principle of Superposition which led to the first crude geologic time system. This was eventually formalized by Sedgewick in the 1830's, but even before this William Smith pointed out that the same fossil assemblage occurs in the same bed from place to place.

The exceedingly crude phylogeny of the time prevented subdivision of the time scale below the level of the Era. Systemic division hinged chiefly on the facies problem. The term "facies" is defined as one of two or more phases of a natural entity. The three valid usages of the term are restricted to:

1. Petrology (magmatic facies, etc.).
2. Faunal assemblages.
3. Time-rock units (lithologic and biologic).

Lyell's approach to subdivision utilized the percentage of living species present in a given unit. This was a statistical approach involving as many as a 1000 species. Its failure to work in two particular California formations (the older having more living species) reflects the inadequacy of the approach when using too few species (50 or 60). In this instance it reflects faunal facies.

Dr. Kleinpell stated that the most tenacious stumbling blocks in the same general field of development were Wernerian neptunism and Lamarckian environmentalism (the latter fallacy most recently revived in the form of Lysenkoism). The truths that organic evolution involves natural selection, and that it takes place laterally as well as vertically, were stressed, as were the significant roles played by the principles of phylogeny and of chorology in the recognition and use especially of the more refined time-rock units of biostratigraphic chronology: the Stages and Zones of Oppel.

A biozone is defined as the absolute world-wide range of a species; a teilzone is the provincial range of that species. These units allow synchronization of strata but do not allow us to classify geologic time.

Oppel's studies were especially well constructed using the overlap in teilzones to define a zone. His interests, however, included

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Selected Bibliography	Lucy Birdsall
Calendar	Hershell H. Nixon
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	Harold Sullwold
Coast Correspondent	Charles F. Green
	John B. Jacobson
Alaska Correspondent	Donald D. Bruce
	Ernest Bush
Los Angeles Correspondent	Frank A. Exum
Northwest Correspondent	Malcolm B. Greene
Sacramento Correspondent	Lowell Garrison
San Francisco Correspondent	D.H. Pfeiffer
San Joaquin Correspondent	George Rudkin

Next Deadline: June 29, 1960

the entire fauna as he realized that faunal zones were not time zones, but rather local faunal changes due to local influence only. He believed that regional changes of general chronologic significance are commonly locally inconspicuous.

Thus, we have three different qualitative concepts: teilzone, biozone, and zone. Zones are commonly raised in rank to stages and subdivided into several zones as additional information is collected. The term substage is either poor usage or indicates that insufficient work has been done on a stage to break it into true zones.

Refinements such as Oppel's zone are provincial, with no correspondence from province to province. Stage and zone are therefore terms which are not necessarily applicable on a worldwide basis. The degree of provincialism in the Paleozoic and Mesozoic may be less.

A closing summary stressed the historic realities that lie behind our scientific evaluations of natural phenomena today. In conclusion, it was emphasized that, when seen against a backdrop of discriminate, principled, and fully four-dimensional discipline, the facts of biostratigraphy and the degrees of their interrelationship can be viewed in proper perspective, and the probabilities, possibilities, and impossibilities involved in the role played by this field in the art of applied science -- as for example in the case of petroleum geology -- acquire their true values and proportions.

LANDMEN MEET

The 6th Annual Meeting of the American Association of Landmen is to be held at the Ambassador Hotel, Los Angeles, on June 22-25, 1960. Topics and speakers include:

Industry Keynote Address: G. F. Getty, II.
Unitization Problems in California: Richard Bergen.
Alaska Moves into the Oil Age: E. L. Bartlett
Economics of Offshore Leasing: K. H. Crandall
California Townlot Leasing: F. W. Bush.
The Petroleum Outlook for the 1960's: J. G. Winger.
It's a Small World: B. H. Parker.

BARBECUE

The Seventh Annual Stag Barbecue of the Northern California Petroleum Round Table was held May 20th at the Yolo Fliers Club, Woodland. Beer ponies were scattered at intervals throughout the course. Many an otherwise assiduous golfer lost his purpose at these stops. Kegs also created hazards by luring non-golfers out onto the fairways. Charlie Guion (Humble), barbecue coordinator, gets credit for the 20-ounce steaks served that evening. Bill Hathaway (Amerada, Rio Vista) won low score (non-handicap), a 78, thereby receiving a $20.00 cash order on the club proshop.

SACRAMENTO GEOLOGICAL SOCIETY

New officers of the Geological Society of Sacramento were elected at the last meeting, May 10th. They are Roland Bain (Texaco), president; Francis Riley (U.S.G.S.), vice-president; Ed Kiessling (Cal. Div. of Mines), secretary; Jack Kearns (W.G.O.), treasurer. At the same meeting, Sarge Reynolds (consulting geologist of Woodland), gave an illustrated talk on Turkey, its people, customs, and here and there highlights of the geology. A soils analysis film was presented before this meeting, the last until October.

LOS ANGELES FORUM

The Monthly Forum Meeting was held May 16 in the Mobil Auditorium, where three speakers fresh from Vancouver presented papers previously given at the Regional Cordilleran Meetings of the G.S.A. They were Orville Bandy "Foraminiferal Ecology of the Gulf of California," R. H. Jahns and L. A. Wright "Garlock and Death Valley Fault Zones in the Avawatz Mountains," and C. C. McFall "Geology of the Escalante-Boulder Creek Area, Utah." Abstracts of these papers are contained in the G.S.A. Program for the Vancouver Meetings.

PACIFIC SECTION NOMINATIONS

The Committee for the nomination of Pacific Section officers to be elected next fall has been announced by Jack Isberg, Nominating Committee Chairman. Members of the Committee include Mason Hill, Frank Parker, Russ Simonson, and Bob Orwig, in addition to the Chairman. Please contact any of the Committee members if you have suggestions to offer.

ALASKA GEOLOGICAL SOCIETY

On May 10, members and guests of the Alaska Geological Society had the pleasure of hearing an interesting talk titled "Logistics of the Nulato Operation" by Ray Thompson, President of Global Exploration Company. The talk was very well illustrated with 16 MM color movie film.

INTERNATIONAL OIL SCOUTS ASSOCIATION

Six guest speakers will highlight the June 17 session of the International Oil Scouts Convention at the Biltmore Hotel in Los Angeles.

The speakers will include Joseph Shell, Minority Floor Leader, State of California Assembly; Vernon Taylor, vice president and director of Imperial Oil, Ltd., Calgary, Canada; W. M. Jacobs, vice president of Pacific Lighting Corporation, Los Angeles; Ray Walters, former manager (now retired) for Essorep of France; and Leo Newfarmer, exploration manager of Shell Oil Company's Pacific Coast Area.

Shell will open the session at 9 a.m. with a talk entitled "The Oil Industry and the Legislature."

Taylor will speak at 10 a.m. on "Recent Developments in the Canadian Oil & Gas Industries."

Walters will speak on "A Successful Exploration Venture" at 10:45 a.m.

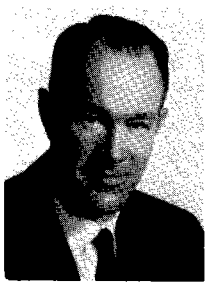
Following luncheon, the program will resume at 2 p.m. with Jacobs presenting a talk entitled "It Just Comes From A Hole In The Ground."

Sullivan's talk at 2:45 p.m. entitled "Now See Here, Mr. Douglas" (An argument for depletion allowance).

"Scouting in the Electronic Age" will be the topic of Newfarmer's speech at 3:30 p.m. (Mr. Newfarmer will leave for his new assignment in Houston, Texas, following this talk).

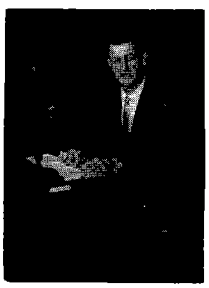
About 500 scouts are expected to attend the convention, which begins June 16 and concludes June 18.

All members of the oil industry may attend the Friday, June 17 sessions in the Grand Ballroom of the Biltmore Hotel, without charge.



Leo R. Newfarmer

W.M. Jacobs



Joseph C. Shell

Vernon Taylor

Paul E. Sullivan

Ray Walters

COAST GEOLOGICAL SOCIETY

On Wednesday, May 11, 1960, Dr. Tom Bailey spoke before the monthly meeting of the Coast Geological Society at Oxnard. Dr. Bailey talked on "The Geology and Oil Possibilities of the Santa Ynez Range and Topa Topa Mountains."

Dr. Bailey described in detail the Eocene stratigraphy of the area which he divided in the following manner:

Domengine group (Middle Eocene)

Lower Domengine

Lower Juncal shale - 3,000± ft.

Upper Domengine

Wheeler sandstone - 500 to 1,500 ft.

Juncal shale - 2,500 ft.

Tejon Group

Western area

Matilija sandstone	2,500 to 2,700 ft.
Cozy Dell shale	3,500± ft.
Coldwater sandstone	2,500± ft.

Eastern area

Topa Topa	0 to 2,600 ft.
(Upper speckled ss., Middle (white arkosic ss. and Lower (gray green ss. & sh.	
Echo Falls black shale	50 to 900 ft.
Matilija sandstone	50 to 2,000 ft.
Cozy Dell shale	250 to 3,500 ft.
Coldwater sandstone	2,000±ft.

Dr. Bailey noted the presence of oil seeps in the Topa Topa formation and concluded that the main source rocks of the area were probably the Cozy Dell shale, the Echo Falls shale, and the Sisar (or Juncal). Large seeps from the Cozy Dell shale occur in Oil Canyon, north of Carpinteria, in Toro Canyon north of Summerland, and in Rincon Canyon at the county line. The Coldwater oil sands, over 860 feet thick at Lion Mountain, are the only productive Eocene oil sands discovered to date in this area.

Bailey also described and illustrated the principal structures of the area which include the Snowball anticline, the Arroyo Parida fault, the Matilija overturn and cross-fold, the Ojai syncline, the Lion Mountain anticline and oilfield, the Timber Canyon overturned anticline, and the San Cayetano thrust fault.

A.A.P.G. AWARD TO HAROLD W. OWENS

Harold W. Owens, district geologist for the Humble Oil and Refining Company at Tallahassee, Florida, is the 1960 winner of the George C. Matson Award of the A.A.P.G. In making this announcement, A. Rodger Denison, of Tulsa, Oklahoma, Chairman of the 1960 Matson Award Committee, stated that the Committee voted unanimously in selecting Mr. Owens for the excellent presentation of his paper entitled "Florida-Bahama Platform" at the 45th annual meeting of the American Association of Petroleum Geologists held in Atlantic City, New Jersey, April 25-28, 1960.

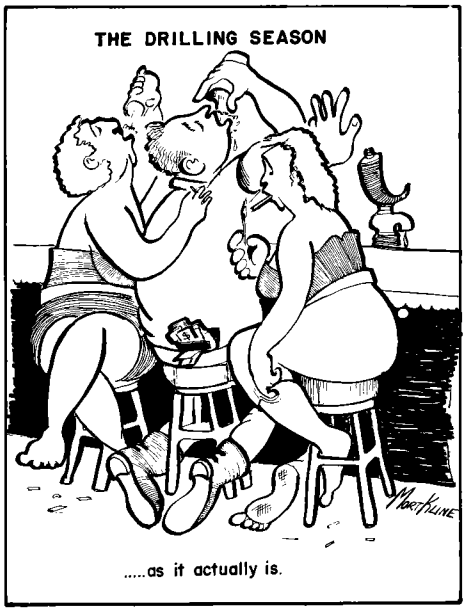
LOS ANGELES LUNCHEON

Dr. William L. Donn, A.A.P.G. Distinguished Lecturer, presented an interesting and informative address entitled "A Terrestrial Theory of Ice Ages" at the Rodger Young Memorial Auditorium, Friday, May 27th. Dr. Donn stressed that the ideas presented in the lecture were developed jointly with Dr. Maurice Ewing.

Abstract

The direct cause of Pleistocene glaciation of the Northern Hemisphere is explained on the basis of an ice-free Arctic Ocean. This would provide the initial precipitation and would effect changes in atmospheric and oceanic circulation that would further enhance glacial growth. The lowering of sea level associated with glacial growth would finally cause the Arctic to freeze over terminating glacial conditions. Glacial-interglacial oscillations are thus dependent on the state of the Arctic Ocean which is in turn regulated by sea level position. The initiation of the glacial epoch is explained by the displacement of the geographic poles from an open ocean environment to their present thermally isolated locations in the Arctic Ocean and Antarctica, respectively.

Consideration of the heat budget of the Arctic Basin gives theoretical support to the maintence of an ice-free Arctic Ocean from the inflow of the warmer North Atlantic. Further support is also given by new data dealing with the glaciation of Siberia and Northern Canada, seismicity of glaciated regions, geoid measurements, studies of thermal gradients and submarine terraces.



PACIFIC SECTION GUIDEBOOK

The Pacific Section still has copies of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" published for the 1958 National Convention in Los Angeles. This guidebook of 204 pages contains maps, cross sections, stratigraphic charts, and road logs. It may be ordered from Mr. Harry Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Ave., Long Beach 6, Calif. Price is $4.50, plus $.50 mailing and handling.

Pomona President E. Wilson Lyon will award an honorary doctor of science degree to Dr. A. Anderson, chief of the geologic division of the U. S. Geological Survey and a 1924 graduate of Pomona. A native of Bloomington, Calif., he received his Ph.D degree in geology from the University of California in 1928 and taught at the university from 1926 to 1942. His career with the Geological Survey began in 1942.

PACIFIC SECTION CROSS SECTIONS FOR SALE

The following cross sections prepared under the direction of the Cenozoic Sub-Committee on Geologic Names and Correlations may be purchased from Mr. Harry G. Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Avenue, Long Beach 6, California. Price of each section $1.50, plus $.50 postage and handling for mail orders.

Number and Publ. Date	A.A.P.G. Cross Sections
1 (1951)	Sacramento Valley - South (2 sheets) A: through Rio Vista, Thornton and Lodi Gas Fields, including Mt. Diablo. B: South Sacramento Correlation Chart.
2 (1952)	Ventura Basin - East (1 sheet) Basement North of Oak Canyon Oil Field to Aliso Canyon Oil Field.
3 (1952)	Los Angeles Basin (1 sheet) Palos Verdes Hills to San Gabriel Mts.

4 (1952)	Salinas Valley (1 sheet) San Antonio River northerly to San Andreas Fault, through San Ardo Oil Field.
6 (1954)	Sacramento Valley - North (2 sheets) A: From T23N, R1W through T16N, R1E. B: Correlation Chart.
7 (1956)	Ventura Basin - Central (1 sheet) From Santa Ynez Fault north of Ojai to Western Santa Monica Mts., through Ventura Avenue and West Montalvo Oil Fields.
8 (1957)	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 (1957)	Central San Joaquin Valley (1 sheet) From San Andreas Fault to Sierra Nevada Foothills, and passing through Coalinga, Guijarral Hills and Riverdale.
10N (1958)	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.

PERSONAL ITEMS

Lynn Price, Standard Oil of California, returned to Anchorage on May 16th from a 9-week tour of Europe. Lynn reports that he has lost three inches from around his waist--one inch of fat and two inches from his money belt. Elgible bachelor Price says he had considerable trouble in Cannes, France with Bikini bathing suits--especially those with girls in them!

Pete Gester, Standard Oil of California, left Anchorage on May 17th for a 9-week tour of Europe. Mrs. Gester went along to guard against the Bikini girls.

Bill Moran, Union Oil, has recently returned to Los Angeles from Sydney, Australia, where he has spent the last year getting Union's Australian exploration program organized and under way. Union and their pardners, Kern County Land Company, have a concession of some 60,000 square miles (not acres) in Queensland and New South Wales. Bill added the vacation he didn't get last year to this year's and returned the long way round, hitting Singapore, Bangkok, Calcutta, Karachi, Cairo, Rome, Madrid, Lisbon, Barcelona, Milan, Paris, and London before ending up at Atlantic City to see his father, retired consultant Bob Moran Sr. Bill reports visiting Ed Fritz (Tidewater) in Karachi, and brings a message from Ed that he will be home on leave in July. He also saw Bill Easton (of U.S.C.) in Paris, but didn't say what else he did in Paris. Bill says he can now report from personal experience that the world really is round.

Pete Gardett, Consultant, gave an interesting and comprehensive talk on the city of Moscow for the Oil Map Association in the Mobil (G.P.) Auditorium May 12, 1960. Remind Pete to tell you the story of the tom cat consultant.

Eighty fellows enjoyed the annual Spring Stag Picnic of the Standard Exploration Department on May 7th at Kern River Picnic area. Horseshow champs were: Greg Stanbro, Brad McMichael and Monty Montgomery. Top golfers included Greg Stanbro, Dick Meditz and Jack Cunningham. The annual East-West softball game was again won by the East, 8-6. Tight pitching by John Carson and superb fielding and homerun hitting by Milt "I should have never left Milwaukee"Zeni paced the winners.

Dick Meditz, Standard Oil's softball manager, says that Harold "Diz" Deane has been brought back from "retirement" to play center field because of the dismal failure of the 'younger' fellows who were to take his place.

Bob Lindblom, Standard, has been floating on Cloud 9 since he "eagled" two holes on Valley golf courses during one weekend in May.

Up a tree without a putter! During a Union Oil Golf tourney in Bakersfield Jay Wagner "flang" his putter into a pine tree after missing a short putt. Efforts to dislodge it by throwing other clubs festooned the pine like a Christmas tree. Come dark and the course grew quiet, all except for Jay still rustling around the branches trying to gather his equipment.

Chuck Cary, Union, Bakersfield, figuring that civilization was doomed by the threat of an atomic war, cashed in his securities and bought a brand new Corvair without telling his wife. Out of the frying pan into the fire!

Rod Nehama, Honolulu, Bakersfield, went to Anchorage on May 16th to join a field party consisting of Sunray, Continental and Superior personnel. Led by party chief Les Ralph, Sunray, and under the supervision of R. A. Eckhart of Sunray, Alaska, this group will do field mapping in the Yukon Flats - Kandik area of Alaska.

Lowell Redwine, Honolulu, is being transferred from Santa Barbara to Bakersfield in June.

Standard Oil Company, Seattle, Washington, has recently moved into their new office building located at 2366 Eastlake Avenue, Seattle 2, Wash.

Bob Godsey and John Fish, Geologists for Standard in Anchorage, have been transferred to Bakersfield.

Hank Tomko, Shell, Olympia, is busily preparing for a long, hard field season in Alaska. His desk is piled high with sports catalogs.

John Griffiths, Shell, Olympia, a hopeful contestant in a local Salmon Derby, was quite disappointed when he discovered there was no prize for the numerous "dog-fish" he caught.

Rumor has it that the Washington State Department of Fisheries may have to ban John Carter, Shell, Seattle, from fishing Washington lakes. Seems the bass population is steadily decreasing since John's arrival. His latest catch was a record 8 lb. 11 oz. bass.

Texaco has promoted Bill Bauer, Sacramento, District Geologist of the newly created Sacramento district. This district will be greatly expanded in scope and responsibilities to include northern California, Oregon, and Washington. The staff will be increased but no names are available yet.

Western Gulf has decided to leave Smogville and move to Bakersfield. Those involved in the shuffle are John Gates, Bob Johnston and Don Gilkison - all for Bakersfield; and Geophysicist, Bob Zazadil for Casper.

Western Gulf's, Mick Lachenbruch and Paul Day are reportedly engrossed in their Alaskan summer assignment.

George B. Pickel of Union has been transferred from the Gulf Coast to the Los Angeles head office as Foreign Exploration Co-ordinator.

Phil Patten of Texaco is now in serious training for the Notorious Alaskan "sourdough" test. He expects to leave for that state in early June.

Thane McCullough is reportedly going to Italy on a Fullbright grant for gravity work in the Po River Valley Area.

Joe LeConte, Richfield, Long Beach, has returned from an extended working vacation in Peru.

Doc Lammers, Standard, is spending 2 weeks in San Francisco at Standard's Charm School. The main question is ---- Will Doc be charming enough to forget by-gones and once again cement relationships with the bartender at the St. Francis Bar?

Bob Manley of Standard is taking the big "leap" on June 26th when he exchanges vows with Barbara Monk, lately of Standard Oil.

Dick Lyons of Union is being transferred from Santa Barbara to Alaska.

Hal Rader of Standard is busily engaged in domino playing in an effort to help defray the costs of the forthcoming wedding of his daughter, Bev Jane on June 25th. If anyone has an old set of "marked" dominos, please forward them to La Habra as time is growing short and the "coffers" are empty.

Bill Johnson, Shell, Bakersfield, has been transferred to Sacramento.

Nat MacKevett, Shell's Bakersfield district geologist, was married to Maureen Kelley, Shell secretary, on May 1st. According to company policy only one of them could remain in Shell's employ, so a petition several feet long was drafted, upon which other Shell employees indicated which one they thought was more important to the company. Too bad Nat, good secretaries are hard to find.

Mr. MacKevett attended a one week conference on Carbonate Rocks in Miami in preparation for his transfer to Ely, Nevada where he will be district geologist for Shell. That is, if he can talk his bride into quitting her job.

Bob Knapp of Standard is still waiting to receive the first paper for the Fall Convention. Please send immediately any possible papers or discarded plays to --- Bob Knapp, P. O. Box 606, La Habra, or telephone OWen 1-2251, collect.

Buzz Welsh, Sunray, Bakersfield, spent his vacation at home taking care of his wife who is convalescing from a recent illness.

We hear that Gene Templeton, Sunray, neatly adorned the fender of his car with the door of a telephone truck.

Dick Vivion, Humble Scout, Olympia, hosted the Shell Olympia staff to an enchilada/beer bust at his lakeside home. Dick is a "good scout"!

William Johnson, Bakersfield, and Walt Smith, Ely, Nevada, have been temporarily transferred to Shell's geological staff in Sacramento.

Joe Rossi, Union Landman, has opened an office in Sacramento. Joe formerly worked out of Bakersfield.

George Strother (Baroid) and family are transferred from Sacramento to Alaska. George will move his family up to Anchorage in June.

Adrian Maaskant (Shell, Sacramento) was successful in his campaign regarding presidency of the Geological Society of Sacramento. Roland Bain (Texaco) was elected.

Maurice Bledsoe (Brazos, Houston) has been in Sacramento lately to lend his hand in Brazos' seismic activities

A few weeks ago, Jim Wiley (Western Gulf, Anchorage) was dismayed at the cost of fishing equipment (no Sears catalogue) in Alaska . Ever mindful of a dollar or so savings, he flew first-class from Anchorage to Sacramento. Diligent shopping here turned up his rod, reel and line, at Sav-More Drug. They can undercut the Alaska sports-dealers, and he saved $15 (less cost of the first-class fare).

A certain State Geologist, who several years ago became famous for his walnut growing in the Santa Maria area, is now reported to be raising strawberries in Anchorage, Alaska. It is believed an all-night shot-gun watch will soon be posted to keep fellow geologists from stealing the strawberries.

In recent bridge competition, Tom "Charles Goren" Wilson won an auto compass to find his way out into the Alaska Bush Country, and a cribbage board to keep him happy while he's there.

Sunray Midcontinent recently consolidated their Newhall and Bakersfield exploration offices into one office to be known as the Bakersfield district which will cover California, Oregon, Washington, and Nevada. District Geologist is Bob Maynard.

NURSERY NEWS

Louis and Dorothy Fitzhugh, Texaco, Bakersfield, have been initiated into the Institute of Parenthood by the birth of their daughter Laurie Ann on April 30, 1960.

New arrival in the Bob Stoddard family, Standard, Bakersfield -- Steven Philip, born May 3rd weighing 7 lbs. 15 oz. This is the Stoddard's first child.

C. A. (Tex) Richards and wife Pinky have a new baby girl, born May 19th, weight 7#, name: Tracey Lynn.

CALENDAR

June 16-18, 1960: Convention of the International Oil Scouts Association, Biltmore Hotel, Los Angeles.

June 20, 1960: Monday noon, A.I.M.E. Petroleum Forum, Rodger Young Auditorium, Los Angeles. "Some Economic Factors Concerning Miscible Phase Displacement", O. E. Van Mekr, Jr., Mobil Oil.

June 20, 1960: Monday, 7:00 P.M., P.P.G., Geological Forum, Union Oil Auditorium. "Continental Drift", Mr. Bernardo Grossling, Standard Oil Company, La Habra, California. "700 Mile Left Lateral Displacement on Mendocino Fault", Mr. Victor Vacquier, Scripps Institute, San Diego, California.

June 22, 1960: Wednesday noon, Sacramento Petroleum Ass'n luncheon meeting, Scheidel's, "Tertiary Basalt of Sacramento Valley", Mr. A. S. Hawley, Consultant, Sacramento.

June 22-25, 1960: 6th Annual National Meeting American Ass'n. of Landmen, Ambassador Hotel, Los Angeles.

July 7, 1960: Thursday noon, Los Angeles Luncheon Meeting, Rodger Young Auditorium. "An Illustrated Lecture on Southern Morocco and the Spanish Sahara", Mr. Robert Dyck, Manager of Foreign Exploration, Tidewater.

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U. S. GEOLOGICAL SURVEY

Professional Paper 351: Mode of flow of Saskatchewan Glacier, Alberta, Canada, by Mark F. Meier.....$1.25

Professional Paper 334-C: Trilobites of the Upper Cambrian Dunderberg shale, Eureka District, Nevada, by A. R. Palmer.....$ .65

Bulletin 1058-E: Geology and ore deposits of Northwestern Chichagof Island, Alaska, by Darwin L. Rossman.....$1.25

Bulletin 1112-C: Some geologic features of the Pima mining district, Pima County, Arizona, by John R. Cooper.....(price not known)

Open file reports (for inspection only):

Total intensity aeromagnetic profiles for parts of the Kobuk, Michumina, Cape Espenberg, Cape Lisburne, and Brooks Range area of Alaska.

Geology and ground-water resources of Clark County, Washington, with a description of a major alluvial aquifer along the Columbia River, by Maurice J. Mundorff.

Aeromagnetic map of the Antler Peak area, Humboldt and Lander Counties, Nevada, by W. J. Dempsey.

TEI-754: Preliminary geologic map of the Tippipah Spring NW quadrangle, Nye County, Nevada, by A. B. Gibbons, E. N. Hinrichs, W. R. Hansen, and R. W. Lemke.

TEI-718: Geologic effects of the Rainier underground test - preliminary report, by A. B. Gibbons.

TEI-753: Geologic investigations in support of Project Chariot in the vicinity of Cape Thompson, northwestern Alaska - preliminary report, by R. Kachadoorian, R. H. Campbell, G. W. Moore, Y. Y. Cole, A. H. Lachenbruch, and others.

WORLD OIL

Volume 150, Number 2, February 1, 1960:

How to analyze bioherms in Williston Basin, by Paul J. Lewis.
Photogeology giving rapid coverage in Four Corners, by Marshall S. Wright, Jr.
Thinning agents control flow properties of mud, by William C. Browning.
Production practices manual: part II -
The Glycol dehydrator, by George J. Mapes.
The short cycle hydrocarbon recovery unit, by R. W. Scott.
The ammonia absorption refrigeration unit, by J. Roger Heumann.

Volume 150, Number 3, February 15, 1960:

Gain in U. S. drilling in 1960 forecast.
Advancements in production methods -- 1959, by Richard J. Goeken.
Exploration outlook -- 1960.

Volume 150, Number 5, April 1960:

Coordination of geology and geophysics pays off, by A. T. Dennison and Harry R. Warman.
How to make geochemical exploration succeed, by Dr. S. J. Pirson.
Why sedimentary structures show high self-potentials, by Orton E. Campbell.
Gravity-photogeology method boosts accuracy, cuts costs, by Virgil L. Whitworth, Edward F. Haye, and Thomas M. Lindholm.
Palynology has important role in oil exploration, by William S. Hoffmeister.
Electronic computers aid many exploration phases, by Edward J. Assiter.
Magnetic orientation of cores aids oil search.
How to do refraction work by remote control, by Pascal Vetterlein.
Mexico is expanding its oil industry, by L. J. Logan.
Production practices manual: part 10 - Three-phase separators, by Wilbur F. Broussard and Charles K. Gravis.
How an artificial lift study can save you money, by Robert W. Drake, Jr.
Geological evaluation of aerated water-drilled wells, by Paul L. Gassett.
Evaluating Marshall's formula for permeability, by G. H. F. Gardner and J. H. Messmer.
How to stabilize long exposed shale sections, by Walter J. Weiss, Wilbur L. Hall, and Richard H. Graves.
How to reduce down-hole corrosion with inhibitors, by Jack P. Stanton.

SCIENCE

Volume 131, Number 3407, April 15, 1960:

Randomized cloud seeding in Santa Barbara, by J. Neyman, E. L. Scott, M. Vasilevskis.
Behavior and beliefs during the recent volcanic eruption at Kapoho, Hawaii, by R. Lachman and W. J. Bnok.

PETROLEUM ENGINEER
February, 1960:

Modern well completions: part 4 - Fundamentals of electric logging, by W. P. Biggs.
Legal pitfalls in foreign operations, by William A. Sachmann.
An analysis of clay mineralogy problems in oil recovery, part 1, by John E. Moore.

WESTERN OIL AND REFINING
Volume 57, Number 4, April 1960:

Here's a multiple-zone formation tester, by Pat Chisholm.

NATIONAL GEOGRAPHIC MAGAZINE
Volume 117, Number 3, March 1960:

Fountain of fire in Hawaii, by Frederick Simpich, Jr.; Ektrachromes by Robert B. Goodman and Robert Wenkam.
The night the mountains moved, by Samuel W. Matthews; Kodachromes by J. Baylor Roberts.

BOOKS

Practical petroleum engineer's handbook, by Joseph Zaba and W. T. Doherty	$14.00
Volume requirements for air and gas drilling, by R. R. Angel	3.00
Oil - from prospect to pipeline, by Robert R. Wheeler and Maurine Whited	2.95
Keys to successful competitive drilling, by Roy A. Bobo, Robert S. Hoch, George S. Boudreaux and R. R. Angel	5.50
Petroleum dictionary, by Hollis P. Porter (deceased)	6.00
Stratigraphic principles and practice, by J. Marvin Weller, Harper and Bros, New York	10.00
Invertebrate paleontology, by William H. Easton, Harper and Bros., New York	10.00

PACIFIC PETROLEUM GEOLOGIST
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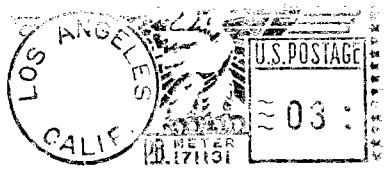
LOS ANGELES 13, CALIFORNIA

Volume 14 Number 6



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Los Angeles 17, California

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 July 1960 Number 7

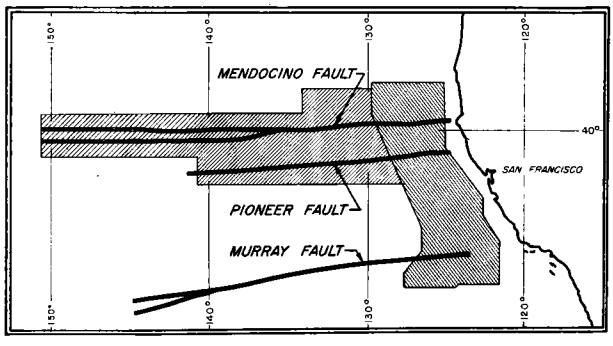
LOS ANGELES FORUM MEETING

Victor Vacquier, research geophysicist at the Scripps Institute of Oceanography, spoke before the June Forum Meeting in Los Angeles, discussing geomagnetic surveys off the coast of California and the evidence from these surveys indicating large lateral movements on the Mendocino, Pioneer, and Murray fracture zones.

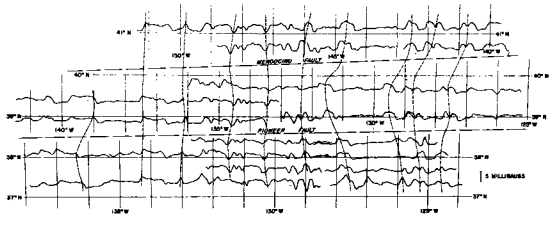
Scripps began geomagnetic surveys at sea about 1955, towing the magnetometer behind a Coast and Geodetic Survey ship making bathymetric measurements. During the last two years the magnetic survey was extended with Scripps' ships. The control lines are not evenly spaced, but in places parallel one another as closely as five miles, covering all together the immense area shown on the index map below. This area is cut by the previously mapped east-west fracture zones designated the Mendocino and the Murray. A new fault between the Mendocino and Murray was discovered and named the Pioneer. Vacquier emphasized that throughout most of the surveyed area, the magnetic highs occur over a featureless and flat abyssal plain. These magnetic anomalies are aligned at N. 6° W. with striking regularity between the fracture zones.

The Murray fracture zone shows a possible 84 miles of right lateral offset on the magnetic anomalies. However, this displacement is not as conclusive as the apparent displacements across the Pioneer fault. Matching the anomalies across the latter indicates about 3 degrees or 138 miles of displacement in a left lateral sense (Nature, vol. 183, pp. 452-453, Feb. 14, 1959). The lower part of the profile diagram below clearly shows this offset. Considering both fracture zones and the matching profiles north of the Mendocino and south of the Pioneer suggests strongly that there has been 16.8 degrees or 780 nautical miles of left lateral movement. Statistically, the matching anomalies are excellent fits, although geologically the problems created are staggering.

As interpreted by the speaker, the anomalies are most likely caused by thick volcanic flows at a depth of less than five miles. The thickness of the flows is estimated at 1 1/2 miles. On the map these bodies have a width from 10 to 30 miles, and some of them are over 100 miles long. Since movement is in the reverse sense from that of the San Andreas, it may pre-date the suggested large movements on the San Andreas. If the earliest of these movements was Jurassic, then the offshore left lateral displacements of the magnetic highs may be Paleozoic. This implies that the magnetic patterns are very ancient and that the bottom of the ocean was very stable since the Paleozoic era.



Index Map of a Part of the Pacific Ocean Showing Fault Zones and Area of Magnetic Surveys (crosshatched)



Profiles of total magnetic intensity parallel to and on either side of the Pioneer and Mendocino faults. Apparent offset restored and profiles matched to show 780 nautical miles (16.8 degrees) of left lateral displacement across both faults.

The second speaker of the evening was Bernardo Grossling of the California Research Corporation. Mr. Grossling spoke on Continental Drift, reviewing the literature from Wegener in 1922 up through the recent paleomagnetic studies of Runcorn and others. Most of the evidence for drift is based on paleomagnetic work, which assumes that the earth's magnetic field was dipolar, as now, back through geologic time, with the axis of the dipole inclined with respect to the earth's axis of rotation.

The paleomagnetic technique depends on the magnetic properties of ferro-magnesian minerals in volcanic rocks and in the cement of sedimentary rocks. In volcanic rocks a scatter of orientations is obtained, but the variation is usually not large and can be accounted for by secular variation in the magnetic field over thousands of years of cooling. In Recent volcanics the mean vectors point to the axis of rotation.

Traced back through geologic time, selected groups of magnetized rocks show the following:

Tertiary (Australia, Northwest United States, Iceland) - Magnetization points to a location near the present pole.

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Activities	Dwight J. Laughlin
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Next Deadline: July 27, 1960

Triassic (England) - The vectors require a clockwise rotation of the pole.

Permian (North America and Europe) - Requires that the equator be through North America and Europe. This would explain tillites in South Africa and Australia.

Precambrian (England) - Suggests even more extreme migration of the poles.

In conclusion, it was pointed out that a progressive deviation of the poles through geologic time is evident, even though the data are few and the movements apparently discontinuous. This is best explained by large displacement of the continents. Other lines of evidence, such as the paleontologic and the climatological, are not inconsistent with drift according to Grossling. Moreover, necessary forces of the proper magnitude may exist if convection currents operate beneath the crust.

In the discussion that followed, Jerry Winterer pointed out weaknesses to the paleomagnetic work which make the determinations and the conclusions highly suspect! His points are as follows:

1. Except for Recent and Tertiary lavas (which show the pole in its present position), all measurements are made on sedimentary rocks.

2. The sedimentary fabric usually shows a directional subparallelism because of current lineations and other depositional sedimentary structures. This preferred orientation is imparted to the infilling cementing materials, one of which is hematite, the most commonly measured paleomagnetic constituent of sedimentary rocks. An original directional orientation in the hematite may yield a magnetic vector paralleling original sedimentary lineation, and does not necessarily show anything about the position of the poles.

3. Relatively mild compression completely obscures previous magnetization. Many of the sediments measured have been deformed; and we are therefore obtaining directional elements relating to deformation and not to pole location.

4. The basic assumption that the earth has been dipolar back through geologic time is reasonable only for the Tertiary and Recent, during which time the paleomagnetic pole plots at or very near its present location. Before the Tertiary there is absolutely no assurance that the earth was not quadripolar or even octopolar. If the latter was true, paleomagnetics would naturally show large variations from the present dipolar system.

PICNIC POST-MORTEM

INDUSTRY FLASH:

OIL BUSINESS ON THE UPSWING!

If the pockets of the average geologist reflect the health of the industry, the oil business hit bottom last year and a rising trend is clearly detectable. That's the opinion of 1960 Spring Picnic Co-Chairmen John Elliot and Ed Gribi. They cite the following attendance figures to prove their point:

1957	398
1958	305
1959	294
1960	317

In addition, 80 people played golf at Las Posas Country Club and 135 people enjoyed the new feature, a field trip along the San Gabriel fault zone. Regardless of your interpretation of these statistics, one thing is certain - 215 geologists managed to stay away from their desks all day that day - a record number.

The picnic was the usual excellent affair in the established tradition. Financially, the Co-Chairmen report a surplus a little larger than any past years on record. This is due to the continuing support of firms and individuals listed elsewhere, and to the increasing experience of Jack Wood in his food purchasing. The food cost per man was lower than previous years yet the quantity and quality of the meal was equal to any. Beer consumption was 7.8 cans per man, a figure that has not varied 0.3 in 4 years. Amateur sociologists could undoubtedly draw many conclusions regarding our profession from this physical constant. At least beer-drinking geologists can use this norm to gauge their own ability under these controlled conditions.

Andy Vidos demonstrated his administrative capabilities as chairman of the field trip by riding in air-conditioned comfort while his efficient crew (Dick Walters, Ted Off, Lew Nelson, Bob Sainem and others) hustled 30 cars and 135 riders around a very well-planned route. The California Highway Patrol cooperated by convoying the group through the heavy traffic of Highway 99 and other main routes. Few geologists will forget the patrolman stopping traffic on Highway 6 near Whitney Canyon fault in Placerita field while the entire group crossed on foot like a bunch of school kids. The only real hitch in the whole affair occurred when the whole crew showed up at Oak Flat Campground for lunch right on schedule, with not a sign of the lunch committee. Near panic was prevented when scouts

found the committee, Kermit Giddens, Mike Sokowski and Bill Wilks patiently waiting with tables spread and beer iced at nearby Frenchman's Flat Campground. The highway patrol discreetly turned its head while this group made one of the fastest rides on record between the two campgrounds. The trip wound up at the end of the Whitaker Peak fire road where John Crowell and Bob Paschall summarized the opposing sides of the San Gabriel fault question in gentlemenly fashion. Earlier on the trip Otto Hackel discussed the history and geology of the Placerita field.

Golf chairman Bill Castle reported that Frank Yule considerately avoided playing this year, thus leaving a few prizes for somebody else. Jim Mercier, Tidewater, Bakersfield, was Low Gross winner with a score of 80.

The Co-Chairmen wish to acknowledge the hard work of all the people mentioned above plus: Joe Ernst, Contributions Chairman; Dick Triplett, salad preparation; Doug Traxler; signs, Gene Johnson, smokes, cards, dice, etc.; Jack Leach and crew, grounds and clean-up; Homer Steiny, gate; Jack Wood's hardworking bunch of assistant cooks; and any others that escaped notice. The Co-Chairmen report that these regulars and irregulars were so efficient that the Co-Chairmen were able to participate in all the activities with a minimum of responsibility, and to consume their 7.8 cans of beer apiece.

Many thanks!

The Executive Committee of the Pacific Section and Co-Chairmen of the 1960 Spring Picnic have requested that the following firms and individuals who made contributions of money or materials be acknowledged publicly:

Newhall Land and Farming Co.
Rapid Blueprint Co.
Schlumberger
R. and R. Well Logging Co.
Pacific Log Exchange

Economy Blueprint
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Santa Fe Drilling
Petroleum Technologists
Cal-Pan Am Well Logging
Munger Oil-o-Gram

Tri-Counties Blueprint
Cecil Waring

SAN GABRIEL FAULT GUIDE

A few 21-page guides to the geology of the San Gabriel Fault zone in the eastern Ventura Basin are available from Pacific Log Exchange, 2110 Cherry Avenue, Long Beach 6, for $1.00, postpaid. These guides were prepared for the Spring Picnic Field Trip, June 10, 1960, under the editorship of Ted Off. Included are a road log, regional geologic map, geologic notes concerning Whittaker Peak quadrangle by John Crowell, geology of Britt Park area by Bob Paschall, outline for study of a major fault by Bill Corey, correlation chart by Paschall and Off, description of rock units by Ted Off, suggested alternate field trips in the area, and a bibliography.

BRANNER CLUB

The Branner Club held its last meeting of the season on May 23rd at which time the following officers were elected: Wayne Loel (Retired) - President; John Shelton (Pomona College) - Vice-President; Lucy Birdsall (U.S.G.S.) Secretary-Treasurer.

COAST GEOLOGICAL SOCIETY

On Tuesday, May 31, 1960, Dr. William A. Donn, Professor of Geology and Research Associate at Lamont Geological Observatory, New York, spoke on "A Theory of the Ice Ages". A summary of Dr. Donn's talk appeared in the June issue of the P.P.G.

GEOLOGICAL SOCIETY OF SACRAMENTO

The annual field trip of the Geological Society of Sacramento was held June 3rd, 4th, and 5th, in the Klamath Uplift-Eel River Basin areas of northern California. This trip was held jointly by the GSS and the California Association of Engineering Geologists (CAEG).

Ira E. Klein, (USBR, Sacramento) conducted Trip I, Friday, June 3rd, from the town of Shasta to Weaverville, via the Trinity Dam. The trip covered Trinity River Projects under construction, the complex geology of the area, and the historical features. A joint GSS and CAEG dinner was held that evening at the Gables restaurant.

On Saturday, June 4th, the GSS and the CAEG separated on two different trips, the GSS traversing the Klamath uplift and northern Coast Ranges, conducted by Wm. P. Irwin (USGS, Menlo Park), and the CAEG studying in some detail the Trinity River Project. B. G. Hicks of the California Dept. of Water Resources discussed both engineering and geological features of dam sites, slide areas, and highway problems. The GSS ended that evening at Arcata, while the CAEG concluded their scheduled field trip at Redding.

Sunday, June 5th, the GSS and members of CAEG met in Eureka for the final portion of the trip (Trip III), a conducted tour of the geological features of the Eel River Basin. Bud Ogle led the trip and Art Hawley of Sacramento provided a resume of the Tompkins Hill Gas Field.

All in all it was an exceptionally interesting and well-conducted trip. The Committee in charge consisted of Glen Ware (Texaco, Sacramento) - Chairman, B. G. Hicks (Cal. Dept. Water Res.,

Sacramento) - Co-Chairman, Ira E. Klein (USBR, Sacramento), A. S. Hawley (Consultant, Sacramento), Robert Farina (USBR, Sacramento), Lyle Timberlake (Cal. Dept. Water Res., Sacramento), and George Brown, (Ohio Oil Co., Sacramento).

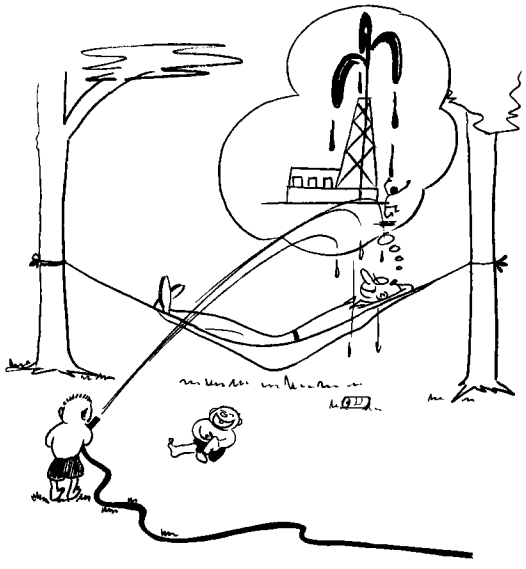
Many thanks are due to the contributors who furnished refreshments.

Copies of the excellent Guide Book are available, at $3.00, from Jack Kearns, Western Gulf Oil Co., P.O. Box 4195, Sacramento. He also has a few copies of those Guide Books from the trips of 1958 and 1959, at $2.00 each. Ed Karp, Kern Oil Co., Bakersfield, also has a supply of 1960 Guide Books for those in Bakersfield who were unable to attend.

GUIDEBOOK REDUCED

In an effort to reduce stocks and clear shelves, the Pacific Section has reduced the price of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions". This guidebook contains 200 pages plus, of maps, sections, charts, and road logs, and may be ordered from Harry Stuveling, Jr., Pacific Log Exchange, 2110 Cherry Ave., Long Beach 6. Price is now only $3.50 plus $.50 postage and handling.

ANDY CLINE by Sollwold



PERSONAL ITEMS

Rod Nahama (Honolulu) and George Soronen (Continental) were convinced that Alaska is still a land of opportunity when they returned from a traverse to find a beautiful blond model sizing up the dimensions of their helicopter parked along the Yukon River.

Orrin Gilbert, Standard, is expected to return to Anchorage about July 17 after a 6-week vacation in the "Small 48" where he has been comparing nitelife with the wildlife of the Kenai Peninsula.

Texaco's Norris Saunders is on vacation in the Ozarks, visiting relatives. It is not known whether the relatives are "Moonshiners" or "Feds".

Frank Goodban, vacationing in Colorado, complains that all the 12 inch and 14 inch trout get in the way of the "big" ones.

Union's Glen Ledingham is back in town after a 21 month stint in London, England. His home vacation happened to coincide with a trip abroad by Pete Gardett so they've traded houses.

K. B. (Pete) Hall, Richfield, crossed bowsprits with Tom Rothwell, Richfield, on San Diego Bay recently when they trailed their sailing buckets to a Coronado small boat regatta. Pete's oldest (of seven) son, re-Pete, was his crew while Tom specialized in pretty girl crews and naturally placed one-point higher. Tom was sixth and Pete seventh in a fourteen boat fleet. Pete's re-Pete just finished his Plebe year at West Point. Bets are even on whether the "down-hall" was due to the beautiful "Miss Coronado" who presented the trophies or to the other distracting influences including free draft beer!

Maurie Sklar, West Coast geophysicist for Union in Bakersfield, is transferred to Los Angeles where he will work on foreign projects.

Bill Sax from Houston, Texas will replace Maurie Sklar in Bakersfield for Union.

From Calgary, Canada Bob McConville, Signal, has been visiting his old stamping grounds in Bakersfield and Los Angeles.

Woody Wilson, Gulf, Bakersfield, is being transferred to Salt Lake City, Utah.

Jim Eymann, Gulf, is being transferred from Bakersfield to Sacramento.

Warren Stoddard, Richfield, after spending the long dark cold winter in Alaska came back to Bakersfield in the face of a brilliant heat wave.

Tom Llewellyn, Honolulu, has been duly elected by the citizens of Kern County to the Republican Central Committee.

George Clark, Richfield, is back from the Gulf of Paria visiting his friends in Bakersfield.

Winners at the Bowling tournament held in conjunction with the International Oil Scout's Convention in Los Angeles were Ken Jensen, Tidewater, who took home a trophy for high handicap game (196 + handicap) and Cliff Edmundson, Shell, who won the high scratch game trophy with an even 200. Dale Rodman bowled the third highest scratch game but ended up with the lowest handicap game???

George Rudkin, Ohio, Bakersfield, bowled a 267 game and a 608 series during league play on the Ohio Exploration team and won a pen desk set.

Wes Bruer, Bakersfield, is temporarily in Williamette Valley, Oregon with his family.

Cutler Webster, Honolulu in Bakersfield, has taken up soaring as a hobby. He says "with a sail plane you needn't worry about the engine quitting. It already did!"

Congratulations and best wishes go to George Brown and Mrs. (the former Joyce Roach of Sacramento, formerly of Tennessee), who were married Saturday, June 18th. They honeymooned on the Russian River.

Jim Payne, Standard, has been transferred from the Salt Lake office to the Oildale office, Bakersfield.

A low net of 65 by Bob Lindblom, Standard, won the recent San Joaquin Valley API golf tourney at Bakersfield Country Club. Bob shot a gross 78 to win a sizeable purchase order at the pro shop.

In the same tournament Bill Horsley, Richfield, walked off with the low net blind bogey prize. Some of his opponents were heard to mutter "crooked deal" when they found out he had the next to highest gross score.

Recent additions to Standard's Oildale office are John Jacobson from Ventura, Jim Blom from Los Angeles, and Mort Poulagar from Calexco, Ecuador.

Lynn Price's money belt is fat as ever since he returned to Anchorage from Europe.

Since the austerity programs have hit Anchorage some geologists have been reported building their own boats to be used for geologic field reconnaissance. Fishing poles and lures will be taken along to secure food in case of emergency!

News from Texaco's Alaskan Squad: Phil Patton arrived on the North Slope short "shorts".

Jay Wagner, Union, Bakersfield, has acquired a new Jaguar and reports that it has an affinity for traffic officers.

NURSERY NEWS

A new arrival for the John Carsons, Standard, Oildale - Kevin Stuart, born June 16th, weighing 8 lbs. 12 oz. This is their second child, both boys.

Mr. & Mrs. Dave Calloway, Rheem, Bakersfield, had a baby girl on June 6th weighing 7 lbs. 11 oz. Her name is Lael and she has one brother and one sister and Dave says this is the way it is going to remain.

D. Wales (Richfield) has at last reluctantly given in to the old U,S, custom of handing out cigars in the event of fatherhood, Latest addition is Peter Ned, born June 22nd.

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U. S. GEOLOGICAL SURVEY

Professional Paper 295: Comprehensive survey of sedimentation in Lake Mead, 1948-49, by W. O. Smith, C. F. Vetter, G. B. Cummings, and others.
Professional Paper 333: The foraminiferal genus ORBITOLINA in North America, by Raymond C. Douglas.....$1.50
Professional Paper 334-C: Trilobites of the Upper Cambrian Dunderberg Shale, Eureka District, Nevada, by Allison R. Palmer.....$ .65
Bulletin 1082-D: Beryl-bearing pegmatites in the Ruby Mountains and other areas in Nevada and northwestern Arizona, by J. C. Olson and E. N. Hinrichs.....$1.25
Bulletin 1084-F: Spectrophotometric determination of traces of lead in igneous rocks, by C. E. Thompson and H. M. Nakagawa.....$ .15
Bulletin 1093: Surficial geology of Anchorage and vicinity, Alaska, by R. D. Miller and E. Dobrovolny.....$2.25
Water-Supply Paper 1494: Geology and ground-water resources of the Matanuska Valley, Agricultural area, Alaska, by Frank W. Trainer.....$1.25
Water-Supply Paper 1541-B: Double-mass curves, by James K. Searcy and Clayton H. Hardison. With a section Fitting Curves to Cyclic data, by Walter B. Langbein. Manual of Hydrology: Pt. 1: General Surface-water techniques...$ .20
Circular 425: Are you concerned about water? You will be, by Arthur M. Piper.....Free
Circular 428: Reports and maps of the Geological Survey, released only in the open files, 1959, by B. A. Weld, E. S. Asselstine, and Arthur Johnson.....Free
Maps:
GP 211: Reconnaissance airborne magnetometer survey off Southern California, by R. W. Bromery, K. O. Emery, and J. R. Balsley, Jr.....$ .50
MR 8: Chromite, cobalt, nickel and platinum occurrences in Alaska, by E. H. Cobb.....$ .50
MR 9: Copper, lead and zinc occurrences in Alaska, by E. H. Cobb, 1960.....$ .50
MR 10: Molybdenum, tin and tungsten occurrences in Alaska, by E. H. Cobb.....$ .50
MR 11: Antimony, bismuth, and mercury occurrences in Alaska, by E. H. Cobb.....$ .50

GEOLOGICAL SOCIETY OF AMERICA BULLETIN, Vol. 71, no. 5, 1960

Steroscopic-pair projection of aerial photographs in map compilation, by R. R. Coats.
Geologic time scale, by Henry Faul.
Load-cast terminology and origin of convolute bedding: Further comments, by Harold H. Sullwold Jr.
Phosphatized wood from the Pacific sea floor, by Edward D. Goldberg and Robert H. Parker

OIL AND GAS JOURNAL, Vol. 58, No. 17, April 25, 1960

Evaluating a drillable prospect.
Analog computer leads the way to better control, by R. S. Bettes and L. T. Wright.
Choppers cut Iran Mountains down to size, by H. Sommer.
Palynology as a working tool, by John F. Grayson.
Reduction of commingling is prime target at airport line in California, by D. H. Stormont.

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How to insure against blowouts, by T. B. O'Brien and W. C. Goins, Jr.
Factors to consider in reserve evaluation, by E. A. Hartsook.
Mechanical simulators used to check design formulas, Part 2, by Joseph Zaba

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Deep well pumping methods, by Fred D. Friffin
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First commercial oil discovery for the Philippine Islands, by Joseph A. Kornfeld.
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Log evaluation at the well, by R. P. Alger.
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Simplified log interpretation, Part 2, by Terry Walker.
Air-hammer drilling in the Permian Basin, by H. F. Downs.

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Quick methods of oil-reservoir analysis, by R. V. Higgins.
Waterflood curtailment -- pro and con, by Donald E. Menzie and Frank W. Cole.

JOURNAL OF GEOPHYSICAL RESEARCH, Vol. 65, No. 3, March, 1960

Near-surface land subsidence in western San Joaquin Valley, California, by Ben E. Fofgren.

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Aluminum platforms prove successful in Lake Maracaibo, by Roy Striekert, Jr., and W. B. Moore, Jr.
How to control blowouts, Part 1, by T. B. O'Brien and W. C. Goins, Jr.
How to deepen small cased wells with cable tools, by L. E. Collins.
How to evaluate current finding coasts by R. E. Megill.
Inverse filtering helps solve problems of offshore multiples, by Milo M. Backus.
Mexico has active program of oil and gas development, by L. J. Logan
New discoveries spark Dakota play in northern New Mexico.
New waterflood features unitized equipment layout, by J. A. Pryor.
Slim hole completions reduce development costs, by James G. Bonsall.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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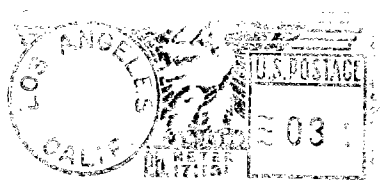
Volume 14 Number 7



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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 August 1960 Number 8

HUGH W. McCLELLAN

1901-1960

Hugh W. McClellan passed away in Long Beach on July 31, 1960, after an illness of several months.

Hugh was born in Oregon in 1901 and came to California in 1920 to attend Stanford University, finishing in 1922 with an A.B. Degree in geology.

Upon graduation, Hugh accepted a position with Carbonado Company at Seattle, Washington as a Mining Engineer and Geologist. Later he entered Massachusetts Institute of Technology receiving his M.S. Degree in 1926.

Hugh was a Petroleum Geologist in Oklahoma from 1926-1932, Consulting Geologist in Kansas from 1932-1942, and returned to California in 1942 as Geologist and Petroleum Engineer with Belridge Oil Company. In 1944 Hugh became a Geologist for Continental Oil Company where he conducted subsurface studies at the Seal Beach and San Miguelito oil fields, and also led the expansion of Conoco's exploration program into the Sacramento Valley, Washington and Oregon.

Hugh's original research into the computation and evaluation of dipmeter, results culminating with his comprehensive chapter on this subject in Leroy's "Subsurface Geologic Methods", was one of his major scientific contributions.

We who knew Hugh will recall he was a gentle and good man, with a kindly outlook on humanity. Hugh was devoted to the mountain country, an ardent skier, and a charter member of the Sierra Club.

LOS ANGELES LUNCHEON MEETING

Mr. Robert Dyk, Manager of Foreign Exploration, Tidewater Oil Company, presented an illustrated talk on the Spanish Sahara at the Rodger Young Memorial Auditorium, Thursday, July 7th.

Concessions in the Spanish Sahara were offered for competitive bidding by the Spanish Government in 1959, and approximately twelve oil companies have since been awarded concessions. Although relatively little is known about the geology of the region, competition for the concessions was keen.

Morocco, where approximately 150 wells have been drilled, is the nearest area in which any amount of exploratory drilling has been attempted. The nearest of these wells, about 50 miles north of the Spanish Sahara border, has encountered some oil shows in upper Paleozoic rocks. A well drilled in Algeria, near the Spanish Sahara border, had shows but the section was too tight for production. The nearest commercial oil production is in Algeria, where the producing section ranges from Cambrian to Carboniferous. These rocks are found in outcrop in the Spanish Sahara.

The most active of the producing areas of the world include Saudi Arabia, Algeria and Canada. Each of these areas is characterized by a large Precambrian shield adjacent to a platform. Folding of the platform sediments is gentle near the hinge-line, but increases away from it, producing a distinct folded belt. These conditions are also found in the Spanish Sahara, with a shield area in the southeast separated by a hinge-line from a folded belt in the Atlas Mountains to the north.

The axes of folds in Morocco define a northeast-southwest structural trend which swings to a more north-south direction near the border of Spanish Sahara. The section exposed in Morocco contains at least 30,000 feet of Paleozoic and Mesozoic sediments, almost all of which are marine.

Major concessions in Spanish Sahara are owned by Tidewater-Sohio, Union, Gulf, Richfield, Caltex and Phillips. Exploration is under way and Tidewater expects to drill its first well next year.

COASTAL CORRESPONDENT

Jerry Williams (Ohio, Ventura) has taken over as Coastal Correspondent for the P.P.G. Phone or write Jerry at MIller 38102, P.O. Box 3035, Ventura.

ANNOUNCEMENT

Geological Bowling League: Bakersfield

Enough interest has been indicated by geologists of several companies in Bakersfield to insure the formation of a winter bowling league. The league will consist of ten four man teams representing various oil companies in the Bakersfield area. Those interested in entering a team please contact Dale Rodman or George Rudkin, Box 193, Bakersfield.

ANCHORAGE BARBECUE

JOE DOCKWILLER is still reminiscing about the Anchorage Petroleum Club Barbecue held at Sand Lake on July 15th. It had all the best features of Pico Canyon, Bakersfield API, and the Santa Maria Barbecue. All it lacked was HOMER STEINY taking tickets at the gate. High light of the barbecue was a soft-ball game in which the Dangerous River Dippers won over the Sagavanirktok Strikers with a score of 15 to 3. One of the Dangerous River Dippers, DANGEROUS DAN (RIC) SHOEMAKER, preferred to catch without a glove. DEAD EYE (TOM) KELLY was the winning pitcher. CHARLIE (FOUL BALL) LUNDGREN was one of the hardest hitters of the day. Another high light was BILL OSBORN water skiing in the arctic twilight. Bill, in order to avoid the floating ice in Sand Lake, demonstrated an under-water technique of skiing. Members of the Anchorage Petroleum Club are proud to state that only 5.3 cans of beer per person were consumed. This compares with a consumption rate

PACIFIC PETROLEUM GEOLOGIST

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Editor	Bradford K. Johnson
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Activities	Dwight J. Laughlin
Personal Items	Darren Wales
Selected Bibliography	Lucy Birdsall
Calendar	Hershell H. Nixon
Cartoonist	Mort Kline
	Harold Sullwold
Coast Correspondent	James J. Williams
Alaska Correspondent	Donald D. Bruce
	Ernest Bush
Los Angeles Correspondent	Frank A. Exum
Northwest Correspondent	Malcolm B. Greene
Sacramento Correspondent	Lowell Garrison
San Francisco Correspondent	D. H. Pfeiffer
San Joaquin Correspondent	George Rudkin

Next Deadline: Aug. 31, 1960

of 7.8 cans per person recently reported by a California group. Alaskans are proud of their clean living!

DIRECTORY

A new, revised, up-to-date directory will soon be available according to Harry Stuveling who is in charge of same. Compared to the one last fall, there are about 200 additional names, new pictures (those sent in recently as well as last year), and many address changes. Proofs of the directory will be back sometime this month, and changes can still be made for a few days only by contacting Harry immediately at 2110 Cherry Avenue, Long Beach 6. Watch the P.P.G. for announcement of printing and availability.

GUIDEBOOKS

Copies of two guidebooks are still available from Harry Stuveling, Pacific Log Exchange, 2110 Cherry Avenue, Long Beach 6. One of these is "A Guide to the Geology and Oil Resources of the Los Angeles and Ventura Regions," a fancy bound, glossy book of 200 pages for only $3.50 plus 50¢ postage and handling.

The second guide was prepared for the Spring Picnic and covers the San Gabriel fault zone. It contains road logs, a regional geologic map, a detailed map of Britt Park area, notes on the Whittaker Peak Quad., a correlation chart, etc. The cost is only a dollar postpaid.

COAST GEOLOGICAL SOCIETY

The Coast Geological Society held its Annual Barbecue on August 6 at Ojai. Outstanding events were Jack Wood's culinary work, the Vino Roco (a fine wine painstakingly made in the Upper Ojai vineyards of Pete Hall), and Charlie Booth abstaining from beer until 7:00 p.m.

ALASKA SCIENCE CONFERENCE

The American Association for the Advancement of Science will hold the 11th Alaskan Science Conference on August 30 through September 2 at Central School in Anchorage.

Speakers will include T. L. Pewe' and L. Burbank, "Multiple Glaciation in Yukon-Tanana Upland, Alaska"; T. Kelly, "General Geology and Oil Occurrence in Cook Inlet Basin"; D. S. Barnes, "Preliminary Results of Gravity Surveys of Interior Alaska"; J. Parkinson, "Cretaceous Strata of Cape Douglas Area, Alaska Peninsula"; P. L. Lyons and R. L. Gahring, "Gravity Field of Alaska"; A. H. Lachenbruch, G. W. Green, and B. Von Marshall, "Preliminary Results of Geothermal Studies at Ogotoruk Creek, Chariot Test Site, Northwest Alaska"; and R. B. Forbes, "Preliminary Investigation of Petrology and Structure of Birch Creek Schist in Fairbanks and Circle Districts, Alaska."

PERSONAL ITEMS

Texaco, Inc. has completed the move of its newly established Sacramento District Office to its new address, 1722 "J" Street (telephone Hickory 64087). Bill Bauer is the Division Manager. Along with the increased scope of Texaco's activities in the area are added the following personnel: Ed Hudson, geologist from Santa Maria; Austin Drake, new scout from Los Angeles; Wayne Eckart, district landman from Bakersfield; Ed Lacey, landman from Santa Maria; Pete Patterson, geophysicist, recently from Oregon State.

Bob Ohrenschall, Shell, Sacramento, has retired after 22 years' service effective July 1st. The Ohrenschalls are presently on a vacation trip in Alaska, and then will return to Sacramento. Our highest regards to Bob and his family and we hope that they keep in touch.

Vern Jones, Exploration Logging, Sacramento, returned from a business (he says) trip to the exotic places of southern Europe: Madrid, Las Palmas, to the Pyrenees, to Palma de Majorca, and return via London. He was gone 20 May to 27 June. He reports that a lot of California expatriates are working in that area.

Schlumberger has added some new engineers to its staff: Norm Powell from Ventura; Chuck Ross from Atwood, Kansas; Bud Marchette from Coalinga. Some are taking the chance of buying a home.

Jim Young, Schlumberger, Sacramento, has recently returned from a one month's vacation in Wyoming; he got close to nature, fishing, hunting, etc.

Ralph Hawkins (Shell, Ventura) spent three weeks visiting the old homestead in Illinois. A local gas company wants to lease the farm for underground storage. Even though Ralph has yet to take any hydrocarbons out of the ground, he might at least succeed in putting some in.

In the Shell Ventura T.O.M. (Tired Old Men) softball league, the exploration team darned near has the celler clinched. Manager Charley Booth has gone so far trying to sharpen up his boys that he put a landman in as pitcher.

Don Hagen of Texaco is back in Ventura by way of Santa Maria and Sacramento. He brought enough hi-fi components to keep Mike Zaikowsky busy as repairman.

Roy Miley (Texaco, Ventura) finished his vacation in the local Southern California mountains during the same time that all the forest fires started. If Roy can't stay there, nobody can!

Lew Nelson (Ohio, Ventura) spent a week with his family in the mountains at Green Valley.

Sam Tate is back at work after a series of illnesses.

Ted Off spent his vacation with his family at Mineral King. It must have been pleasant as they were four days late returning.

Ed Dryden, Standard's Ventura well-completing expert, spent three weeks in Dixie. It was a combination vacation and research project on exotic fluid found only in "them thar hills."

Ernie Lian and Dick Stites (Ohio, Los Angeles) are spending part of the summer in Anchorage and environs.

Among those attending the International Geological Congress in Copenhagen are Russ Simonson (Ohio), Tom Baldwin (Monterey), and Orville Bandy (USC).

Hershell Nixon (Tidewater, Los Angeles) has been transferred to Corpus Christi, Texas. Nick was Calendar Editor for the P.P.G. Newsletter the past couple of years.

Margaret McKenzie is going to be wed,
To a Mr. Jim Cox, I think that's the name she said.
Margaret's a name that will long be remembered
In connection with rivers, rapids and benders.
When in the office she's witty and wise,
And when in the field just one of the guys.

The word's out that Howard Level (Union, Santa Paula) is going to paint a target on his forehead for irate well promoters to aim at.

Dick Lyon (Union, ex-Santa Paula) received the "call of the wild" and was last seen pushing a Volkswagon through mud holes on the Alcan Highway.

Ward Abbott (Shell, Ventura) is once again away from the office for schooling, this time in Houston.

Jim Mercer, geophysicist, and Lou Villanuevo, geologist, have joined the Tidewater exploration staff in the Canary Islands.

Effective August 1st were the following changes involving Tidewater personnel: T. J. Pujol, Dist. Geologist, Bakersfield to Midland, Texas as West Texas Dist. Exploration Manager; E. G. Young, Dist. Exploration Geologist, Bakersfield to Tyler, Texas to be East Texas Dist. Exploration Manager; R. N. Scott is no longer with Tidewater; J. Q. Snell, Houston, Texas will be the West Coast Dist. Exploration Manager.

Jim Bigelow, Gulf, Bakersfield, was in the hospital for a minor operation.

Mark Latker, Gulf, Bakersfield, was transferred to Midland, Texas.

John Truex former Bakersfield consultant is now in the Geological Section of the Long Beach Harbor Dept.

A new geologist has joined the Richfield ranks in Bakersfield. Bill Bazeley, born in So. Africa, attended Cal. and UCLA. Previously Bill worked for Baroid as a mud logger and for Richfield as an offshore geologist.

Bob Scott, Signal Oil & Gas, on vacation from his sojourn in Venezuela, S.A., returned to visit some of his compatriots in Bakersfield.

Bob Herron has been wondering why all the fuss about the heat in Bakersfield as he lounges casually by the new swimming pool in his back yard, cold brew in hand.

Frank Reynolds and Jack Leach have been transferred from the Sunray Newhall office to Bakersfield.

Honolulu Oil and Shell, consolidated a merger in the persons of Hollis Bertrand (Honolulu scout) and Roene Leslie (daughter of Clarence Leslie, Shell) who were married on July 9 at 8:00 P.M. in Bakersfield.

Fred Peters of Formation Logging Service was married in June to Vera Fusek of Washington, D. C. where the ceremony took place. Fred and Vera met on the ski slopes, which again shows the considerable hazards of this winter sport. After the ceremony the couple departed for Europe and North Africa where Fred is superintending operations of his com-- pany. The hardships of this "working honeymoon" are somewhat mitigated by the fact that the well requiring Fred's particular attention is located near Munich in easy commuting distance to the Hofbrau Haus.

Hal Swoverland, Schlumberger, Sacramento, has recently moved into a newly purchased house in Broderick.

Bud Marchette, Schlumberger, recently returned from a one month's pack trip in the mountains, a la Boyds.

Bill Poyner, UCLA, has recently joined the Ojai offices of Richfield.

NURSERY NEWS

Larry and Joni Johnson, State Lands Division, are proud to announce the arrival of their first baby, a girl. Lisa Lyn weighed 5 lbs., 11 ozs.

Bill McKay, Standard, Oildale, is the father of a 9 lb. 13 oz. boy named Scott Alexander McKay born on July 1, 1960. The McKays have one other child, a girl.

Milt Norton of Richfield, Bakersfield, and his wife Glenda had a baby girl on June 28. Her name is Evon Marie, she weighed 7 lb. 11-1/2 oz. and she has a big brother (age 3) named Mike.

Charles "Big Daddy" Johnson's (Union, Santa Paula) wife, Justine, gave birth to Stacey Justine, 5 lbs. 9-1/2 oz., on June 27.

CALENDAR

August 15, 1960: Monday, Noon, Rodger Young Auditorium, 936 W. Washington Blvd., Los Angeles. AIME Petroleum Forum, "Recent Air and Gas Drilling in California", E.H. Mayer, Monterey Oil Co.

September 7 or 8, 1960: Wednesday, 6:30 p.m., San Joaquin Geological Society; Dinner Meeting, El Tejon Hotel, Bakersfield. "Sedimentalogical Studies of Recent and Old Sediments," A.A.P.G. Distinguished Lecturer, Dr. D. J. Doeglas, Professor at the University of Wageningen and the University of Utrecht, Holland.

September 9, 1960: Friday noon, Luncheon Meeting, Rodger Young Auditorium, 936 W. Washington Boulevard, Los Angeles. A.A.P.G. Distinguished Lecturer, D. J. Doeglas, Professor at the University of Wageningen and the University of Utrecht, "Sedimentalogical Studies of Recent and Old Sediments."

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Stratigraphy and foraminifera of Lower Tertiary Vidono Shale, near Puerto La Cruz, Venezuela, by D. J. Stanley.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS,
Bulletin Vol. 44, No. 6, June, 1960

Exploratory Drilling in 1959, by B. W. Blanpied.
Oil and gas development in Utah and Nevada in 1959, by D. A. Preston and Graham S. Campbell.
Development in Arizona and western New Mexico in 1959, by Harrell Budd.
Development in West Coast area in 1959, by H. L. Popenoe.
Developments in Alaska in 1959, by Harold M. Lian.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS,
Bulletin Vol. 44, No. 7, July, 1960

A look at ourselves, by Lewis G. Weeks.
Thinking patterns for geologists, by Samuel P. Ellison, Jr.
It takes an optimist to find oil, by T. O. Hall.
Trends in Exploratory methods based on statistics from study of location of new-field wildcat wells, by B. W. Blanpied.
1959 Developments in foreign petroleum fields:
Mexico, by Federico Mina U.
South America and Caribbean, by E. W. Clark
Europe, by Robert E. King.
Africa, by Hollis D. Hedberg and John D. Moody.
Middle East, by Henry Hotchkiss.
Far East, by Godfrey F. Kaufmann.

Survey of preservation of samples and cores in United States and Canada, by Hal H. Bybee.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS,
Bulletin Vol. 44, No. 3, Part 1, March, 1960

Cretaceous biostratigraphy of Northern Alaska, by Helen Tappan.
Evidence of history of sea water from chemistry of deeper subsurface waters of ancient basins, by Keith E. Chave.

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Application of geology in computing depletion of producing properties, by Thomas C. Hiestand.
Can petroleum be of pedogenic origin, by Robert B. Cate, Jr.
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CALIFORNIA DIVISION OF MINES AND GEOLOGY

Fifty-sixth report of the State Mineralogist, 1960.....$2.00

GEOLOGICAL SOCIETY OF AMERICA BULLETIN,
Vol. 71, No. 6, June, 1960

Review of paleomagnetism, by Allan Cox and Richard R. Doell.

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Chemical composition of sandstones, by G. F. Middleton.
Late Pleistocene marine terraces on Santa Rosa Island, California, by Phil C. Orr.
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Wind direction in the western United States in the Late Paleozoic, by N. D. Opdyke and S. K. Runcorn.

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Oil conservation in the classroom, by Wallace F. Lovejoy, vol. 58, no. 30, July 25, 1960.
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First natural occurrences of coesite, by E. C. T. Chao, E. M. Shoemaker, and B. M. Madsen.

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Behavior of rock salt, limestone and anhydrite during indentation, by W. F. Brace.
Proton Vector Magnetometer, by L. Hurwitz & J. H. Nelson.

TRANSACTIONS AMERICAN GEOPHYSICAL UNION, Vol. 41, No. 2, June, 1960

Isostatic compensation and origin of continents and mountains, by David T. Griggs.

THE PETROLEUM ENGINEER, vol. 32, No. 7, July, 1960

Low-solids mud resists contamination, by H. E. Mallory, W. E. Holman & R. J. Duran.
Modern well completions, Part 7.
New developments in nuclear logging, by John C. Stick, Jr.
Percussion drilling tool increases bit footage, by Walter E. Liljestrand.
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U. S. GEOLOGICAL SURVEY

Bulletin 1071-G: Geomorphology of the Upper Kuskokwim region, Alaska, by A. T. Fernald....$1.25
Bulletin 1082-E: Strategic graphite--A survey, by Eugene N. Cameron and Paul L. Weis.$1.25
Bulletin 1083-D: Pulse-transient behavior of brine-saturated sandstones, by George V. Keller.$15
Bulletin 1085-A: The development of botanical methods of prospecting for uranium on the Colorado Plateau, by H. L. Cannon.....$1.00
Water Supply Paper 1459-F: A survey of pertinent biochemical literature, by Eugene T. Oborn.....$.30
Water Supply Paper 1541-A: General introduction and hydrologic definitions by W. B. Langbein and K. T. Iseri.....$.20

MAPS:

MF 231: Reconnaissance map of the Willcox, Fisher Hills, Cochise, and Dos Cabezas Quadrangles, Cochise and Graham Counties, Arizona, by J. R. Cooper.....$.50
MF 237: Preliminary geologic map of the Deep Lake Quadrangle, Stevens and Pen Oreille Counties, Washington, by R. G. Yates and A. E. Ford....$.50

MISCELLANEOUS

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PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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LOS ANGELES 13, CALIFORNIA

Volume 14 Number 8

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 September 1960 Number 9

1962 AAPG-SEPM CONVENTION

Gordon Oakeshott, General Chairman, reports that preparations for the national AAPG-SEPM convention in San Francisco, March 26-29, 1962, are progressing, in spite of summer vacations. Recent appointments of chairmen and vice-chairmen of important operating committees are:

Dr. Paul A. Witherspoon, University of California, chairman Educational Exhibits Committee.

Paul Harvey, Shell Company, San Francisco, chairman Information Committee.

Dr. Ian Campbell, chairman Matson Award Committee.

Vern C. Jones, Exploration Logging, Inc., Sacramento, chairman Reception Committee.

Stanford L. Rose, Standard Oil Company, San Francisco, chairman Registration Committee.

Daniel J. Pickrell, Pexco, Inc., San Francisco, chairman, and Louis Simon, Texaco, Inc., Los Angeles, co-chairman, Technical (commercial) Exhibits.

Homer Steiny, Los Angeles, chairman Transportation Committee.

The Field Trip Committee, Parke Snavely, U.S.G.S., Menlo Park, chairman, and Jack Schoellhamer, U.S.G.S., Menlo Park, co-chairman, have completed lining up an excellent series of northern California field trips featuring exploration for natural gas in the Sacramento Basin but including the Santa Cruz Basin, local S.F. City geology, the San Andreas fault zone, and a Yosemite Valley trip for visitors and their wives.

Oliver E. Bowen, Jr., State Division of Mines, S.F., Guidebook chairman, is completing organization of a guide to the petroleum geology of northern California centering on the Sacramento Valley. Besides field trips and road logs, there will be general geologic papers which fit into the convention theme of Circum-Pacific Exploration for Petroleum, papers on surface and subsurface geology, and papers on specific fields and basins. The guidebook will include thumbnail sketches of the geology, history, production, etc., of all of the northern California gas fields. Assistance of the newly-organized Sacramento Petroleum Society has been invaluable in planning details of the sections of the guidebook on their areas.

1961 PACIFIC SECTION CANDIDATES

Nominating Committee Chairman Jack Isberg announces that the following nominees have been selected as candidates for offices of the Pacific Section, A.A.P.G.:

President
Benjamin C. Lupton (Mobil)
Irving T. Schwade (Richfield)

Vice President
Richard E. Faggioli (Humble)
Andrew J. MacMillan (Texaco)

Secretary
Robert O. Patterson (Pacific Oil Well Logging)
J. E. Holzman (Shell)

Treasurer
Linn F. Adams (Standard)
Richard L. Hester (Pauley)

SACRAMENTO PETROLEUM ASSOCIATION

Oliver Bowen and Gordon Oakeshott were guests at the Sacramento Petroleum Association luncheon at Scheidel's, Wednesday, August 3rd. They presented a tentative outline for the 1962 AAPG-SEPM Convention Guidebook. Seven areas were proposed for consideration for field trips: The Santa Cruz Basin, the San Francisco Peninsula, the San Andreas fault zone north of the Golden Gate, the Sacramento Valley geology and gas fields, the Sierra Nevada Foothills, the south side Mount Diablo, and north side Mount Diablo. This list resulted in much discussion from the floor, the most pointed remarks coming from Vern Jones (Exploration Logging), who said that too little emphasis is placed on exploration interests and subjects closely related to oil and gas geology. The SPA is considering offering a list of topics they consider to be of direct interest to the oil companies (who, after all, lay out the money to send representatives to the conventions, hoping for a return of practical knowledge gained).

Jim Young (Schlumberger, Sacramento) was the latest of a series of speakers at the Sacramento Petroleum Association. August 17th, he gave a talk on the Schlumberger Cement Bond Log, its application in locating the bonding point between cement and casing, and its application in demonstrating the effectiveness of water shut-offs. Other speakers in the past months have been Karl Arleth (Ohio, Sacramento) on the Maine Prairie Gas Field, Art Hawley (Sacramento) on Tertiary basalts of the Sacramento Valley, Dick Vaughn (Occidental, Bakersfield) on the Arbuckle Gas Field. Prospective speakers are encouraged to contact Bruce Brooks, Brazos, Sacramento.

Next Deadline: September 28, 1960

COAST GEOLOGICAL SOCIETY

Plans are under way for the Coast Geological Society's Annual Dinner Dance. Time and place are as yet undetermined. For information contact Jerry Williams, Dance Chairman, or Sig Hamman, Contributions Chairman.

SAN JOAQUIN GEOLOGICAL SOCIETY

The first monthly dinner meeting of the Fall season for the San Joaquin Geological Society was held Thursday, September 8, 1960, at the Hotel El Tejon in Bakersfield. Dr. D. J. Doeglas, AAPG Distinguished Lecturer, and Professor at the University of Wageningin, Holland was the guest speaker for the evening. Dr. Doeglas spoke on "Interpretation of Size Frequency Distributions and Classification of Sediments".

Abstract

The study of size frequency distributions and thin sections of the same sediments proves that practically all sediments are laminated. The alternating laminae are, even in well sorted sediments, of slightly different size composition. Sandy clays don't exist. They are built up of very thin laminae of a sand and a pelitic clay.

The study of size frequency distributions has shown that sedimentary processes are simple and accurate. When very thin layers have been collected, it is astounding how delicately the currents deposit their suspended material.

In a slowly decreasing current the coarsest particles settle first and the maximum grain size of the material that remains in movement decreases. The ratios of the size grades moving on, remain the same as those of the original material.

Sorting on the fine end of the frequency distribution of sands is also an accurate process. It could be shown that the minimum size of a sand remains constant over 15-25 miles in various environments.

In pelitic clay the sorting at the coarse side occurs in the same way. The ratios of the grades below 32 or 16 microns, left in suspension, remain practically constant. This material has such a low settling velocity that it is being deposited together.

A sample of a sediment, collected for analysis, consists of a number of laminae with varying degrees of sorting or alternatingly of sand and pelitic clay. In the latter case the sand and the clay can have different degrees of sorting. An adequate, graphic representation of the size frequency data can show this sorting and intermingling of different laminae.

The author developed a rectangular diagram which shows all data of size frequency distribution. A large number of size frequency distributions can be shown in one diagram and compared. It has the same advantages as the triangular diagram which, however, shows the ratio of only three grades. Classification fields shown in a triangular diagram can also be given in the rectangular diagram.

In addition to the classification and comparison, the rectangular diagram gives the possibilities to check the ratios between the grades in different samples, to visualize the sorting of sands and clays, the intermingling of sand and clay due to lamination and the admixture or loss of the finest clay grades caused by soil genesis.

The author, with the help of many analyses of the Netherlands Soil Survey Institute and his own laboratory, found that for series of data of sediments in certain environments, the symbols of each grade lie in the arithmetric rectangular diagram on weakly curved lines. On a double-logarithmic rectangular diagram the symbols of each grade lie on straight lines, if the material has been deposited from suspension. This is the case for silty clays and for sands deposited from turbidity currents. This means that the size frequency distributions of sediments deposited from suspension approach a negative exponential function.

Sorting and lamination of the samples give deviations from this function. Knowing the function of the size frequency distributions of sediments, can be developed. The classification is very simple and can be used in varying degrees of accuracy.

NCGS GUIDEBOOK FOR SALE

Additional copies of the NCGS - Pacific Section AAPG Spring Field Trip, May 7-8, 1954--Capay Valley-Wilbur Springs, Westside Sacramento Valley--Syllabus, have been located recently. This guidebook consists of a road log, correlation chart, and several correlation sections and geologic maps. It may be purchased from the Northern California Geological Society, c/o Earl W. Hart, State Division of Mines, Ferry Bldg., San Francisco, for $2.50.

PACIFIC SECTION GUIDEBOOK AND CROSS SECTIONS

The Pacific Section still has copies of "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" published for the 1958 National Convention in Los Angeles. This guidebook of 204 pages contains maps, cross sections, stratigraphic charts, and road logs. It may be ordered from Mr. Harry Stuveling, Jr., Pacific Log Exchange, 11515 E. Washington Blvd., Los Angeles, Calif. Price is $4.50, plus $.50 mailing and handling.

The following cross sections prepared under the direction of the Cenozoic Sub-Committee on Geologic Names and Correlations may be purchased at the same place for $1.50 each, plus $.50 postage and handling for mail orders.

Number and Publ. Date	A.A.P.G. Cross Sections
1 (1951)	Sacramento Valley - South (2 sheets) A: through Rio Vista, Thornton and Lodi Gas Fields, including Mt. Diablo. B: South Sacramento Correlation Chart.
2 (1952)	Ventura Basin - East (1 sheet) Basement North of Oak Canyon Oil Field to Aliso Canyon Oil Field.
3 (1952)	Los Angeles Basin (1 sheet) Palos Verdes Hills to San Gabriel Mts.
4 (1952)	Salinas Valley (1 sheet) San Antonio River northerly to San Andreas Fault, through San Ardo Oil Field.
6 (1954)	Sacramento Valley - North (2 sheets) A: From T23N, R1W through T16N, R1E. B: Correlation Chart.
7 (1956)	Ventura Basin - Central (1 sheet) From Santa Ynez Fault north of Ojai to Western Santa Monica Mts., through Ventura Avenue and West Montalvo Oil Fields.
8 (1957)	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 (1957)	Central San Joaquin Valley (1 sheet) From San Andreas Fault to Sierra Nevada Foothills, and passing through Coalinga, Guijarral Hills and Riverdale.
10N (1958)	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.

EXTENSION COURSE

An introductory course in petroleum geology will be given by University of California Extension. Meetings will be held at the Hillstreet Building in downtown Los Angeles beginning September 22, weekly thereafter from 7:00 to 9:30 P.M. A. L. Morris of Pauley Petroleum is the instructor.

U N I V E R S I T Y A C T I V I T I E S

UNIVERSITY OF OREGON

The Geology Department continues to "camp out" in the basement of Condon Hall but is greatly cheered by noting the steady progress being made on the addition to the Science Building which will house geology, beginning the fall of 1961. Dr. Ewart Baldwin returned from a year's Fulbright appointment in East Pakistan where he taught at the University of Dacca. Going across the Pacific and returning through Europe and across the Atlantic, he is now our only round the world staff member. His place was taken for the year by Dr. Elmar Walter, formerly of St. Louis University.

Dr. Lloyd Staples, Head of the Department, received a Guggenheim Fellowship and is in Mexico for the academic year 1960-61 studying the occurrence of zeolites in the volcanics there. Dr. Walter Youngquist is Acting Head of the Department in Dr. Staples' absence.

The Geology Department this year has four National Defense Ph.D. fellows, whose interests range from areal geology studies in western Montana, to the Jurassic eugeosynclines of central Oregon.

Dr. Ernest Lund continues his work on welded tuffs of Oregon supported by a University grant, and Dr. Vernon McMath, who joined us last year from UCLA, retains an interest in the geology of the northern end of the California Sierra and continues work there. Dr. Youngquist had the job this summer of checking theses areas in the field and as students had areas which included the bottom of Hell's Canyon and the top of the Wallow Mountains, Dr. Youngquist gained no weight on the trip, but is cheered by the fact that he is in first-class shape for the opening of the deer season.

Mr. James Stovall, popular undergraduate teacher on the campus, has just finished his summer school classes and is "on tour" in the interval before the beginning of school classes.

POMONA COLLEGE

This has been a momentous year for the geology department at Pomona. We moved into a magnificent new building made possible by Dr. Frank R. Seaver, '05, president of the Hydril Corporation. This is the second science building which has come to Pomona through Dr. Seaver in two years. These new laboratories are equipped in a truly remarkable manner for undergraduate instruction. Nearly a quarter of a million dollars has been available for geology alone. Incorporation of the new facilities into the curriculum has been a major project for the staff, and the result has been a revolution in teaching procedures, particularly in the fields of mineralogy, petrography and sedimentary petrology.

Not long ago the hand lens was the most complicated apparatus used in the mineralogy class; now that useful tool is supplemented by X-ray diffraction equipment and the finest Leitz and Zeiss microscopes. Chemical analyses of ores are run with an X-ray fluorescence spectrograph; Dr. Baird's work with this equipment during the summer has progressed to a point that quantitative analysis of granitic rocks will soon be possible. Students are using a Worden Master Gravimeter and an Askania Torsion Magnetometer to map rangefront faults and contribute

basic knowledge to local water supply situations. The availability of desk calculators has made it possible to introduce statistical methods whenever measurements are made. The Seaver Laboratory is an exciting place to work and this is reflected in the doubling of pre-registration enrollments for next year.

Dr. Gerhard Oertel, who has been working on the mechanical anisotropy of bodies during deformation, is going to U.C.L.A. in the fall. From U.C. Berkeley we have gained Dr. W. L. Quaide who strengthens our program particularly in sedimentary petrology, stratigraphy, and field geology.

FRESNO STATE COLLEGE

Geology majors graduated during the last year number 21, the most ever. Many recent graduates are continuing study at U.S.C., Univ. of Arizona, and elsewhere.

Staff news: C. N. Beard benefitted from the A.G.I.-sponsored June program of lectures and field excursions to the central Appalachians; E. G. Cserna again taught our summer field course in the Rocky Mts., this time near Casper; S. Mack taught in the campus summer session; G. M. Stanley spent some hot weeks of July and August continuing study of prehistoric Lake Cahuilla in Imperial Valley. One staff change is much regretted by all staff and students, the retirement of Arch R. Addington last June, after 32 years of devoted teaching. The dinner tendered him and Mrs. Addington by our majors on 22 May was a sentimental occasion.

Staff and students look forward to the 1961 occupation of new geology quarters now abuilding, and this transfer from original space, now leased from Fresno City College, will consummate the piecemeal move of Fresno State College to its new campus.

UNIVERSITY OF WASHINGTON

The most significant innovation at the University of Washington in the last year was the changing of our geology field course from the summer to the spring quarter. Bates McKee taught the course this spring and took a group of 15 undergrads and grads to the Paskenta area west of Corning, California in April to work on the Knoxville-Paskenta section. From there the group went to eastern Washington in May and mapped Precambrian and early Paleozoic metamorphics, intruded by Cretaceous? intrusives. The course seemed to go well, and will be given again in the spring next year.

In other department affairs, a change was made in the curriculum this last year so that it is now possible for a student to get an M.S. without a thesis. Dr. Mackin received a $25,000 NSF grant for studies in the Great Basin. Dr. Coombs and Wheeler are now in Scandinavia for the Geological Congress, and Wheeler will stay there this fall, returning about Christmas. Dr. Neumann, the Seismologist here, is on his way around the world after attending an engineering seismology meeting in Tokyo. Dr. Ross Ellis has been teaching at the University of Oregon this summer on an NSF program, Dr. J. D. Barksdale has been continuing work in the Methow Valley, and Dr. Misch in the northern Cascades of Washington. Drs. Mallory, Vance and Bates have been here on campus. Finally, the students are busy working throughout the West, and John Adams, a Ph.D. candidate, is returning this fall after being the first geology student from the United States to spend a year studying in Russia.

PERSONAL ITEMS

Back in Bakersfield from a summer of field work in the Alaskan bush country are Rex Young and Gene Tripp, Texaco.

Our country's security was further insured by two weeks of grueling U. S. Marine Corps Reserve training at Twenty Nine Palms Marine Base by Warren Gillies, Texaco. Warren, commanding officer, looked over the troops and local geology from a helicopter and got in a little target practice with a 155 millimeter artillery piece.

Bob Stoddard, formerly a Standard Oil geologist in Oildale, left the profession to attend UCLA in pursuit of a law degree.

The Standard Oilers baseball team consisting, in part, of Dick Meditz, Manager, Harold Deane, Bob Lindblom, Jim Payne and Bill McKay, were defeated in the semi-finals of the Kern County Softball Tournament.

Pat Wright, Superior's Bakersfield scout, recently had a lovely vacation in the Pacific Northwest. He may refer to it as a business trip.

Gulf's Los Angeles to Bakersfield migration includes John Gates, geologist, Don Gilkison, Area Exploration Manager for the western states and Alaska, Bob Johnston who is returning to Bakersfield, and Mick Lochenbruck.

Frank Reynolds, Sunray and Dick Hester, Pauley, braved the wilds of the high Sierran back country for seven days.

Don Gillespie, geologist, resigned from Shell to go back to school for a teaching certificate.

Bill Horsley, Richfield scout in Bakersfield, spent his vacation at Avila. Lost in the fog while fishing, Bill had to navigate by compass until he could "home in" on the bark of the local seal population.

Richfield's "garden spot" geologist Hal Reade is not only well sitting in Santa Cruz County but has talked the pusher into drilling only daylight tour. Lost circulation delays have further allowed Hal time to soak up Santa Cruz hospitality.

Bob Rist is now located in San Francisco as a geologist with Porter Sesnon.

Tom Llewellyn and Cutler Webster, Honolulu, recently rendezvoused in Fairbanks, Alaska.

Mobil's hardened bachelor John Spregue was overcome by the charms of Shirlee Burgemester and they were married on July 16, 1960. The Spregues bought a home in Bakersfield and are now faced with the problem of planting lawns and garden on the rock pile.

Doug Wilson, formerly with Intex in Bakersfield, and then in Midland, Texas, is back in Bakersfield.

Stanley Beck, prominent Bakersfield micropaleontologist, recently toured Europe and attended the International Geological Congress in Copenhagen. Of the Scandinavian countries visited, Stan says he preferred Denmark.

A going away party for Bob Paschall (Signal), Frank Yule and Carrol Hoyt (Mobil), was held in Ojai. It turned into a classic affair highlited by an A-1 steak B-B-Q prepared by Jack Wood. Action around the pool table suggested a misspent childhood for most of Ventura's geologists.

After taking female hormones to lessen the severity of mumps Rod Colvin (Mobil) suggests that the degree a person is affected by the disease is a measure of his virility.

Roy Martin, Union scout in Santa Paula, spent his vacation fishing, jade-hunting and sleeping at San Simeon.

Dick Stewart (Union, Santa Paula) has returned from a glorious vacation at the Geological Congress in Copenhagen.

Effective September 1, 1960, the California Division Office of the Amerada Petroleum Corp. will be located at 550 South Flower Street, Los Angeles 17, California, MA 4-9544.

Zed Grissom, Alaska District Manager, Sinclair Oil and Gas, has been transferred to Houston, Texas as Division Exploration Manager. Zed established some sort of "fiery" record in Anchorage-less than two months after a "house warming" was held at the Grissom residence, the house was sold and Zed and family were headed south with the geese!

Bob (Shorty) Kenyon has joined ranks of "lean" Alaskan geologists since his wife has gone outside on vacation. Bob thinks bachelorhood is for the birds.

The call of the wild has lured Lee Wix back to Alaska. Lee was seen recently heading up the slopes of Mount Wrangell (el. 14,005') in search of a trophy Dall Ram.

Further progress is being made by Alaskan geologists to establish "the highest standards for clean living in the industry". Last month, the very low consumption rate of 5.3 cans of beer per person was reported at the Annual Anchorage Petroleum Club Barbecue (this compares with 7.8 cans per person recently reported by a California group). Latest move by the Alaskans is to gather for coffee and intellectual discussions at the Anchorage YMCA. This move is being spearheaded by such characters as Don Bruce, Jim Wiley, Joe Riendl, John Forman, and Bill Nowlan.

Dick de Lapp has recently resigned from Schlumberger, Sacramento, and has opened a trampoline center in West Sacramento. His old friends are urged to drop in.

Don Taylor, well logger from Bakersfield, is planning to conduct activities in the Sacramento Valley. Charlie Chisholm is representing him in this area, and can be reached either at Don Taylor Well Logging, Bakersfield, (2772 17th Street, FA 22690) or at Palo Alto (2343 Yale, DA 68567).

Harry Stuveling announces that Pacific Log Exchange has taken over Comet Reproduction Service at 11515 East Washington Blvd. Don Kurtze, formerly with Allied Blue Print, will be reproduction manager. The offices of Pacific Log Exchange have been combined with those of Comet and correspondence should be directed to the above address.

John Griffiths, Shell, Olympia, repeated his performance of last year by again winning the first prize on the "Pin Party" fishing trip. He still maintains that it is skill that counts.

Max Greene, Shell, Olympia, is in Fairbanks on temporary duty; bets are being taken as to whether he will be a sourdough when he returns.

On a recent fishing derby, G. M. Valentine, Shell, Olympia, copped the big money with a 12-1/2-pound King salmon. Conrad Howard tried to win the hard way by lassoing an 11-pound Silver, but was disqualified because of the unusual fishing method. Dick Vivion, Humble, Olympia, was too busy "resting" below deck to care about anyone's fishing luck.

Jim Moore, Shell, Seattle, complains he is so busy connecting between Alaska and Seattle that he doesn't have time to "cut his lawn".

All the companies in the Northwest had a good opportunity to do all their super-secret work when Dick Vivion, Humble scout, Olympia, attended the Oil Scout's convention, and then went to Sheridan, Texas, to help celebrate his parents' Golden wedding anniversary.

Ohio Oil's "cracker-jack" bowling team won their summer bowling league in tight competition with Tidewater and others. Sporting shiny trophies are: Dale Rodman, Dick Atchison, Ed Miller and George Rudkin.

Al Scoulen, Standard, finds hunting in Alaska impossible. As a non-resident with a $50.00 moose tag he strenuously hunted throughout the 1959 season without so much as seeing one bull moose. This year, while in the vicinity of the Halbouty No. 1-B well, resident and gunless Scoulen came face to face with three gigantic bulls.

Bill Lea, back from a couple years in the Amazon for Petrobras, plans to go into teaching in the Los Angeles area.

Bob Reedy, Western Gulf Oil Co., Sacramento, is on a vacation at Fallen Leaf Lake. We wonder if he might not be pressed into forest fire fighting. Also wonder, if he is, will WGO give him another two weeks vacation.

Al Marques, Mobil, Bakersfield, replaces Bob Chapman as scout in the latest Mobil reorganization move.

NURSERY NEWS

Don Six, Texaco, Bakersfield and his wife, Ruth have added 8 lbs. of baby girl to the family. Jennifer Lynn Six was born August 26, 1960. Including the proud parents there are now six in the Six family.

Joe Rossi, Union Landman in Bakersfield is the father of a brand new baby boy.

Born to Mark and Mary Latker, Western Gulf, Bakersfield, on July 25, was their first child, Craig, weighing 8 lbs. 6 oz.

Mary Ellen Richards, wife of Honolulu geologist Art Richards of Bakersfield, gave birth to a 7 lbs. 10 oz. baby girl. Clarre Richards was born August 21, 1960, and she has one sister.

CALENDAR

September 19, 1960: Monday, 7:00 p.m., A.A.P.G. Forum meeting, Mobil Auditorium, 612 S. Flower St., Los Angeles.

Sacramento Valley Symposium
George La Perle (Consultant, Bakersfield), "Geology and Development of Marysville Buttes".

Richard H. Vaughan (Occidental, Bakersfield), "Geology and Development of Arbuckle Gas Field".

Michael R. Rector (Consultant, Bakersfield), "Geology and Development of Walnut Grove Area".

September 19, 1960: Monday noon, A.I.M.E. Petroleum Forum, Rodger Young Auditorium, Los Angeles. "Comparison of Profitability Yardsticks", Folkert Brons, Shell Oil.

October 3, 1960: Monday, 7:30 p.m., Paleontological Biostratigraphy Seminar, Rm. 56, Science and Engineering Bldg., Bakersfield College, Bakersfield, "The Evolution of California Cretaceous Stratigraphic Nomenclature", Stewart Schuber, geologist, Mobil Oil Co., Bakersfield.

October 6, 1960: Thursday noon, A.A.P.G. Luncheon Meeting, Rodger Young Auditorium, Los Angeles. Program to be announced.

October 13, 1960: Thursday noon, S.E.G. Luncheon, Rodger Young Auditorium, Los Angeles. Speaker and topic to be announced.

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Secondary water filtration pays off, by E. J. Simmons and Luther F. Ellison.
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PACIFIC PETROLEUM GEOLOGIST
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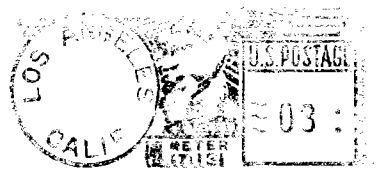

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 October 1960 Number 10

PACIFIC SECTION FALL MEETING

General Chairman J. D. Traxler and Bob Knapp, Program Chairman, have announced the following tentative program for the 37th Annual Meeting of the Pacific Section A.A.P.G. to be held in the Ambassador Hotel, November 3-4, 1960. As in the past, the meeting will be held in conjunction with the S.E.G. and the S.E.P.M.

Technical Program

Thursday A.M., November 3, 1960

9:15-9:30 - Welcoming Address
Tom Baldwin, Monterey Oil Company

9:30-9:50 - The Honda Oil Field, San Mateo County, California
Hal Fothergill, Union Oil Company of California

9:55-10:15 - San Emigdio Nose Field, Kern County, California
Fred Sierwald, Richfield Oil Corp.

10:20-10:50 - Preliminary Gravity Results in the Imperial Valley
Robert L. Kovach, California Institute of Technology

10:55-11:15 - Hammer, Brunton and Helicopter
Edward A. Gribi, Jr., Westates Petroleum Co. and Richard L. Hester, Pauley Petroleum, Inc.

11:15-11:45 - The Effects of Foreign Imports on Domestic Exploration as Related to the Independent Producer
Michel T. Halbouty, Consulting Geologist and Petroleum Engineer

Joint Luncheon

Thursday P.M., November 3, 1960

1:45-2:00 - Why Explore in the Sacramento Valley?
Eugene F. Reid, Occidental Petroleum Corp.

2:05-2:20 - Business Meeting

2:25-2:45 - Field Study of Geological Well Logging at Vernalis
Robert O. Patterson, Pacific-Oil Well Logging, Inc.

2:50-3:20 - The Interplanetary Correlation of Geologic Time
Eugene M. Shoemaker, U. S. Geological Survey

3:25-3:40 - Bouguer Gravity Map of Alaska
L. F. Ivanhoe, Consultant

3:45-4:15 - California Offshore Oil -- Present and Future
F. J. Hortig, Executive Officer, State Lands Commission.

4:20-4:50 - Bioherms in the Middle Devonian of Northeastern Spanish Sahara, Northwest Africa
John C. Hazzard, Union Oil Company of California

Friday A.M., November 4, 1960

9:00-9:30 - The Line Source Problem for a Solid-Solid Interface
S. J. Laster and Freeman Gilbert, Geophysical Service, Inc.

9:35-9:55 - General Geology and Development of West Thornton and Walnut Grove Gas Fields, Sacramento Valley, Calif.
John Silcox, Standard Oil Co. of Calif.

10:00-10:30 - A Critical Review of Contemporary Theories of Petroleum Origin
S. R. Silverman, California Research Corporation

10:35-11:05 - Economics of Marketing
John W. Groesch, Union Oil Co. of California

11:10-11:25 - King City Oil Field, Monterey County, California
Richard Thorup, Consulting Geologist

11:30-11:50 - Quantitative Mud Analysis for Hydrocarbons
Wendell Russell, Baroid Division, National Lead Company

Friday, P.M., November 4, 1960

2:00-2:15 - The Relationship of Professional Society Membership to Oil Industry Activity in California
Gordon R. Bell, Western Gulf Oil Co.

2:20-2:50 - Vela-Uniform -- The Nation's Quest for Better Detection of Underground Nuclear Explosions
C. C. Bates, Advanced Research Projects Agency

2:55-3:25 - Petroleum Exploration with the Gas Exploder and Sparker in Offshore California
C. B. Officer, Marine Geophysical Service Corporation

3:30-4:00 - Reef Gravity Interpretation
Sulhi Yungul, California Research Corporation

4:00-4:20 - A Graphical Analog Dip Computor
R. L. Manly, Standard Oil Co. of Calif.

Alfred R. Loeblich, Jr., Program Chairman, announces the following tentative program for the Pacific Section Meeting of the S.E.P.M., to be held November 3 and 4 at the Ambassador Hotel, Los Angeles, in conjunction with the 37th Annual Meeting of the Pacific Section A.A.P.G.

PACIFIC PETROLEUM GEOLOGIST

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Editor	Bradford K. Johnson
Assistant Editors:	
Activities	Dwight J. Laughlin
Personal Items	Darren Wales
Selected Bibliography	Lucy Birdsall
Calendar	
Cartoonist	Mort Kline
	Harold Sullwold
Coast Correspondent	James J. Williams
Alaska Correspondent	Donald D. Bruce
	Ernest Bush
Los Angeles Correspondent	Frank A. Exum
Northwest Correspondent	Malcolm B. Greene
Sacramento Correspondent	Lowell Garrison
San Francisco Correspondent	D. H. Pfeiffer
San Joaquin Correspondent	George Rudkin

Next Deadline: October 28, 1960

The Annual Dinner and Evening Session of the S.E.P.M. will be held in the Chapman Park Hotel at 6:30 P.M., Thursday, November 3, 1960. Dr. Tjeerd Hendrik van Andel of Scripps Institution of Oceanography, La Jolla, California, will be the evening speaker.

Ambassador Hotel

Regency Room

Thursday Afternoon 1:30 P.M.

"Foraminiferal variation in sediment layers of the Santa Barbara Basin, California", Robert Harman, Allan Hancock Foundation, University of Southern California.

"Outogenetic variation in Eponides repandus (Fichtel and Moll)", Johanna Resig, Allan Hancock Foundation, University of Southern California.

"Foraminifera from the Pleistocene Gubik Formation of Northern Alaska", Helen Tappan, University of California, Los Angeles, California.

"California Cretaceous 'Siphogenerinoides'", M. A. Furrer, California Research Corporation, La Habra, California.

"Stratigraphic Paleontology of the Jalama Formation, Western Santa Ynez Mountains, Santa Barbara County, California", Donald H. Dailey, Richfield Oil Corporation, Long Beach, California.

Regency Room

Friday Morning 9:00 A.M.

"Suprageneric Classification of the Rhizopodea", Alfred R. Loeblich, Jr., California Research Corporation, La Habra, and Helen Tappan, University of California, Los Angeles, California.

"Mechanisms of Movement: The Basis for a New Major Dichotomy of the Sarcodina", Theodore L. Jahn, University of California, Los Angeles, Eugene C. Bovee, University of Florida, and Eugene B. Small, University of California, Los Angeles.

"A Mississippian Microspore Assemblage from White Pine County, Nevada", Dale Wiggans, Standard Oil Company of California, Bakersfield.

"A Pollen Morphology of Rapateaceae", Sherwin Carlquist, Claremont Graduate School, Claremont, California.

BIOGRAPHY

The Altadena family Baldwin has just returned from a five week Volkswagen Camper tour of Europe that included 14 countries, the Geological Congress in Copenhagen, and the feat of swimming in the Atlantic, Mediterranean, Adriatic, and Baltic Seas in one summer. This ambitious undertaking is typical of Thomas A. Baldwin, and he has tackled the job of Pacific Section President with the same gusto and enthusiasm.

Tom was born in Philadelphia, Pennsylvania, on September 11, 1913, one of four boys. Tom reports that he went to 21 grammar schools and 7 high schools in all but three states during his early life- no doubt more than adequate foundation for a restless, energetic personality. He graduated from Franklin High School in Highland Park in 1932 and started attending Los Angeles City College taking geology under Bill Putnam. In 1937 Tom joined the Texas Company as a wash boy in their paleo lab. With the encouragement of Jim Hamill and Hampton Smith, Tom continued his geological studies at S. C. night school, receiving his A.B. degree in Geology in 1943.

After scouting the L. A. Basin for a year Tom was sent to the Santa Cruz and Salinas country where he engaged in regional and detailed mapping and stratigraphic work ranging from Half Moon Bay to below Paso Robles. The prospects generated by all this work eventually culminated in a lot of well sitting including the initial wells in the San Ardo area. Shortly after the Jergins discovery of the main San Ardo Field in 1948, Tom went to work for Jergins. In the next three years he and John Fackler geologized, frequently surveyed and engineered, and occasionally even pushed tools on some 180 development wells in the field plus a dozen or so wildcats. In his spare time Tom came up with several memorable papers - "San Ardo - A Stratigraphic Analysis of a California Oil Field" in the November, 1950, A.A.P.G. Bulletin, and papers presented before Pacific Section Meetings in 1951 on the Santa Cruz Mountains and in 1952 on the Butano formation. All these activities did not prevent him from being an integral member of the Salinas Valley geological group that gathered to improve their intellects with or without an excuse at such famous spots as Joe Guidotti's in San Lucas.

In 1952 Jergins sold their interest in San Ardo and shortly thereafter became the Monterey Oil Company. Tom moved to the Los Angeles office as a

Senior Geologist where he now holds the position of "Western Division Geologist". This title apparently means everyplace except Texas and Louisiana for his travels for the company have taken him to such diverse places as Alaska, Algeria, Mexico and the floor of the Catalina Channel.

Frances Haynes attended Franklin High School and Los Angeles City College and married Tom in 1937. Their two sons, Tom 19 and Dave 17, are now attending Pasadena City College where they are attempting to "train down" leg muscles hardened in a summer of bicycling through the British Isles before meeting the rest of the family. These Baldwin vacation junkets have been real projects in every sense of the word - in 1954 they traveled the Alcan Highway to Alaska, in 1955 they traveled throughout Mexico, and in 1956 they toured the historical shrines of the eastern United States. Another of the Baldwin avocations - skin diving - resulted in Monterey hiring the first geological diving crews in late 1953 and utilizing this technique exhaustively for the next two years under Tom's supervision in the offshore area.

Many geologists are familiar with Tom's feats of geological scouting but they may not realize that Boy Scouting has been his chief extracurricular activity for many years. He has served as a Scoutmaster in several communities, and served on the A.A.P.G. Boy Scout Committee in 1955 and 1956.

He has served the Pacific Section as Program Chairman for its 1953 Fall Convention; as Secretary in 1956, and Vice President in 1958.

LOS ANGELES FORUM MEETING

Fall Forum meetings resumed at the Mobil Auditorium in Los Angeles on September 19 with the presentation of two papers on the Sacramento Valley. Michael R. Rector, consulting geologist, Bakersfield, spoke on the Walnut Grove gas field; and Richard Vaughan, Occidental, Bakersfield, discussed the Arbuckle field.

Walnut Grove illustrates the typical change in exploration thinking that has occurred in the Sacramento Valley over the past fifteen years. In 1936 Rio Vista was discovered on a seis structure with 300 to 400 feet of closure; Thornton and Millar were discovered a few years later on closed subsurface structures. Beginning with River Island, however, stratigraphic prospects became more attractive as the seis closures became harder to find. Success here encouraged operators to go into the Walnut Grove area.

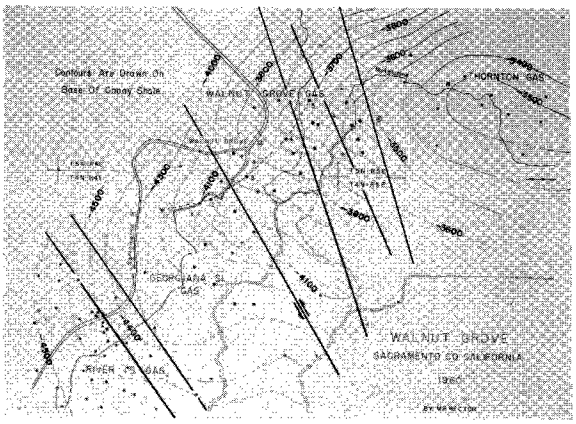
As background, the Walnut Grove area lies west of the Thornton gas field. The latter is a closed high (with a little over 100 feet of closure on the Capay) producing from the Capital sand (Midland equivalent). Eleven wells in this area have produced over thirty billion cubic feet in the past ten years.

Northwest-southeast trending faults intersect the westward plunging continuation of Thornton and, combined with stratigraphic changes, form closures at Walnut Grove. Most of the faults are up to the west, with some indications locally of small lateral movement. Stratigraphic production is obtained on the flanks down-structure from the fault accumulations.

Productive zones vary from fault block to fault block, and from well to well within an individual block. A composite electric log would show the following productive intervals:

Deadhorse sand
Nortonville
Capay stringers
Midland sand interval of Meganos-Martinez
  Adams sand
  M-5 sand
  Fong sand
  Mealer sand
  Four unnamed sands
Winters section
  Locke sands
  McCormick-Williamson sands

In passing, Rector mentioned the Thornton Gorge, an erosional feature cut through the Markley, Nortonville, Domengine, and just into the Capay. Age of the material in the gorge is probably the same as that in the Markley Gorge, at least upper A-1 in the Eocene and conceivably as young as Oligocene. The gorge is three-fourths of a mile to a mile wide at Domengine levels, with a depth of about 3000 feet.



Richard Vaughan, the second speaker, discussed the Arbuckle gas field, pointing out that other "F" zone fields include Willows-Beehive Bend, Marysville Buttes, Grimes, Dunnigan Hills (Deep), and Buckeye.

The discovery well, drilled in 1957 by Gulf, was the third "F" zone attempt at Arbuckle, two previous holes having been abandoned dry by the same operator. Gulf proceeded to develop the field on a 160-acre spacing pattern, completing 12 wells to July, 1958. Occidental then began development in the Fall of 1959 and have completed 9 wells to date. Together with 5 recent completions by Gulf, this makes a total of 26 producers for more than 4000 proven acres, with reserves estimated at more than 100 billion cubic feet.

The gas has a uniform specific gravity of 0.57, is 97 to 98 percent methane, with just under 1000 B.t.u.'s. Pressures range from 2200 pounds in Unit "D" sand at 4400 feet to 4000 pounds at 6700 feet. More than 130 bottom hole pressure surveys, etc., show clearly that not only the pressures but also the pressure gradient increases with depth. A geostatic or pound-per-foot relationship exists within the Arbuckle zone itself. Thus, at 5500 feet pressures are 2800 pounds, at 5800 feet they are 3100 pounds, and at 6100 feet they are 3400 pounds. The same is true for gas sands and wet sands. Vaughan suggested that the high pressures may be due to compaction caused by a thick section of sedimentary overburden now partially stripped away by pre-Tehama erosion.

Accumulation at Arbuckle, according to Vaughan, is a type example of structural-stratigraphic control, with accumulation occurring in lenticular sands across a folded, nosing terrace. Width of the fold reaches a two-mile maximum, and axial plane is inclined to

such a degree that one mile of difference can be noted on trace of the axis at 3000 feet and 12,000 feet.

Faults at Arbuckle have vertical separations of 50 to 250 feet, with offset of the gas-water contacts in individual sands. Displacement occurs on the youngest Cretaceous beds but not on the overlying Tehama. East of the faults, steeper dips are found (up to 15 or 20 degrees). Lenticularity of sands is the primary control on accumulation, but faults are a control to some extent as well.

The youngest Cretaceous in the subsurface is the sub-Kione "E" zone shale, except along the east edge of the field where up to several hundred feet of Kione sand occurs. In one well along the east flank, marine Eocene has been found preserved beneath a basalt flow.

A distinctive horizon, the "Z" marker, occurs near the base of the F-1 and top of the F-2. The "Z" marker represents an unconformity with markedly different velocities above and below. Truncation of section takes place to the west and southwest at the "Z" marker, with progressively older section lying below "Z" in these directions. This unconformity suggests early geologic movement on the Arbuckle fold.

Most sands in the F-2 zone (the productive interval) are lenticular and are primarily basinal sands with linear outlines sub-parallel to the regional strike. The facies counterparts of these sands are continguous shales. Above the "Z" marker, several nonproductive bar-type sands occur.

The Occidental deep test penetrated the "G" zone (top about 8200 feet) some 1500 feet below the producing sands. This interval may be 2500 to 3000 feet thick on the flanks, another indication of the early development of the structure. From 8200 to 12,000 feet (total depth) many excellent "G" zone sands were penetrated. The occurrence of these sands with interbedded organic shales should make the "G" zone productive somewhere in the Valley, according to Vaughan.

1960-61 DIRECTORY

A new, up-to-date and revised Pacific Section Directory will be available at the Fall Convention, November 3 and 4 at the Ambassador. Published and sold at or below cost ($3.00) by the Society, this represents a non-profit undertaking of benefit to all members of the Section. Nevertheless, it is recognized that an obligation exists to purchasers of the old 1960 Directory, and those individuals who feel justified in doing so may exchange the old for the new without charge.

CORRECTION

Last month's notice on the Pacific Section Guidebook "A Guide to the Geology and Oil Fields of the Los Angeles and Ventura Regions" incorrectly listed the price at $4.50 plus $.50 mailing and handling. The correct price is $3.50 plus $.50 mailing. Refunds of one dollar have been made to individuals who placed their order in September at this higher figure. For those who missed the boat, order now from Harry Stuveling, Pacific Log Exchange, 11515 E. Washington Boulevard, Montebello, California.

COAST GEOLOGICAL SOCIETY

Dr. R. N. Norris of the University of California in Santa Barbara, spoke before the Coast Geological Society September 20 on "Shore Line Process".

LOS ANGELES LUNCHEON MEETING

Dr. D. J. Doeglas, A.A.P.G. Distinguished Lecturer, addressed the Los Angeles members of the Pacific Section at Rodger Young Auditorium on September 9th. His interesting and informative talk was entitled "Sedimentological Studies of Recent and Old Sediments, a Comparison". Dr. Doeglas is Professor of Geology and Mineralogy at the University of Agriculture, Wageningen, Holland, and Extraordinary Professor at the University of Utrecht.

Sedimentological studies of modern sediments have been made of tidal flats in Holland (Koning, Van Straaten), continental deposits (Netherlands Soil Survey Institute), the Rhine River (Van Andel), the Rhone River and its delta (Van Andel and Kruit), and the Persian Gulf (Houbolt). In the western hemisphere similar studies have been made of the Orinoco delta (Kuenen, Nota and Koldewijn), the Mississippi River and delta, the Gulf coast (Fish, Moore, Scruton and Shepard), and the California coast (Scripps Institute).

The Rhone delta is much like the Mississippi only on a smaller scale. At 30 meters below sea level pure mud is found on bottom. Wave base appears to be at about 15 meters. On the northeast coast of Venezuela typical coarse to fine gradation occurs in a seaward direction. Sands far from shore are Pleistocene and are not related to the present delta. In the Persian Gulf calcarenites are being formed from shell fragments. These sands become more angular farther from shore, and at a depth of 40 to 50 meters calcareous muds are found. Clays and marls are encountered still farther out.

In a relatively short time a very large amount of valuable data of various modern environments has been collected. In studies of old sediments it is surprising to find how little of the data from modern sediments can be applied to their interpretation.

In modern sedimentary environments the regional distribution of properties and ages of sediments is accurately known in a comparatively thin top layer. Furthermore, modern marine environments have been formed during the last 5,000 years following one enormous transgression of the sea, which resulted in a sea-level rise of more than 200 feet. Modern delta deposits, therefore, have thicknesses of more than 200 feet (one sequence) and are typically "negative", i.e. clay at the base, grading upward into sand.

Conversely, the exact regional distribution of a given layer in old sediments is rarely known and studies must be made in outcrops of limited horizontal extent. The vertical distribution and sequences of the deposits, however, can be studied more readily than in modern sediments. The sequences are much thinner in the old sediments due to a more rapid change between transgressions and regressions. Cyclothems in Western European deltaic and coastal coal measures range from 12 to 24 feet in thickness. These sequences are normally "positive" in that the coarse material at the base grades upward into finer material.

The study of recent sediments has been carefully planned and accurate field and laboratory investigations have been carried out on a large scale. In the old sediments, however, laboratory and field studies have been much less accurate and the need for new techniques is apparent. Lengthy lithologic descriptions by themselves are difficult to compare and general lithologic logs don't give enough information. The graphic methods used by Lombard, Carozzi and others only depict a few of the many properties of sediments.

In order to solve this deficiency a new, detailed graphic logging method has been developed which shows all sedimentary properties in a semi-quantitative way. The standard vertical lithologic column has been supplemented by additional columns devoted to each of a certain class of properties, e.g. bedding surface properties, intra-bed structures, paleontology, etc. These columns are arranged parallel to the lithologic column and special symbols are inserted at the proper level to record the necessary sedimentary characteristics. The net result is a log showing all sedimentary properties known from both field and laboratory studies.

At present, a collection of standard detailed graphic logs of known fossil environments is being assembled. These will serve as a basis for comparison, as sediments from similar environments have the same petrographic and paleontologic properties. An attempt is being made to determine whether or not petrologic properties alone will be sufficient to define the environment. Further research will require the study of undisturbed, oriented cores from modern sediments.

U N I V E R S I T Y A C T I V I T I E S

A yearly fall feature of the Newsletter has been the publication of University Activities as reported to the P.P.G. by the Chairman or a member of the Geology Department of most Pacific Coast Colleges and Universities. This yearly summary was begun last month and is continued in this issue with news from the following schools:

UNIVERSITY OF SOUTHERN CALIFORNIA

The six weeks summer field geology course was held from June 15 to August 1, under the supervision of C. Carew McFall and graduate assistant William Findlay. Eleven undergraduate students mapped in the Illipah Quadrangle No. 2 which is 40 miles northwest of Ely, Nevada. In addition, two graduate students worked in adjoining areas on M. A. theses.

During the summer months, the geology department occupied new quarters; but unfortunately, rather than into a new building, the department is now in two remodelled barracks -- of probable Spanish-American War vintage. However, there are advantages and routines are about back to normal.

Activities of the staff have been varied and far-flung. Thomas Clements, department chairman, supervised the move to new quarters and is currently engaged in a research project for quantitatively expressing micro-relief features in desert areas. Clements is being assisted by Dick Stone, and the work is being sponsored by the Army Corps of Engineers in Vicksburg, Mississippi. Bill Easton is back on campus after an absence of 15 months. He combined his sabbatical leave with a Guggenheim Fellowship to study Carboniferous stratigraphy and paleontology in England, France, and Belguim. Soon the collections at U.S.C. will be enriched with scores of rubber molds and plastic casts of American type-specimens of various ages which Bill made in European museums. The Easton Textbook, "Invertebrate Paleontology", which was published by Harper in the spring, contains much material familiar to geologists of the Cordilleran region. Finally, Mrs. Easton, having been freed of household duties in Paris, devoted some of her time to lessons from a Cordon Bleus chef and thus has acquired a commanding position over the whole family.

K. O. Emery spent the summer at the University except for cruises on the Velero IV working on topography and sediments of submarine canyons and basins. A paper written with Jobst Hulesman (a post-doctoral fellow) showed correlation of turbidity current silts from core to core in the Santa Barbara Basin. Other studies in progress attempt to trace the water of turbidity currents in its flow through submarine canyons to basin floors. This work is being supported by several grants from N.S.F., O.N.R., and A.C.S. K. O. is currently pretty well occupied with directing the efforts of ten doctoral candidates in marine geology. His book "The Sea off Southern California--Modern Habitat of Petroleum", published by John Wiley this spring is of interest to all members of the petroleum industry.

In addition to his duties with the summer field class, Dr. McFall undertook an investigation in Northern Baja California to determine the relationship between the Baja California batholith and the associated metamorphic rocks. Earlier in the year, Orville Bandy completed a research project sponsored by Shell Development of Houston, Texas on the distribution of Foraminifera, radiolaria, and diatoms in the Gulf of California. He is currently engaged on a NSF grant concerned with the sediments and Foraminifera of the samples recovered from the Tecolote Tunnel near Santa Barbara, California. During the summer months Orville spent three weeks on a consulting project in Mexico and subsequently attended the International Geological Congress in Copenhagen where he presented a paper. Also at Copenhagen were Easton, John Mann, and five recent graduates.

Richard Merriam has been busy during the past year with investigations of landslide and subsidence problems in the Los Angeles Basin as well as with related engineering geology problems.

MISCELLANY: The department was fortunate to have Vladimir Okulitch of the University of British Columbia as a visiting professor to teach geology courses in the summer session. There are two

National Science Foundation Ph.D. candidates in attendance at U.S.C.; Bryce Hand from Antioch College in Ohio and Ronald Eckels from the University of Florida. The latter is a specialist in Cenozoic bryozoans.

Jobst Hulesmann is a post-doctoral research fellow who is the recipient of a National Research Council fellowship to work on laminated sediments in the Santa Barbara Basin. A second post-doctoral fellow at Southern California is von Gerhad F. Lutze who is investigating foraminiferal assemblages of submarine canyons in conjunction with Dr. Bandy.

---R. Stone

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Geology majors at U.C.R. now number about 35 undergraduates. Preliminary approval has been granted to start an M.A. program in the Fall of 1961; but prior to that, in about December, the Department will move into a new building with improved facilities and more room.

Summer camp was held this year in the White Pine Mountains, thirty miles southwest of Ely, Nevada. About five weeks were spent mapping sediments and Tertiary volcanics.

Mike Murphy, on leave to the University at Bahia, Brazil, will return to Riverside at the end of the Fall semester. His time has been occupied teaching and doing research on sedimentation.

Thane McCulloh attended the International Geological Congress in Copenhagen, visited Norway, and has now taken up residence in northern Italy. He will spend approximately a year there doing a gravity study of the Po Valley similar to the one he did on the Los Angeles Basin. The National Oil Company of Italy will make available to him their subsurface information to be used in this study.

Gordon Eaton, who joined the faculty last year, presented a paper at the International Congress on the structure and gravity of rocks in the Connecticut Valley, New England. Gordon completed his Ph.D. at Cal Tech with a thesis topic on the volcanic rocks of the Los Angeles Basin.

A second new member, Richard H. Tedford, vertebrate paleontologist, joined the staff in the Fall of 1959. His doctorate was completed at Berkeley on the marsupial fauna of Australia. Tedford is now working on the vertebrate paleontology of the Ricardo formation, studying the geologic history of the Tertiary in the Mojave desert.

Dr. Frank Dickson is working on chemical systems at high temperatures (up to 275°C) and high pressures (up to 1500 atmospheres). Thus far, relations have been worked out for the systems $CaSO_4$-H_2O, $CaSO_4$-NaCl-H_2O, and $SrSO_4$-H_2O. Further perfection of equipment will allow studies at even higher temperatures. This laboratory work is being done concurrently with a collaborative study of intrusive rocks in the Inyo Mountains.

---F. W. Dickson

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

As of July 1, 1960, the geologists at U.C.S.B. began operating their own department with Robert M. Norris the new Department Chairman. In addition to this, Bruce Nolf (Princeton University) has been newly added to the staff, which brings the staff total to five full time members plus V. L. VanderHoof as Research Associate. Bruce Nolf will handle courses in optical mineralogy and petrology-petrography.

Summer saw a wide scattering of the staff. Bob Webb, who will be on sabbatical leave, 1960-61, taught summer courses at Columbia University in addition to various lectures in New England and New York State sponsored by the National Science Foundation Institute. Don Weaver spent 6 weeks teaching summer field geology at Berkeley. The field camp was in the Inyo Range. Dick Fisher spent 6 weeks teaching summer courses at U.C.S.B. and then travelled to Monument, Oregon along with Bob Norris, to finish a mapping project in the John Day Formation. The project is being done with R. E. Wilcox, U. S. Geological Survey, Denver.

---R. V. Fisher

A.A.P.G. ANNOUNCES 1961 OFFICER-NOMINEES

Mason L. Hill, Richfield Oil Corporation, Los Angeles, California, and Harold T. Morley, Pan American Petroleum Corp., Tulsa, Oklahoma, head the slate of officer nominations submitted by the A.A.P.G. nominating committee, as announced today by President Ben H. Parker, Frontier Refining Company, Denver, Colo. Other 1961 officer-nominees include, for vice-president, J. Ben Carsey, Humble Oil & Refg. Co., Houston, Texas; Ralph W. Edie, consultant, Calgary, Alta., Canada; and William J. Hilseweck, consultant, Dallas, Texas; for secretary-treasurer, George V. Cohee, United States Geological Survey, Washington, D.C.; and for editor, Grover E. Murray, La. State Univ., Baton Rouge.

Balloting will be by mail, and the new officers will be formally installed April 27, 1961, on the last day of the 46th annual meeting of the Association, to be held in the Denver Hilton Hotel, Denver, Colorado.

PERSONAL ITEMS

Jim Vernon and Dave Pasta are back in Texaco's Ventura office after a summer of fishing and hunting in Alaska. Dave adjourned to Hawaii for a belated honeymoon.

Humble gave their Eugene, Oregon, office a vote of confidence by closing the office before their Oregon wildcat was finished drilling.

Bob Bennett, Exploitation Geologist with Tidewater, has left Ventura for the Canary Islands.

Mobil's Ventura Exploration office closed October 1. Frank Yule will be working in Santa Fe Springs and Carrol Hoyt is now in Los Angeles with the comptrollers department.

Howard Level, Union in Santa Paula, once again has his football pool out.

Mike McKnight has left Standard to become a distributor of Tops Records.

Dick Thorup, Pres Prestine, Ted Bear, and Harold Sullwold were seen in conference on the beach at Waikiki, discussing pro's and con's of various contour interpretations (particularly one known as "Bubbles"). This required expert opinions from their wives from time to time.

Harry Stuveling, Pacific Log Exchange, announces that Cross Section 13 will be available at the Fall Convention of the Pacific Section A.A.P.G. for $1.50. This is a north-south section through the Sacramento Valley from Redbluff to Rio Vista, taking in Beehive Bend and the deeper production at River Island.

Candidates for office - San Joaquin Geological Society: President: Bob Nesbitt and Cutler Webster; Vice-president: Bob Lindblom and Warren Stoddard; Secretary-Treasurer: Dave Calloway and George Rudkin.

Frank Delarose, Shell, back from 4 weeks in Canada, found it hard to adjust to Bakersfield weather after riding a snowmobile up the Athabasca glacier.

Ed Sprotte, geologist for Shell, left smogville and the freeways to join the Bakersfield staff. Also new to the Shell Bakersfield office is Ed Joujon-Roche who towers 6 ft. 6 in. above the floor. His son Phil, ex-Stanford basketballer, calls dad "shorty". Phil is 6 ft. 8-1/2" tall.

A recent Nevada field trip was conducted by bus out of Ely, Nevada. In the middle of an isolated stretch of highway a taxicab overtakes and hails down the bus loaded with geologists. Out steps Bill Winter Superior geologist. He claims he overslept, but actually he just wanted to be noticed.

Jack Leach has left the employ of Sunray-Mid-Continent Oil Company and the oil business for a position as geological engineer with the Holmes and Nerver Construction Company in Los Angeles.

Robert Scott has resigned from Tidewater and is now consulting in mining and petroleum geology, 2918 University Avenue, Bakersfield.

Union Oil Company's Anchorage geological staff, consisting of Hal Lian, Dick Lyon and Lum Lovely, have been grinding out so many plays that it has been necessary to add the services of Lewis Lively, Draftsman. It is believed that Lian, Lyon, Lovely and Lively will make a crack oil finding team!

John Forman (Mobil) is taking his family to the "Old Country" (Santa Barbara) on vacation. John claims this is not his regular vacation because he will be working at Mobil's Santa Fe Springs Office.

Bill Shaw (Pan American) spent his vacation hunting in Alaska's Wrangell Mountains. Bill had fair success: one dall sheep, one moose, one goat, and several caribou--What no tiger?

Martin Malloy has joined Texaco's Ventura Geological staff. Martin is a recent Ph.D. graduate from Columbia. He is here with wife Ellie and daughter Amy.

Mike Vaikowsky, Texaco, Ventura, family and trailer vacationed along the Oregon coast to Vancouver, B.C.

Roy Miley, Texaco, Ventura, spent two weeks of his vacation building a concrete block wall. Ugh!

The valley fever bug found its latest victim in Bob Nesbitt of Western Gulf, but apparently it didn't bite too hard. Bob has continued working but has had to give up golf temporarily.

Eric Lindvall, Richfield in Ojai, married Sonja Essegian October 8. Possibilities are that he may take up the restaurant business in Anchorage.

NURSERY NEWS

Hank and Jane Adams, Ohio, Coalinga, are the proud parents of a new baby girl, born September 3, weighing 7 lbs. 14 oz. Katherine Aldrich Adams has one older sister.

CALENDAR

October 13, 1960: Thursday noon, S. E. G. Luncheon, Rodger Young Auditorium, Los Angeles. W. C. Kellogg (Fairchild Aerial Surveys) will discuss a new method of aeromagnetic surveying - AFMAG (for audio frequency magnetics).

October 13, 1960: Thursday, 6:30 P.M., San Joaquin Geological Society; Dinner Meeting, El Tejon Hotel, Bakersfield. "Evidence of Strike-Slip Faulting in Alaska," Mr. L. F. (Bus) Ivanhoe, Consulting Geologist, Bakersfield.

October 17, 1960: Monday, 7:00 P.M., A.A.P.G. Forum Meeting, Mobil Auditorium, 612 So. Flower St., Los Angeles. Neal Hurley (Richfield), "Seismic Operations in the Jungles of Peru", and Tom Baldwin (Monterey), Orville Bandy (U.S.C.), and Russ Simonson (Ohio), "Report on XXI International Congress of Geology at Copenhagen".

October 20-21, 1960: Thursday and Friday, Society of Petroleum Engineers, Annual California Regional Meeting, Pasadena, California.

October 28, 1960: Friday, 7:30 P.M., Dinner Meeting of the Coast Geological Society at Tierpont Inn. Dr. E. T. Tozer, Distinguished Lecturer, "Stratigraphy and Structural History of the Canadian Arctic Islands".

October 31, November 1, 2, 1960: Annual Meetings, The Geological Society of America and Associated Societies, Denver Hilton Hotel, Denver, Colorado.

November 1, 1960: Tuesday, 6:30 P.M., San Joaquin Geological Society; Dinner Meeting, El Tejon Hotel, Bakersfield. "Stratigraphy and Structural History of the Canadian Artic Islands," A.A.P.G. Distinguished Lecturer, Dr. E. T. Tozer, Geological Survey of Canada.

November 3 and 4, 1960: Thursday and Friday, Annual Fall Meeting of the Pacific Section of the A.A.P.G., S.E.P.M., and S.E.G., Ambassador Hotel, Los Angeles.

November 7-10, 1960: Annual Meeting, Society of Exploration Geophysicists, Moody Convention Center, Galveston, Texas.

November 15: Branner Club Meeting, Cal. Tech. Athenaeum. First Speaker: Cordell Durrell, "Brazilian Landscapes and Cities".

JOURNAL CLUB (STANFORD UNIVERSITY)

Room 320, Geology Corner, Mondays at 4:00 P.M.

October 17: Ben M. Page, "Gravity Tectonics in the Apennines, Italy."

October 24: George Parks, "Mineral Processing Research - a Second Impression."

October 31: Robert L. Christiansen, "Geologic Structure of the El Paso Mountains and Mojave Desert, California."

November 7: Robert C. Speed, "Petrography of the Diorite Plutons near Lovelock, Nevada."

November 14: Jack R. Pickering, "Formations of Laterites."

BIBLIOGRAPHY
OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 316-D: Gravity survey of the western Mojave Desert, Calif., by D. R. Mabey.....$1.00

Professional Paper 354-D: Early Cretaceous (Albian) ammonites from the Chitina Valley and Talkeetna Mountains, Alaska, by R. W. Imlay....$ .50

Water Supply Paper 1495: Geology and ground water in Napa and Sonoma Valleys, Napa and Sonoma Counties, Calif., by Fred Kunkel and J. E. Upson.....$2.25

MAPS

I-307: Engineering and surficial geology of the Nenana-Rex area, Alaska, by Reuben Kachadoorian .....$ .75

I-308: Engineering geology of the Katalla area, Alaska, by Reuben Kachadoorian.....$1.00

OPEN FILE REPORTS

Progress map of the geology of the Wiseman quadrangle, Alaska, by W. P. Brosge and H. N. Reiser.....Inspection only

Basement wells in California and Nevada. Compiled by Merritt B. Smith, assisted by Della I. Lee and Vivian L. Engler.....Inspection only

CALIFORNIA DIVISION OF MINES AND GEOLOGY

Special Report 61: Geological section and petrography along the Poe Tunnel, Butte County, California, by Philip A. Lydon.....$ .50

Special Report 62: Geology of the Orchard Peak area, by Owen T. Marsh.....$1.00

Special Report 63: Geology and paleontology of the southwest quarter of the Big Bend Quadrangle, Shasta County, Calif., by Albert F. Sanborn.....$ .75

GEOTIMES, Vol. 5, no. 2, September, 1960.

The progress of geology in the U.S.S.R., by S. I. Tomkeieff.

Coesite craters and space geology, by W. T. Pecora.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A. A. P. G.
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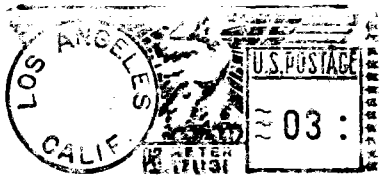
Volume 14 Number 10



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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 November 1960 Number 11

PACIFIC SECTION ELECTION

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

President:	Irving T. Schwade (Richfield)
Vice President:	Richard E. Faggioli (Humble)
Secretary:	Robert O. Patterson (Pacific Oil Well Logging)
Treasurer:	Richard L. Hester (Pauley)

LOWER TERTIARY OF THE PACIFIC COAST

(A Review by Boris Laiming)

Lower Tertiary Biostratigraphy of the California Coast Ranges, by V. Standish Mallory, University of Washington (published by AAPG, Tulsa, Oklahoma, 1959), represents an outstanding contribution to the detailed subdivision and correlation of the lower Tertiary of the Pacific Coast.

In the opinion of the reviewer, Mallory's book is an indispensable publication, not only to the micropaleontologists engaged in oil exploration, but to all geologists interested in Tertiary sediments.

A historical review of earlier nomenclature and chronological classifications, and an extensive 15-page bibliography, accompany Mallory's excellent discussion of the stratigraphic divisions he proposes. These chronological-biostratigraphic subdivisions, comprising five stages and ten zones, are based on an evaluation of foraminiferal assemblages from numerous well exposed and closely sampled surface sections collected in various parts of California.

In defining his stages and zones and in his discussion of the chronology and correlation of the lower Tertiary strata Mallory has essentially followed the general pattern of R. M. Kleinpell's Miocene Stratigraphy of California. Mallory's monograph thus forms a natural sequel to the detailed analysis of Pacific Coast stratigraphy initiated by Kleinpell for the middle Tertiary.

The following column shows the chronological-biostratigraphic subdivisions of the lower Tertiary of California proposed by Mallory:

Narizian Stage (Eocene)
- Amphimorphina jenkinsi zone
- Bulimina corrugata zone

Ulatisian Stage (Eocene)
- Amphimorphina californica zone
- Vaginulinopsis mexicana zone

Penutian Stage (Eocene)
- Alabamina wilcoxensis zone
- Plectofrondicularia kerni zone

Bulitian Stage (Paleocene)
- Valvulineria wilcoxensis zone
- Bulimina bradburyi zone

Ynezian Stage (Paleocene)
- Bulimina excavata zone
- Silicosigmoilina californica zone

This column is overlain by the Refugian Stage considered to be Oligocene by Schenck and Kleinpell, as well as by Mallory. It is underlain by rocks of Cretaceous age.

An orientation map on page 83 (figure 6) shows twenty-two principal geographic localities where the lower Tertiary sequence was studied. A Correlation Chart (figure 7, in pocket) offers an excellent graphic summary of the relationship between Mallory's stratigraphic subdivisions and commonly known formational units at a dozen principal localities where lower Tertiary strata are exposed. Nineteen range charts showing the vertical distribution of the foraminifera in the sections studied by Mallory enabled him to arrive at a zonation based on species which proved chronologically diagnostic. Other categories of fossils were also considered by Mallory in arriving at his conclusions and the evidence they furnished relative to geologic history, paleoecology and paleogeography was synchronized with the deductions drawn from the studies of foraminiferal distribution and cataloguing.

Of this monograph's total of more than 400 pages, the first one hundred are devoted to definitions and discussion of stratigraphy and age of the stratal sequence. This is followed by a Systematic Catalogue of Foraminifera which occupies half of the book. The last one hundred pages contain excellent illustrations of foraminifera listed in the Systematic Catalogue and on the range charts. A total of 1250 drawings have been made on 42 plates (with explanations on the opposite page) and include a total of approximately 600 species of foraminifera, for most of which good synonymy and references are given in the Systematic Catalogue.

The profusion of illustrations contained in Mallory's book will lay a firm foundation for better understanding and uniformity of interpretation of the various stratigraphic subdivisions involved. Correlation with other areas, especially along the Pacific Coast, can now be made more readily. Although an exact analogy with Laiming's (1939) Eocene zones designated with letters and numerals cannot be stated at this time, the broad correlations suggested by Mallory on page 18 of this book offer the best temporary solution.

In conclusion, it cannot be said too strongly that Mallory's book is a "must" for anyone dealing with Pacific Coast geology, or stratigraphy in general. It is urged that those who have not seen it avail themselves of the opportunity to look it over and buy it at the AAPG registration desk during the fall meeting.

PACIFIC PETROLEUM GEOLOGIST

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Editor	Bradford K. Johnson
Assistant Editors:	
Activities	Dwight J. Laughlin
Personal Items	Darren Wales
Selected Bibliography	Lucy Birdsall
Calendar	
Cartoonist	Mort Kline
	Harold Sullwold
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Alaska Correspondent	Robert Kenyon
	Ernest Bush
Los Angeles Correspondent	Frank A. Exum
Northwest Correspondent	Malcolm B. Greene
Sacramento Correspondent	Lowell Garrison
San Francisco Correspondent	D. H. Pfeiffer
San Joaquin Correspondent	George Rudkin

Next Deadline: November 30, 1960

HOLIDAY DINNER DANCE

The Tenth Annual Holiday Dinner Dance, sponsored by the Pacific Sections of the A.A.P.G., S.E.G., S.E.P.M., will be held Saturday, December 17, 1960 at the Oakmont Country Club, 3100 Country Club Drive, Glendale, according to dance chairman, John D. Frick.

Although plans are not yet completed, it is hoped that the traditional complimentary cocktail hour will be held as usual. Music for dinner and dancing will be provided by Ivan Scott and his orchestra.

Reservation cards will be mailed to the Pacific Section members, however, additional information may be obtained by contacting the other committee members, which include Dick Hester (A.A.P.G.), Bob Plumb (S.E.G.) and Jim Eke (S.E.P.M.). Attendance will be limited to 300 persons.

ALASKA GEOLOGICAL SOCIETY

The first monthly meeting of the fall season was held on Tuesday, October 11, 1960, at the Loussac Library in Anchorage. Outgoing President Tom Marshall (State Division of Lands) announced the new slate of officers who will take over in November. They are: Marshall Ayres (Standard), President; Bill Zaegel (Consultant), Vice President; and Roger Waller (USGS), Secretary-Treasurer.

The guest speaker for the evening meeting was Charles E. Smith, Exploration Manager, Alaska Division, Union Oil. Mr. Smith spoke on "Liquefaction of Natural Gas."

Large reserves of natural gas have been discovered on the Kenai Peninsula, but the question is what to do with it as the local markets are limited. Union, in partnership with Ohio, has been looking into the liquefaction of methane. This infant industry started with a small plant in Cleveland in the early 1940's, which was subsequently destroyed in a disasterous fire. Additional research by interested companies has resulted in the conclusion that, although the process is feasible, transportation of the liquid methane is the main problem.

The most practical process of liquefaction is the cascade multi-stage conversion, whereby the gas is successively refrigerated to a liquid of -260° F. The storage of the liquid is the next problem, requiring a suitable aluminum magnesium alloy double tank with effective insulation material between the inner and outer tanks.

The main obstacle to overcome in the economics of liquefaction is the transportation by a suitable tanker. This is by far the biggest unresolved problem. Some of the factors to be considered are size of the ship, temperature requirements which will require a double hull, proper insulating material, and stability of the ship in the open ocean.

The reliquefaction problem has already been solved with storage possible in either underground natural reservoirs or above-ground storage tanks.

Union-Ohio estimates the costs in liquefying 100 million cu. ft. per day would require the following investment: $40 to $50 million for the liquefaction plant; $25 to $30 million for the reconversion plant; $5 to $6 million for operating costs; $40 to $50 million to cover the tank ships. It would therefore appear that an initial investment of $130 million would be required to start such an industry. The transportation costs would double if U. S. rather than foreign ships were used. Under the present regulations of the Jones Act, shipping of domestic products to American ports requires American-built ships. The Jones Act would therefore have to be repealed as foreign markets alone, such as Japan, would not be sufficient to warrant such an initial investment.

LOS ANGELES LUNCHEON MEETING

An interesting and informative talk on "Geology along the Roman Wall, England" was presented by Prof. W. H. Easton of U.S.C. at Rodger Young Auditorium on October 6. The presentation combined history, archaeology, and geology and was illustrated by excellent colored slides. Prof. Easton has just returned from a year's residence in Europe where his studies were supported by a Guggenheim grant.

The Roman Wall was constructed by the Emperor Hadrian by about the year 124, A.D. as protection against invasion by the Picts, living in Scotland. The wall crosses England at the isthmus between Newcastle and Solway Firth. Extending 73 miles from coast to coast, the wall separated England from Scotland. The preserved portion of Hadrian's wall is 50-55 miles in length and much of it is built along the crest of a hogback formed by the Great Whin Sill. Through much of its length the wall consists of two parallel rows of carefully laid stones with a rubble or sod fill between them, the ensemble being from 6 to 8 feet wide. The wall averages about 8 feet in height and only a few portions reach 10 feet. Watchtowers of unknown height were built at one mile intervals along the wall and forts were constructed at 10-15 mile intervals. As additional protection, large earthwork ramparts were built parallel to the wall.

Very little of the wall remains intact today. It has been badly pillaged, first by the Picts who

eventually overwhelmed the Romans, then by English generals who destroyed portions of the wall to build military roads, and generally by farmers who used the wall as a source of cheap construction material. The only parts of the wall still standing are those which were preserved by burial resulting from mass-wasting of the soil. These portions have since been excavated.

The are many geological features of interest along the wall. The stratigraphic section consists of Carboniferous limestone, shale, sandstone, and coal dipping to the southeast in a regional homocline. The Great Whin Sill, composed of 100 to 180 feet of dolerite, appears at successively higher stratigraphic positions from east to west, suggesting that some of the cross-faults observed in the area were active prior to emplacement of the sill. Offset portions of the sill itself indicate that additional movement took place on another set of cross-faults subsequent to emplacement (presumably during the Hercynian orogeny). The sedimentary section is most unusual in that well-developed cyclothems have a sequence (from base to top) of limestone, shale, and sandstone. This sequence is an exact inversion of that found in cyclothms in the United States. Coal, when present, occurs above the sandstones. Unconformities are located beneath the main limestones in English cyclothems, but beneath the sandstones in American cyclothems.

Also of interest is a small biohermal reef reaching a maximum height of about 11 feet. The reef rests on a limestone base upon which is a thin "rug" of crinoid columnals. Overlying the crinoidal patch is the main mound of crinoidal and brachiopodal limestone. The surrounding shale is not draped over the reef, however, but is horizontally bedded. Moreover, the reef and shale facies meet at an abrupt margin and do not interfinger. Fossils found in the shale are demonstrably younger than fossils found at the same level within the reef, indicating that the reef was built prior to deposition of the shale.

Field mapping in the northern part of England differs markedly from that common in the United States. Outcrops are almost non-existent and much of the work must be based on topographic expression and the study of rubble on the surface. The amount of information obtained from such poor data is considerable and English geologists deserve a great deal of credit for their successes. They also rely to a much greater extent upon paleontological controls than do American geologists.

Following a lively question and answer session, Prof. Easton showed some additional color slides taken at the home of Charles Darwin. Of particular interest were photographs of Darwin's geological equipment, including his rock hammer, his personal annotated copy of Lyell's "Elements of Geology", and Lyell's rock hammer. Finally, a view of Siccar Point, Scotland showed Hutton's classic locality for the unconformity between vertical meta-volcanics of Silurian age and horizontal Old Red Sandstone of Devonian age.

S.E.G. OFFICERS

Newly elected officers for 1961 for the Pacific Coast Section, Society of Exploration Geophysicists, are:

Bart W. Sorge, President
Marc O. Miller, Vice President, Southern District
Allen J. Garber, Jr., Vice President, Northern District
Roy R. Farnsworth, Secretary-Treasurer
William O. Murphy, Jr., Editor

SAN JOAQUIN GEOLOGICAL SOCIETY

The following abstract covers a talk given by Bus Ivanhoe to the San Joaquin Geological Society on October 13, 1960, at the El Tejon Hotel in Bakersfield.

Abstract

EVIDENCE FOR STRIKE-SLIP FAULTING IN ALASKA

Final solution of some of the controversial fault problems in California may lie in an understanding of similar features in the world over. Alaska, a unique area where geological trends converge, may provide the key to understanding tectonic forces involved in large rift faulting.

The two basic criteria which identify California type rifts are:

1) Long prominent linear topographic trends.

2) Abrupt geological changes across rifts.

California geologists will readily recognize these criteria in parts of southern Alaska.

The major tectonics of northwestern North America are controlled by three great rifts and their associated features.

1) Tintina Valley Rift.

2) Denali Rift.

3) Aleutian Trench thrust.

The Tintina Valley Rift, which appears to be the oldest, extends for 1600 miles from Alaska to Montana. There is both topographical and geological evidence for this rift.

The Denali Rift is an obvious feature on topographic and geologic maps extending from Haines, Alaska to near Mt. McKinley. Topographic and geologic trends suggest that the Denali break may have formerly extended southwesterly into the Bering Sea but the more recent movement terminates at a north-south fault along the western front of the Alaskan range. Right lateral movement is postulated for the Denali rift with vertical displacement of at least 5 miles near Mt. McKinley.

The southernmost of the major rifts is the submarine Aleutian Trench Thrust. Evidence for this fault is based on offshore topography and recent earthquake data. The Aleutian Trench, like the Denali rift, is believed to have a right lateral component of movement. Both of these faults may converge off the west coast of Canada.

There is no obvious evidence to indicate that the numerous volcanoes of the Alaskan peninsula are directly associated with the great rifts, but the volcanic Aleutian islands appear to be closely associated with the Aleutian Trench.

Positive evidence for direction and magnitude of displacement of the rifts is obscure, but long topographic breaks and general lack of correlatable geology across the faults suggest large movement. Geologic evidence indicates right lateral offset of about 8 miles between the Paleozoic formations on either side of Lake Clark. The strong parallel breaks along the Gulf of Alaska bend sharply at both the east and west ends. These suggest that the Pacific Ocean block is moving northerly into southern Alaska.

Available data suggest that Alaska has been the locale of major rifts for a long geological time. All of the structural features from the Rocky Mountains to California converge in eastern Alaska and then bend abruptly towards the west.

It is possible that there have been at least two stages of movement; first along the great rifts; and more recently the northerly thrusting of the Gulf of Alaska block. This could produce tear faults with movements which would be right lateral on the east flank but would be left lateral on the west flank of the major break.

COAST GEOLOGICAL SOCIETY

New officers for the Coast Geological Society are as follows:

Harry Whaley (TWAO), President
John Beall (Shell), Vice President
Charles Johnson (Union), Secretary
Jerry Williams (Ohio), Treasurer

S.E.P.M. NOMINEES

The Pacific Coast Section of the S.E.P.M. has nominated Ed Stinemeyer (Shell, Bakersfield) for President, 1961, and William Lewis (Standard, Bakersfield) for Secretary-Treasurer.

SAN JOAQUIN GEOLOGICAL SOCIETY

Synopsis - Annual Scouts Picnic - Bakersfield

Joe (Tommy Bolt) Dunwoody threw down his club in the middle of the 9th fairway and quit.

Bill (Lucky) Edmondson, et al, financed a dinner at the Tam'O Shanter for the Bob Herron family.

Golf Winners:

Low Gross	- Frank Yule - 72
Low Net	- Bob Ortalda, Standard
(Calloway System)	Bob Lindblom, Standard
	- Dick Thorup, Cons.
	- Jack Kappeler, Tidewater
	- Morrie Lowman, Ohio

Bert Thatch, Shell Long Beach Scout, despite a broken leg, was seen instructing Jack West in the finer techniques of golf.

Ed Wellbaum, in an unusual feat, bounced a golf ball off a tree and then caught it.

Whilst other guests endulged in arduous sports activities, Jim Benley, Western Gulf and Harry Feder were concentrating on a serious game of mumblety-peg

LOS ANGELES DINNER MEETING

Edward A. Tozer, A.A.P.G. Distinguished Lecturer, spoke at a dinner meeting in Los Angeles on October 27. Dr. Tozer is employed by The Geological Survey of Canada, and has spent 6 field seasons in reconnaissance mapping in the Arctic Archipelago. The results of this work were summarized in his address on "Stratigraphy and Structural History of the Canadian Arctic Archipelago".

Abstract

The Arctic Archipelago has a land area of about 525,000 square miles of which some 300,000 are underlain by Cambrian and younger rocks.

Seven major structural elements are recognized: they are described from southeast to northwest.

1. A probably Tertiary volcanic province, covering a small part of southeastern Baffin Island.

2. The Precambrian Shield that is exposed over large areas of southeastern and eastern parts of the Archipelago. Extensions of Shield form two and possibly three cratonic arches within the Arctic Lowlands.

3. The Arctic Lowlands which are characterized by essentially undisturbed and relatively thin coverings of Cambrian, Ordovician, Silurian and Devonian strata. Cretaceous to early Tertiary rocks are exposed in the Lowlands of Banks Island. The Arctic Lowlands are situated between exposures of the Shield and the Franklinian Geosyncline. They extend from Banks Island to central east Ellesmere Island. Most exposures throughout this vast area represent a dolomite formation that bears the Arctic Ordovician fauna and ranges into the Silurian.

4. The Franklinian Geosyncline that represents a region of profound subsidence from Cambrian to Devonian. Miogeosynclinal facies characterize that part of the geosyncline adjacent to the Arctic Lowlands and extend through Melville, Bathurst, Cornwallis, northwest Devon, and southern and eastern Ellesmere Island. Within the miogeosyncline, Cambrian, Ordovician and Silurian rocks attain a maximum thickness of about 20,000 feet and are essentially carbonates and shales with minor evaporites and sandstones. Ordovician and Silurian carbonates occupy the inner side (nearest the Shield) of the miogeosyncline, and shales the outer. Middle to early late Devonian rocks are locally 17,000 feet thick and represented mainly by quartzose clastics and lesser carbonates. The part of the Franklinian Geosyncline exposed in northern Axel Heiberg and Ellesmere Island is eugeosynclinal in character. The geology of this region is poorly known. Nevertheless, low rank metamorphic equivalents of sandstone, greywacke, siltstone, shale, chert and carbonate rocks are known to be represented. Locally these rocks attain a maximum thickness of about 40,000 feet. Volcanic rocks are also present. In northwest Ellesmere, volcanic rocks are about 30,000 feet thick and lie stratigraphically above Silurian graptolites. The rocks of the eugeosyncline have yielded only a few poorly preserved fossils of Ordovician and Silurian age. Gneissic rocks exposed on the north coast of Ellesmere are approximately 545 million years old on the basis of radiometric age determinations. Their structural relation to the Ordovician and Silurian in this region is unknown. Stocks of granite, norite, and peridotite intrude the gneissic rocks. Early Paleozoic movements (late Silurian or early Devonian) produced north-trending folds on Cornwallis and eastern Bathurst Islands and probably also Grinnel Peninsula. Movements along the Boothia Cratonic Arch also took place at this time and produced northerly structures and contemporary fanglomerates on Somerset and Prince of Wales Islands. Mid-Paleozoic movements affected the remainder of the miogeosyncline and produced east-west trending folds on Melville and Bathurst Islands, the Grinnell Peninsula; and northeasterly trending folds that extend from southwest, and through central Ellesmere Island. The strike of the severely deformed eugeosynclinal rocks is northeasterly in northern Ellesmere; northerly in northern Axel Heiberg. Throughout the Geosyncline the deformed rocks are overlain unconformably by Middle Pennsylvanian rocks. Deformation therefore, took place between early Late Devonian and Middle Pennsylvanian. The Minto Arch of Victoria Island

probably underwent uplift at about the same time. Rocks of late Devonian, late Mississippian and Early Pennsylvanian age are unknown in the Archipelago.

5. The Sverdrup Basin is centered in southwestern Axel Heiberg Island and extends from northern Prince Patrick Island to northern Ellesmere Island. It is filled with Middle Pennsylvanian to early Tertiary sediments that are separated from rocks of the Franklinian Geosyncline by a profound unconformity. The long axis of the Sverdrup Basin appears roughly to coincide with, and parallels, the transition zone between the lower Paleozoic miogeosyncline and eugeosyncline. The Permo-Pennsylvanian includes carbonate, shale, sandstone and evaporites; the Mesozoic comprises alternating marine shale and non-marine sandstone. The region of the axis of the Sverdrup Basin is characterized by a conformable sequence that reaches a maximum thickness of the order of 50,000 feet. Along the margins of the Basin the sequence is much thinner, and incomplete mainly from unconformities and overstep. Early Tertiary rocks are entirely non-marine with coal seams. They were followed by Tertiary earth movements that produced mainly northerly trending thrust faults and folds, and also diapiric intrusions of upper Paleozoic evaporites. In northwestern Melville Island and southwestern regions of Ellesmere Island an angular unconformity (Late Paleozoic earth movements) separates Middle Pennsylvanian and Early Permian rocks, but this deformation does not appear to have affected the main body of the Sverdrup Basin.

6. The Prince Patrick Uplift includes southern Prince Patrick Island and a small part of the northern extremity of Banks Island. The Uplift appears to involve an inlier of Devonian rocks that are cut by north trending normal faults, and there is evidence that the Uplift experienced repeated movements within the Mesozoic. It is suggested that the structures exposing late Precambrian rocks at Nelson Head on the south coast of Banks Island are related to the Prince Patrick Uplift, and that both regions represent culminations along a largely buried Precambrian structural high analagous to the Boothia and Minto Arches.

7. The Arctic Coastal Plain, a narrow strip of late Tertiary and early Pleistocene non-marine clastic sediments that borders on the Arctic Ocean and extends from Banks of Meighen Island. These sediments (Beaufort formation) rest unconformably upon all older formations and dip gently to the northwest. Relatively recent faulting has probably taken place. This is indicated by the presence of probably faults displacing the Beaufort formation and by many straight and arcuate coast lines that strongly suggest fault-line scarps.

ANCHORAGE PETROLEUM CLUB

The Anchorage Petroleum Club elected the following officers for the 1960-1961 term: Joe Dockwiller (Union), President; Pete Gester (Standard), Vice President; Jim Wylie (Gulf), Secretary; Don Bruce (State Geologist), Treasurer.

BULLETIN 170 REPRINTED

The California Division of Mines announces that Bulletin 170 has been reprinted as 2 clothbound volumes. Volume 1 contains all the chapters and an index, Volume 2 contains maps, map-sheets, and road logs. Price is $12.00 plus $0.48 tax.

UNIVERSITY NEWS

U.C.L.A.

During the past year, the Department of Geology, UCLA, has graduated the following members:

AB degree - 19, MA degree - 22, Ph.D. degree - 4. The Ph.D. degrees were awarded to Charles E. Corbato with a thesis entitled "Gravity Investigation of the San Fernando Valley, California", to Everett D. Jackson with a thesis entitled "Primary Textures and Mineral Associations in the Ultramafic Zone of the Stillwater Complex, Montana", to Peter U. Rodda with a thesis entitled "Geology and Paleontology of a Portion of Shasta Co., California", to Roland E. von Huene with a thesis entitled "Structural Geology and Gravimetry of Indian Wells Valley, Southeastern California".

New staff appointments include Dr. Charles E. Corbato, geophysics and physical geology, Dr. Gerhard Oertel, structural and experimental geology, and George W. Wetherill, geophysics and geology.

John C. Crowell completed his term as Chairman of the Department and has been succeeded by Dr. Kenneth D. Watson. During the coming year Dr. John C. Crowell will be on leave and Dr. Edward L. Winterer will be in residence for the spring semester only. The remainder of the faculty, including Drs. D. I. Axelrod, Cordell Durrell, W. P. Popenoe, W. C. Putnam, W. W. Rubey, George Tunell, K. D. Watson, Donald Carlisle, C. A. Nelson, John M. Christie, W. G. Ernst, C. A. Hall, N. G. Lane, J. L. Rosenfeld, and R. L. Shreve will be in residence. Mr. Ted Bear and Dr. Helen Loeblich will be in residence for the fall semester only. The Institute of Geophysics with which the Department of Geology is closely associated now includes a staff of David T. Griggs, George C. Kennedy, Leon Knopoff, Gordon J. F. MacDonald, and Louis B. Slichter.

The UCLA Geology Summer Field Camp was held for the second year near Pismo Beach. It was attended by seventeen students under the direction of Dr. C. A. Hall, Jr. Drs. J. M. Christie and C. A. Corbato assisted Dr. Hall. Through the cooperation of the officials of the California State Polytechnic College at San Luis Obispo, arrangements were made to quarter the entire summer field group in the Cal. Poly dormitories. Meals were served in the Cafeteria. The geologic emphasis was on the numerous mappable facies changes in Miocene rocks and the complex West Huasna fault zone (Nipomo - Arroyo Grand Quad., San Luis Obispo Co.), which includes rocks from questionable Jurassic age to the Pleistocene. Our students had an opportunity to map two seven square mile areas so that by the end of the summer they had all worked in highly folded and faulted terrain, and in areas of complex lateral changes in lithology.

For the second summer the Department administered an NSF Undergraduate Research Participation program. Six students spent the summer in British Columbia studying the structural and geochemical relations on the western margin of the Coast Range batholith under the direction of Donald Carlisle. Several of the staff attended the meetings of the International Geological Congress in Copenhagen this year. Many other members of the staff were engaged in research projects during the summer.

SCRIPPS INSTITUTION OF OCEANOGRAPHY UNIVERSITY OF CALIFORNIA, LA JOLLA, CALIFORNIA

The year climaxed a period of transition for geology at the University of California's La Jolla campus. With the development of the new Graduate School of Science and Engineering and a new depart-

ment "Earth Sciences", the geology students and the faculty had to decide whether to go into the new department or to continue to form a division in the Department of Oceanography. The geology students and the majority of the geology staff other than those in geochemistry decided in favor of Oceanography. With an influx of new students there are now 24 graduate students in this geology division.

Research activities of the staff and students have seen much more exploration of the Pacific in the fleet of Scripps vessels now augmented by the 213 foot ARGO. The geologists have concentrated on studies of the Gulf of California where expeditions have been conducted by Curray, Fisher, Inman, Shepard, Shor, and van Andel. The Gulf has been extensively sounded, large numbers of cores have been collected, beaches and nearshore areas have been extensively studied, and the coastal plain on the east side has been investigated with the help of borings; the submarine canyon walls have been dredged, and a considerable mass of geophysical data has been obtained. Menard has continued his studies of the topography of the Pacific and is working on extensive maps of the type published by Heezen and Tharp for the Atlantic. Shepard has investigated the outer submarine canyons and their deep sea sands in the vicinity of San Diego and La Jolla.

A book by F. B. Phleger "Ecology and Distribution of Recent Foraminifera" (Johns Hopkins Press) was published in July, and another book "Recent Sediments, Northwest Gulf of Mexico", edited by Shepard, Phleger, and van Andel is expected to be published by A.A.P.G. press in October of this year. The former represents results of many years of investigations by the Marine Foraminifera Laboratory at Scripps Institution, and Woods Hole Oceanographic Institute, and the latter is the final report on the seven years' of investigations by A.P.I. Project 51 of Gulf of Mexico sediments.

Of special interest to geologists has been the magnetometer study by V. Vacquier of the sea floor off the California coast. This has shown clear evidence of strike slip displacements on the sea floor up to hundreds of kilometers with the slip occurring along the various east-west fracture zones discovered by Menard.

Team work in micropaleontology carried on by Bramlette in Coccolithophoridae, Kanaya in diatoms, and Riedel in Radiolaria has yielded important information on the history of the Tertiary in the Pacific basin.

UNIVERSITY OF CALIFORNIA - PALEONTOLOGY

All members of the Department and the Museum are looking forward to the new Earth Sciences Building which is nearing completion and should be ready for occupancy early in the spring of 1961. Thirty-six graduate students are now enrolled for the fall semester.

Joseph T. Gregory, formerly with Yale University, became new chairman at Berkeley (Paleo) in September and is already actively engaged in his research on Triassic reptiles. Since his return from Europe in September of 1959 on a Guggenheim Fellowship, Zach M. Arnold has been working on miliolid variation. W. B. N. Berry, who has been with the Department of Paleontology for the last two years as visiting Assistant Professor, is now on the permanent staff. His specialty is graptolites and eight papers have recently been published by him on this subject. Charles L. Camp, who retired this year, is now in Western Australia prospecting for Triassic vertebrates in the Fitzroy Basin. With him is John Cosgriff, a graduate student in Paleontology, and members of the Western Australian Museum staff. Emeritus Professor Ralph W. Chaney is expected to return to Berkeley from Japan sometime in October. He has been there for several months working on his NSF project "A study of the Cenozoic Floras of Japan with special reference to relationships with corresponding floras of western North America."

J. Wyatt Durham is a joint recipient with Ray F. Smith and Paul D. Hurd, Jr., of an NSF grant for "Paleontological Studies of Tertiary Insect-bearing Amber of Chiapas, Mexico." His present research also includes studies on the Pliocene of Northern California and Oregon (with E. C. Allison, Jack Wolfe, and Victor Zullo) and two weeks studying and collecting Lower Cambian Archeocyathids and associated fossils at the U. C. (Berkeley) Geology Field Camp in the Northern Inyo Mountains.

Wayne L. Fry spent the entire summer in Ottawa acting as a consultant for the Geological Survey of Canada working on Tertiary floras from British Columbia and an unusual Ordovician noncalcareous algal assemblage from Lake Winnipeg, Manitoba. He is also acting as consultant to the Bureau of Mines and State Park Board of California.

After completing a tour of duty as Acting Director of the Museum of Paleontology last winter, Dr. Robert M. Kleinpell spent the spring of 1960 in presenting a series of forty-two lectures as Distinguished Lecturer, American Association of Petroleum Geologists on "Principles of Biostratigraphy" to universities and societies across the United States and Canada. He also presented a lecture on the "Refugian and Zemorrian stages of the West Coast Oligocene," to the Biostratigraphy Seminar, Bakersfield College, in May. The following papers under Kleinpell's direction are underway: "Upper Eocene Foraminifera from south of the Refugio Pass, California," by Gordon Hornaday; "Foraminifera from the type San Lorenzo Formation, Santa Cruz Mountains, California," by Frank R. Sullivan; "Eocene Foraminifera from northwest of Refugio Pass, California," by Donald W. Weaver; "Upper Eocene Foraminifera from north of Point Conception, California," by William R. Weaver; and a monograph in two parts on the Gaviota Formation of California: Part 1 "Foraminifera from the Sacate, Gaviota, and Alegria formations, California, and their West Coast range correlatives," by Robert M. Kleinpell and Donald W. Weaver, and Part 2 "The Fauna of the Turritella variata zone, California," by Donald W. Weaver and Robert M. Kleinpell.

During the academic year 1959-60, Alden H. Miller was Acting Chairman for the Department of Paleontology, in addition to being Director of the Museum of Vertebrate Zoology. Part of Donald E. Savage's summer was spent doing field work in Nevada and Texas. He has been given a National Science Foundation grant for the support of research in the Paris Basin, France. This project will be the study of vertebrate paleontology in relation to marine-nonmarine interfingering in the type Paleocene and type lower Eocene. Donald E. Russell, a doctoral candidate at the Sorbonne is the junior investigator on this project and is at present working in the field there. In addition to this project, Savage is engaged in a cooperative program with Curtis and Evernden of the Geology Department of this campus on integration of fossil land-mammal ages of North America and potassium-argon geochronometry.

Samuel P. Welles has been continuing his world-wide revision of the Plesiosaurs, and Gordon Hornaday, recently with Standard Oil, has been appointed as a museum paleontologist to replace Ned Allison who has taken a position in the Department of Geology at San Diego State College.

Several graduate students have accepted positions

elsewhere: Richard H. Tedford, lecturer in Geology at Riverside Campus; Richard Estes, Department of Biology at Boston University; Leslie F. Marcus, Department of Statistics, Kansas State College; G. D. Woodard, Department of Geology, Kansas State University; Edward Klucking, Central Washington College of Education, Ellensburg, Washington; Don Weaver, Department of Physical Sciences, Santa Barbara campus, University of California; Jack Wolfe, U. S. Department of Interior, Geological Survey at Menlo Park; and Malcolm C. McKenna, Department of Paleontology, American Museum of National History, New York. One other graduate, William A. Clemens, who recently completed his Ph.D., is now in England on a NSF postdoctoral fellowship. He will be in Europe for a year studying Mesozoic mammals before returning to the United States.

Last January R. A. Stirton returned to active duty as Director of the Museum of Paleontology and to teaching.

PERSONAL ITEMS

Lee "Robert E." Diehl is back in Shell's Bakersfield office on temporary assignment. Lee was transferred to Houston, Texas, a year ago and has adapted so well to the southern ways he is now known as "General Lee" in those parts.

Joe Dunwoody has been very consistent in the football pool over at Tidewater. He has managed each week to miss at least 20 and sometimes 25 out of 30 picks.

Arch Warne, Richfield geologist and dedicated fossil sleuth, recently uncovered the intact skeletal remains of a 9 foot sea lion at Sharkstooth Hill near Bakersfield. Among his other trophies resulting from intensive excavating campaigns are teeth from the giant white shark, ancestors of the present day man-eaters, which measured 100 to 150 feet in length.

George Webb was general chairman of Standard's Annual Exploration Department family picnic October 15, 1960. Bob Ortalda and Jim Payne, quarterbacked the geological touch football team which produced many aching muscles the boys hadn't used since their last picnic.

The annual Standard San Joaquin vs. El Segundo gulf tourney at Taft was won by the valiant efforts of Brad McMichael, Bob Lindlom, Burt Amundson, and Jack Cunningham of the San Joaquin group.

Don Didier has left Tidewater. He will remain in Ventura as a consultant.

On opening day of the lobster season, 2 skin divers from Ventura found an underwater flashlight lost on opening day last year by Harold Sugden of Tidewater. No, the batteries weren't still good.

Gene Johnson, Shell Scout, Ventura, local miniature golf champion, bowler par excellance, and former P.T.A. treasurer, vows he will not rest until he avenges his recent putt-putt defeat at the hands of one of his former pigeons, Ray Martin, Union Scout.

Bob Ottenstein, Standard geologist, has been transferred to the Anchorage District from Seattle.

Jim Wylie, Gulf, is reported looking for a "goat call" so he can be assured of bagging a suitable trophy. Jim was also spotted directing fellow "huntsmen" up the side of the Chugach Mountains in the quest of an elusive black bear. While flagging the hunters toward the bear, Jim was almost run over by the Alaska Railroad.

John Forman, Mobil, has traded his snow shoes for a pair of water skis while in California for a two month business trip. After farming out all his worldly possessions, he had no alternative but to take his family with him.

There is a rumor floating around Big Lake that Dick Lyon, Union, ran into a big spruce hen while driving to a rig location. However, he was at a loss to explain why there were no feathers in the crumpled grill.

Two new hands have been transferred into Tidewater's Oil-Center Exploitation Department: Gordon Pittman from Midland, Texas, and Jim Herblien from Corpus Christi, Texas.

Mark Latker resigned from Gulf Oil Company. Mark had recently been transferred to Midland, Texas.

NURSERY NEWS

Jack Kappeler, Tidewater, Bakersfield, and his wife Mildred have added their third girl and fourth child to the family. Denise Nora weighed 5 lbs. 12 ozs., and was 19 1/2 inches long. She was born on October 20, 1960.

Doug Waterman and wife Ruth, Standard, Oildale, had a baby girl on October 13, 1960. Lynn is their second girl and she weighed a lucky 7 lbs. 7 oz. at birth.

CALENDAR

November 15, 1960: Tuesday, 6:15 P.M., Dinner Meeting, Branner Club, Athenaeum, Cal. Tech. (Corner California Ave. and Hill St.), Pasadena. Prof. Cordell Durrell (UCLA), "Brazilian Landscapes and Cities". Call RI 94711, Ext. 1255 for reservations.

November 21, 1960: Monday noon, AIME Petroleum Forum Luncheon, Rodger Young Auditorium, Los Angeles. R. B. Livesay (Texaco), "Preparation of a Drilling Platform."

November 21, 1960: A.A.P.G. Forum, 7:00 P.M., Mobil Auditorium, Los Angeles. Walter Record, Richfield Oil Corp., "Exploration in the MacKenzie Delta Area." David J. Leeds, Associate Research Engineer, U.C.L.A., "Chile Earthquake of May 1960."

November 23, 1960: Wednesday noon, U.S.C. Geology Lecture, U.S.C. Campus, Geology Building A, Room 104, Los Angeles. Dr. O. L. Bandy, "The 21st International Geological Congress at Copenhagen."

November 30, 1960: Wednesday noon, U.S.C. Geology Talk, Geology A, Room 104, U.S.C. Campus, Los Angeles. Dr. R. Bowen, Research Associate at Scripps Institute of Oceanography, "Paleoecology of the Jurassic through the Use of Oxygen Isotopes."

December 1, 1960: Thursday noon, A.A.P.G. Luncheon, Rodger Young Auditorium, Los Angeles. "Strike-slip Faulting in Northern Chile", Dr. Clarence R. Allen, California Institute of Technology.

Stanford University (Room 320, Geology Corner, Mondays at 4:00 P.M., Coffee at 3:45 P.M.)
November 14: Jack R. Pickering. Formation of Laterites.
November 21: Keith A. Kvenvolden, Hydrocarbons

in the sediments of San Francisco Bay.
Daniel Sokol, A new source for Stanford's water supply.
November 28: Thomas L. Thompson. Tectonic History in southeastern British Columbia, Canada.
December 5: Carl Wentworth, Sedimentary structures in the Pigeon Point formation, Pigeon Point, California.
Don Secor, Geologic structures in the Spring Mountains, Nevada.

December 17, 1960: Saturday, Annual Holiday Dinner Dance, A.A.P.G., S.E.G., S.E.P.M., Oakmont Country Club, 3100 Country Club Driver, Glendale.

December ? , 1960: Coast Geological Society Meeting, Spence Fine, Richfield, "The Timber Canyon Field."

BIBLIOGRAPHY OF RECENT PUBLICATIONS

*Pacific Coast Geology

AMERICAN JOURNAL OF SCIENCE, (Bradley volume) vol. 258-A, 1960

A folded thrust in Nevada, - inferences as to time relations between folding and faulting by James Gilluly.
The boundary between rocks of Carlile and Niobrara age in San Juan Basin, New Mexico and Colorado, by Carle H. Dane.
Interpretation of erosional topography in humid temperate regions, by John T. Hack.
The anatomy and habitat of low-angle thrust faults, by Philip B. King.
Analysis of some recent geosynclinal theory by Adolph Knopf.
Possible explanation of diverse structural patterns in southern Nevada, by Chester R. Longwell.
Notes on the measurement of faunal resemblance, by George Gaylord Simpson.
Origin and use of the word "shale", by Harry A. Tourtelot.
Generic change in Tertiary floras in relation to age, by Jack A. Wolfe and Elso S. Barghoorn.
*Bedrock patterns and strike-slip faulting in southwestern Calif., by A. O. Woodford.
Gas as a sedimentary and diagenetic agent, by Preston E. Cloud, Jr.
The ubiquitous diatom - a brief survey of the present state of knowledge, by Kenneth E. Lohman.
Classification and association of the carbonate minerals of the Green River formation, by Charles Milton and Joseph J. Fahey.

U. S. GEOLOGICAL SURVEY

*Bulletin 1087-F: Geology & ore deposits of the Kern River Uranium area, Calif., by E. M. MacKevett, Jr.....$1.25
Bulletin 1104-A: Erosion and related phenomena at Paricutin in 1957, by Kenneth Segerstrom....$ .50
*Bulletin 1045-F: Core logs from five test holes near Kramer, Calif., by W. K. Benda, R. C. Erd, and W. C. Smith.....$1.00
*Professional Paper 329: Reconnaissance of the geomorphology and glacial geology of the San Joaquin Basin, Sierra Nevada, Calif., by Francois E. Matthes.....$1.25
*Professional Paper 334-F: Ammonites of Early Cretaceous age (Valanginian and H. Hauterivian) from the Pacific Coast States, by R. W. Imlay..$1.25
*Professional Paper 334-E: Upper Cretaceous pelecypods of the genus INOCERAMUS from northern Alaska, by D. L. Jones and George Gryc.....$ .45

SUPPLEMENT

Second supplement to the U.S.G.S. Publications of the Geological Survey.....Free

Index to Topographic Mapping in California (Sept., 1960).....Free

CIRCULAR

*429: Water-resources summary for southern California, 1959, by W. C. Peterson. 26 pages.....Free

*WSP Geology, 1464: Resources and usable ground-water storage capacity of part of Solano Co., Calif, by H. G. Thomasson, Jr., F. H. Olmsted, and E. F. LeRoux.....$6.75/set
Geologic Quadrangle: 129: Geology of the Pysht Quad., Wash., by Howard D. Gower....$1.00

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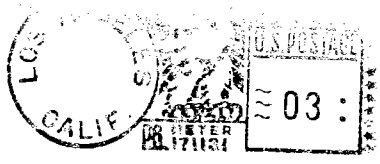
Volume 14 Number 11



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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

ASSOCIATION ACTIVITIES

Volume 14 December 1960 Number 12

WELCOMING SPEECH

A.A.P.G. CONVENTION - NOVEMBER 1960

T. A. Baldwin

Welcome friends, members and non-members of the AAPG, SEG and SEPM. I wish I could greet you with the honeyed, meaningless phrases common to our national politicians ... but ... I just ain't built that way! All I can say honestly about our profession and our industry is ... "Times are tough!"

Those of us fortunate enough to be employed at the moment are depressed by the constant stream of young men, inexperienced and unemployed who seek our advice, our help and encouragement. Nor do we forget the growing trickle of our friends, fully experienced and not so young, who are grimly following the same path from door to door. This I can say: Times have been tough before and they got better. Times are tough now and I have a strong faith they will again get better. Let me tell you something of my faith in our profession.

Unimaginative clods sometimes accuse us saying, "Geology is more of an art than a science". I glory in replying "This is so! ... This is a truth". Basically an artist is not a chap who daubs paint or chips stone. An artist is a person capable of original and creative thinking ... a man who, out of a valueless nothing of facts, creates from his own imagination a new and useful something! Now that is a geologist. A geologist is a man capable of seizing a few ill related observations and conceiving in three or four dimensions a structure of great utility and beauty. Do you doubt that a smoothly contoured anticline has as much inherent beauty as some futuristic beatnik daub of paint? But further ... a geologist cannot only create this artistic form, he is privileged to color it with the loveliest shades of all ... the rich warm browns of oil. This is more than a privilege. It is the highest duty of the petroleum geologist. Though his structural picture may be a thing of beauty, it has no values to the community until he has created values by bringing about the drilling and testing that are the consummation of his efforts.

It is my proud faith that the mature geologist has basic, native, creative ability and training in the use of that ability. His talents can lead to success in almost any field of employment either in our industry or outside of it. We have seen geologists leave our profession and find success elsewhere, as salesmen, in aircraft, real estate, forestry, lumber and planting tulips. We have seen a high percentage of petroleum executives selected from the ranks of geology. We know that our talents are universal!

I would say this to the young people. During the lush years after the war, we created too many geologists ... far too many ... more than the economy of this industry can presently support. Some of you have got to go! - (Some have already gone). If finally you decide that it is wisdom to give up this field for which you have trained ... be happy that you have had a good basic education founded upon your own creative talent. You will do well elsewhere. Goodby and Good Luck.

If, however, you are the stubborn type and insist on staying among us, counting the satisfactions of this work more important than immediate position, or preferment, or money, or security ... then Welcome Brother! In this case I advise you to seize any opening that comes along, even remotely connected with our science. You will maintain your pride in this profession and your association with other geologists. You will attempt to do independent academic research on your own time. You will offer scientific contributions at our various meetings ... and you will await a brighter day. Be assured that day will come ... there is plenty of work to be done and plenty of oil to be found by men of your stamp. Be assured that whether you work drafting, on geologic files, as a roughneck on a crew or a wash boy in a bug lab you will be accorded in this society the respect and friendship due the fine young professional people that you are.

I would say this to my friends with some years of experience: Any one of us may be expendable but if the petroleum industry is to survive ... our profession is indispensable. That company which suspends exploration becomes a bankrupt and dead-end merchandising outfit, selling the rapidly diminishing stock from off the shelves. You can put your genius to work in many fields. Your creative ability is a resource that is not diminished by use ... rather it is increased. You can live and be happy without a petroleum industry. This industry cannot exist without you!

I would say this of the future. A time will come when this nation and this industry will find, with regret, that the supply of geologists is too short rather than too long. At that future time, to create fuel for our growing population and growing economy, once again each geologist will be asked to do the work of two or more. Then our "Geological Directors", "Assistants to Exploration" and "Supervisors of Scientific Paper Work" will once again start practicing geology. We can and will cope with that crisis when it arises, but for the present:

This is a tough time ... It is a time for tough thinking and tough talk. It is not a time for fear. It is a time to purify and upgrade our profession. It is a time for hard work ... a time to perform meticulously the many tasks which only our profession can perform ... a time for fierce pride in our profession.

We are travelling a rough road. We have travelled many rough roads during the years of our work. Sooner or later on every such road we come to a sign that promises improvements and repairs. This is the sign that separates the men and the boys. It reads, "Men at work". I fully intend to

PACIFIC PETROLEUM GEOLOGIST

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Northwest Correspondent	Malcolm B. Greene
Sacramento Correspondent	Lowell Garrison
San Francisco Correspondent	D. H. Pfeiffer
San Joaquin Correspondent	Ronald G. Heck

Next Deadline: December 29, 1960

be behind that sign, with a sweaty brow, geologic pick in hand, breaking up rocks as usual ... May all of you be there beside me.

CONSTITUTION

PACIFIC SECTION OF THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Adopted September	1924
Amended November	1939
Amended October	1943
Amended November	1944
Amended November	1951
Amended October	1952
Amended November	1953
Amended November	1954
Amended April	1955
Amended July	1957
Amended October	1959
Amended November	1959
Amended November	1960

ARTICLE I Name

This organization shall be known as "Pacific Section of the American Association of Petroleum Geologists" and is hereinafter referred to as "this Section".

ARTICLE II Object

Sec. 1 The object of this Section shall be to provide for discussion of subjects and problems coming within the scope of the profession and, by such intercourse, to promote the advancement and aims of The American Association of Petroleum Geologists as set forth in its Constitution and by-laws.

Sec. 2 The Pacific Section is a non-profit organization, and no portion of the net earnings inures to the benefit of any private individual or member. (Amended Nov. 1959).

ARTICLE III Membership

Sec. 1 Any member, associate or Junior (Amended Nov. 1951) of the American Association of Petroleum Geologists in good standing and ~~residing in California, Oregon or Washington,~~ shall be eligible to membership in this section.

Sec. 2 Payment of annual dues of this Section by any person qualified as in Section 1 above, shall be deemed to be a declaration of membership in this Section and shall be known as an active member of this Section. (Amended July 1957).

The Executive Committee may honor the accomplishments of one or more member each year by designating an "Honorary Life Member". An Honorary Life Member shall be exempt from all future dues. (Amended November 1960).

ARTICLE III

Sec. 3 Other persons not members of The American Association of Petroleum Geologists who are interested in the activities of this section, upon payment of annual dues and subject to their acceptance by the Executive Committee, may become subscribers. Subscribers shall not have the right to vote but may otherwise participate in the activities of this section. (Amended Nov. 1960).

ARTICLE IV Officers

Sec. 1 The officers of this Section shall be a President, a Vice-President, a Secretary and a Treasurer. During the absence of the President, the Vice-President shall assume his duties. The duties of these officers shall be those customary for their respective offices. They shall assume these duties immediately following the meeting at which they are elected as hereinafter provided. Their term of office shall be for one year or until their respective successors are elected.

Sec. 2 There shall be an Executive Committee consisting of the President, Vice-President, Secretary, Treasurer, Retiring President, Editor of the Pacific Petroleum Geologist (Amended Nov. 1953), one member selected by the San Joaquin Geological Society, and one member selected by the Coast Geological Society. (Amended April 1955).

ARTICLE V Funds

Sec. 1 The dues of this section shall be $3.50 (Amended April 1955 and Nov. 13, 1959) per year, due and payable in advance.

Sec. 2 The funds of this Section shall be deposited to the credit of Pacific Section of the American Association of Petroleum Geologists in any (Amended Nov. 1954) federally insured depository selected by the Treasurer but not to exceed the limit insured by the Federal Deposit Insurance Corporation. Whenever necessary, the President shall certify to the authority of the Treasurer in administering such account by providing the depository bank with a notice of the Treasurer's election and with a true copy of this Constitution.

The Treasurer shall have authority to issue checks against the bank account so established, on his sole signature, but in

the event of his absence or incapacity to act due either to sickness or death, withdrawals or payments by check may be made on the signature of the President during the continuance of the absence or incapacity of the Treasurer, in which event the identity and authority of the President and the circumstances relating to the absence or incapacity of the Treasurer shall be certified to by the Executive Committee if so required by the depository.

ARTICLE VI Meetings

Sec. 1 Pacific Section meetings shall be held annually or at other times on call of the President. (Amended November 1960).

Sec. 2 The time and place of Pacific Section Business Meetings shall be determined by the Executive Committee. (Amended Nov. 1960).

ARTICLE VII Elections

Sec. 1 The President of the Pacific Section of The American Association of Petroleum Geologists, with the approval of the Executive Committee, shall appoint a nominating committee at least three months prior to the Business Meeting of the Pacific Section, consisting of five (5) members, two (2) of whom shall be past officers of the Pacific Section. The nominating committee shall select two (2) candidates for each of the following offices: (1) President, (2) Vice-President, (3) Secretary, and (4) Treasurer. The slate of candidates shall be announced in the Pacific Petroleum Geologist at least one month prior to the election. Additional nominations may be made by a written petition of twenty-five or more members of the Pacific Section in good standing, received by the Secretary within two weeks following the publication of the nominating committee slate of candidates. Voting shall be by mailed ballot. The Secretary shall set a date for counting ballots and shall mail ballots to all members not less than two weeks prior to this date. (Amended November 1960).

Sec. 2 In matters pertaining solely to the business of this Section, all active (Amended July 1957) members of the Section may vote. In matters pertaining to the official business and the selection of business representatives or other officers of The American Association of Petroleum Geologists only active members of the Association shall be qualified to vote.

Sec. 3 This constitution may be amended by two-thirds vote of all members present and voting at any Business Meeting which has been announced in the Pacific Petroleum Geologist two months in advance. (Amended November 1960).

GUIDEBOOK TO THE GEOLOGY OF THE SACRAMENTO VALLEY

The Sacramento Geological Society is compiling a guidebook to the Sacramento Valley for the 1962 National A.A.P.G. Convention in San Francisco. A tentative outline of this guidebook follows:

General Chairman - Bruce Brooks
Brazos Oil and Gas Co.
Sacramento, California

I. General Orientation - Chairman - Art Hawley, Consultant, Sacramento, California

A. Forward
Letter of welcome from General Chairman of Convention: Gordon B. Oakshott and William F. Barbat, Vice-Chairman for SEPM

B. Table of Contents

C. Acknowledgments
1. List of the Field Trip Committee
2. Sacramento Petroleum Association
3. Other contributors to the Guidebook

D. Man's Historic development in Northern California by William Clarke and Ed Kiessling, Calif. Div. of Mines

E. The Geologic Framework of Northern Calif. Including the geographic and geomorphic limits of the Sacramento Basin by A. S. Hawley

F. Oil seeps and early petroleum development in Northern California with emphasis on the Sacramento Basin by Union Oil Company, probably Robert Carlson, Bakersfield.

G. List of other guidebooks and references of Sacramento Basin.

II. Surface Geology - Chairman - Bob Reedy, Gulf Oil Co., Sacramento, California

A. West side geology - Milt Lachenbruch, Gulf Oil Company, Ben Paige, Stanford University.

B. Central Valley (Marysville Buttes) - George LaPerle, Independent
Lowell Garrison, Gulf Oil Company

C. East side geology - Don Rogers, Humble

III. Subsurface Geology - Chairman - Bill Bauer, Texaco, Inc., Sacramento, Calif.

A. Stratigraphic notations - Anatole Safanov

B. AAPG Gas Symposium Papers (Various authors) of Gas Fields

C. D.O.G. Gas Field Papers.

D. Economics of petroleum exploration and development in Sacramento Basin - Ned Towne

IV. Field Trip - Chairman - Stewart Chuber, Mobil Oil Company, Bakersfield, Calif.

A. Mount Diablo - Bill Barbat, Standard Oil Company, San Francisco, Calif.

B. Pleasant Valley - Don Emerson, University of California, Davis.

C. Putah Creek - Don Emerson, University of California, Davis.

NORTHWEST GEOLOGICAL SOCIETY

Newly elected officers of the Northwest Geological Society have recently taken office.

President: Mahlon V. Kirk (Shell).
Secretary: Ross Ellis (Univ. of Wash.).
Treasurer: John S. Lowther (Univ of Puget Sound).

AFRICA-MIDDLE EAST MAP BOOK

A. H. Munger (Munger Oilogram) has recently published an 11" x 18" geologic map book of Africa and the Middle East showing each country singly on one or more maps. Geology, compiled by E. A. Gribi, is shown in zip-a-tone pattern printed on a transparent overlay and bound (spirally) with the base map of each country. The latter show culture, drainage, wells, and concessions as of mid-1960.

NEW CORRESPONDENTS

The following correspondents have recently joined the P.P.G. staff:

Robert M. Kenyon: Alaska Correspondent
British-American Oil Producing Co.
1827 East 5th Avenue
Anchorage

Miss Mary Blakeslee: Personals, Los Angeles
Richfield Oil Corp.
555 S. Flower St.
Los Angeles 17

Ronald G. Heck: San Joaquin Correspondent
Sunray-Midcontinent Oil Co.
930 Truxton Avenue
Bakersfield

Howard R. Level: Coastal Correspondent
Union Oil Co.
P.O. Box 670
Santa Paula

SACRAMENTO GEOLOGICAL SOCIETY

Dr. Edgar Bailey, USGS Menlo Park, presented "The Franciscan Formation as an Example of Eugeosynclinal Sedimentation" to members of the Sacramento Society on November 14th.

For this discussion all rocks ranging in age from upper Cretaceous to upper Jurassic excepting the Sacramento Valley subsurface "Franciscan facies" (of some sources) are considered to be Franciscan. These rocks outcrop east of the San Andreas fault and west of the Nacimiento fault with the major exception of the Calera limestone, exposed in a fault wedge, west of the San Andreas, between Pilarcitos and San Andreas faults. They extend into Oregon where they are called "Dothan" fm., and south through Santa Catalina Island ("Catalina schist") and possibly Franciscan equivalents are present on islands off Baja California. This represents a known extent of 1000 linear miles and 15,000 square miles outcrop in California alone.

The formation is at least 25,000 feet thick and may be much thicker. No lower contact has been recognized; what underlies it can only be inferred.

Rock types and estimated percentages are: graywacke (80), siltstone and shale (10), conglomerate (less than 1), limestone (less than 1), mafic volcanic rocks (8), chert and accompanying shale (less than 1), glaucophane and related schist (less than 1).

Graywacke is characterized by beds half an inch to tens of feet thick; absence of current or sorting features except in supposed lowest and highest parts; widespread shale fragments; local carbonized wood fragments; variable composition with feldspar 1/3-2/3, quartz 1/10-1/2, mafic volcanic rocks 0-1/3, matrix 1/20-1/5, with finest fraction consisting of mica greater than 1/3, kaolinite up to 1/3, chlorite less than 1/3; highly angular to subangular grains; poor sorting.

Siltstone and shale, generally in thin interbeds with graywacke, are compositionally like the graywacke but finer-grained. Conglomerate is rare through the entire section. Beds are generally thin, but some are hundreds of feet thick. Clasts include both Franciscan and non-Franciscan types.

Limestone, in thin beds of restricted distribution, is chemically precipitated and generally includes lenses of chert. Two main types of limestone are Calera limestone, white in color, and the "Leytonville" limestone, pink in color.

Mafic volcanic rocks are chiefly altered submarine eruptive rocks occurring as pillow lavas, breccias, and tuffs. Included are low-olivine basalt, spilite, and rarer quartz keratophyre. Chert, generally rhythmically bedded with distinctive iron-rich shale, is related spatially and probably genetically to volcanic rocks, in the following manner:

Reaction between freshly erupted lava and sea water at depth (for example, 13,000') will raise the temperature of the water to or past a temperature of 350°. The great pressure exerted by the water prevents boiling. At this temperature and under these pressures, sea water can absorb 1000 to 2000 parts per million of silica. (For purposes of illustration 20 ppm silica is normal in salt water, 100 ppm is saturation, and 200 ppm and above will be the precipitation point.) Convection currents, set up between the super-heated water and cool surrounding water will cause the super-heated water to rise to cooler levels, resulting in temperature drop. This will allow precipitation of silica, which will rain to the sea floor. Silica gels and iron and aluminum oxides will result, the former creating the laterally discontinuous rhythmically bedded chert; the latter, the inter-bedded iron-rich shale.

Schist, although a spectacular rock type, is a minor constituent in Franciscan. These schists are probably regionally metamorphosed from other rock types and often exhibit their origin from greenstone, pillow basalt, graywacke, etc.

Most of the Franciscan formation is not metamorphosed; however, local areas contain laumontite, or jadeite, or glaucophane and associated minerals.

The Franciscan suite represents a eugeosynclinal ensimatic accumulation, where deposition took place in a submarine trough off the continental shelf through various agencies including density currents and submarine slides from the shelf. As the weight of sediments increased, down-buckling of the trough into the sima (mafic material beneath crust) took place. To lend weight to this hypothesis it is noted that no granitic material has been found beneath the Franciscan. As down-warping progressed basalt and peridotite and other sima materials squirted up into the trough sediments through fractures in these sediments. Once formed, Franciscan rocks were folded and brought to the surface again.

The rocks have been so folded, shattered, and sheared that nearly every outcrop presents some structural complexity, yet lithic units have

mappable continuity. The gross structures seem to consist of open folds cut by strike-slip faults which nearly parallel fold axes. Major faults form wide zones containing blocks of competent rocks in a more highly sheared groundmass of less competent rocks.

COAST GEOLOGICAL SOCIETY

Any member of the Pacific Section of the A.A.P.G. who would be interested in receiving future announcements of monthly dinner meetings of the Coast Geological Society are requested to send their names and address to the following:

Charles Johnson
P. O. Box 670
Santa Paula, Calif.

1961 APPOINTMENTS

Irving Schwade, newly installed president of the Pacific Section, announces the following appointments:

Coastal Representative: Spencer Fine (Richfield)
San Joaquin Representative: L. S. Chambers (Texaco)
Sacramento Pet. Ass'n. Rep: Wm. J. Edmund (E. L. Doheny)
Forum Chairman: Edward A. Gribi (Westates)
Asst. Forum Chairman: John Elliott (Humble)
Distinguished Lecturer Chairman: Ben Lupton (Mobil)
Projection Chairman: Keith Green (Shell)
Alternate Richard E. Lownes (Union)
Publicity: Ray E. Pearson (Richfield)
Picnic and Golf Chairman: William Castle (Richfield)
Classification: M. C. (Barney) Barnard (Richfield)
Legislation and Ethics: Robert Paschall (Signal)
Transportation: Homer Steiny (Consultant)
Publication Sales: Harry Stuveling (Pacific Log)
Ladies Participation: Elizabeth Johnston (Graydon Oliver)
Boy Scout Program: Ben Lupton (Mobil)
Subcommittee Basement Rocks: E. L. Miller (Ohio)

DIRECTORY AND CROSS SECTION

The new 1960-1961 Pacific Section Directory is available from Harry Stuveling, Jr., Pacific Log Exchange, 11515 East Washington Blvd., Whittier, Calif. Price is $3.00 plus $0.50 mailing.

New cross section #13, "Sacramento Valley-Red Bluff-Beehive Bend-River Island-Rio Vista" can be ordered from the same source for $1.50 plus $.50 mailing.

Remittance in full must be included with the order.

MACMILLAN NEW PACIFIC SECTION VICE PRESIDENT

Andrew J. MacMillan (Texaco, Los Angeles) has accepted the post of Pacific Section Vice President. Richard E. Faggioli (Humble), the elected V.P. is being transferred from Los Angeles to Houston.

! 1961 DUES !

We hereby extend an invitation to those who did not attend the fall meetings and therefore have not paid their 1961 dues. You may remit same in the amount of $3.50 to:

Mr. Richard L. Hester
Pauley Petroleum, Inc.
10,000 Santa Monica Blvd.
Los Angeles 25, Calif.

This will assure receipt of the Newsletter and Notices of local meetings in the coming year.

BEST PAPER AWARD

Quentin Moore, Chairman of the Award Committee, announces Gordon Bell the winner for his presentation of "The Relationship of Professional Society Membership to Oil Industry Activity in California" at the fall meetings, November 3 and 4. Other finalists were Gene Reid, "Why Explore in the Sacramento Valley", and Hal Fothergill, "The Honda Oil Field".

The Rocky Mountain Section of the A.A.P.G., having considered all three, has invited Gene Reid to present his paper of general regional interest at the National Meeting in Denver next spring.

HONORARY LIFE MEMBER

The outgoing Executive Committee unanimously agreed some time ago that it would be fitting to honor the accomplishments of a few outstanding Pacific Section members with Honorary Life Memberships in the Pacific Section. Dr. Olaf Jenkins was awarded the first such membership at the Annual Business Meeting, November 3, 1960, as a token of friendship and respect.

DIRECTORY CORRECTIONS

Although the compilers of the new 1960-61 Directory are understandably proud of their product, the P.P.G. is soliciting any corrections individuals may wish to make. As a convenience to members these corrections will be published at a later date in the Newsletter, in a form suitable for pasting in the directory. A further continuing revision will be provided by the publication of address and/or affiliation changes as they are received by the editor or membership secretary.

Please address your corrections to:

B. K. Johnson
The Ohio Oil Company
550 S. Flower
Los Angeles 17, Calif.

LOS ANGELES FORUM MEETING

The Los Angeles Forum heard two speakers at the regular monthly meeting held November 21 in the Mobil Auditorium. David Leeds (engineering seismology, U.C.L.A.) spoke first on "The Chile Earthquake of May, 1960."

Records of major earthquakes in Chile go back to 1520, and show 9 of the magnitude felt last May (8-1/2 to 8-3/4, like San Francisco, 1906). This recent major quake was followed by 6 aftershocks of intensity comparable to the Kern County earthquake of 1953.

A damage area of intensity 8 stretched for 400 miles in southern Chile. Twenty percent of the entire population was affected, 5,000 were killed, and damage approximated $200,000,000.

At this time, fault movements of the San Andreas type probably occurred offshore for a distance of 500 to 1000 kilometers. No demonstrable onshore movements are known, however.

Damage to buildings was most severe among brick and adobe structures; frame and reinforced concrete proved more substantial. Leeds estimated that in one district 67% of the adobe structures failed, and only 19% of the reinforced concrete showed damage, much of it minor.

Along with the shock damage, a tsunami killed hundreds in one seashore city, and landslides occurred in other areas. One of these was more than a mile across, and dammed a river creating a lake similar to the Yellowstone slide-lake.

Perhaps the most lasting effects of the earthquake were the regional settling and compaction which has resulted in widespread inundation of nearshore lands. This subsidence of 1 to 2 meters was caused by compaction due to the shaking and by accompanying regional tectonic uplift.

The second speaker of the evening, Walter Record (Richfield), discussed "Geology of the Lower McKenzie Basin, N.W.T., Canada." The Lower McKenzie Basin lies 1200 to 1500 miles north of Calgary bordering on the Arctic Ocean and near northeast Alaska. In early 1958 the land rush began and some 75,000,000 acres are now under reservation. Since that time the Arctic islands have been the scene of further leasing activity.

The McKenzie Basin represents the continuation of the western Canada sedimentary basin. On volume of sediment alone, Record estimated potential reserves of 10 billion barrels of oil and 60 to 90 trillion feet of gas. This is based on a sediment thickness to the Precambrian which may reach 10,000 feet. Structure in the basin appears more gentle than in other nearby areas.

A tabulated outcrop section includes the following units:

Tertiary: thin or absent

Lower and Upper Cretaceous: brackish to nonmarine shale and sandstone forming the surface rocks in most of the McKenzie Basin.

Jurassic: dark shale and silty sand, possible poor reservoirs.

Triassic: thin shales in northwest part of basin.

Permo-Pennsylvanian: sandstone and conglomerate near Alaska, may be a potential reservoir.

Mississippian: present.

Upper Devonian: conglomerate and sandstone becoming more marine and including carbonates to the southeast.

Middle Devonian: carbonates with crystalline dolomite and a solution breccia. The latter is oil stained and a potentially good reservoir having yielded 3000 B/D of saltwater at Norman Wells. In the McKenzie Basin this unit is an attractive objective at depths of 2000 to 3000'.

Lower Devonian: missing, as in Alaska.

Ordovician and Silurian: possible reservoirs in carbonates at the east, to the west is represented by black graptolitic shale and chert. This carbonate-shale facies is analogous to the Pogonip-Vinini of the same age, in Nevada.

Middle Cambrian: green and red shale, sandstone, gypsum, and locally carbonates.

Lower Cambrian: unfossiliferous sandstone and limestone, 1000 to 6000' thick.

Exploratory wells in the McKenzie Basin consist of 5 recent wildcats drilled by Western Minerals (2), Richfield (2), and Amerada-Ohio (1). Only the Western Minerals "Chance" 1 has found production, and this presumably from the Permo-Carboniferous. Oil flowed from the test at 300-400 B/D from 100 to 150' of pay.

Norman Wells, the only producing field in the region, was discovered in 1919 on the basis of oil seeps. Structure here is homoclinal and production comes from a reef in the Devonian. Until 1940 only 3 or 4 wells had been drilled, but stimulated by wartime demand, 60 more wells were drilled and a 5-inch line laid 575 miles to Whitehorse.

Average gravity of the oil is 40° and the pour point -70°. The developed area covers 2600 acres with an estimated additional 1400 acres potentially productive. Approximately 36 million barrels of the 50 to 60 million barrels ultimate have been produced.

SACRAMENTO GEOLOGICAL SOCIETY

At the October 11th meeting of the Geological Society of Sacramento, Dr. Robert M. Kleinpell, University of California, Berkeley, spoke on the "Principles of Biostratigraphy."

Mr. Vern W. Cartwright, Cartwright Aerial Surveys, Inc., Sacramento, gave a luncheon talk on "Photogrammetry and Color Aerial Photography" to the Wednesday gathering of the Sacramento Geological Society at Scheidels, October 12th.

ALASKA GEOLOGICAL SOCIETY

The November meeting of the Alaska Geological Society was held on the 10th of the month. The featured speaker was Waring Bradley, consulting geologist here in Anchorage. Mr. Bradley spoke on the history of the Aledo Eureka No. 1, Copper River basin.

The Aledo well was originally drilled by a group of Anchorage men who had formed the Alaska Oil and Gas Development Company. After considerable difficulties were encountered in the drilling operations, James H. Snowden, et al, Texas independent oilman, assumed operations in 1956 with the formation of the Aledo Oil Company.

The Aledo well is located in the extreme southwest margin of the Copper River basin, the surface location being just north of the Glenn Highway some 125 miles east of Anchorage. The well spudded in the Upper Cretaceous Matanuska formation and bottomed at a depth of 4818 feet, still in the Matanuska. The entire section penetrated was unaltered shale and silty shale. One show of dead oil stain was encountered in a calcite vein. Although no evidence of faulting or repetition of section was found, crumpling of the shale was suspected.

In 1957, a Guiberson conversion was made on the rig and an unsuccessful effort was made to deepen the well using tubing as drill pipe. In 1959 the well was plugged after recovering casing and the rig and equipment were stacked at Palmer.

U N I V E R S I T Y N E W S

STANFORD

Robert R. Compton, Geology, was in charge of the Stanford Geological Survey this summer, with the aid of Neely Bostick and Sam Sims. Thirteen students worked in Reliz and Vaqueros Canyons and later in the Bowen Lake-Milton area of the northern Sierra Nevada.

Doak C. Cox, Visiting Professor in Geology, Autumn Quarter, is teaching the courses in groundwater while Stanley Davis is on leave. Davis has been with the Experiment Station, Hawaiian Sugar Planters Association, doing groundwater studies, engineering geology, and micrometeorology, but after the tsunami that followed the Chilean earthquake last May, he was asked to join the Hawaiian Institute of Geophysics staff, implementing a Tsunami Research Program of the University of Hawaii.

William R. Dickinson, Geology, has been continuing his study of marine sedimentation of pyroclastic volcanic materials in Jurassic cutcrop areas in central Oregon. He plans to work next on the structural geology of the Cholame Valley-McClure Valley area, southern Diablo Range, California.

Joseph J. Graham, Geology, attended the International Geolcgical Congress in Copenhagen last August. After the Congress he collected fossils from the type area of the Maestrichtian Stage in the Netherlands, attended paleontological meetings in Munich, traveled as far south as Istanbul, Turkey, and returned via Lisbon. He has submitted for publication an annotated bibliography of Cretaceous microfossils of California.

John W. Harbaugh, Geology, spent a brief period in the Great Slave Lake region, and later in the summer, he collaborated with graduate student Ferruh Demirmen in study of the Permian Americus limestone in Kansas and Oklahoma. He is currently constructing a carbon dioxide preparation system for use with Stanford's newly acquired mass spectrometer which will be used to analyze stable carbon isotopes, C_{12}/C_{13}, in carbonate sediments of southwest Florida.

Arthur D. Howard spent the summer in Taiwan (Formosa), teaching courses in geology. Just before his return to the U.S.A. he was invited to meet General and Madame Chiang Kai-Shek and had an interesting afternoon session with them. He is on leave from Stanford for the next two years to teach geomorphology and photogeology at the School of Geology, University of Bahia, Brazil.

Evan Just, Mineral Engineering, studied a quicksilver deposit in the Mount Diablo range during the summer, and made a study of mining conditions in Africa for Stanford Research Institute.

Myra Keen, Geology, participated in two expeditions to the Gulf of California in August.

John T. Kuo, Research Associate in Geophysics and Assistant Professor at San Jose State College, has been invited to Lamont Observatory, Columbia University, to participate in research on seismic surface waves.

Adolph Knopf, Geology, was a Visiting Lecturer this summer.

Edward J. Lynch, Petroleum Engineering, spent the summer in evaluation of a field for an oil company. He is supervising a study of the streaming potential generated by the filtration of water base muds into porous formations and has published a paper entitled "Linear Frontal Displacement in Multilayered Sands."

Sullivan S. Marsden, Petroleum Engineering, recently visited seven university and petroleum production research laboratories in Europe to observe their teaching problems and the research in progress. Currently he is investigating the surface properties of petroleum reservoir sandstones.

Siemon W. Muller, Geology, attended the annual meeting of the Geological Society of America in Denver and met with the Editorial Board of the American Geological Institute in a conference on their translation program for Russian papers. He also took part in the council meeting of the Paleontological Society as incoming Vice-President.

Benjamin M. Page, Geology, returned in September from a year of study in Italy, where he mapped an area in the northern Apennines.

Charles F. Park, Dean of the School, returned to Stanford in September after a year of leave, during which he travelled from Alaska to Chile in a study of iron and manganese deposits along the Pacific Coast.

George A. Parks, Mineral Engineering, is supervising a general research program in the surface chemistry of inorganic oxides in aqueous systems, which is sponsored by the Atomic Energy Commission.

George A. Thompson, Geology and Geophysics, has recently published a paper in collaboration with Robert G. Yates of the U. S. Geological Survey. His research work at present deals with structure and geophysics of the Sierra-Basin Range region and geophysics of ultramafic intrusions.

Paul H. Reitan joined the faculty of the Geology Department in September, having been appointed Assistant Professor of Mineralogy. He will teach courses in elementary mineralogy, mineralogical chemistry, and spectrographic analysis.

Ernest I. Rich was appointed Assistant Dean of the School of Mineral Sciences in September, filling a newly created post. His duties will be principally administrative.

Konrad B. Krauskopf, Associate Dean of the School of Mineral Sciences and Professor of Geochemistry, was awarded the Arthur L. Day Gold Medal of the Geological Society of America at Denver on November 1, 1960. The Day Gold Medal is one of the principal honors in the field of geology and was awarded to Professor Krauskopf for his outstanding achievements in the application of physics and chemistry to geology. Dr. Krauskopf is presently on sabbatical leave at Göttingen University, Germany.

To honor the memory of Professor Schenck, and to keep alive his unselfish aim to assist his fellow man wherever possible, a group of his friends and associates have proposed that a memorial fellowship in geology be established at Stanford University. The fellowship fund had grown to more than $4,000 by mid-November. If you wish to share in this endeavor, please send your contribution to the Hubert G. Schenck Memorial Fund, care of the Department of Geology, Stanford University, California.

In September, the Ford Foundation announced its gift of $25,000,000 to the University. This gift is the largest single gift ever made to any

university. Mineral Sciences alumni will be interested to learn that the gift has stimulated preparation of plans for a new Mineral Sciences building. The gift is not without stipulations. The terms of the grant provide that the University must receive $75,000,000 in gifts from other sources within a five year period, or in other words, obtain three dollars for every one dollar received from the Ford Foundation during this period.

Enrollment in the School of Mineral Sciences has declined 36% in the past 3 years. Figures for current enrollment in the departments of the School are given below:

Geology:	
Undergraduate	24
Graduate	49
Geophysics:	
Undergraduate	9
Graduate	9
Mineral Engineering:	
Undergraduate	2
Graduate	4
Petroleum Engineering:	
Undergraduate	14
Graduate	9
Total Enrollment:	130

Enrollment of Junior-Year Majors in American Universities

	1957-58	1958-59	1959-60
Chemistry	8,946	9,231	9,389
Physics	5,254	5,826	6,086
Biology	19,842	21,089	21,207
General Sciences	2,458	2,913	2,698
Mathematics	9,133	11,961	14,065
Geology	3,592	3,206	2,286
Other	1,288	1,551	1,584
Total	50,513	56,777	57,265

CAL. TECH.

At the June, 1960 Commencement the following degrees in the Geological Sciences were awarded: B.S. - 5; M.S. - 8; and Ph.D. - 8. Those receiving the Ph.D. were: Carl S. Benson, Geology, "Stratigraphic Studies in the Snow and Firn of the Greenland Ice Sheet"; Bruce R. Doe, Geology, "The Distribution and Composition of Sulfide Minerals at Balmat, New York"; Edward A. Flinn, III, Geophysics, "Exact Transient Solution of Some Problems of Elastic Wave Propagation"; Ronald M. Lloyd, Geology, "The Shell Chemistry of Some Recent and Pleistocene Mollusks and Its Environmental Significance"; Bimalendu Raychaudhuri, Geology, "Studies of Amphibolites and Constituent Hornblendes from an Area of Progressive Metamorphism Near Lead, South Dakota"; Henry P. Schwarcz, Geology, I. "Geology of the Winchester-Hemet Area, Riverside County, California," II. "Geochemical Investigations of an Arkosic Quartzite of the Winchester-Hemet Area, California"; Dale R. Simpson, Geology, "Geology of the Ramona Pegmatites, San Diego County, California"; Robert J. Stanton, Jr., Geology, "Paleoecology of the Upper Miocene Castaic Formation, Los Angeles County, California."

Among the staff members, Arden Albee has completed a paper entitled "Relationships Between the Mineral Association, Chemical Composition, and Physical Properties of the Chlorite Series," and has continued work on a U.S.G.S. Bulletin on "The Geology of the Attean Quadrangle, NW Maine."

Clarence Allen was in Chile studying Recent faulting in the northern deserts, and was off again in July for visits to European glaciers and the geological congresses. In September he continued field work in Baja California.

Hugo Benioff is currently working with Frank Press on a seismic lunar project. During the past year he has also worked with the California State Department of Water Resources on the seismic problems in connection with the Feather River Project.

Harrison Brown, Professor of Geochemistry, was a U.S. delegate to the Fourth Pugwash Conference of Nuclear Scientists on Arms Control and World Security held in Baden, Austria, from June 25 to July 4, 1959. In addition to teaching and research, he is currently Chairman of the Space Science Board of the National Academy of Science.

Hewitt Dix continues research and investigation on seismic reflection from the Mohorovic Discontinuity. During the summer Dr. Dix attended the geological congresses in Europe. Albert Engel is on leave at Scripps Institution of Oceanography.

Samuel Epstein is investigating carbon and oxygen isotopes. During the summer he attended the International Geological Congress, the International Union of Geodesy and Geophysics in Helsinki, and lectured on nuclear geology in Italy.

Barclay Kamb is on leave at Zurich ,Switzerland, studying alpine glaciers under a Guggenheim Fellowship. Charles McKinney has continued his development and use of a high temperature, carbon reduction technique to release trace amounts of lead from zircons. McKinney has also been cooperating with Leon T. Silver in a field and laboratory study of Precambrian rocks in the San Gabriel Mountains. Claire Patterson is working on age-dating feldspars and zircons. These studies are part of a general program of investigation of the isotopic genesis of the lead in the earth's crust.

Gennaday Potapenko has, for the past five years, engaged in work on aerosols (supported by R. Robbins). Last year this research and investigation resulted in a method called "Aseptic Air System," which renders the air practically free of bacteria. The system is now in use in six operating rooms of Mt. Sinai Hospital; and since installation, some four thousand operations have been performed in these rooms without post-operative infection.

Frank Press, Director of the Seismological Laboratory, is doing research in differences in the outer mantle of the earth and methods of separating nuclear explosions from earthquakes. Dr. Press is also conducting analytical studies of the free oscillation of the earth.

Charles Richter was on leave during the academic year 1959-60 in order to accept a Fulbright research scholarship in Japan. He was associated with Professor Chuji Tsuboi at the Geophysical Institute of Tokyo University. Dr. Richter gave a few lectures at Tokyo, as well as at Kyoto, Nagoya, and Sendai. He visited areas affected by the earthquakes of 1847, 1891, 1927, and 1930 in order to see the remaining traces of faulting and to study the fault topography. Subsequent to attending the Second World Conference on Earthquake Engineering in Tokyo (July, 1960), he traveled to Helsinki for the 12th Assembly of the IUGG, thence to Moscow for two weeks before returning to the U.S.

Robert Sharp, Chairman of Geology, spent the month of August in research on the Blue Glacier in the Olympic Mountains of Washington accompanied by David Schleicher, Tom Bjorklund, and Ivo Lucchitta of Cal. Tech., and Charles Corbato of U.C.L.A. A detailed gravity survey of the ice tongues was made, deep bore holes were resurveyed by inclinometer, and local strain measurements were taken on the surface. In late July and mid-September Professor Sharp also spent time mapping glacial deposits in the Bridgeport Basin east of the Sierra Nevada.

Leon Silver has been working on age-dating Precambrian crystalline rocks in the San Gabriel Mountains and, in addition, he has continued studies

of prebatholithic and intrusive rocks in southern California and in Baja California.

Hugh Taylor, Jr., and Heinz Lowenstam conducted the Division's Summer Field Camp in 1960. Camp headquarters was the Triangle T Ranch situated in the Little Dragoon Mountains near Benson, SE Arizona. Eleven students mapped the geology of the area.

Gerald Wasserburg is still engaged in research on geologic age dating and petrology. From May through September he taught at Mineralogisch Institut der Universitat Kiel, Kiel, Germany, with time out in the summer for the geological congresses in Helsinki and Copenhagen.

The following men have joined the Staff during the past year: Manuel Bass, Egon Degens, and Charles Helsley. Arthur J. Boucot, Associate Professor of Paleontology, will be joining the Staff in the fall of 1961.

PERSONAL ITEMS

Ed Hall (Union, Santa Paula), who recently attended the "Big Game" (northern version) and proudly watched his alma mater emerge victorious, has been seen wearing a sport shirt of Stanford hue -- wait until the alumni association hears about this !!!

Jim McIntyre, (Standard, Ventura) and Matt Carson, (Standard, La Habra), have struck it rich!!!------- or at least they hope so!!! Standard is opening an exploration office in Reno, Nevada, and these two fortune-seekers have been given the green-light. Reportedly this office will conduct Great Basin exploration but the jingle of coins and the rattle of dice may interfere.

Bob Kropschot, (Standard, La Habra), recently was transferred to the Ventura office to fill the vacancy left by Jim McIntyre.

Geno Sakamanura, prominent Japanese oil scout, is on an extended tour of California oil facilities and techniques. Mr. Sakamanura was recently observed in the company of the Coastal Oil Scouts who were proudly displaying their techniques.

Lee Rhodes, (Cal Pan Am Logging Co.), is rapidly acquiring "sea-legs" on his new tour of offshore logging.

Frank "Mum-C-Puffs" Yule, (Mobil, Santa Fe Springs), during a recent visit to Shell's Ventura office, experienced a "ripping good time" - this has been interpreted by his associates as a subtle advertising scheme designed to impress young and innocent secretaries.

Ray Arnett, Richfield, Bakersfield, would like to express his warmest appreciation to all of those who aided him in his race for the 14th District Congressional post. Unfortunately, a simile may be drawn from the election results that matches that old saying "a geologic success but an economic failure".

Bob Johnston, Gulf, has just returned from three weeks of camping out, studying ancient Mayan ruins and general stomping about in southern Mexico.

New San Joaquin Geological Society officers are: President, Bob Nesbit; Gulf, Vice President and Program Chairman, Bob Lindlom, Standard; Secretary, Dave Calloway, Rheem.

Horace Harrington will arrive in Libya by the 1st of next year to take charge of Superior's operations there. Bill Winters will be elevated to replace Horace as District Geologist in Bakersfield. Following these exciting events is the news that this same office has hired a geologist, one Joe Kennedy (timely ?), formerly with SOHIO, Midland.

The annual Union-Standard, Bakersfield Golf Tourney was held recently at the Kern River Fairway and the winners' trophy is now well displayed at the Union office. A slender margin of one point separated the victors from the vanquished in this "traditional" contest.

Tom Roy, Ohio, (G.O.P. Standard-bearer) nearly incited a combination political-race riot in his neighborhood on Hallowe'en when, having run out of candy, he began giving away Nixon buttons to a gang of trick-or-treaters.

Al Marsau, Al Hershey and Lee Heaton, Shell, Bakersfield, have been transferred to Los Angeles. It is now uncertain whether it is smog or sentiment that fills their eyes.

Heavy rains in Bakersfield have been absolved of blame for the inundation of the Frank Della Rose (Shell) house. The best account explained that the principle causes were too much wine and spaghetti at a pre-Christmas party accompanied by the performance of a dishwasher that continued to pour forth after the less automated festivities had ceased.

Bill Osborne, Continental, and Don Bruce, State Geologist, were seen trading "tall tales of the north country" for free drinks at the Pacific Section, A.A.P.G. Convention.

Craig Lyon and Norm Jokerst, Standard Oil from Salt Lake and Seattle, are in Alaska in connection with seismic activities.

V. W. Finch (Division Exploration Manager, Shell, Seattle) has announced his retirement effective January, 1961.

Art Weller (Dist. Geol., Shell, Ventura) has been transferred to Seattle as District Geologist for southern Alaska.

Herb Mann (Alaska Dist. Geol., Seattle) has been transferred to the Los Angeles office.

John Carter (Shell, Olympia) was recently initiated to the northwest via deer hunting in 8 inches of fresh snow.

Maurie Price (Shell, Olympia) reports a wonderful 2 week vacation in Los Angeles (and Las Vegas).

Peter Grimstad, Bob Smith, Ralph Rudeen (all Shell, Seattle) report a recent trip to New Mexico.

Stand Schindler (Shell, Seattle) returns to the northwest after a week in the Bahamas.

Robert F. "Bob" Dill, marine geologist at the Navy Electronics Laboratory has just returned from a 4-month trip through Europe. High spots were dives with SCUBA to study "bottom" environments in Sweden, Germany and France. The best part of the trip was a series of three dives in Jacques Cousteau's revolutionary two-man research submarine, "The Soucoupe Sousmarine" during which one dive was made to 770 feet in the axis of the submarine canyon just off Ville franches, France. Bob is now doing his best to get one of these in this country.

Jim Eyeman has transferred from Gulf Oil Corp., Bakersfield, to Sacramento.

Several changes and additions have been made at Schlumberger, Sacramento: Jim Young has left for Taft and his place as district manager has been taken by Leon Williams; Brian Parks and Clarence Creacy have transferred to Sacramento from Bakersfield; Charlie Ross has been transferred to Columbia, S.A.; and Norm Powell has been transferred to Tripoli. Norm will arrive in Paris at the end of October.

Texaco is still undergoing additions to the Sacramento office in the persons of Wally Fung, formerly with Humble, Chico, and Pete Oram, geophysicist from Salt Lake.

Bruce Brooks, Brazos, Sacramento, has recovered from an illness of short duration in October.

Allen Haight has joined the staff of Texaco, Sacramento, as a geophysicist. Allen formerly was with United Geophysical.

Success has brought the following staff of Cameron Oil Co. to Sacramento: Fred Spielberger (who has been in Sacramento for some months now) is manager; Bob Lathrop (from Oklahoma) is district geologist; Ben J. Payne is district landman; Bob Brown (from Louisiana) is senior geologist. Their office is at 2550 Valley Road, Sacramento.

Word has drifted down from the great Northwest that a recent wildcat well drilled by a big eastern oil company did not test for fear of bringing in a volcano --- their theme song has changed from "Where is the Doggy in the Window" to "Where is the Window?"

Dr. Jean B. Senteur Be Boue, prominent geological consultant, recently returned to California after a rapid reconnaissance of the Upper Congo. He plans to work out of Gaviota and will concentrate his efforts on offshore oil and the north flank of the Ventura anticline.

New theme songs currently on the Mobil "hit parade" - "Shrimp Boats are a'coming....." and "Deep in the Heart of Texas."

A unanimous vote of the judges gave the S.E.P.M. best paper award to Dale Wiggins, Standard, Bakersfield, for his treatment of "A Mississippian Microspore Assemblage from White Pine County, Nevada" at the Los Angeles convention. Dale garnered an excellent rating each for context, delivery and illustration.

Les Schultz, Mobil, has been transferred from Bakersfield to New Orleans, land of Mardi Gras and integration.

Hugh Herndon, Continental Scout, looked lovely in yellow with black tassels for Mens Amateur Night at the El Rancho during the A.A.P.G. convention.

Hal Read, Richfield, Bakersfield, found it necessary for he and his wife to recuperate from the convention with a few days at Las Vegas. Naturally, she won and he lost.

Dick Vivion (Humble Scout, Olympia) reports that Humble will maintain the Eugene, Oregon office. The staff here is composed of R. M. Touring, W. T. Biskamp, one draftsman, and a part-time stenographer.

NURSERY NEWS

Andy and Penny Marianos of Humble Oil Company, Castaic Junction, have their first baby girl born October 19, 1960, weighing 7 pounds and 6 ounces, named Mercedes Andrea.

Gloria and Brad Johnson (Ohio, Los Angeles) have a new one - Christopher, 7 pounds and 13 ounces, September 26, 1960.

Walt and Charlotte Harris, Texaco, Bakersfield, are celebrating the November 20, 1960 arrival of Diane, 7 lbs. 12 oz.

CALENDAR

December 13, 1960: Tuesday, Sacramento Geological Society meeting, 7:45 P.M., State Public Works Bldg., 1120 N. St., Sacramento. Phillip B. King (U.S.G.S., Menlo Park), "Evolution of Western North America."

December 13, 1960: Tuesday, Coast Geological Society dinner meeting, 6:30 P.M., Pierpont Inn, Ventura. Spence Fine (Richfield), "The Timber Canyon Field."

December 14, 1960: Wednesday, 7:00 P.M., Calif. Association Engineering Geologists. "The Water Supply of California," by Joseph Jenson (Chairman, Metropolitan Water District). Place: Union Oil Company Auditorium.

December 17, 1960: Saturday, 7:30 P.M., Annual Holiday Dinner Dance, A.A.P.G., S.E.G., S.E.P.M., Oakmont Country Club, 3100 Country Club Drive, Glendale.

January 5, 1961: Thursday Noon, A.A.P.G. Luncheon meeting, Rodger Young Auditorium, Los Angeles. D. G. Herring, Jr., (Texaco), "An Illustrated Talk on Libya."

January 9, 1960: Monday Evening, 7:30 P.M., Sci. and Engr. Building, Room 56, Bakersfield College, Dr. Robert E. Arnal (San Jose State), "Salton Sea Paleoecology."

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