



PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

FEBRUARY/MARCH 1985

New Federal Reg's Meeting Held

The Interior Department's Bureau of Land Management (BLM) has scheduled a series of public meetings, one in Bakersfield, Thursday, February 7th, to obtain comments from lessees and operators on BLM oil and gas lease management regulations implemented last October.

The new rules were required by the Federal Oil and Gas Royalty Management Act of 1982, and also incorporate certain provisions of the 1920 Mineral Leasing Act to improve oversight of oil and gas production from federal and Indian lands. The rules took affect October 22, 1984.

Ed Hastey, BLM State Director, reports that the BLM welcomes comments on any aspect of the new rules, but is particularly anxious to have comments on the following topics: the list of common violations prepared subsequent to the issuance of the regulations; definition of "knowing and willful"; assessments for noncompliance; Mineral Leasing Act penalties; specific examples of implementation problems; and penalty formulas. Lease violation penalties are \$500 or \$5,000 per day, transporter violations \$500 per day, and other violations up to \$10,000 or \$25,000 per day. Criminal penalties are also possible. The BLM is also seeking comments on the gravity of violations and the question of a cap or ceiling on penalty assessments.

The Bakersfield office of the BLM has made available for the meeting information on some of the issues to be addressed: (1) a copy of the regulations, (2) a summary of the civil penalty portion of the regulations, and (3) a list of common violations subject to the regulations. Interested members may obtain a copy from the BLM-Bakersfield, 800 Truxtun Avenue, Room 302, Bakersfield, 93301, (805) 861-4191.

Alliance Formed

In a series of recent meetings, representatives of CIPA, the Independent Oil Producers Agency (IOPA) and the PADD V Committee of the American Independent Refiners Association have agreed to work through a joint committee on several issues of interest to members of the three associations.

After an initial meeting last November, the joint committee agreed to explore pos-

sibilities for cooperation in a number of areas including: legislative and regulatory actions leading to improved access to California crude oil pipelines, possible limitations on petroleum product imports, better understanding of the methods available for assuring payment for crude oil and responses to federal tax legislation. Proposals relating to limitations on product imports and pipeline access were also presented.

Historic Happenings For February & March

February:

- 9 - San Fernando earthquake — 1971.
- 12 - Birth of Charles Darwin — 1809.
Birth of James D. Dana — 1813.
- 20 - Birth of Paricutin Volcano, Mexico — 1943.
- 29 - Birth of Jean B. Senteur De Boue — 1959.

March:

- 3 - U.S. Geological Survey established — 1879.
- 6 - First electric log run in the western hemisphere, Venezuela — 1929.
- 7 - James Hutton's paper "Theory of the Earth" read before Royal Society — 1785.
- 13 - Collapse of St. Frances Dam, flooding Santa Clara River Valley with damage to Fillmore, Santa Paula, and Ventura, California — 1928.
- 15 - Lakeview gusher blew in from 2225' and flowed 9 million Bbbl. in 544 days — 1910.
- 27 - Good Friday earthquake, Prince William Sound, Alaska — 1964.
- 29 - Birth of Col. Drake, driller of the first oil well in U.S. — 1819.

1985-86 Membership Directory Advertisements

Advertisements are now being accepted for the 1985-86 Pacific Section A.A.P.G. Membership Directory. The Directory will be available free of charge to all members of the Pacific Section. Your advertisement will be good for the two year life of the directory. If you wish to have your advertisement or business card included, send a camera-ready copy and check, payable to the Pacific Sec-

tion AAPG to: Brian Pitts c/o Union Oil Company, 2700 F Street, Bakersfield, California 93301. The prices for advertisement space are:

Business Cards	\$ 50.00
Quarter Page (2 3/4 x 4")	\$150.00
Half Page (4 x 5 1/2")	\$250.00
Full Page (5 1/2 x 8")	\$350.00

BBC TV Film on the World's Future Oil Supply

The British Broadcasting Corp. (BBC) produces a set of 30-minute TV films for public education through its Open University (OU) programs. These objective films are carefully researched, and BBC TV crews travel anywhere to interview and record the world's foremost authorities on each subject.

One of the latest OU science programs deals with the globe's future oil supply problems. The interviewed experts, who were selected from the large international scientific/technical community, were two senior American petroleum geologists:

1. M. King Hubbert
(81) of Washington, D.C.
2. L. F. Ivanhoe
(63) of Santa Barbara, California

Hubbert is the dean of U.S. petroleum research scientists (ex Shell Oil Co. and U.S. Geological Survey), who is best known for his precocious and correct prediction in 1956 that the U.S. oil production would top out in 1970. Ivanhoe is an international exploration consultant who has published numerous practical papers on the evaluation of foreign prospective basins and projections of future oil discoveries in the free world.

This petroleum film was first shown on BBC-TV in London on 19 September 1984, and will be run until 1992 in Britain, Canada, and other countries that subscribe to the OU educational programs.

For information, contact: British Broadcasting Corporation, Open University Production Centre, Walton Hall, Milton Keynes MK76BH England.

**PPG DEADLINE
for APR./MAY ISSUE
APRIL 1**

Alaska

"And
In
Closing"



ANCHORAGE, ALASKA
MAY 22-24, 1985

Coast

CALENDAR:

- February 19 — Ted Bear — State of the Geological Profession and the AAPG.
- March 19 — Dr. Roberth H. Dodd Jr. — University of Wisconsin/AAPG distinguished lecturer — Episodic Sedimentation of Ancient Shelf Sandstones.
- April 16 — Dr. William R. Normark — U.S.G.S.

Northern California

CALENDAR:

- February 14 — Earl G. Koffman — AAPG Distinguished Lecturer — Dynamics of Cretaceous Epicontinental Seas.
 - February 22 — Emiliano Mutti — University of Parma, Italy — Ancient Turbidite Systems, Models and Problems.
- Social hour 11:30 AM, luncheon 12 noon. Commandant's room, Marines Memorial Club, 609 Sutter.

Los Angeles San Joaquin

CALENDAR

February 28 — Dr. Robert Jones — Chevron Research: Comparison of Carbonate and Shale Source Rocks.

Abstract:

As with shales, the source potential of carbonate rocks depends primarily upon the organic facies rather than the mineral matrix. Where the depositional and early diagenetic environment is highly oxygenated, the Total Organic Carbon (TOC) is low. The remaining kerogen is highly oxygenated, with a negligible generative capacity for hydrocarbons, despite a relatively high hydrocarbon/TOC ratio in the immature state. An anoxic depositional early diagenetic environment can result in the deposition of organic-rich, fine-grained carbonate sediments that are excellent potential source rocks.

Excellent oil-prone source rocks, whether with carbonate or clay mineral matrices, have many characteristics in common. Both form in anoxic environments, are generally laminated and heterogeneous, have moderate to high TOC, and contain high quality organic matter (OM). The latter is exemplified by H/C ratios ≥ 1.2 near a vitrinite reflectance of .50% R_o . Although they comprise a small percentage of all carbonate rocks, organic-rich fine-grained carbonate rocks are widespread in both time and space and the probable source of 30-40% of the petroleum reserves of the world.

Gas-prone organic facies are rare in carbonate rocks because they are usually dominated by terrestrial organic matter deposited in a dominantly clay matrix. However, gas-prone organic facies may occur in carbonate rocks as a result of turbidite deposition or by a mixture of kerogen types II and IV. Most carbonate rocks contain nongenerative organic facies as do most siliceous rocks. Oxygen-rich depositional environments for carbonates are found from sea level (reefs) to the ocean depths (Globigerina ooze).

Despite the basic commonality between organic-rich oil-prone carbonate and shale source rocks, some significant differences exist. Oils derived from carbonate rocks are often richer in cyclic hydrocarbons and sulfur compounds than oil derived from shales due to the dearth of terrestrial plant waxes in the OM and less iron in the pore water. In addition, the generally earlier decrease of porosity and permeability and the greater contrast between the physical properties of the OM and the rock matrix in carbonate source rocks often result in different primary migration characteristics.

March 28 — Chuck McCollough — Occidental's Cano Limon Discovery, Llanos Basin, Colombia.

CALENDAR:

March 12 — Herbert D. Duey — Santa Fe Energy: Hydrocarbon Generation and Entrapment in Railroad Valley, Nye County, Nevada.

Abstract:

Railroad Valley is a graben block in the Basin and Range structural province. Topographically it is basically flat with recent playa deposits on the surface. There are two structural deeps in the valley. Five oil fields are associated with the northern deep. All oil fields are related to faulting.

Oil has been generated from Tertiary Sheep Pass and Mississippian Chainman shales. This generation is probably due to recent local heating of the valley by intrusive rocks. Temperature gradients are as low as 0.9°F to as high as 7.3°F per hundred feet.

10,000,000 barrels of oil with no significant quantity of gas has been produced from the fields. The seals on the fields are imperfect and any gas generated, and much oil, has probably leaked into the overlying valley fill. Trap Spring and Eagle Springs fields are hydrostatically pressured while the other fields, Bacon Flat, Grant Canyon and Curran, are slightly overpressured due to artesian water drive.

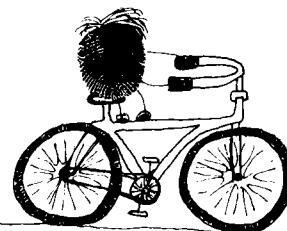
The concept of immature source rocks occurring near a valley with high heat flow may improve exploration success.

A W G Officers Announced

The 1984-85 National Executive Committee for the Association for Women Geoscientists is:

- President* . . . Elizabeth A. E. Johnson
Union Oil Co., Los Angeles
- Vice President* . . . Kathleen M. Johnson
U.S.G.S., Denver, Colo.
- Secretary* Patrica H. Pecora
M.M.S., Reston, Virginia
- Treasurer* Amy S. Mohler
Superior Oil International, Houston
- Editor* Carol Dickerson
Stauffer Chemical Co., Richmond, Calif.
- Past President* Laurie L. Langer
Pittsburgh Public Schools

The new president is a graduate of Harvey Mudd College, a member of both S.E.G. and the L.A. Basin Geological Society, and is employed as an Area Geophysicist by Union Oil of California in Los Angeles.



. . . the rock cycle . . .

It seems that it has been a long time since this column had a "congratulations to" format, so here we go —

Congratulations to . . .

Lucy Birdsall for being honored by William Clark, Secretary of the Interior for **Meritorious Service**. Her citation states in brief that Lucy is the Geological Survey to Southern Californians. Proud of you, Madam President Elect.

William R. Moran, recipient of National's "Distinguished Service Award." Bill has served long and well as Associate Editor of the Bulletin. He is also recognized for his many services to the Pacific Section and National AAPG.

Art Spaulding who has accepted the very important and demanding position of General Chairman of the 1987 National Convention to be held in Los Angeles. Art will need a great deal of help — it's a big job.

Wes Bruer for accepting the three year term representing the Pacific Section on the National Advisory Council. Fred Dix said we should have a person who is knowledgeable of AAPG affairs, who is respected, is a strong voice and will be heard. Wes has all of these as does Don Ziegler who Wes replaces.

Russ Robinson for tackling the duties of Editor of the *PPG Newsletter*. Russ is taking over a few months early from Judy Russell who is writing her "30" due to a move to Colombia.

Rick Bowersox, new General Chairman of the Pacific Section Annual Convention for 1986. The convention will be held in Bakersfield and will require a great deal of planning. Be agreeable when Rick says "I need you."

Judy Russell for completing her second year as editor of the *Newsletter*. Judy exemplifies the long list of outstanding editors of the *Newsletter* and we wish her well in Colombia. La extranaremos hasta pronto y muchos exitos!

Founding Fathers who in 1925 framed the Constitution and Bylaws of the Pacific Section, relatively free of gender. "His" appears twice in the Constitution and "chairman" is used a dozen times in Section 2, Appointment and Tenure of the Bylaws, but nowhere else. Comparing it with national bylaws, our guys were way ahead.

Executive Committee of the Pacific Section for generating new and exciting changes in the Pacific Section. They are developing a new Computer Service Committee to be involved not only in exploration for oil, but Pacific Section housekeeping — Directory, Inventory, Membership, Mailing, etc.

ED KARP
President

SOUTHERN CALIFORNIA

Brian Barrick, Occidental; Robert M. Beer, Cerveza Assoc.; Richard S. Boettcher, MicroPaleo Consultants; L. C. Bonham, Chevron Research; Sean Broadhead, Texaco; Diane F. Browne; Michael R. Clary, ARCO; Cathie Dunkel; Richard L. Ford, Texaco; Bo Henk, ARCO; Bill Hunt, Pacific Travellers Supply; Sandra Jankowski, ARCO; Linda J. Jirsa, Aminoil; Rick Jirsa, Geo Sec; Dianne L. Keller, Petroleum Data Research; Ken Kenner, B.J. Hughes; Michael J. Metz, Occidental; Michael Mitchell, Petroleum Testing Service; Tom Phillips, ARCO; John R. Powell; Barbara A. Rycerski; Allan Shareghi, MMS; Margaret C. Van Buskirk; Jan M. Vargo, Tenneco; Melissa Watkins, Occidental; Richard Waite, Occidental; Randall E. Wedin, ARCO; Kathleen Williams, Aminoil; George E. Young, CONOCO.

NORTHERN CALIFORNIA

Donald O. Asquith; Elwood B. Bredell, Jr., Intercoastal Energy; Noel M. Megaw, Strata-Graphic.

ALASKA

W. W. Barnwell, Div. of Geological Survey; Phillip R. Bigsby, U.S. Fish & Wildlife; E. Bornemann, Schlumberger; Robert L. Davis, Union; Charles E. Drummond, N.P.S.; Julie Houle, Marcia P. Matthieu, and D. B. McKinnie, ARCO; Thomas W. Mortensen; Dianne Phillips, SOHIO; Charles A. Underwood, II, American/Canadian Strat; James C. Waugaman, Union.

OTHER STATES

Robert L. Bennett, and Mark Butler, Lear Petroleum Expl., Denver; Timothy P. Whitacre, Texaco, New Orleans.

RECENT MOVES

Alaska

BP Alaska Exploration moved to 100 Pine St., San Francisco, California 94111.

San Joaquin

Tenneco: Janice Gillespie started work as a Geological Engineer after completing her masters work at So. Dakota School of Mines.

Gulf: Spencer Winters, formerly the Manager of Offshore Frontier Exploration for Gulf in Bakersfield has transferred to Chevron Overseas Inc. in San Francisco where he will be involved in Chevron's Northern European exploration activities. Barclay Collins will take over Spencer's duties in Bakersfield. In preparation for the merger, Gulf's West Coast Frontier and Alaska Frontier Areas have been consolidated into the Bakersfield Exploration Area. Steve Palmer, has moved to Houston to take a position with Schlumberger Research.

Texaco: George Roszkowski, development geologist in the former Getty Bakersfield District will be going to Indonesia to work on geothermal projects for CalTex.

Shell: The former West Coast Production Division has been divided into the Coastal and San Joaquin Divisions. Coastal Division will handle offshore, Sacramento Valley, L.A. Basin, and onshore coastal areas. San Joaquin Division will handle the Valley. Both divisions will be located in Bakersfield. The appointments of Div. Geological Engineers has not been announced.

Occidental: Judy A. Russell, the 1983-85 *PPG Newsletter* Editor and geologist in Oxy's Bakersfield International Group has transferred to Bogota, Colombia.

Leon J. Earnest, with Getty for 17 years, has resigned and will be teaching petroleum geology for Westec at Bakersfield College.

Mary F. Johnston and Elmo K. Long have left NORPAC Exploration Services and joined American Geophysical, in a recently opened office of the data brokerage company in Bakersfield.

Duncan V. Patty will be retiring from the Tejon Ranch Co. at the end of February, after 24 years of service.

William "Rick" Berry II has left Oxy to open Digital Petrophysics in Bakersfield.

Los Angeles

Jack R. Sheehan has left Santa Fe Energy to become the Western Region Exploration Manager at MCO Resources Inc.

A. "Lee" Weismeyer has departed the sunny halls of Discovery Oil Ltd. for DEPCO Inc., in Denver.

Coast

Union: Rich Le Veque has transferred from Ventura to the International Div. in Bangkok, Thailand.

Akbar Sheriff and Sherry A. Schussler have transferred from Ventura to Northern Calif. Prod., Bakersfield.

Charles A. Schile, Area Development Geologist in Ventura has moved to Casper, Wyo. to become District Development Geologist.

Texaco: Brad Newman, formerly Dist. Geologist in Ventura has transferred to the Western Exploration Div. in Los Angeles.

Robert J. Hindle retired from Sun to open the Hindle Enterprises in Ventura.

Dianne Keller, formerly with Husky in Santa Maria, has started a petroleum data research business for DOG Districts 3 and 5. For information, she can be contacted at (805) 937-1228.

BLM Lease Sales Announced

Proposed competitive sales of oil and gas, geothermal, and sodium on U.S. Bureau of Land Management and U.S. Forest Service lands were announced by BLM State Director Ed Hasteley.

The sales will take place throughout the year. The proposed dates are: **March 26, 1985 - Geothermal** in the Glass Mountain Area; **April 30, 1985 - Oil & Gas** in the Hollister and Caliente Areas (for expired leases); **June 25, 1985 - Geothermal** for parcels previously offered without bids throughout the state; **July 23, 1985 - Sodium** in the Danby Lake area in the California Desert District; **August 29, 1985 - Geothermal** in Lassen County.

Each sale will be published in a county newspaper nearest the land area one month before the sale date.

After the sale is advertised, interested individuals may contact Joan Russell, BLM-California State Office (916) 484-4492, for any further details.

Educational Events

San Diego Association of Geologist field trip to Middle Eocene paralic facies of north San Diego County will be held Saturday, April 13. The trip leaders are: Patrick Abbott, Leonard Eisenberg, Randy Irwin and Don Ashton. Breakfast/lunch, bus fare, guidebook and geologic maps are all included in the \$30 price.

For reservations write c/o Tom Kuper, Geocon Inc., 9530 Dowdy Dr., San Diego, CA 92126.

San Joaquin Geological Society will host an AAPG short course to be held Tuesday, April 9th from 1:30 PM to 5 PM at the Casa Royale Inn, Bakersfield. The topic will be **Structural Styles, Their Plate Tectonic Habitats and Hydrocarbon Traps in Petroleum Provinces**, presented by Dr. James D. Lowell. Included in the \$35 fee will be

course materials and an AAPG certificate of recognition for participating.

Attendance will be limited to 150 participants, course outline and registration forms will be mailed to members in early March.

Recommended Reading

Recently-released articles and books of local interest:

Dickinson, W. R., 1984, Reinterpretation of Lime Peak thrust as a low-angle normal fault: Implications for the tectonics of SE Arizona: *Geology*, v. 12, no. 10.

Kásameyer, Paul W., L. W. Younker, J. M. Hanson, 1984, Development and application of a hydrothermal model for the Salton Sea Geothermal Field: *GSA Bull.*, v. 95, no. 10.

Oil and Gas Well Drilling; Applications on the rise: Calif. Dept. of Cons., DMG, *California Geology*, October 1984.

Seiders, V. M., and J. M. Joyce, 1984, Submarine canyon deposits, central California coast, and their possible relation to an Eocene low sea-level stand: *USGS Bulletin* 1539, \$1.75.

—Lucy E. Birdsall

State Concern For Water Disposal Grows

Governor George Deukmejian presented his spending plan following the State of the State address on January 10, 1985. The new plan is a 6.3% increase over the \$31.6 billion budget on which the state is currently operating.

For geologists, one of the more important facets of the governor's budget message involves toxic waste regulation. The budget calls for an increase of \$153 million to be spent on toxic and hazardous waste related issues. This would include 196 new employees; \$100 million of this and 86 positions result from the approval of a bond issue by voters last November.

Paralleling the governor's actions, M. G.

PACIFIC SECTION —
AMERICAN ASSOCIATION
PETROLEUM GEOLOGISTS
OFFICERS 1983 - 1984

President STANLEY E. (ED) KARP
(805) 395-9599

President Elect LUCY E. BIRDSALL
(213) 688-2850

Vice President ROBERT G. LINDBLOM
(415) 680-3607

Secretary PAUL HACKER
(805) 834-0462

Treasurer CAROLYN WALCH
(805) 928-3811

Past President JAMES R. WEDDLE
(805) 395-3029

Newsletter Staff

Editor RUSS ROBINSON
(805) 872-5810

Historical BILL RINTOUL

Environmental TOM WRIGHT

Associate Editors

Alaska ARLEN EHM
(907) 333-8880

Coast IMELDA ACADEMIA
(805) 654-6875

Los Angeles GEORGE BABASHOFF
(213) 689-2335

Northern California ED HORAN
(415) 951-7700

Sacramento ERNIE BURROUGHS
(916) 482-4950

San Joaquin KAY PITTS
(805) 325-9599

Recommended Reading LUCY E. BIRDSALL
(213) 688-2850

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Material for publication, requests for previous copies and communications about advertising costs should be addressed to RUSS H. ROBINSON, P.O. BOX 10561, BAKERSFIELD, CA 93389.

CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP SECRETARY, PACIFIC SECTION AAPG, P.O. BOX 1072, BAKERSFIELD, CALIFORNIA 93302.

PUBLICATIONS COMMITTEE: Pacific Section American Association of Petroleum Geologists, 3600 S. Harbor Blvd., Box 198, Oxnard, CA 93030.

Mefferd, State Oil and Gas Supervisor, issued a letter on December 10, 1984 describing the actions of "an operator" who had used a produced water system to dispose of spent "water cut" fluid (trichloroethane). The produced water was then converted to steam for use in injection wells. The Supervisor followed up by stating that improper disposal of hazardous wastes is illegal, and can jeopardize continued operations. He called for operators to review and rectify practices that do not conform to the requirements.

All this adds up to increased vigilance by state agencies and a growing responsibility for petroleum geologists involved in EOR or produced water disposal projects.

NEWSLETTER

Pacific Section A.A.P.G.

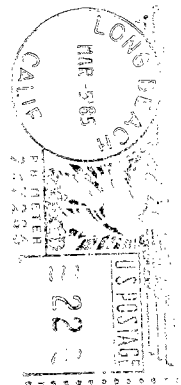
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DA-AM





PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

APRIL 1985/MAY 1985

PRESIDENT'S CORNER . . .

Not much to report this time. We were a tad too late to officially assimilate the *Northwest Petroleum Association* into the National AAPG. This time next year, the NPA of Portland will officially become a bonifide member of AAPG. In the meantime, we warmly welcome them into the Pacific Section.

Lucy Birdsall is back east again receiving another award and honor from a university. When will it ever stop Lucy? I will let you know all the details in the next issue.

John Kilkenny, Chairman of the Honors and Awards Committee has come up with a new award or recognition to be extended to non-explorers. There are many supporters of Pacific Section goals, such as teachers, civil servants, etc., that go unrecognized for the many contributions to our profession. An award long overdue, John.

Betty Bean is working out ways to streamline registration, address changes, dues payments, directory, etc., and it should be finalized by July 1st.

Finally, and no means least, *Arlen Ehm* has the Anchorage Convention schedule working like a fine-tuned racer. It promises to be a fantastic convention.

Annual Spring Field Trip, BBQ, and Golf Tournament

The Pacific Section annual spring field trip, barbecue, and golf tournament will be on Friday, June 21, 1985 in Bakersfield.

This year's field trip will examine selected outcrops and/or cores of important eastside formations. The trip will focus on comparisons of original descriptions and recently described outcrops and cores. (Selected cores will be laid out for viewing at the lunch stop.)

The last trip to examine all the eastside outcrops was held in 1965. The 1985 trip will not retrace the previous one; however, the importance of each formation when ranked by production is going to influence the final itinerary.

The goal of the 1985 field trip committee is to present more detailed descriptions than those presently in the literature and to compile production data for individual eastside formations. The field trip fee, which includes lunch, will be \$35.00.

An Eastside San Joaquin Valley Geology symposium is planned for the 1986 Pacific

Section Convention in Bakersfield. This year's field trip ought to give participants a better understanding of eastside formations and generate some questions for the convention symposium.

The 1985 golf tournament will be held at the Kern River Golf Course. The golf tournament fee of \$15.00 includes lunch. For additional information or offers of help contact K.C. Thompson, GEO-DRAFT, (805) 325-7759.

The barbecue will be held at the Kern River Golf Course Picnic Grounds, also the starting and final stop of the field trip. \$12.00 covers meal and beverage. For additional information or donations of beverages for raffles contact: Randy Metz, Tenneco, (805) 835-6741; Sue Kiser, Consultant, (805) 325-0038; or Marty Estill, (818) 706-0233.

Attendance at all events will be by paid reservation only.

Correlation Section Update

General chairman of the Pacific Section Correlation Sections Committee, Ernest W. Rennie, Jr., reports that one section, #24, has been printed. This section covers western Oregon. The next section scheduled to go to the printers is the east side of the southern San Joaquin Valley which is being finalized by a committee chaired by Sue Kiser. Other sections presently being worked on are: Los Angeles Basin — Jack West, Chairman; Sacramento Valley — Paul Hacker, Chairman; Central San Joaquin Valley, N-S — Louis Villanueva, Chairman; extreme Southern San Joaquin Valley E-W — Joe Dunwoody, Chairman; Cuyama Valley — Henry Walrond, Chairman; Eel River — Chuck Heppe, Chairman; Coalinga E-W — Fred Green, Chairman; Santa Maria Basin — Jack Cunningham, Chairman.

"We need help to work on most of these plus the revision or updating of numerous previously published sections, and we also need chairmen for the Ventura and Santa Barbara Basins," says Rennie.

Anybody interested in volunteering to help should contact the appropriate chairman or Mr. Rennie.

William Moran Honored

William Rodes Moran was given the AAPG Distinguished Service Award last March at the national AAPG convention in New Orleans. This award is made in recognition of dedicated and distinguished service to the AAPG and the geological profession and for outstanding contributions in maintaining and improving the high quality of the Association's publications.

Following in the footsteps of his father, Robert Moran, a famous pioneer petroleum geologist and Honorary Member of AAPG, William Moran has had a long and distinguished career in geology and in service to AAPG.

Bill was born and raised in the Los Angeles area and attended Stanford University, receiving his A.B. degree in geology in 1942.

After graduation Bill was employed by Union Oil Company of California working in both domestic and international exploration with John Hazzard's Special Exploration Group. In 1959 Bill served as Union's manager in Australia supervising the exploration work that led to the discovery of the first commercial production on that continent. In 1963 he became Vice President of Minerals Exploration Company, a Union subsidiary. In 1978, on his recommendation, Union acquired Molycorp, Inc., a company specializing in the mining of molybdenum and rare earths. He was Vice President of this profitable acquisition until his retirement early this year.

Bill has been an active supporter of AAPG from the time he became a member in 1944. He has been an Associate Editor of the Bulletin from 1959 to the present, a term exceeded by only a few. In addition to reviewing many papers, he has authored many papers himself. Especially noteworthy are his contributions to the Association's Semi-centennial issues. He also authored "Manual for the Preparation of Lantern Slides" which has been used by convention speakers for over 20 years. This manual has been a primary factor in the consistent high quality of the illustrations in AAPG's papers.

Very few geologists have devoted the time and effort that Bill Moran has to the Association. His accomplishments plus his high standing in the profession strongly merit his selection as a recipient of the AAPG Distinguished Service Award. — John E. Kilkenny

**PPG DEADLINE
for JUNE/JULY ISSUE
JUNE 15**

CANDIDATES FOR OFFICE — PACIFIC SECTION AAPG



ROBERT G. LINDBLOM

Candidate for President-Elect

Present Position:

District Development Geologist, Western Region Production, Chevron U.S.A., Inc, Concord, CA.

Education:

1948, Duluth Junior College, Assoc. Arts
1950, Univ. of Chicago, BS
1951, Univ. of Minnesota, Grad. Work

Employment:

1951-64: Chevron USA, Inc. (Standard Oil Company of California), Exploration Geologist, located in Taft, Bakersfield and Sacramento
1964-75: Chevron USA, Inc., Area Development Geologist, located in Inglewood, La Habra and San Francisco
1976-Present: Chevron USA, Inc., Senior Development and District Development Geologist, located in San Francisco and Concord

Professional Affiliations:

American Association of Petroleum Geologist (AAPG)
Society of Economic Paleontologists and Mineralogists (SEPM)
Society of Petroleum Engineers of the AIME (SEPM)
Society of Professional Well Log Analysts (SPWLA)
American Petroleum Institute, Northern California
Pacific Section — AAPG
Registered Geologist — State of California (No. 2405)
Certification as Petroleum Geologist — AAPG (No. 2095)
American Institute of Professional Geologists — AIPG (No. 5076)

Professional Activities:

1960-61: Vice President and President, San Joaquin Geological Society
1964-65: District Representative, AAPG
1971: Secretary, Pacific Section, AAPG
1984-85: Vice President, Pac. Section AAPG
1975-Present: Lecturer, Stanford University, School of Earth Science, Petroleum Engineering Department, Subject — "Oil and Gas Field Development," Well Log Interpreting



ERNEST W. RENNIE JR.

Candidate for President-Elect

Present Position:

President — E. W. Rennie Jr., Inc., Ventura, California

Education:

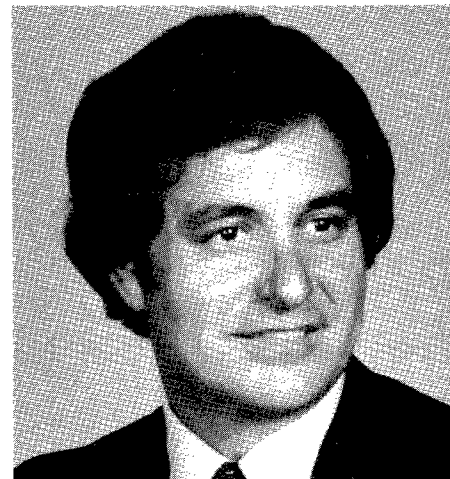
1952, U.C.L.A., B.A., Geology

Employment:

1952-54: U.S. Navy
1955: Oceanic Oil Co., Bakersfield, California
1956: Tidewater Oil Co., Ventura, California
1957-60: Tidewater Oil Co., Calgary, Alberta, Canada
1960-66: Getty Oil Co., Bakersfield, California
1966-Present: President E. W. Rennie Jr., Inc., Ventura, Calif.

Professional Activities:

1955: 1/2 originator Senteur de Boue
1963: Sect./Tres. San Joaquin Geological Society
1964: Editorial staff, Selected Papers SJGS, Vol. 2
1965: Editor, Selected Papers SJGS, Vol. 3
1965: Symposium Editor, Pacific Section AAPG Convention
1964-65: House of Delegates, National AAPG
1968: AAPG Program Chairman, Pacific Section Convention
1969: President San Joaquin Geologic Society
1972: Editor, Guidebook, West Side Central San Joaquin Valley, Pacific Section AAPG, SEPM
1975: (2nd half) Acting Sect. Pacific Section AAPG
1984-Present: Chairman, Pacific Section Cross Section Committee



DAN E. PASQUINI

Candidate for Vice President

Present Position:

Exploration Manager — Western Div. Argo Petroleum Corp., Ventura

Education:

Pacific Western University, B.S.

Employment:

1968-80: Occidental Petroleum Co., Bakersfield, California, Exploration Geologist
1980-81: ARGO Petroleum Corp., Ventura, California, Senior Exploration Geologist
1981-Present: ARGO Petroleum Corp., Western Div. Exploration Manager

Professional Activities:

1981-82: Pacific Section AAPG Sect.
1980: Pacific Section AAPG Annual Convention Registration Chairman
1978-79: San Joaquin Geological Society Treasurer



PHILIP L. RYALL

Candidate for Vice President

Present Position:

President — Stockdale Energy Co.

Education:

1960, C.S.U. Fresno, B.A.

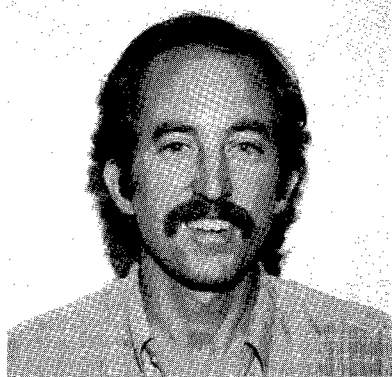
Employment:

1960-70: Shell Oil Co., Calif., Exploration Geologist
1970-1972: Buttes Gas & Oil Co., Exploration Geologist

1973-80: Consulting Geologist
1980-Present: Stockdale Energy Co.

Professional Activities:

1980: San Joaquin Geologic Soc. President
1977: Field trip chairman (AAPG)
Field trip committee and leader (SEPM)

**CHARLES E. KATHERMAN**

Candidate for Secretary

Present Position:

Consulting Geologist — Katherman Exploration Co., Bakersfield, California

Education:

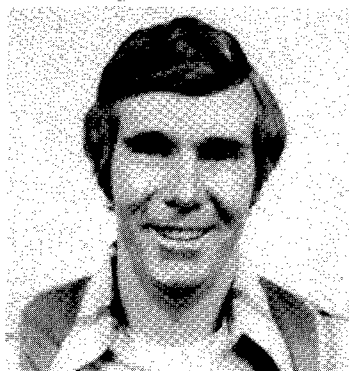
1973, Kansas Univ. B.S., Geology
1977, Texas A&M, M.S., Marine Geology — Oceanography

Employment:

1977-78: Gulf Oil Co., Exploration Geologist — Alaska, Bakersfield, California
1978-79: Exploration Geologist — Sacramento Valley, Bakersfield, California
1979-80: Husky Oil Co., Geologist — West Coast Div., Santa Maria, California
1980-84: Husky Oil Co., Senior Geologist — West Coast Div., Santa Maria, California
1984-Present: Consulting Geologist — Katherman Exploration Co., Santa Maria, California

Professional Affiliations:

AAPG: Member
SEPM: Member

**DENNIS N. SHEA**

Candidate for Secretary

Present Position:

Consulting Geologist — Bakersfield, California

Education:

1959, U.C. Berkley, B.A., Geology
1961-62, U.C.B., Grad. Work, Bus. Admin.
1964-65, U.S.C., Grad. Work, Petro. Engr.

Employment:

1960-61: USAF, San Antonio, Texas
1961: Occidental Petroleum Corp., Bakersfield, California, Geol. Aid
1962-63: Clyde Hall Drlg. Co., Bakersfield, California, Rotary Helper
1963-67: Calif. Div. of Oil & Gas, Bakersfield, California, Oil & Gas Engineer
1967-69: Clyde Hall Drlg. Co., Bakersfield, California, Geologist
1969-Present: Consulting Geologist

Professional Affiliations:

AAPG: Member and Certified Pet. Geol., No. 1402
API: Member
AIME (SPE): Member

**EDWARD MARKS**

Candidate for Treasurer

Present Position:

Stratigrapher — International Div., Union Oil Co., Los Angeles, California

Education:

1948, City Univ. of New York, B.S. in Geology
1950, Univ. of Texas, M.A., Geology

Employment:

1950-51: Curatorial Assist., U.T./Tex. Bur. of Econ. Geol.
1951-1952: Curator, Paleontological Research Institution, Ithaca, N.Y.
1952-55: Geologist/Paleontologist, International Pet. Co., Talara, Peru
1956-74: Paleontologist, Union Oil Co., Bakersfield, Calif.
1975-84: Div. Paleontologist, Union Oil Co., Balikpapan, E. Kalimantan
1984-Present: Stratigrapher, Intl. Div., Union Oil Co., Los Angeles

Professional Activities:

1960-61: Treasurer, Gulf Coast Sect. SEPM
1979-81: Secretary, Kalimantan Sect. SPE, Indonesia

1981: Chairman, Stratigraphic Nomenclature Workshop, East Kutai Basin, E. Kalimantan

1981-82: Chairman, Kalimantan Sect., SPE, Indonesia

**KEITH E. GREEN**

Candidate for Treasurer

Present Position:

President — Green and Associates, Whittier, California

Education:

1952, Whittier College, B.A., Geology
1958, U.S.C., M.A., Geology
1976, U.C.L.A., Grad. Study
1978, C.S.U. Fullerton, Grad. Study

Employment:

1953-55: U.S. Army
1957-59: Jr. Paleontologist, Shell Oil Co., Ventura, Calif.
1959-60: Paleontologist, Shell Oil Co., Los Angeles, Calif.
1965-67: Geologist, Shell Devel. Co., Ventura, California
1967-69: Research Geologist, Shell Development Co., Houston, Texas
1969-71: Instructor, Geology/Math, Whittier College, California
1971-Present: Instructor, Geology, Engineering, and Chemistry Depts.
1977-Present: Director, GeoTech. Program Cypress College, Cypress, California
1980-81: Sr. Scientific Advisor, Anderson World Wide Associates, San Diego, California
1981-Present: President, Green and Associates, Whittier, Calif.

Professional Activities:

1959-61: Technical Services Committeeman, Pac. Sect. AAPG
1961-62: Chairman, Tech. Services Committee, Pac. Sect. AAPG
1964-65: Chairman, Tech. Serv. Natl. Convention, AAPG
1965-66: Committeeman, Natl. Conv. AAPG
1965-66: Secretary, Pac. Sect. SEPM
1969-Present: Member GSA
1970-71: Treasurer, Pac. Sect. SEPM
1971-72: Vice President, Pac. Sect. SEPM
1978-79: Committeeman, National Convention, AAPG

RECENT MOVES

New Members

SOUTHERN CALIFORNIA

Jan H. Kiely, Minerals Management Serv.; Kathy Kretzer-Moses, ARCO; Robert L. Grossberg, Dresser-Atlas; James S. Manus, DEPCO; Gary L. Richardson, Texaco; Cecil O. Basenberg, ARCO; Douglas G. Danneman, Core Lab.; Colleen Gregg Sargent, Union Oil of Calif.; Muriel R. Norton, McClelland Eng.; Alan F. Chatfield, Challenger Minerals; W. E. Hottman, Shell Calif. Prod. Inc.; Herbert D. Duey, Santa Fe Energy; Allen Britton, Core Lab.

NORTHERN CALIFORNIA

Jonathan R. Rider, Rider & Assoc.; Steve L. Girardot, Chevron, USA; Richard S. Della Valle, Terradex Corp.

ALASKA

Harriet S. Cloft; Thomas S. Sterrett, ARCO.

OREGON

Larry R. Gaston; W. F. Covert; Gerry Connard, NW Geophysical Assoc.; Robert S. Johnson; Kenneth H. Koenen; Peter Soot, NW Fuel Dev. Inc.

WASHINGTON

Mark E. Shaffer; Donald A. Coxon, Chiyoda International Corp.; Richard J. Stewart.

OTHER STATES

Hal J. Clippinger, Shell Oil Corp., Houston, Texas; Chuck Wolf, DEPCO Inc., Denver, Colo.; Robert B. Wilkington, Universal Resources Corp., Denver, Colo.; Steven Pappajohn, Wilenco, Denver, Colo.; James M. Stolle, Transco Expl. Co., Houston, Texas; Jack Starkweather, Sawtooth Oil Co., Billings, Montana.

Los Angeles

Mr. Michael J. Henry, formerly with Aminoil, U.S.A., has announced the opening of his geologic consulting service. He is offering geologic consulting services specializing in reservoir and stratigraphic studies, Monterey exploration, and environmental and offshore surficial geology. For additional information, call (712) 585-5733.

Santa Maria:

Carolyn Walch, formerly with Marathon in Santa Maria, is starting business as a consulting petroleum geologist. Her office is located at 1517 Stowell Center Plaza, Suite H, Santa Maria 93454, (805) 922-8489.

Gary Scullin, former drafting supervisor at Husky Oil Co., Santa Maria, is now in business as Scullin Petroleum Drafting Service, 1414 Dickinson St., Santa Maria, CA 93455, (805) 937-0023.

New Society Seeks Members

The Association of Petroleum Geochemical Explorationists (APGE), founded last year by a diverse group of geoscientists based in Denver, invites prospective members to join by writing for application forms to: APGE, P.O. Box 8287, Denver, CO 80201.

The Association was founded to encourage the investigation and use of unconventional techniques to detect surface geochemical anomalies caused by hydrocarbon microseepages. These methods include electrical, radiometric, trace element, soil gases, and helium isotopic analyses, and magnetic, soil conductivity, botanical and microbiological surveys. APGE is specifically oriented towards practical use of modern geochemistry to explore for oil and gas, and is now hoping to expand to the national level by the formation of regional chapters.

Officers of APGE are: President — Peter Grother, Amoco Production Co., Vice President — Brenda Gallagher, Texas Oil Production Co.

PACIFIC SECTION —
AMERICAN ASSOCIATION
PETROLEUM GEOLOGISTS

OFFICERS 1983 - 1984

President STANLEY E. (ED) KARP
(805) 395-9599
President Elect LUCY E. BIRDSALL
(213) 688-2850
Vice President ROBERT G. LINDBLOM
(415) 680-3607
Secretary PAUL HACKER
(805) 834-0462
Treasurer CAROLYN WALCH
(805) 928-3811
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(805) 395-3029

Newsletter Staff

Editor RUSS ROBINSON
(805) 872-5810
Historical BILL RINTOUL
Environmental TOM WRIGHT

Associate Editors

Alaska ARLEN EHM
(907) 333-8880
Coast IMELDA ACADEMIA
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(805) 325-9599
Recommended Reading LUCY E. BIRDSALL
(213) 688-2850

NEWSLETTER of the Pacific Section - American Association Petroleum Geologists is published bimonthly by the Pacific Section.

Material for publication, requests for previous copies and communications about advertising costs should be addressed to RUSS H. ROBINSON, P.O. BOX 10561, BAKERSFIELD, CA 93389.

CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP SECRETARY, PACIFIC SECTION AAPG, P.O. BOX 1072, BAKERSFIELD, CALIFORNIA 93302.

PUBLICATIONS COMMITTEE: Pacific Section American Association of Petroleum Geologists, 3600 S. Harbor Blvd., Box 198, Oxnard, CA 93030.

State Sells Well Information

The Division of Oil and Gas sold approximately 950 boxes of duplicate hardcopy well documents by sealed bid, with bids opened on April 9, 1985. The documents, consisting of 60% well logs and 40% other well records (Notices of Intention to Drill New Well, Rework Well, Abandon Well, Supplementary Notices, etc.) went to Petroleum Information for a bid of \$48,000. In all there were seven bidders for the non-confidential documents offered by the Division. TXO and May Petroleum, Inc. finished second and third with bids of \$31,801.06 and \$20,598.98 respectively.

NEWSLETTER

Pacific Section A.A.P.G.

P.O. Box 1072

Bakersfield, California 93302

FIRST
CLASS

Richard L. Hester
1911 Montecito Dr.
Glendale, CA 91208

DA-AM





PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section
American Association of Petroleum Geologists

JUNE 1985/JULY 1985

PRESIDENT'S CORNER . . .

This CORNER is being shared by past President Ed Karp and incoming President Lucy Birdsall. We both extend our thanks to the elected officers of 1984-85 for their cooperation and assistance — Vice President Robert Lindblom, Secretary Paul Hacker, Treasurer Carolyn Walsh (completing her two-year term), and to the committee chairmen who assisted in the many time-consuming details necessary to keep our organization functioning. Special thanks are extended to Hans Schwing, publications chairman and salesman, and to Betty Bean, our Membership Secretary.

Special tribute is extended to our 1985 convention chairman, Arlen Ehm, and his hard-working committee, for the successful first-time-ever convention in Anchorage. Those of us who attended enjoyed interesting technical sessions, warm sunshine, true hospitality, marvelous scenery, and unusual field trips.

We welcome the new officers elected by your ballots: President-Elect Robert Lindblom, Vice-President Dan Pasquini, Secretary Charles Katherman, and Treasurer Keith E. Green (who will serve a two-year term). We thank you for the endorsement of two questions on the Ballot: dues increase and the inclusion of advertising in the *PPG Newsletter*.

We're counting on the assistance and support of all members throughout the coming year.

D.O.G. Wants More

The State of California—Resources Agency, through its Division of Oil and Gas, has notified operators that, with the exception of the log known by the trade name Cyberlook, **all** computer-generated logs **shall** be filed with the Division. This includes both in-house analysis products and those made by service companies.

When filed, the Division will treat the computer logs as well records for the purpose of the public access provisions of Section 3234 of the Public Resources Code (PRC). However, any operator when submitting a computer-generated log, may submit on a case-by-case basis a written statement showing that the log is derived from either experimental logs and tests or interpretive data and therefore is not a well record subject to public access under Section 3234(d) PRC.

In Memory of J. Herbert Sawyer

Joseph "Herb" Sawyer died on March 22d at the age of 72. He was a Stanford graduate, class of '37 and a member of Theta Xi. As a petroleum geologist he covered all of Latin America for Standard Oil Co. of New Jersey for thirty years. He retired to Los Altos, California and thereafter consulted and engaged in off-shore developments and North Sea studies for International Petroconsultants of Miami, Florida. He helped found the Petroleum Clubs of Havana and Buenos Aires, and aided in writing the first petroleum laws of Guatemala in 1954.

He is survived by his wife, Aura G. Sawyer of Los Altos; two sons, Thomas Sawyer of San Francisco and Ronald Sawyer of Mexico; two daughters, Carol Metivier of Spain and Susan Sawyer of Washington, D.C.; three brothers, Kenneth Sawyer and Phillip Sawyer of Atherton, and Alan Sawyer of Egypt; two sisters, Mary Louise Keistman of Cardiff and Sylvia Sawyer of Miami, Fla.; and three grandchildren.

Herb's principal monument can be found in the AAPG Memoir No. 6 "Trek of World Oil Discovery" in which Herb covered all of Latin America, and is the only contributing geologist named on the title page. He will be warmly missed by all who have ever worked with him.

Historic Happenings For June and July

JUNE

- 3 — Robert Dietz published "Seafloor Spreading in Nature" — 1961
- 6 — Katmai Alaska Volcanic eruption sent 1.5 cubic miles of ejector aloft — 1912
- 8 — Richter Magnitude scale proposed — 1934

JULY

- 1 — Darwin's evolution theory presented to the Linnean Society of London — 1858
- 21 — John W. Powell Colorado River exploration field party leaves Green River, Wyo. — 1869
- 24 — Louis Agassiz "Ice Age" paper presented to Switzerland Society of Natural Science — 1837

Pacific Section Welcomes New Officers

The Pacific Section AAPG 1985-86 officers are:

Robert G. Lindblom . . . *President-Elect*
Dan E. Pasquini . . . *Vice President*
Charles E. Katherman . . . *Secretary*
Keith E. Green *Treasurer*

These new officers, along with the new affiliate society representatives were welcomed by President Lucy Birdsall to the July Executive Committee board meeting held in the UNOCAL building in Bakersfield.

The new Committee was quickly introduced to the many pressing problems of the Section as they began work on: membership, budget, publication of the directory and several cross-sections, along with planning for the 1986 convention.

One thing all Committee members did agree on, though, was a big thank you to UNOCAL for the use of its Bakersfield conference room and to John Shastid (UNOCAL Ventura) for lunch.

FIRST EVER ALASKA CONVENTION SUCCEEDS

The first Pacific Section AAPG, SEPM, and SEG convention to be held in Alaska is now history. From all aspects, this convention appears to have been a successful venture. The United Airlines strike caused some delays and some difficulty in traveling, but it appears that a minimal number actually cancelled the trip due to the strike.

Regular and student registrants totalled 852, spouses 201, and exhibitors 68 for a total attendance of 1121. The weather was great, the events were well attended, and the Egan Convention Center accommodated the convention comfortably. The good weather continued throughout the post-convention field trips. Beautiful weather also enhanced the chartered train trip and allowed for several sightings of moose.

The Alaska Geological Society enjoyed hosting this 60th annual meeting and we hope that all who attended enjoyed it thoroughly. To those who did not attend, we would like to invite you to come to Alaska, either in the near future or when the convention comes up here again.

Arlen Ehm General Chairman

Pacific Section's 1985 Honors and Awards

This year the honors and awards committee of the Pacific Section AAPG has awarded its A. I. Levorsen Memorial Award to John N. Thomson and Honorary Life Memberships to Robert N. Hacker, John T. Isberg, and Russell R. Simonson.

The A. I. Levorsen Memorial Award has been given each year since 1967 for the best paper presented at the annual section convention. This award was established in memory of Dr. A. I. Levorsen, a former professor of geology at Stanford, past president of AAPG, honorary member of AAPG and Sidney Powers Medalist.

John H. Thomson, Consulting Geologist from Bakersfield, receives this award for his 1984 paper "Sacramento Valley's Meganos Submarine Canyon: Geology and Hydrocarbon Accumulations in the Brentwood Area." Co-Authors were R. W. Boyd and R. G. Blake.

The Pacific Section Honorary Life Membership award originated during the tenure of the 1958 section President U. S. Grant IV. The first recipient was Olaf Jenkins, former state geologist, who was thus honored in 1961. There have been 39 members so honored since then.

Fed's Slim Down

The Interior Department's Bureau of Land Management announced a program to streamline oil, gas and geothermal bonding requirements to reduce public confusion and cut financial losses by the federal government. The 12 types of bonds currently required for drilling on federal lands would be consolidated into only four and increased in dollar amount.

BLM Director Robert F. Burford said the bonding requirements have been adjusted only once since 1929 and don't reflect current reclamation costs or royalty liabilities.

Burford said the BLM is encountering an average of 10 cases each year where operators have left without properly plugging and abandoning wells or properly reclaiming disturbed surface at the drilling site. Costs for carrying out this work can range from \$25,000 to \$100,000 per site, or \$250,000 to \$1 million per year, of which the current bonds cover only a small portion.

Delinquencies in royalty payments to the Minerals Management Service also demonstrate the need for higher bond levels, the BLM statement said. Since October, 69 on-shore federal leases have gone into default for non-payment of royalties totaling \$4.6 million. One-third of that amount was not covered by bonds.

Under the new proposal, current lessees holding nationwide, statewide and individual bonds covering geophysical exploration, geothermal resources and oil and gas leasing

would be required to submit replacement bonds within one year after the new rules take effect.

Alaska

New officers of the Alaska Geological Society are:

President Cass Ariey
Vice President Tom Moore
Secretary Siana McKinnie
Treasurer Diane Phillips
President-Elect George Stadnicky
Director Mary Banister
Director Harriet Cloft
Director Tom Eggert
Director Bill Pyle
Director Kitty Reed
Past-President Bruce Clardy

New AGS directories are now available for those who are members. If you are not a member but would like to see how the Alaskans are holding their age, you may send seven dollars for a directory with a cover or five dollars for the revised contents. If you wish to join the Alaska Geological Society, that also costs you five dollars. Send requests for membership applications to the Membership Secretary and requests for the directories to the Publications Chairman. Both should be sent to: Alaska Geological Society, P.O. Box 101288, Anchorage, AK 99510.

Summer is here and many of the AGS members are making their annual trek to the field. This is an event that is looked forward to with great anticipation, primarily by the spouses and the helicopter companies. You can easily recognize those field geologists by the groove worn into their necks from carrying their hand lenses and the semi-crouch position that they assume every time they hear a helicopter. They are dangerous around the lobbies of banks and other such buildings as they are prone to break off a sample of the wall for their collection.

If you are planning to come to Anchorage during the late summer or early fall, come while the AGS is having their fall barbecue. This is tentatively scheduled for September 12. We would enjoy being your host and the eats and drinks aren't shabby, either. We have two members from San Diego who come to this event every spring and fall.

Coast

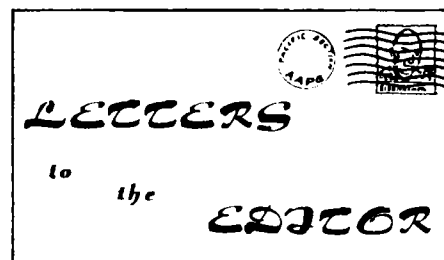
The Coast Geological Society 1985-86 officers are:

Hans Schwing *President*
 Larie Cavette *Vice President*
 Bill Anderson *Treasurer*
 Ed Hickey *Secretary*

San Joaquin

The San Joaquin Geological Society 1985-86 officers are:

Robert L. Countryman . . . *President*
 Kenneth F. Hersh . . . *President-Elect*
 John W. Randall . . . *Vice President*
 Reinhard J. Suchsland . . . *Treasurer*
 Herman Schymiczek *Secretary*



Dear Editor:

I feel obligated to advise you of a grave error in the February/March 1985 edition of Pacific Petroleum Geologist Newsletter. On the front page of this issue, under Historic Happenings for February and March, you list on February 29, 1959, the birth of Jean B. Senteur De Boue. I am sure there must be an error somewhere because information in my files, namely, the 1955 edition of the AAPG-SEG-SEPM Pacific Section directory, shows that Jean D. Senteur De Boue received his diploma from the Universite de Lyon as an Ingenieur Geologue in the year 1938. This would seem to indicate that he was born about 1916. Nineteen sixteen, being a leap year, would also more easily accommodate his birth date as February 29.

Senteur De Boue appears in several other directories and his name was well-known in the 50's and early 60's in Southern California geological circles, although he was very difficult to find in person. I suggest that your item in the February/March 1985 Newsletter was either gravely in error or it refers to John B. Senteur De Boue, Jr. If this is the case, it would be interesting to know whatever happened to the elder De Boue.

The last information I have on him is a cryptic note following his name in the 1971 Directory which says "see end of list." Alas, when you reach the end of the list Senteur De Boue has fallen off, presumably into the mud.

Sincerely,
 Henry H. Neel

Editor's Note: Thank you Hank for your advisory letter. I must admit that I accepted, without question, the 1959 birth date given for Jean B. in the 1983-84 AAPG Calendar of Geologic Events. However, upon reflection I find that I must agree with your analysis. Thanks, Editor.

New Members

ALASKA

John L. Futch, Marathon Oil Co., Anchorage.

NORTHERN CALIFORNIA

Henry J. Cavigli, Cavigli & Mee Petroleum, Sacramento; George L. Convers and Jack E. Napper, Western Geo-Engineers, Woodland; J. R. Avery, Welx, Sacramento.

SOUTHERN CALIFORNIA

William C. Armstrong, West Newport Oil Co., Newport; Susan M. Berger, David L. Hanson, Ronald C. Pase, Riverside; Roberto E. Biaggi, Loma Linda Univ., Riverside; Jeffrey R. Johnson, Texaco, Los Angeles; Steven I. Warehouse, Corona; Gergory S. Benson, Exxon, Thousand Oaks; Lorilee Daniel, Delta Petroleum, Tustin; Theodore W. Ehring, Petroleum Industry Consultants, Westminster; Miguel L. Garcia Sr., Geol. Expl., Carpenteria; Lyle D. Hall, Ojai; Jack D. Hall, Res. Tech. Calif., Ventura.

OREGON

Herbert G. Schlicker, R. E. Corcoran, Portland; S. Kyle Huber, Weiss-DesCamp-Botteri & Huber, Portland; C. John Newhouse, Northwest Oil Report; Harry J. Meyer, Oregon Ntl. Gas Dev. Co., Portland; Jeff Duvall, Western Geo-Eng., West Linn; Jerry R. Fish, Stoel-Rives-Boley-Fraser & Wyse, Portland; N. Wayne Cooper, Dallas.

WASHINGTON

Donald M. Caldwell, Golder Assoc., Bellevue; Edward G. Dobrick, Redmond; Jackie E. Stepheps, Spokane; Harrey R. Thomas, Say Energy & O.W.C. Inc., Moses Lake; Jan Arps, J.J. Arps Petroleum Consultants, Redmond; Donald B. Kennedy, Farm Credit Bank of Spokane, Spokane.

OTHER STATES

Mary Thersa Merritt, Marathon Oil, Casper, Wyoming; Craig Cascade Corp., Boise, Idaho; Patrick R. McDonald, Seville Energy Dev. Corp., New York City; Stanley A. Sansoue, DEPCO Inc., Denver, Colorado; Michael E. Addison, United Energy Res., Houston, Texas.

FOREIGN

James E. Chaput, Canadian Hunter Expl., Calgary, Canada.

Recent Moves

Paula Butler, Dave & Paula Hoffman, Jon Kuespert, John Neale, Tom Peargin, Ed Van Dohlen, Jim Waldron, Bruce & Joann Welton, Karl Wozniak, from Chevron-San Ramon to Chevron Northern Division Development Geology-Bakersfield; Mike Morea, Peter Leiggi, Mark Magargee, Dave Hammond, Rusty Gilbert, Rob Fairman, Genoa Evola, Mark Moon, Wally Lucier, Bob Mitchel and H. F. Hazel from Chevron-Bakersfield to Chevron-San Ramon; Dave Salter, Rob Skillin, J. R. Morgan, Mark Yarlot, Mark Fahan and Kristi Morrison from Chevron-Bakersfield to Chevron-Ventura;

Alison Gay, Tom Bishop and Tom Heidrick from Chevron-Bakersfield to Chevron-La Habra.

Lynn J. Moses, Gulf E.& P.-Bakersfield to Pearland, Texas; A. W. "Bill" Smith, Gulf E.&P.-Anchorage to Bakersfield; Richard E. Drumheller and Ernest B. Lian from Marathon-Santa Maria to Marathon-Casper, Wyo.; Ino Weiske, Oxy-Bakersfield to Mission, Texas; William B. Benzer Jr., Energylog-Sacramento to Energylog-Oakland; Carl A. Evans formerly with Aminoil (now Phillips) moved to SOHIO Petroleum Co., Houston; Keith Drummond formerly with National Oil Co.-Denver to Consult for Tri-Valley Oil & Gas Corp.; Eric Hawes, Independent Consulting Geologist to work out of Tri-Valley's Bakersfield Office; Marty R. Smithey, from DEPCO Inc., Denver to Diamond Shamrock Expl., Denver.

NPA Announces New Officers

The Officers and Board Members of the National Petroleum Associated for the 1985-1986 term are:

President: Bert B. Mueller

Vice President: Charlie Stinson

Secretary: Andy Corcoran

Board Members: Vern Newton, Past President; Wes Bruer, Gail Achterman, Garth Tallman, Bill Covert

Coals To Newcastle?

Two separate groups have announced plans to construct gas pipelines from the California-Arizona border to serve the San Joaquin Valley and central California markets. The Mojave Pipeline System, which would run from the Needles Metering Station near Topoch, Arizona to San Ardo, with a lateral into Kern County, was the first proposed. Houston Natural Gas Corp., El Paso Natural Gas Co., and Pacific Lighting Corp. announced plans last March to lay and operate a 430-mile, \$250 million pipeline having an initial capacity of 400 to 600 MMCF/D. The line would be connected to the El Paso/Trans Western Pipeline Co. system at Topoch, Arizona. TransWestern is an HNG subsidiary.

Less than a month later, a subsidiary of Lear Petroleum Corp. of Dallas, and Trans Canada Pipeline Ltd., Calgary, disclosed an agreement to lay a \$285 million pipeline from a connection with existing lines at Topoch, Arizona to central California.

El Dorado Interstate Transmission Co., a joint venture between Lear's PGC Interstate Transmission Co. and TCPL will operate the proposed 383-mile, 42-inch system at an initial capacity of 600 MMCF/D. If demand grows this could be boosted to 1.2 billion CF/D with additional compressor horsepower.

The planners of both pipelines see heavy oil EOR/cogeneration projects as their principal markets. However, each seek to market

gas from widely separated areas. The Mojave Pipeline group would be selling gas produced in Texas, Oklahoma, and New Mexico as supplied by the El Paso and Trans Western systems. The El Dorado joint venture looks to an agreement between Canadian and U.S. companies as its principal source. PGC and a unit of TCPL, which holds 29 trillion ft³ of reserves under contract in Alberta, have been developing exchange agreements to make the required volumes available at Topoch.

Geophysicists Piggyback Military

The Navstar Global Positioning system (GPS), a military satellite system intended to guide machines of war, has spawned the ultimate piggyback experiment. Civilian geophysicists have learned how to use the military satellite signals in a way unintended by the system's creators who still foot the \$6 billion development bill and a \$250 million annual operating budget. The technique allows the determination of relative positions across 1 kilometer or 1000 kilometers with a precision of 1 part per million. That is a 1-centimeter error in measuring the distance between points 10 kilometers apart. Researchers expect to have that error down to 0.1 centimeter in 10 kilometers within the next year or two. Such precision would be superior to that of classical surveying techniques, although costs based on the use of GPS should be only 1/20 as much.

The Global Positioning System, as it is being developed by geophysicists, is a low-cost hybrid of Very-Long-Based-Interferometry (VLBI) and the Navstar (Navigation Satellite Timing and Ranging) GPS. VLBI is more than precise enough. It can measure between points a few thousand kilometers apart with a precision of 1 to 5 centimeters. But VLBI typically uses massive and quite immobile radio telescope dishes in order to pick up the faint signals of quasars at the edge of the known universe. Mobile VLBI's are used for geophysical positioning, but they are not all that mobile or inexpensive.

Traditional geodetic methods are less precise, more labor-intensive, and slower than VLBI, and they require that one point be visible from the other.

The version of GPS most useful for geophysicists achieves high precision at low cost by ignoring the information in the satellite signals that is vital to their intended use and treating the signal almost as if it were the radio noise of a quasar. A conventional Navstar receiver decodes a satellite signal, determines from the signal exactly when it left the satellite (which carries four atomic clocks), and compares that time with the signal's time of arrival, which the receiver measures with its own clock. Given the speed

(Continued next Page)

of light, the distance between satellite and receiver is calculated. Observations of several satellites, 18 of which will be in the system by 1988, provide the receiver's position within 10 meters.

Instead of comparing time of transmission and time of reception, a pair of global positioning receivers intended for geodetic work compares the phases of a signal from the same satellite as received at two different sites. The phase difference between the signals is proportional to the separation of the sites. The time of broadcast need not be determined from the signal, so the instability of the satellite's clock cannot limit accuracy. This is the type of comparison made in VLBI between the radio noise received at two sites from a quasar, but in GPS the sources are far stronger thus easier and cheaper to detect and in 12-hour orbits about the earth. A pair of GPS receivers will usually make such observations of four or more different satellites in order to determine the relative positions in three dimensions of the two receivers.

Researchers are busily assembling and testing GPS systems. One of the more comprehensive experiments was run by a group of U.S. agencies to test four different makes of civilian receivers. The tested models included the Macrometer (trademark) receiver made by Aero Service; two receivers developed by Jet Propulsion Laboratory, the prototype SERIES and the SERIES X; and Texas Instruments T14100, a commercial receiver that decodes the signal to provide absolute position in addition to high-precision relative position. —From Science

**PPG DEADLINE
for AUG./SEPT. ISSUE
AUGUST 17**

**NEWSLETTER
Pacific Section A.A.P.G.
P.O. Box 1072
Bakersfield, California 93302**

Richard L. Hester
1911 Montecito Dr.
Glendale, CA 91208

Recommended Reading

Geological Society of America Bulletin
Structure and Tectonics of the Northern Sierra Nevada, by Howard W. Day. Vol. 96 April 1985, No. 4.

Petrology and Provenance of Pre-Late Devonian Sandstones, Shoo Fly Complex, Northern Sierra Nevada, by Gary H. Girty and Melissa S. Wardlaw. Vol. 96 April 1985, No. 4.

Holocene Rate of Slip and Tentative Recurrence Interval for Large Earthquakes on the San Andreas Fault, Cajon Pass, Southern Calif., by Ray J. Weldon and Kerry E. Sieh. Vol. 96 June 1985, No. 6.

GEOTIMES, v. 30 No. 4, April 1985

Oil finds continued in uncertainty of '84, by Arthur A. Meyerhoff.

Pratt memorial session views world oil scene, by Michel T. Halbouty.

BOOKS

CALIFORNIA LANDSCAPE Origin and evolution, by Mary Hill. University of Calif. Press (1985) 262 pages

\$19.95

EARTHFIRE, by Charles Rosenfeld & Robert Cooke. M.I.T. Press (1984) 155 p. (an account of the Mt. St. Helens eruption).

\$9.95

DODOSAURS: The dinosaurs that didn't make it, by Rick Meyerowitz and Henry Beard. Harmony Books (1983) 63 pages.

\$7.95

Cajon Pass To Manix Lake, Geologic Investigations Along I-15, compiled by Robert E. Reynolds. Western Association of Vertebrate Paleontologists Sixth Annual Meeting, Feb. 15-18, 1985.

AAPG BULLETIN Vol. 69/3 March 1985

Tectonic, Depositional, and Diagenetic History of Monterey Formation, Central San Joaquin Basin, CA., by S. A. Graham and L. A. Williams.

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PUBLICATIONS COMMITTEE: Pacific Section American Association of Petroleum Geologists, 3600 S. Harbor Blvd., Box 198, Oxnard, CA 93030.

AAPG BULLETIN Vol. 69/4 April 1985

Geology of the Point Arguello Discovery, by W. E. Crain, W. E. Mero, and Don Patterson.

AAPG Correlation of Stratigraphic Units in North America-Southern California Province Correlation Chart, By Charles C. Bishop and James F. Davis.

Courtesy Louis Lopez, USGS - PIO, L.A.





PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

AUGUST 1985/SEPTEMBER 1985

DIBBLEE FOUNDATION ISSUES FIRST GEOLOGIC MAPS

The Thomas Wilson Dibblee, Jr. Geological Foundation has announced the publication of the first two geologic maps of a continuing series showing Tom Dibblee's geologic mapping in western California. These two maps cover Dibblee's geology of the 7½ minute Wheeler Springs and Old Man Mountain topographic quadrangles. They are a two color edition with the topography in brown and outline geology overprinted in black. At some future date when a suitable color scheme has been devised, they will be reissued with the geology shown in full color. Future maps will be offered in both the colored and uncolored versions. All maps will be on a 7½ minute topographic quadrangle base.

Publication of these two quadrangles and the advancement of much of the effort noted below have been made possible through a generous grant from Pacific Section-AAPG and contributions from Hunter Resources and the Coast Geological Society. Drafting services have been provided by Union Oil Company, Ventura and by ARCO Oil & Gas Company, Bakersfield.

The Dibblee Foundation was formed in 1983 as a non-profit, tax exempt, public benefit California corporation established for the purpose of publishing geologic maps at a standard and universally useable scale. Initial attention is being focused on the more than 35,000 square miles of geologic mapping accomplished by Tom Dibblee over the past fifty years. Through the cooperation of the Los Padres National Forest, all of the ninety six 7½ minute quadrangles lying within the Forest have been refined, revised or remapped by Dibblee and preliminary drafting has been completed. Twenty one quadrangles within the southern part of the Forest adjacent to the Santa Barbara Channel have been edited and await final drafting. Sixteen more quadrangles lying west of the Forest in the Point Conception-Los Olivos-Point Sal area of western Santa Barbara County are in various stages of final drafting and at least eight of these should be ready for publication by September 30, 1985. The Hildreth Peak and Carpinteria quadrangles in the southeast corner of the County are ready for publication now and will be issued when

and as adequate funding becomes available to the Foundation.

Copies of the Wheeler Springs and Old Man Mountain quadrangles may be purchased at \$5.00 each from the Dibblee Foundation, 1010 Mission Canyon road, Santa Barbara, CA 93105. Make checks payable to Dibblee Foundation.

—John F. Curran

Field Trip Proposals Sought

If you have an idea for, and would like to lead, an S.E.P.M. field trip for the 1987 Annual A.A.P.G.-S.E.P.M. meeting in Los Angeles, contact:

A. Eugene Fritsche,
S.E.P.M. Field Trip Chairman,
Dept. of Geological Sciences,
California State University
Northridge, CA 91330

In the past, the field trips have been run either before or after the meeting (and sometimes both before and after) and have lasted anywhere from one to three days. The field trips must be self supporting and must be run by a sponsoring organization who will assume financial responsibility for the trip. Your audience will consist mainly of petroleum geologists, sedimentologists, and micropaleontologists who work in the petroleum industry, so plan your trip accordingly.

1. Field trip title and statement of its objectives.
2. A general itinerary for the trip.
3. The name of a suggested sponsoring organization, if you have one in mind. (If the trip is a good one, a sponsor will be found for you.)
4. Your ideas on what a guidebook for the trip would be like.

Deadline for proposals is December 1, 1985. The field trip committee will study the proposals and by January 1, 1986 will notify the leaders of those trips that will be run at the meeting. If you have questions, please do not hesitate to write or call A. E. Fritsche at (818) 885-3541.

**PPG DEADLINE
for OCT./NOV. ISSUE
OCTOBER 17**

Geologist Seeks Humor

WANTED: Copies of humorous letters to oil companies ("black boxes," lease submittals, undiscovered fields, etc.) for collection and possible publication. R. G. Hubbell, Conoco Inc., 290 Maple Ct., Suite 284 A, Ventura, CA 93003-3599.

To get things started, and because football season is once again upon us, your editor offers the following. It seems that a certain star ball player was having difficulty maintaining scholastic eligibility. In particular, it was his natural sciences requirement that was soon to remove him from the team. In an effort to keep his star, the coach secured a tutor, and after several frustrated attempts to communicate the fundamentals of plate tectonic history, the tutor was heard to say, "Look, TD! Think of it this way; with 65 million years left on the clock, Madagascar sweeps right and fakes to Africa. South America blocks North America's rush, Australia goes wide as Antarctica runs a post pattern downfield. Eurasia reads the play but is hooked in by a block from the Indian subcontinent."

Historic Happenings for August-September

AUGUST

1. Jean Lamark, "Acquired Characteristics" born—1744.
9. Calif. Div. of Oil and Gas founded—1915.
5. First electric log run in California, Kings County, by Shell—1929.
22. Organizational Meeting, Seismological Society of America—1906.
23. Geogre Cuvier, "Catastrophism" born—1769.
27. Col. Drake's 69 Ft. oil well near Titusville, Pa.—1859.
30. John W. Powell Colorado River exploration expedition ends—1869.

SEPTEMBER

5. First electric log run at Pechelbronn, France, by Conrad Schlumberger—1927
7. "Magnetic Anomalies on Ocean Ridges" by Vine & Mathews, published in *Nature*—1963.
9. Lakeview Gusher died, after 544 days and 9 million Bbls.—1911.
25. Abraham Werner "Neptunist" born—1750.
26. Scripps Institution of Oceanography founded—1903.

SEG COURSE

The Society of Exploration Geophysicists is offering a course on SEISMIC INTERPRETATION FOR DETAILED EXPLORATION, DEVELOPMENT, AND PRODUCTION November 15, 1985, at the Red Lion Inn in Bakersfield.

This one-day course addresses some of the interpretive methods and their use in providing solutions to detailed exploration, development and production problems.

Contact:

Continuing Education Dept.
S.E.G.
P.O. Box 702740
Tulsa, Oklahoma 74170-2740
(918) 493-3516

SEPM Fall Field Trip Planned

Mark your calendars! This year's Annual S.E.P.M. Field Trip is scheduled for October 19 and 20. Led by Steve Graham and a contingent of Stanford students, we will view selected outcrops of the Temblor Formation in the southern Diablo Range and northern Temblor Range.

The trip will be based in the Coalinga area, with a Friday night orientation dinner at West Hills College and a Saturday night Santa Maria-style bar-b-que at Union's Coalinga picnic grounds.

Donations from interested parties to help defray costs for periods of attitude adjustment (i.e., refreshment wagon and Sat. Night) are solicited. Names and logos of contributors will be displayed during the trip. If interested, contact Sherry Schussler (805) 428-4080.

From SEPM Newsletter

PENROSE CONFERENCE SCHEDULED

A GSA Penrose Conference, "Miocene Reconstruction of Southern California," will be held 30 May-June 4, 1986 in Oxnard, California. The conveners for this conference are A. Eugene Fritsche and Peter W. Weigand, both at Department of Geological Sciences, California State University, Northridge; Roy K. Dokka, Department of Geology, LSU, Baton Rouge; and Judith Terry Smith, Palo Alto, CA.

Previous to our ideas of large-scale fault movements and plate tectonics, Miocene paleogeographic reconstructions in the southern California area were simple and straightforward. Since the advent of the concepts of plate tectonics and paleomagnetism, researchers have been able to divide up southern California into small, structural blocks or microplates and compress them, extend them translate them, or rotate them into several configurations, but a single model that is consistent with all available data has

yet to be conceived. This search for a model that is acceptable to structural geologists, stratigraphers, paleontologists, petrologists, and paleomagnetists alike is hampered because no single researcher has time to comprehend the wealth of data that exists in each of the disciplines. We believe that bringing together researchers from these various disciplines to exchange their knowledge and ideas will speed progress toward a unified paleogeographic reconstruction of the Miocene of southern California.

We will limit the discussion to paleogeographic reconstruction of the Miocene in the area of southern California from 36°N latitude to the Mexican border. Emphasis will be on the interaction of disciplines and will include formal talks, working groups, a 1-day field trip, and ample discussion time. The conference will honor Dr. Mason L. Hill, a true pioneer in our understanding of southern California Geology.

Prospective participants should send a letter of application which outlines (1) their experience in the topic, (2) areas in which they might expect to contribute, and (3) their reason for wanting to attend the conference to A. Eugene Fritsche, Department of Geological Sciences, California State University, Northridge, CA 91330, by 15 December 1985. The registration fee, including food, lodging, and field trip, is expected to be approximately \$450.

Students who have a research interest in Miocene paleogeography are encouraged to apply. Financial support is available to subsidize half of the registration fee for up to five students.

—The Conveners

RCRA Deadlines on Hazardous Waste Disposal

Just before adjournment last year, Congress reauthorized most of the provisions of the Resources Conservation and Recovery act, otherwise referred to as "RCRA." The action on November 8th, set in motion an eight-year timetable for the Environmental Protection Agency and other federal and state agencies to bring the generation, storage, transportation, and disposal of hazardous and non-hazardous wastes into compliance with federal guidelines. While crude oil is not defined as hazardous in federal regulations, it is listed as a hazardous substance in California.

Upon enactment of RCRA, several regulations were immediately implemented. Additional regulations became effective this year, and more deadlines are rapidly approaching. In the next few months, the *Monday Morning Report* will present a discussion of these deadlines and give general guidance to CIPA members on how to comply with some of the new regulations.

Independent producers may face several serious threats to drilling and production operations this year as disposal facilities come under various deadlines. Additional rules have been developed for transportation of

wastes, and the EPA is currently designing new rules that will require smaller generators of hazardous wastes to prepare "paperwork trails" for wastes that can be traced from manufacture of the wastes to the final disposal. The EPA has issued for public comment proposed rules that will require certification paperwork on all hazardous wastes manufactured and shipped by a company when the annual total generated exceeds 100 kilograms.

While not all the RCRA deadlines affect oil and gas producers, there are several that do. On August 5th, hazardous wastes sites must have completed exposure (leakage) assessments. Although the regulations guiding these assessments were not written as of June 19th, what is eventually issued could also affect surface impoundments. (It should be noted here that the California legislature enacted laws in the last two years that will pre-empt federal law in some instances.) On September 1st, generators must present a waste minimization "certification" when shipping wastes or face the prospect of loads being turned back by disposal site operators.

One of the key deadlines affecting producers occurs on November 9th of this year when disposal of non-hazardous liquid wastes in RCRA landfills will be banned. At the same time, disposal facilities, which are operating under an interim status while applying for final federal permits must certify their compliance with ground-water monitoring and financial-responsibility requirements. These two provisions threaten all California disposal sites which currently accept **drilling muds and cuttings**.

While federal law allows (or forces) states to assume responsibility for the administration of several RCRA requirements, California has already adopted rules that are stiffer than many federal requirements. New legislation is being considered at a record pace. For instance, in the two-year period of 1982-83 only 17 bills on hazardous waste were heard in the legislature, but at least 238 bills have been introduced in 1985.

The CIPA office (12062 Valley View St., Ste. 201, Garden Grove, CA 92645) has a ten-page review briefly outlining the eight-year timetable set in motion with the reauthorization of RCRA last year; please ask for item No. 76.

—From CIPA Monday Morning Report

PALEONTOLOGICAL SOCIETY MEETS

The newly-formed San Joaquin Paleontological Society held its first meeting Wednesday, July 24th, in Room 3 of the East Bakersfield Veterans Hall, corner Ridge Road and Mt. Vernon.

The Society is open to all interested in fossils. A field trip to the Maricopa asphalt beds is planned for Saturday, Sept. 14. Call Larry Danielson (805) 834-3322 or Bruce Weldton (805) 872-8028 after 6:30 p.m. for additional information.

SEPM Elects Life Members

The Executive Committee of the SEPM has announced the election of Tom Dibblee and Reinhard Suchsland as Honorary Life Members of the Pacific Section SEPM.

Few geologists have contributed as much to knowledge of Pacific margin geology as **Tom Dibblee**. Noted, along with Mason Hill, for his pioneering documentation and articulation in 1953 of large horizontal offset along the San Andreas Fault, Tom has probably mapped more of the earth's surface than any other individual. One estimate is that his geologic maps cover between 35,000 and 40,000 square miles. It is thus certain that geologists for at least the next two centuries will refer to his maps and published papers.

Born in Santa Barbara in 1911, Tom grew up partly in Santa Barbara, partly on the family owned Rancho San Julian in northern Santa Barbara County. His life on the ranch led to an early interest in the outdoors and in geology, the latter which he studied at Stanford, graduating in 1936.

His early professional career was with Union Oil and Richfield Oil, during service with the latter he played a major role in the discovery of the Cuyama Field. He also met and married, in 1949, a fellow Richfield employee, Loretta Escobosa, who remains his devoted wife. In 1952 he began a distinguished and productive period of 26 years of service with the U.S. Geological Survey. Much of his mapping during this period focused on the Mojave Desert and on the San Andreas Fault.

Upon his retirement in 1978 he moved to Santa Barbara where he has continued mapping and map compilation under the auspices of the non-profit Thomas Wilson Dibblee, Jr. Geological Foundation. He also serves as an active Research Associate at UC Santa Barbara and as a Volunteer Geologist with the Los Padres National Forest of the U.S. Forest Service.

Reinhard Suchsland's career personifies the opportunities made available by America as well as the individual contributions which make these opportunities possible. Born in Berlin, Germany, in 1946, Reinhard fled with his parents from East Berlin in 1953 and emigrated to the U.S. in 1954. The family settled in downtown Los Angeles, then, as now, a crucible of economic opportunity for overseas emigrants. One of seven children, he graduated from Marshall High School and spent 2½ years at Los Angeles City College, first in civil engineering and later as a geology major; summer work with the U.S. Forest Service had stimulated his interest in the natural world and the outdoor life. He then transferred to California State Univ. Northridge (known at that time as San Fernando State) where, inspired by Gene Fritsche and others, he graduated in 1969.

After service in the U.S. Marine Corps, he obtained a geological drafting position with Texaco, and later transferred to the micropaleontology lab with that company. Between 1972 and 1979 he took courses at

USC, many of them in the evening, while simultaneously continuing work with Texaco. His work in micropaleontology at USC was supervised by Orville Bandy and Robert Douglas, and he received an M.S. degree in 1979. During this period he met and married Mary, a fellow employee at Texaco who is now the mother of three and is also a notable contributor in her own right to Pacific Section SEPM activities. In 1980 Reinhard accepted a post at DEPCO, Inc. in Bakersfield, where he remains a Senior Exploration Geologist, spearheading DEPCO's successful exploration efforts in the Sacramento Valley and elsewhere.

Reinhard's contributions to the Pacific Section SEPM are exceptional both quantitatively and qualitatively. In 1975 he was co-leader of the Section field trip to the eastern Santa Maria Basin. In 1978 he served as the Section's Treasurer. Beginning in 1980 he assumed the difficult and time-consuming role of Managing Editor for the Section's publications, a task he has filled with dedication, skill and innovation. During his stewardship in this post, the number of Section publications has increased threefold, a growth accompanied also by enhanced quality of both scientific content and presentation. This remarkable achievement is due in large part to Reinhard's willingness to work closely with the scientific editors and authors of the volumes and with the publishers, and to devote enormous portions of his free time to editorial responsibilities. In fulfilling these responsibilities he has displayed uncommon skill in imposing editorial standards, maintaining at the same time respect for and preservation of scientific freedom and integrity. Along with Mary he has served as a bridge and "institutional memory" for our section during successive changes in officers.

SEPM Newsletter

Northwest

The Northwest Petroleum Association will hold its quarterly meeting September 27, at Shenanigan's Restaurant in Portland. No-host cocktails 11:30-12:45, lunch 12:15-1:00, and speaker 1:00-1:30. The speaker—Dr. Daniel Miller, Jr., former Assistant Secretary of the Interior will present an update on exploration activity in Idaho. For additional information and reservations, call Dorothy Weaver (503) 226-4211, ext. 4391.

A luncheon and afternoon symposium on current offshore exploration activity and the development potential for Oregon and Washington offshore lands, jointly sponsored by the NPA and the Portland Chamber of Commerce, Energy Committee is scheduled for October 18. The symposium will be at One Pacific Square, 220 N.W. Second Avenue. For additional information contact NPA, P.O. Box 6679, Portland, OR 97228-6679 or call Charles E. Stinson (503) 226-4211.

Northern California

The NCG 1985-86 officers are:

Tor H. Nilsen, President; Debbie Hagan, President Elect; Jeff Eppink, Vice President; Car Mrozowski, Secretary; Ed Horan, Treasurer; Linda Thurnd, Program Director.

Call for Convention Papers

The planners of the 61st annual meeting of the AAPG, SEPM, and SEG Pacific Section "Bakersfield 86" convention invite the submission of papers.

A two-day technical program of 20-minute oral presentations and poster sessions will be provided. You are encouraged to submit abstracts for the oral and poster sessions. In keeping with the theme of "Creative Energy", the convention wishes to emphasize but not limit topics to the following areas:

AAPG

Eastside SJV Symp.
Geol. Appl. to EOR
Computer Appl. in Expl.
Remote Sensing
OR/WA Expl. & Dev.
Nevada Expl. & Dev.

SEPM

Cret. Paleogeog. & Strat.
Siliceous Miocene Micro-fossils.
Westside SJV stratigraphy.

SEG

Amp. w/offset Advances
Update in Reprocessing Tech.
Improvements in data gathering
Interpretation w/work station
Rock Physics
Appls. of seis/strat to Expl.

Abstract must be a minimum of 300 words and must state the application of the work along with conclusions reached. The papers will be selected largely on the basis of information supplied in the abstract.

Interested authors should submit the appropriate form by September 20, 1985 to:

Reinhard J. Suchsland
Technical Program Chairman
4909 Stockdale Hwy., Suite 231
Bakersfield, CA 93309

These forms can be obtained from either Messrs. Suchsland or:

Akbarsharif
Group Program Chairman
UNOCAL
2700 F Street
Bakersfield, CA 93301
(805) 861-5464

An abstract format will be sent to all submitting the form, and abstracts are due December 1, 1985.

RECENT MOVES

Coast

Rick Wheeler, from CONOCO, Ventura to CONOCO, Houston.

CONOCO has relocated its West Coast Offshore, and Alaska Exploration and Operations groups from Houston to Ventura. This transfer involves 8 geologists, 4 geophysicists, 4 landman, and 5 support personnel.

Northern California

Paul F. Bertucci, Willard J. Classen from CHEVRON, Concord to CHEVRON, San Ramon. W. E. Crain CHEVRON, Concord to CHEVRON, San Francisco.

Sacramento

William V. Pipes from CHEVRON USA, Concord to TXO, Sacramento.

San Joaquin

J. R. (Rick) Bowersox, District Geologist-TEXACO, Bakersfield to Geologic Manager MISSION RESOURCES, Bakersfield.

Other States

Marty R. Smithey from DEPCO, Denver to DIAMOND SHAMROCK, Denver.

Recommended Reading

JOURNALS/BULLETINS

Recent movement on the Garlock Fault as suggested by water level fluctuations in a well in Fremont Valley, California, by D. K. Lippincott, J. D. Bredehoeft and W. R. Moyle. JGR. Journal of Geophysical Research. B, v. 90, no.2, February 10, 1985. p. 1911-1924.

Early Devonian volcanism in the eastern Klamath Mountains, Calif.; evidence for an immature island arc, by H. Lapiere, Francis Albarede, J. Albers, B. Canbani and C. Coulon. Canadian Journal of Earth Sciences, v. 22, no. 2, February 1985. p. 214-227.

The use of geologic and seismic information to reduce earthquake hazards in California, by W. J. Knocckelmann and C. C. Campbell. Environmental Geology and Water Sciences, v. 6, no.2, 1984 p. 67-78.

Mafic gneissic complex (batholithic root) in the southernmost Sierra Nevada, Calif., by D. C. Ross. Geology (Boulder), v. 13, no. 4, April 1985, p. 288-291.

Suppression of vitrinite reflectance in amorphous rich kerogen; a major unrecognized problem, by L. C. Price and C. E. Barker. Journal of Petroleum Geology, v. 8, no. 1, January 1985. p. 59-84.

Gas hydrates on the northern California continental margin, by Michael E. Field and Keith A. Kvenvolden. Geology (Boulder), v. 13, no. 7, July 1985, p. 517-520.

BOOKS

Geomorphological Hazards in Los Angeles. By R. U. Cooke. George Allen & Unwin, London, 1984, 206 p.

Early California Oil; A photographic history, 1965-1940. By Kenny A. Franks and Paul F. Lambert. Red River oaks, Shreveport, LA.

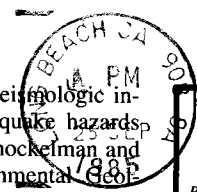
FIELD TRIP GUIDE BOOKS

Anacapa Island, Channel Islands National Park. Association of Engineering Geologists annual field trip 8 June 1985. 37 p.

U.S. Geological Survey

Soil Slips, Debris flows and Rainstorms in the Santa Monica Mountains and Vicinity, southern California. By Russell H. Campbell. USGS Professional Paper 851. 50 p.

Proceedings of Wordshop XXVII—Mechanics of the May 2, 1983 Coalinga earthquake. Michael J. Rymer and William L. Ellsworth, editors. USGS Openfile report 85-44, 445 p.



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NEWSLETTER

Pacific Section A.A.P.G.

P.O. Box 1072

Bakersfield, California 93302

FIRST CLASS

Richard L. Hester
1911 Montecito Dr.
Glendale, CA 91208

DA-AM





PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

OCTOBER 1985/NOVEMBER 1985

PRESIDENT'S CORNER

The September Executive Committee meeting was held on the 26th, following the Los Angeles Basin Geologic Society luncheon and meeting, at Taix Restaurant in Los Angeles. The next Executive meeting is scheduled for the afternoon of Nov. 19, at Union Oil in Ventura, the day of the Coast Geological Society meeting. It is interesting for the Committee members to attend the various Society meetings and become better acquainted with the members. At the September meeting we learned the Pacific Section AAPG History Volume is ready to go to press. Pre-publication orders at a reduced price should soon be announced and available.

Our President-Elect Robert Lindblom has been busy, for on Oct. 8, he was the speaker at the San Joaquin Geological Society meeting in Bakersfield. Perhaps he can be prevailed upon to present this talk at other Society meetings.

October arrived, and the U.S. Government is having budget problems, and year-end deficits. Now the U.S. Government isn't the only one with financial problems — YOUR PACIFIC SECTION is also strapped for cash. Those dues will help to "make ends meet." Plan to come to the Bakersfield Convention next spring, purchase section publications and guidebooks to help fill the coffers.

Historic Happenings for October and November

OCTOBER

2. H.M.S. Beagle returned from 5 yr. survey — 1836.
10. First oil pipeline began operation in Pithole, Pa. — 1865.
17. Union Oil of California incorporated — 1890.
22. Sir Roderick Impey Murchison Died, age 79 — 1871.

NOVEMBER

1. Alfred Wegener, author of Origin of Continents and Oceans, born — 1888.
14. Charles Lyell, author of Principles of Geology, born — 1797.
24. Darwin's On the Origin of Species published, 1250 copies sold out in 24 hours — 1859.

UNION ANNOUNCES POSTING REDUCTIONS

Bowing to a market which is trending lower, Union Oil Company announced sweeping price reductions effective August 1st.

The reduced postings on 72 fields were announced on July 31st, the same day that Venezuela and Ecuador announced substantial reductions on crude posted prices. As with the Chevron posting changes which became effective June 1, 1985, the Union changes hit hardest at crude oil below 20 degrees API gravity. Most of the changes appear to be derived from a revision of the gravity adjustment. The new differential reduces the price by \$.02 for each tenth of a degree API gravity below 34 degrees, while the previous formula assessed a gravity differential of \$.015 per tenth degree.

Based on comparisons with Union's May 31, 1985 postings, the price reductions range from \$.05 per barrel for 33 degree gravity Asphalto crude to reductions of up to \$1.15 for 11 degree gravity Cat Canyon crude. However, in combining the reductions announced for six heavy crudes in the May posting with the most recent changes, the dollar amount of the reductions looms even larger. For instance, since Union's Cat Canyon posting was reduced by \$.50 per barrel as of June 1, 1985, the total reduction for the 60-day period amounts to a \$1.65 per barrel of reduction. Similarly, the 60-day reductions for five other crudes with gravities between 9 to 15 degrees range from \$1.30 to \$1.80.

A representative list of Union posting changes, effective August 1, 1985 is as follows:

FIELD	Base Gravity Degree API	June 1 Price per Barrel	New Price	Change
Belridge	14.0	\$21.50	\$20.50	\$-1.00
Casmalia	9.4	18.10	16.90	-1.20
Cat Canyon	11.0	18.50	17.35	-1.15
Coalinga	15.0	21.80	20.85	-0.95
Gato Ridge Area	13.0	19.00	17.95	-1.05
Huntington Beach	10.0	23.00	21.30	-0.70
Kern River	13.0	21.30	20.25	-1.05
Long Beach (Sig. Hill)	19.0	24.15	23.90	-0.25
McKittrick	12.0	21.20	20.10	-1.10
Midway-Sunset	13.0	21.35	20.30	-1.05
Santa Maria Valley	15.0	19.60	18.65	-0.95
Simi	19.0	22.35	21.60	-0.75
Wilmington	17.0	22.60	21.75	-0.85

A combination of factors during the last two months has radically changed the world market for heavy crude and fuels. Among the most recent events are: the prices reductions and tiered pricing announced by Mexico, the apparent cheating on quotas by OPEC members, the OPEC heavy crude price reduction and the declaration by Saudi Arabian oil minister Ahmed Zaki Yamani that his country intended to double oil production in the next few months.

On August 1st when Venezuela announced that it was cutting the prices of its heavy crude by an average of \$1.95 per barrel. The impact on U.S. producers is bound to be felt. Some 72% of the country's 614,000 barrels per day of crude exports are heavy crude, and 40% go to the United States. Venezuela, a member of OPEC, is not restricted by quotas or price restraints since its crude exports are not covered by OPEC price agreements.

Although the Venezuelan crude change merely brings posted prices into line with spot prices, the more important issue is production level. If Venezuela, Mexico and Saudi Arabia all try to increase output of heavy crude, prices can move in only one direction.

—From CIPA Monday Morning Report

**PPG DEADLINE for DEC./JAN. ISSUE
DECEMBER 20**

New Geologist and Geophysicist Board Members Appointed

Governor Deukmejian appointed Wayne A. Bartholomew and Howard A. Spellman, Jr. to the Geologist and Geophysicist Board.

Mr. Bartholomew is a public member who replaced Michael Miller, whose term expired. Mr. Bartholomew is a business and health consultant in Elk Grove.

Mr. Spellman is a certified engineering geologist who is vice president/geology manager for Converse Consultants, Inc., in Pasadena. Mr. Spellman was president of the Association of Engineering Geologists in 1978. He replaced Charles Armstrong, whose second term expired.

At the July 25, 1985, board meeting in Los Angeles, the board elected Mr. William Park, of Bakersfield, president and Mr. Joe Crosby, of Pasadena, vice president.

Cal D.O.G. Latest Well Classification

A new law (AB 3002), which excludes development oil and gas wells from confidential status unless extenuating circumstances can be documented, became effective on January 1, 1985. Therefore, since January 1, care must be taken in classifying new wells or redrills as either prospect or development because, with few exceptions, only the records of prospect (exploratory) wells will be eligible for confidential status. Personal judgment will be necessary in some instances; however, the following guidelines (based on the API-AAPG classification and Section 3008 of the Public Resources Code) should be used as the basis for decisions.

Section 3008 of the PRC defines a "prospect well" or "exploration well" as any well drilled to extend a field or explore a new, potentially productive reservoir. Similarly, the API and AAPG define exploratory wells as wells drilled to: 1 — Find and produce oil or gas in an unproved area; or 2 — Find a new pool in a field previously found to be productive of oil or gas in another pool; or 3 — To extend the limits of a known oil or gas field.

Exploratory wells are categorized as: 1 — new-field wildcats, 2 — new-pool wildcats, and 3 — outpost (extension) tests. If a well fits into one of these categories, as explained below, it should be classified as exploratory.

1 — **New-Field Wildcat:** A new field wildcat is a well located outside of the present productive limits of a field and drilled on a structural feature or other type of trap that has not produced oil and gas previously, and is stratigraphically or structurally separate from the nearest producing area.

2 — **New-Pool Wildcat:** A new-pool wildcat is a well drilled to explore for a new pool that is 1 — shallower than existing pro-

ductive pool, 2 — deeper than existing productive pools, or 3 — outside the known limits of presently producing pools, but within the same structural feature or other type of trap as the producing field.

3 — **Outpost (Extension) test:** An outpost (extension) test is a well drilled with the intention of extending the productive limit of a field. Such a well must be at least two well locations away from the nearest producing well in that field. A well location is determined by the well spacing commonly used in the area.

If you have any questions regarding this memo or future well determinations, please do not hesitate to contact Bill Ingram or Si Cordova for M.G. Mefferd, State Oil and Gas Supervisor.

Recommended Reading

JOURNALS/BULLETINS

Seismic velocity structure of the crust in the vicinity of the Morgan Hill, Calif., earthquake. By W. D. Mooney. Special Publication — California Division of Mines and Geology, v. 68, 1984. p. 123-136.

Depositional features of late Miocene, marine cross-bedded conglomerates, California. By R. L. Phillips. Canadian Society of Petroleum Geologists, v. 10, November 1984. p. 345-358.

Gas hydrates on the Northern California continental margin. By M. E. Field and K. A. Kvenvolden. Geology (Boulder), v. 13, no. 7 July 1985. P. 517-520.

Transport of clays in the eastern part of Santa Barbara Channel, California. By R. L. Kolpack and D. E. Drake. Geomarine Letters, v. 4, no. 3-4, 1985. p. 191-196.

—compiled by Louis Lopez
USGS, Los Angeles

FIELD TRIP GUIDE BOOKS

Lake Tahoe field trip Wednesday, November 7, 1984. Leader, D. E. White, and Joseph Lintz, Jr. Geoscience Inf. Society, October 1984. 15 p.

The Temblor Formation in the South Diablo and North Temblor Ranges, October 18, 1985. Leader, S. A. Gragam and Stanford Grad. students. Pacific Section, Society of Economic Paleontologists and Mineralogists annual fall field trip.

Pacific Section Guidebooks for Sale

POSTSCRIP SERIES

SV-1 Paleogene Submarine Canyons of the Sacramento Valley, Calif. (AAPG) 1984 — \$18.00

GUIDEBOOKS

GB 12 Geol. of the North Channel Islands & So. Calif. Borderlands (AAPG-SEPM) 1969 — \$11.00

- GB 17 Guidebook to the Southeastern Rim of the L.A. Basin (AAPG-SEPM-SEG) 1970 — \$4.00
- GB 28 A Profile of So. Calif. geol. & Seismicity of L.A. Basin (SEG) 1973 — \$4.00
- GB 29 Metropolitan Oilfields & Their Environmental Impact (AAPG-SEPM-SEG) 1973 — \$4.50
- GB 30 Imperial Valley Regional Geology & Geothermal Exploration (AAPG-SEPM-SEG) 1973 — \$4.00
- GB 31 Santa Barbara Channel Region Revisited (AAPG-SEPM-SEG) 1973 — \$3.00
- GB 32 Miocene Sedimentary Environment & Biofacies, S.E. L.A. Basin (SEPM) 1973 — \$5.00
- GB 37 Geology of Peninsular California (AAPG-SEPM) 1974 — \$10.00
- GB 39 Oil Fields of Whittier Fault Zone (AAPG-SEPM) 1975 — \$4.00
- GB 43 San Cayetano Fault Field Trip (AAPG) 1977 — \$5.00
- GB 44 Eocene Sedimentation & Paleocurrents, San Nicolas Island, CA (GSA) 1975 — \$2.00
- GB 46 Geologic Guide of the San Onofre Nuclear Generating Station & Adjacent Regions of Southern California (AAPG-SEPM-SEG) 1979 — \$10.00
- GB 48 Kern River Oil Field, Field Trip (AAPG-SEPM-SEG) 1980 — \$5.00
- GB 49 Geol. Guide, Topanga Group Central Santa Monica Mts., Calif. (AAPG) 1980 — \$3.00
- GB 50 Field Guide to the Mesozoic-Cenozoic Convergent Margin of Northern California (AAPG) 1981 — \$13.00
- GB 52 Guide to the Monterey Formation in California Coastal Areas, Ventura to San Luis Obispo (AAPG) 1981 — \$10.00
- GB 53 Geologic Guide of the Central Santa Clara Valley, Sespe and Oak Ridge Trend Oil Fields, Ventura Co., Calif. (CGS) 1982 — \$13.00
- GB 54 Miocene and Cretaceous Depositional Environments, North West Baja California, Mexico (AAPG) 1984 — \$10.00
- GB 55 San Andreas Fault — Cajon Pass to Wrightwood (AAPG) 1984 — \$12.00
- GB 56 South East San Joaquin Valley Field Trip, Kern County, Calif., Part 1 Overview (SJGS) 1985 — \$9.00

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Los Angeles

The following are abstracts from the co-winning papers in the student paper contest recently held by the Los Angeles Basin Geologic Society. Both winners are graduate students from the University of California system. **A. Edward Morland** author of **Fingerprinting A Middle Eocene Transgression: The Avenal Sandstone of Reef Ridge, Central California**, is from the Department of Earth and Space Sciences, UCLA, and **Mark R. Legg** author of **Structural Geology and Tectonics of the Continental Borderland Offshore Northwestern Baja California**, is from U.C. Santa Barbara.

FINGERPRINTING A MIDDLE EOCENE TRANSGRESSION: THE AVENAL SANDSTONE OF REEF RIDGE, CENTRAL CALIFORNIA

A. Edward Moreland

Lithofacies of the Avenal Formation serve as sensitive indicators of relative sealevel fluctuations within the middle Eocene San Joaquin basin. Additionally, the lateral facies trends of these units provide data necessary for first-order paleogeographic reconstructions.

The Avenal Sandstone of Reef Ridge (western San Joaquin valley, California) consists of 100-130m of fine-grained sandstone, with lesser amounts of coarser sand and conglomerate; mudstone is conspicuously lacking. The formation rests with angular discordance above Upper Cretaceous strata of the Panoche Formation. The 25-kilometer-long linear outcrop belt contains abundant bedding, textural, compositional, and sedimentary structural data by which facies delineations can be made.

The Avenal is divided here into five lithofacies, the boundaries between which are typically gradational. The lowermost unit, Facies 1, consists of 40m of planar-bedded and crossbedded sandstone, and lenticular, matrix-supported conglomerate. Crossbed foreset grouping, conglomerate fabric, and

the total lack of marine faunas suggest that this unit was deposited within the distal reaches of a low-sinuosity stream. Facies 2 is characterized by the preponderance of planar-bedded (laminated) sandstone. Also represented locally are low-angle truncation surfaces, single-layer-thick pebble stringers, clast-supported tabular conglomerate, and accumulations of marine molluscs. Deposition appears to have taken place in a nearshore environment, as a result of either outer-shelf zone or storm-wave processes. Facies 3 marks a transition from the dominance of physical sedimentary structures in Facies 1 and 2, to that of biogenic structures within the remaining facies. Facies 3 consists of approximately 10m of fine-grained, finely laminated and bioturbated sandstone; poor induration imparts a thickly bedded appearance to the unit. Graded beds and parallel-laminated-to-burrowed sequences characterize deposition by storms of moderate intensity, affecting the substrate at or below normal-wave base. Facies 4, locally the thickest of the Avenal facies (55m), is dominated by similar parallel-laminated-to-burrowed sequences. Concentrations of fossils and very local coarse-grained intervals are also present. An increase in bioturbation from Facies 3 suggests that the substrate was affected only by major storm events, probably seaward of the shorefaced-offshore transition zone (inner shelf; water depth: several tens of meters). Homogenized and rhythmically bedded sandy siltstone of Facies 5 define the upper most levels of the Avenal. Fine laminations within this unit may have developed as a result of deposition from a seaward-moving, sediment-laden plume crossing the outer shelf, whereas thicker, thoroughly bioturbated intervals may have originated in proximity to a greater supply of sediment.

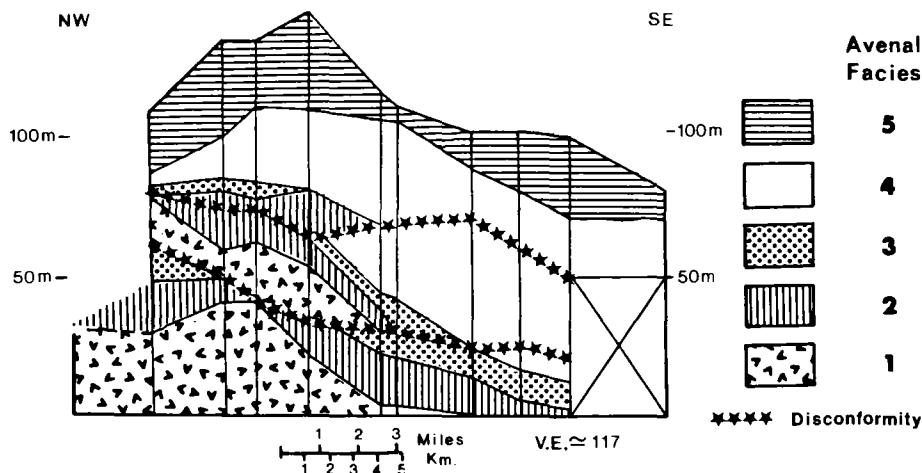
The Canoas Siltstone Member of the Kreyenhagen Formation, which conformably overlies the Avenal, is characterized by deposition at or below the shelf-slope break (middle bathyal depth: 500-1500m). Very slow rates of sediment accumulation are represented by a stratigraphically "compressed" calcareous nannoplankton zone distribution, as well as by the occurrence of a basal glauconite bed.

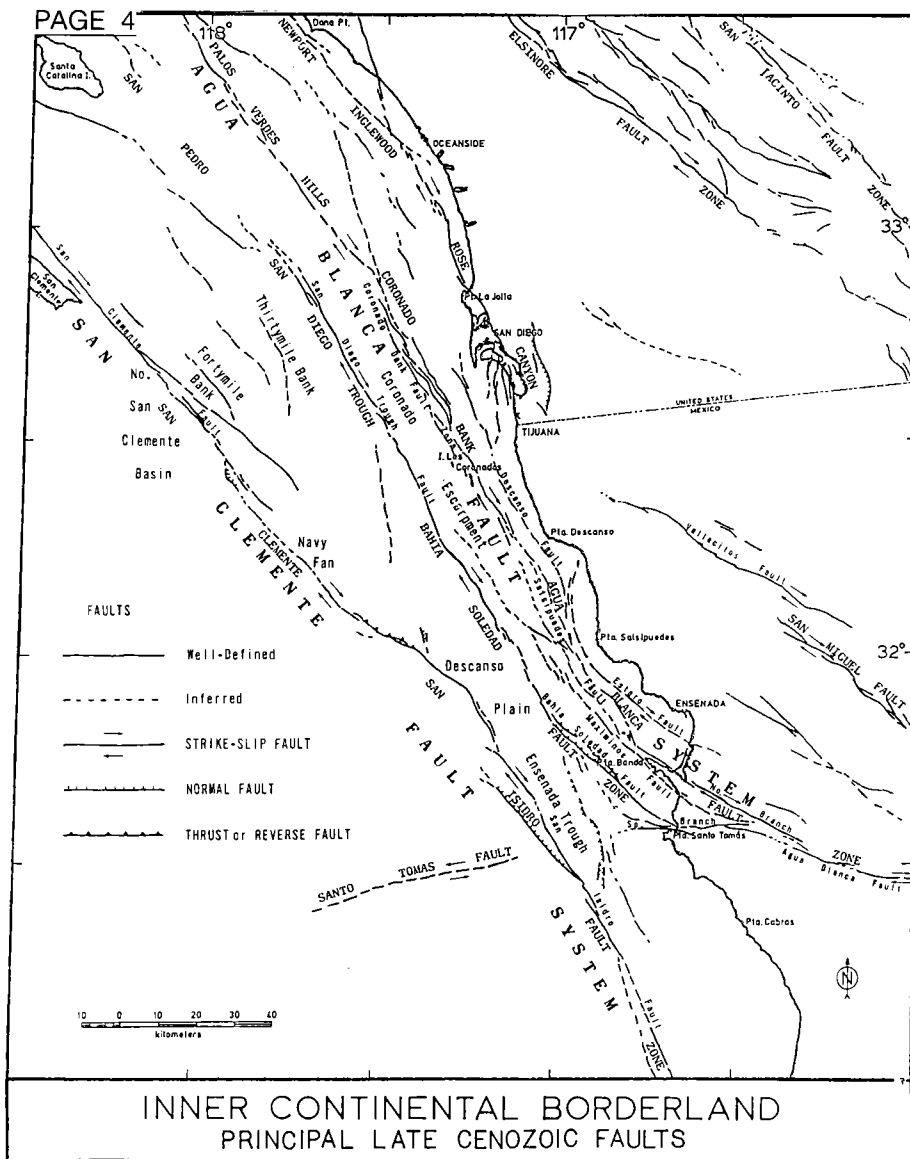
As the accompanying figure shows, overall vertical facies trends within the Reef Ridge Avenal suggest a gradual deepening of the western San Joaquin basin during Avenal time. The initiation of a basin-wide transgression (defined by the Avenal - Canoas - Kreyenhagen succession) correlates with similar events elsewhere along the western North American coast. Whereas some authors suggest that eustatic sealevel rise was solely responsible for the effect, the magnitude of the change in relative depth (non marine to bathyal) suggest that tectonism must have augmented subsidence during the period of global sealevel rise.

Minor fluctuations in relative sealevel are recorded in the Reef Ridge Avenal as intra-formational disconformities. Marked by facies juxtapositions and erosional surfaces, these features denote localized interruptions of the over-all transgressive trend; changes in depth of a few meters to a few tens of meters took place during a relatively brief timespan. Because of their localized distribution, these fluctuations appear to be the result of local variations in sediment supply, but they may be the consequence of local tectonism.

Generalized lateral facies trends of Avenal-equivalent strata suggest the dominance, through time, of nearshore and non-marine facies northwest of Reef Ridge, with units of progressively deeper-water origin present to the south and southeast (Reef Ridge: shelf; northern Temblor Range: outer shelf, slope). These occurrences suggest that an area of emergence existed to the west and northwest of Coalinga. The highlands, termed the "California continental borderland", apparently consisted of a discontinuous chain of islands, locally closely spaced, which shed detritus eastward and southeastward into a partially restricted San Joaquin basin. The southeastern edge of one of these islands was fringed by marginal-marine deposits, now exposed as the Alcalde Hills Domengine, whereas the Reef Ridge Avenal represents the down-slope (shelf) portion of the same depositional system.

The topographic expression, as well as the compositional make-up of the borderland chain, was related to the emplacement and presence of the Salinian block. Plate-boundary disturbance associated with this emplacement (along a proto-San Andreas fault) was apparently the driving force behind uplift and erosion of Cretaceous strata at the Alcalde Hills and Reef Ridge localities. Upon termination of emplacement, the Salinian-block uplift diminished, permitting such factors as eustatic sealevel rise to show a more pronounced effect on sedimentation. During Canoas - Kreyenhagen time, the transgression was enhanced by regional subsidence. Timing of this event coincides with the return to steeper, slower subduction of the Farallon plate, which brought an end to the Laramide orogeny.





STRUCTURAL GEOLOGY AND TECTONICS OF THE CONTINENTAL BORDERLAND OFFSHORE NORTHWESTERN BAJA CALIFORNIA

Mark R. Legg

Detailed marine geophysical surveys of the inner continental borderland west of northern Baja California indicate that the region is underlain by two major, northwest-trending, Quaternary, dextral wrench fault systems. High resolution seismic reflection profiles show faults which displace late Quaternary submarine fan and basin deposits, and unconsolidated surficial deposits of the continental shelf and slope. Seafloor relief evident along significant portions of the fault zones, including scarps (up to 1000 meters in elevation) suggest that dip-slip is locally important. Right-lateral shear is indicated by local convergence (folding and upthrusts) at left bends or more westerly trending portions of the main fault traces, and divergence (sagging and pull-aparts) along the more northerly trending or right stepping en echelon fault segments.

The San Clemente fault lies along the western part of the inner borderland, and is

delineated by the San Clemente and San Isidro fault zones. Together, these fault zones connect to form a long (<300 km), narrow (<5-10 km), continuous zone of faulting that is remarkably similar to the larger, San Andreas fault system onshore. Two major, northwest-trending segments of the principal fault zones are linked by a more westward-trending segment forming a major left bend with associated subparallel folds and upthrusts. The southern (San Isidro) fault zone trends 10° more northerly than the overall $N40^\circ W$ strike of the 'pure' strike-slip fault traces, and shows negative 'flower' or 'palm tree' structure in seismic profiles typical of divergent wrench faults. The northern (San Clemente) fault zone generally parallels the predicted North American-Pacific tectonic relative plate motion vector in this area ($N40^\circ W$) and appears to be a parallel wrench fault, although significant right steps are the loci of pull-aparts of various sizes.

The Agua Blanca fault system is a complex, northwest-trending zone of dextral shear, delineated by three (or more) subparallel wrench fault zones. The westernmost, San Diego Trough—Bahia Soledad fault zone,

consists of relatively long (≈ 50 km), continuous, main fault traces which cut the Quaternary sediments of the nearshore basin trough. The Coronado Bank-Agua Blanca fault zone is more complicated, with numerous discontinuous, subparallel, right- and left-stepping, anastomosing fault traces which are associated with significant structural relief. A nearshore zone of faulting, marked by the Newport-Inglewood-Rose Canyon fault zone in the north, and Estero-Descanso fault zone in the south, parallels the coast, and defines the eastern boundary of the southern California continental borderland structural province. All of these inner fault zones merge into the transpeninsular Agua Blanca fault, and their $N30^\circ W$ trend differs significantly from the trend of the major Peninsular Ranges faults. These offshore faults of the Agua Blanca system all appear to be parallel wrench faults, in general, even though their strike is more northerly than the predicted relative plate motion direction of simple shear.

Since the San Clemente fault system exhibits simple shear parallel to the predicted North American-Pacific plate motion, I conclude that it represents an active part of the Quaternary plate boundary in southern California. The numerous, active wrench fault zones with various orientations subparallel to the plate motion vector, throughout the southern California region suggest that southern California cannot be considered a rigid microplate, but instead a broad, dextral shear zone. However, because the San Isidro fault zone extends an undetermined distance southward, to the west of the Baja California peninsula, and shows late Quaternary movement along its entire mapped length (including modern seismicity), Baja California, south of the Agua Blanca fault, may be a narrow microplate or large fault sliver caught between the Gulf of California transform fault system and a subparallel, Baja California borderland wrench fault system.

Systematic variation of principal strain (and stress?) orientations across the inner borderland, from extension in the south to parallel wrenching offshore San Diego, and finally, convergence at the north is suggested to result from the general north-south convergence across the Transverse Ranges and the major left bend in the San Andreas fault system. This strain reorientation is manifest in the inner borderland by continued late Quaternary subsidences of the Ensenada Trough, while the San Diego Trough has ceased to subside. Since the main fault zones of the inner borderland parallel the axes of the nearshore basin troughs, it is suggested that these faults are reactivated along pre-existing structures that were probably associated with the formation of the borderland physiography during earlier stress regimes of possibly different orientation. Multiple subparallel fault zones simultaneously or intermittently active along a major plate boundary provide one mechanism of tectonic erosion and accretion that we may be observing at present in southern California, and its offshore borderland.

W.O.G.A. ANNUAL HI-JINKS PLANNED

The wildcats will present the 61st Annual Hi-Jinks at the world-famous Hollywood Palladium December 4th. This year's wildcat show, "Tale of Two Cities", is an evening designed to amply entertain members of the production, supply, and service sectors of the oil industry plus their friends and allies.

The Hi-Jinks is an evening of songs, skits, music, topical poems, and parodies. The \$50.00/person admission price includes: a steak dinner, complimentary cocktail, tax and tip.

Chairman, Lee McFarland suggests that reservations be made early. For reservations send your check to:

Wildcat Committee of
Western Oil & Gas Association
727 West Sevent St., Suite 850
Los Angeles, CA 90017
Attention: Joseph A. Stransky

Navarin and Norton Sound Drilling To Halt

A San Francisco appeals court has ordered drilling in these two basins to halt in 1986. The Court overturned an Alaskan court's ruling that allowed federal off-shore lease sales in the two basins to proceed despite claims by native groups that drilling would threaten their subsistence lifestyles.

The appeals court upheld the native groups' claims that the federal government failed to take proper account of their concerns. Drilling will be prohibited until that case is settled.

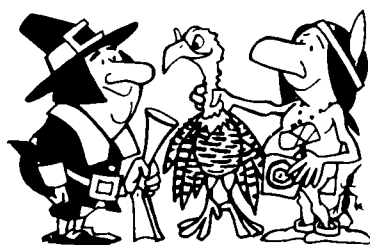
It's uncertain, however, whether drilling would continue if it were allowed since no discoveries have been reported in these areas.

Operators have plugged 10 apparent dry holes in the basins. Early indications are that Norton Sound has been all but written off, with only two Exxon Corp. permits in effect there but no plans on tap by any operator.

In Navarin basin, Amoco Production Co. expects to finish its fourth test, 1 Misha, by this winter, and Exxon is still active on its Navarin Redwood prospect wildcat. Amoco has permits for three more tests.

Meanwhile ARCO Alaska Inc. recently plugged its latest wildcat in the Navarin, the 1 Packard, drilled to 13,741 ft. about 300 miles west of St. Paul Island. ARCO said it doesn't plan a second well in the Navarin this year or next.

HAPPY THANKSGIVING



Cook Inlet Crude Exports Approved

The Reagan administration will permit export of Alaskan Cook Inlet crude to the Far East.

Commerce Sec. Malcolm Baldrige last week said the state of Alaska's 6,000 b/d share of production can be exported when sales are arranged and licenses are issued. Oil companies also can export their 54,000 b/d of output.

The administrative action does not permit exports of Alaskan North Slope crude, which are inhibited by several laws. Those laws would have to be changed by Congress, which last session specifically declined to do so.

Baldrige said the crude exports will help reduce the U.S. trade imbalance with Japan if exports go there. Korean firms also are interested in buying Alaskan oil.

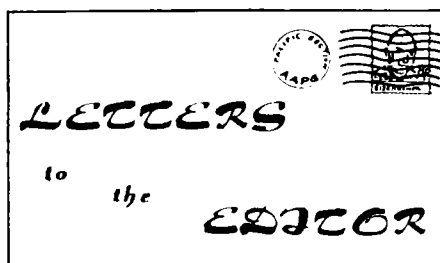
The administration announced the new policy after talks between President Reagan and Prime Minister Yasuhiro Nakasone of Japan during ceremonies in New York City marking the 40th anniversary of the United Nations.

Reagan also urged Nakasone to facilitate Japan's purchase of more U.S. coal.

Alaska Sens. Frank Murkowski and Ted Stephens, both Republicans, have been pressing for changes in federal policy to permit exports of North Slope and Cook Inlet crude.

Moving Alaskan crude to Asia in large foreign-flag tankers is cheaper than moving it to U.S. ports in smaller U.S. flag ships, and the producers' larger netbacks would result in more tax revenue for the state.

—From Nov. 4, O&GJ.



As is clearly evident in the following excerpted letter, typographical errors can be humorous. My thanks to Patrick C. Haley for his careful reading and letter.

The Editor

Dear Editor,

I am certain that you should receive comment similar to this but perhaps not. Anyway, I suspect that there is an error in your June/July 1985 issue in the "Historic Happenings for June and July" where you note that **Darwin's evolution theory presented to the Linnean Society of London**. I should think that it was presented to the **Linnean Society** who, although somewhat rigid in their thinking were, I am sure, an equally **straight** bunch of guys as those in the Linnean Society.

Sincerely,
Patrick C. Haley

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San Joaquin

The San Joaquin Geologic Society will have Jack R. Sheehan, Consultant, as its final speaker this year. Jack's topic for the Tuesday, December 10th meeting, will be TECTONIC EVOLUTION OF THE TRANSVERSE RANGES OF SOUTHERN CALIFORNIA.

Contact Herman Schymiczek for reservations at (805) 399-2961 Ext. 2256.

Circum-Pacific Maps Available

MINERAL-RESOURCES MAP OF THE CIRCUM-PACIFIC REGION, NORTH-EAST QUADRANT, by P. W. Guild, D. Z. Piper, and others. American Association of Petroleum Geologists (1984), scale 1:10,000,000.

GEODYNAMIC MAP OF THE CIRCUM-PACIFIC REGION, NORTHEAST QUADRANT, by K. J. Drummond (chairman) and others. American Association of Petroleum Geologists (1984), scale 1:10,000,000.

PRELIMINARY TECTONOSTRATIGRAPHIC TERRANE MAP OF THE CIRCUM-PACIFIC REGION, by D. G. Howell and others. American Association of Petroleum Geologists (1985), scale 1:17,000,000.

PLATE-TECTONIC MAP OF THE CIRCUM-PACIFIC REGION, PACIFIC BASIN SHEET, by G. W. Moore, and others. Circum-Pacific Council for Energy and Mineral Resources (1985), scale 1:17,000,000.

These maps may be purchased from:

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for \$12.00 each (domestic) plus \$3.00 for handling.

New Members

STEVE G. APPLETON, Epoch Well Logging, Bakersfield; JEFFERY L. BALDWIN, Welx, Norwalk; MICHAEL D. CAMPBELL, Chevron, Bakersfield; MICHAEL C. DANIELS, and G. M. FLAHERTY, Chevron, Ventura; MIGUEL GARCIA, Jr., Geological Explorations, Carpinteria; JEFFERY L. GRABLE, Welx, Ventura; DAVID L. HANSON, Riverside; WILLIAM DAVID JOHNSON, Port Hueneme; JOE KLEMZ, Celeron, Santa Barbara; EDWARD J. KODL, Bakersfield; A. T. McCARROLL, Santa Fe Energy, Bakersfield; ANN K. MILLAGE, Minerals Management Service, Los Angeles; KRISTI MORRISON, Chevron, Ventura; JAMES P. SALISBURY, San Marino; R. KUMBE SANDLER, Chevron, Ventura; DALE M. STICKNEY, Sacramento.

Recent Moves

DAVID E. OLSON from Nahama & Weagant to Consulting in Bakersfield, (805) 834-5658; KATHY KRETZLER-MOSES from ARCO to Texaco, Bakersfield; RAY S. MCCOY from Exlog to RSM Associates, Sacramento; DOUGLAS SEEDOAF from Gulf to Texaco Exploration, Bakersfield; BRUCE I. CLERDY from SOHIO California to Exploration Operations Manager, SOHIO Dallas; MIKE HENRY has relocated Henry Geological Consultants to 822 Portsmouth Ct., San Diego, CA 93389. The new phone number is 619-488-3437.

**PPG DEADLINE
for DEC./JAN. ISSUE
DECEMBER 20**

KERN RIVER FIELD COGEN. PLANT OPENS

California's largest cogeneration facility was dedicated October 7 by state, Southern California Edison and Texaco officials.

The \$150 million facility is operated by Kern River Cogeneration Company (KRCC), a joint venture formed by subsidiaries of Southern California Edison Company and Texaco Inc. The project is located five miles northeast of Bakersfield, near the center of the Kern River Oil Field.

The facility, designated the Omar Hill Project, is an electric and steam generating plant which utilizes the concept of cogeneration — the sequential production of thermal and electrical energy from a single fuel source. This fuel source, natural gas, drives four combustion turbines, generating up to 300 megawatts of electricity. The hot exhaust gases from these turbines is then sent through heat recovery steam generators to produce as much as 1.7 million pounds per hour of steam for use in oil recovery operations.

The steam is injected to depths ranging from 600 to 1,600 feet to mobilize the heavy crude in the Kern River fields. The project will enable Texaco to idle approximately 40 less-efficient, direct oil-fired steam generators in the 10-square-mile oil field, thus saving an additional 6,500 barrels of oil daily for more beneficial uses.

In addition to the power normally required for the oil field operations, the KRCC facility will deliver in excess of 200 megawatts of power to Edison customers in Central and Southern California, enough to serve a community of 200,000 people.

Editors note: Stories like this are usually not reported in these pages because they are more appropriate for engineering publications. However, the editor felt that a project which lowers the cost of enhanced oil production, and thereby the overall economics of such projects, would ultimately have a positive impact upon petroleum geologists.

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NEWSLETTER of the Pacific Section — American Association Petroleum Geologists is published bimonthly by the Pacific Section.

Material for publication, requests for previous copies and communications about advertising costs should be addressed to RUSS H. ROBINSON, P.O. BOX 10561, BAKERSFIELD, CA 93389.

CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP SECRETARY, PACIFIC SECTION AAPG, P.O. BOX 1072, BAKERSFIELD, CALIFORNIA 93302.

PUBLICATIONS COMMITTEE: Pacific Section American Association of Petroleum Geologists, 3600 S. Harbor Blvd., Box 198, Oxnard, CA 93030.

PG&E To Acquire PGT

Pacific Gas & Electric Co., San Francisco, will acquire all of the outstanding common stock of Pacific Gas Transmission Co. under an agreement to make PGT a wholly owned unit of PG&E. PG&E currently owns 50.2% of outstanding PGT shares, and will acquire 4,648,454 shares of PGT common stock in exchange for PG&E common stock. The transaction is expected to take place about April 1986.

—From O&GJ, Nov. 4.

NEWSLETTER

Pacific Section A.A.P.G.

P.O. Box 1072

Bakersfield, California 93302

FIRST
CLASS



PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

DECEMBER 1985/JANUARY 1986 NO. 1

President's Corner

The Executive Committee has authorized pre-convention sales of the 62-year HISTORY VOLUME of the Pacific Section, to help pay the printing costs, so as not to touch any of the allotted funds of the Section.

Those of you buying the Pre-Convention copies will know all about the activities of the Executive Committee before arriving in Bakersfield at the Red Lion Inn for our Annual Convention.

Our annual meeting is scheduled to be held on Thursday, April 17, at 6:00 p.m., in the Red Lion Inn. We trust you, Dear Member, will be present to ratify actions taken by your Executive Committee during these past months.

Success in the oil business comes from anticipating the unexpected — and maintaining the flexibility to survive it.

Courtesy Oil & Gas Journal

Historic Happenings for December and January

DECEMBER

- 27. H.M.S. Beagle set sail on five year, 40,000 mile survey trip — 1831.
- 27. Organizational meeting, GSA — 1888.
- 31. End of International Geophysical Year — 1958.

JANUARY

- 7. First meeting Southwest Assoc. Petroleum Geologists (Forerunner AAPG) — 1916.
- 9. Fort Tejon intensity XI earthquake — 1857.
- 10. Spindletop, Texas discovered (Fostered beginnings of Gulf, Texaco, and Humble, now Exxon Oil Companies) — 1901.
- 23. New Madrid, Missouri earthquake (Largest in recorded history of North America) — 1812.

**PPG DEADLINE
for FEB./MAR. ISSUE
FEBRUARY 20**

Pacific Section Miscellaneous Papers Sale

- MP 8 A Symposium of Papers Presented at the 40th Pacific Section AAPG Convention (AAPG) 1965 — \$3.00
- MP 11 Proceedings of No. Slope Seminar, Palo Alto, Calif. (AAPG-NCGS) 1970 — \$10.00
- MP 13 Program Preprints, 1972 Annual Meeting, AAPG, SEPM, Pac. Sec. — \$5.00
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- MP 21 Geol. Map of San Emigido & W. Tehachapi Mtns., Kern Co., CA 1973 — \$2.00
- MP 28 Petroleum Exploration, Economics & Risk Evaluation (SJGS) 1978 — \$5.00
- MP 29 Criteria in Correlation: Relevant Principles of Science (AAPG-SEPM) 1979 \$5.00
- MP 30 Selected Papers Presented to the San Joaquin Geol.Soc. Vol. 5, 1980 — \$5.00
- MP 33 Preprints, 1980 Annual Meeting AAPG-SEPM-SEG Pacific Section — \$8.00
- MP 34 Forty Years, The Education of a Geologist, Thomas A. Baldwin (LABGS-AAPG) 1982 — \$10.00
- MP 35 Selected Papers Presented to the San Joaquin Geol. Soc., Vol 6, (SJGS) 1984 — \$7.00
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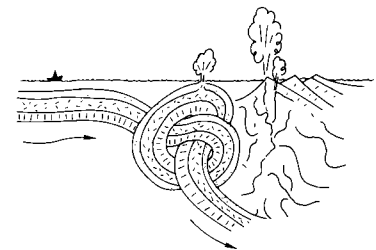
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IN MEMORIAM

Lawrence Fredrick Hurst 1931 — 1985

Larry Hurst died on August 2, after a nine-month illness due to asbestos-related cancer. He graduated with a Geology degree from UCLA in 1958, after serving in the U. S. Navy, and spent the majority of his career well-logging, primarily in California. Since he worked on hundreds of wells in our area, I'm sure that many of you personally observed Larry's diligent work, wit and unique sense of humor. He has left me with many happy memories of our association. Survivors are his wife, Sharon; daughter, Christa, and teen-age son, Kevin. Due to the extraordinary expenses incurred during the illness, I invite members to join his friends by donating to an education fund for his son, to be administered by Don Padick, through the Pac-Section Treasurer. Please send checks to **AAPG — PAC-SECTION TREASURER, P. O. BOX 1072, BAKERSFIELD, CA 93302, MADE OUT TO DON PADICK (MEMO: KEVIN HURST EDUCATION FUND).**

DON PADICK



The complexity of active margins may not as yet be fully appreciated by earth scientists.

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PAC. SECTION AAPG**MEMBERSHIP REPORT****AS OF DECEMBER 31, 1985****NORTHERN CALIFORNIA
GEOLOGICAL SOCIETY**

ACTIVE (GA-SF)	118
SUBSCRIBER (GS-SF)	23
HONORARY (GA-SF-HON)	3
	<u>144</u>
Total Paid	141

**SACRAMENTO PETROLEUM
ASSOCIATION**

ACTIVE (GA-SC)	40
SUBSCRIBER (GS-SC)	17
	<u>57</u>
Total paid	57

**SAN JOAQUIN
GEOLOGICAL SOCIETY**

ACTIVE (FA)	229
SUBSCRIBER (FS)	78
HONORARY (FA-HON)	3
	<u>310</u>
Total paid	307

COAST GEOLOGICAL SOCIETY

ACTIVE (EA)	162
SUBSCRIBER (ES)	30
HONORARY (EA-HON)	2
	<u>194</u>
Total paid	192

**LOS ANGELES BASIN
GEOLOGICAL SOCIETY**

ACTIVE (DA)	254
SUBSCRIBER (DS)	60
HONORARY (DA-HON)	12
	<u>326</u>
Total paid	314

**NORTHWEST PETROLEUM
ASSOCIATION**

ACTIVE (BA-NW)	25
SUBSCRIBER (BS-NW)	17
	<u>42</u>
Total paid	42

ALASKA GEOLOGICAL SOCIETY

ACTIVE (BA-AK)	26
SUBSCRIBER (BS-AK)	3
	<u>29</u>
Total paid	29

OTHERS

ACTIVE (BA-OS)	4
(BS-US)	153
SUBSCRIBER (BA-OS)	3
(BS-US)	9
	<u>169</u>
Total paid	169

GRAND TOTAL MEMBERSHIP . 1271**TOTAL PAID MEMBERSHIP 1251**

IN MEMORIAM

JOHN FRANKLIN CURRAN

1917 - 1985

John Franklin Curran passed away on Friday, December 6, at the Cottage Hospital in Santa Barbara. Although John had been ill for some time, he continued to work diligently up until the day he entered the hospital on December 1, 1985.

John Curran was born in Los Angeles, California, on February 13, 1917, thus commencing a parade of thirteens which followed him throughout his life. He graduated from high school on June 13, 1934. He received his Bachelor's Degree from Stanford University on January 13, 1941. He was commissioned in the U. S. Navy on April 13, 1941, and, at his own request, was granted California Registered Geologist certificate No. 13, although his position on the first geologist's Board at that time would have entitled him to a lower number.

After receiving his Master's Degree from Stanford University in 1943 and a three-year hitch for the U. S. Navy, part of which was spent in the southwestern Pacific, John commenced his geological career in June of 1946 when he went to work for General Petroleum in Los Angeles. General Petroleum was the predecessor on the Pacific Coast of what is now known as Mobil Oil Company. John worked for General Petroleum from 1946 until 1952, having been transferred to Ventura in February of 1947. It was during his stint in Ventura at a large Shell Oil Company core party that John posed the question as to why there was no local organization of geologists to meet for educational and recreational purposes. The result of this inquiry and a tremendous amount of single-handed effort on John's part was the founding of the Coast Geological Society, which held its first meeting in 1948 in the Presidio Restaurant in Santa Barbara, with a total of 45 people in attendance. This may have been one of John's first, but certainly not his last successful efforts at organization.

In January of 1952, John joined Honolulu Oil Company and moved to Santa Barbara. Since the dissolution of Honolulu in 1959, John was a consultant in Santa Barbara.

He was married in 1943 to Beverly Jane McKenzie of the Stanford Class of 1942. Beverly passed away in 1977.

They are survived by their children, John Franklin Curran III of Sunnymede, California, Douglas Eilert Curran and Linda Merts Grant of Santa Barbara, and Nancy McKenzie Holloway of Goleta; two brothers, Bill Coursen of Altadena, California, and Henry Coursen of Fallbrook, California; three grandchildren and several nieces and nephews.

John served as a member of the first California State Board of Registration for Geologists and Geophysicists from April 1969 to July 1976.

John has served the American Association of Petroleum Geologists since 1942 in numerous committees and other positions, including President of the Pacific Section from 1970 to '71.

John was always ready, willing and able to help out at any project which came along, most of the time completely unheralded. Many of the things which happened and appeared to float by like a gossamer on the breeze owed their existence to the efforts of John Curran. As an illustration of John Curran's stability and steadfastness, it can be noted that he lived thirty-one years in the same house. Not many geologists can attest to that degree of permanency.

John was a member of the American Association of Petroleum Geologists, the American Institute of Professional Geologists, a Fellow of the Geological Society of America, a member of the Society of Petroleum Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers, a Fellow in the American Association for the Advancement of Science, a Founder of the Coast Geological Society, a member of the Society of Economic Geologists and Paleontologists, a member of the California Academy of Sciences and the American Geological Institute, and at the time of his death was the President and Founding Member of the Thomas Wilson Dibblee, Jr. Geological Foundation, which was founded to finance the publication of the many unpublished quadrangle maps which have been made by Tom Dibblee.

John was "totally convinced that geologists in general and petroleum geologists in particular are the best people anywhere. They are very real people who seem to have more fun than anybody — both while at their work and while relaxing." John will certainly be missed in geological circles in California and throughout the world.

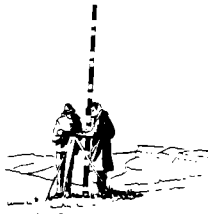
Following a memorial service on December 15, 1985, John's ashes were scattered over the Santa Ynez Mountains in which he had spent much of his professional life.

Those who wish may make contributions in John's honor to the Thomas Wilson Dibblee, Jr. Geological Foundation at 1010 Mission Canyon Road, Santa Barbara, California 93105.

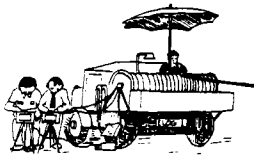
— H. H. NEEL

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History of Pacific Section AAPG, P.H. Gardner (Reprinted from June & August 1948 issues of P.P.G.)

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1947 - Martin Van Couvering, by Lucy E. Birdsall

1948 - William P. Winham, by Lucy E. Birdsall

1949 - Clifton Johnson, by John E. Kilkenny

1950 - Bill Pemberton, by Lucy E. Birdsall

1951 - Frank Carter, by Lucy E. Birdsall

1952 - Homer Steiny, by Harold Sullwold

1953 - Russell Simonson

1954 - Harold Rader, by George H. Feister

1955 - Ben C. Lupon, by J.D. "Doug" Traxler

1956 - Mason Hill

1957 - Harvey W. Lee

1958 - Ulysses Simpson Grant, by T.A. Baldwin

1959 - John T. Isberg

1960 - Thomas A. Baldwin

1961-1962 - Irv Schwade, by Richard Hester

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1965-1966 - Eugene R. Orwig

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1968-1969 - Louis Simon, by Richard Hester

1969-1970 - J.D. "Doug" Traxler

1970-1971 - John F. Curran

1971-1972 - Richard L. Hester

1972-1973 - Arthur O. Spaulding

1973-1974 - Kempton B. "Pete" Hall

1974-1975 - William J. Hunter

1975-1976 - Wesley G. Bruer

1976-1977 - Eugene F. "Bud" Reid

1977-1978 - Vern Jones

1978-1979 - Robert N. Hacker

1979-1980 - Stanford Eschner

1980-1981 - Thomas L. Wright, by Donald E. Hallinger

1981-1982 - John A. Carver, by Donald E. Hallinger

1982-1983 - Ted Off

1983-1984 - James R. Weddle

1984-1985 - Ed Karp

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Cuvama Valley Oil: A Lucky and Humbling Discovery - Mason R. Hill

A Brief History of Exploration in the Sacramento Valley - William A. Edmondson

Exploration in the Greater Salinas Valley - Ed Gribi

Pioneering California Offshore Exploration - Joe LeConte

Commercial Gas in Oregon - Wesley G. Bruer

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Some Yarns and memories of the Pacific Coast Oil Patch - William R. Moran

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Scateur de Boue - Richard L. Hester

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Members of the Pacific Section who are Recipients of National Association Awards.

Sidney Powers Memorial Medalists

Honorary Membership

Human Needs Award

Public Service Award

Distinguished Service Award

President's Award

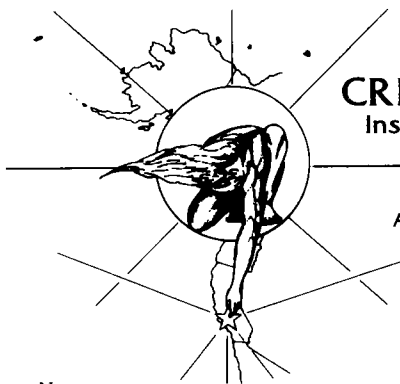
A. I. Levorsen Memorial Award

Presidents of the National Association from the Pacific Section

Constitution of the Pacific Section of the American Association of Petroleum Geologists

Bibliography

Sales at the Convention will be \$12.00



CREATIVE ENERGY:
Inspiration & Development

Bakersfield 86
AAPG. SEPM. & SEG pacific section
61st annual meeting
april 16-19

Editors Note:

Listed below are the speakers and their topics, organized by session or symposium, for the 1986 Pacific Section Convention.

AAPG EASTSIDE SAN JOAQUIN VALLEY SYMPOSIUM

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Tectonic Evolution of the Bakersfield Arch. Kern Co., California.
- NICHOLSON, G.
Compression and Deformation on the East side of the San Joaquin Valley.
- WARNE, A. H.
The Subsurface Edison Fault.
- DUDLEY, J. T.
Prospecting on the East Side San Joaquin Valley — A Case History.
- CONDON, M. W.
Vedder Production from the Kern River Field: Light Oil from a Heavy Oil Super Giant.
- HIRST, B. M.
The Influence of Early Miocene Tectonism on Miocene Deposystems, Tejon Area, Kern County, California.
- LINK, M. H., et. al.
Geologic Description of the Upper Miocene Chanac and Lower Pliocene Etchegoin Formations, Part I — Depositional Environments, Reservoir Characteristics, and Petrology, Kern Front Field, California.
- LONG, W. T.
Geologic Description of the Upper Miocene Chanac and Lower Pliocene Etchegoin Formations, Part II — Its Implications toward Enhanced Oil Recovery, Kern Front Field, California.
- DOWDALL, J. K.
North Kern Front Field — Development History and Thermal Recovery from the Chanac and Etchegoin sands.
- DIBBLEE, T. W., Jr., et. al.
Inferred relation of the Miocene Bealville Fanglomerate to the Edison fault, Caliente Canyon area, Kern County, California.

- REID, S. A.
Late Cretaceous and Paleogene Sedimentation along the East Side of the San Joaquin Basin, California.
- DEAN, James S.
Depositional Model for the Submarine Fan Deposits of the Vedder Sandstone, Eastern San Joaquin Basin.
- BLOCH, Roger B.
Ramp-Style Deposition of the Oligocene Marine Vedder Formation, San Joaquin Valley, California.
- OLSON, H. C.
Paleoenvironment and Depositional Environment of the Miocene Olcese Sand, Bakersfield, California.

AAPG LOG SESSION

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- BALDWIN, J. L., et. al.
Subsurface Facies Identification from User-Directed Computer Processing of Log and Other Data.
- MULHERN, M.
Breakthroughs in Delineating Fractures and Sedimentary Features Using Dipmeter Processing and Formation Imaging, With California Examples.
- BALDWIN, J. L., et. al.
Probability Function for Fracture Predictions from Well Log and Other Data.
- OLSON, D. M.
Calibration of Log and Core Saturation Data: Case History From the San Ardo Field.
- MULHERN, M. E., et. al.
Characterization of Nonmarine and Shallow Marine Sediments Using Electrofacies and Advanced Volumetric Methods, Eastside San Joaquin Valley.
- BALDWIN, J. L.
Pulsed Neutron Log Applications in California — Improved Capability Via Borehole Decay Correction.

AAPG OPEN SESSION

- IVANHOE, L. F.
Scavenger Oil Production and Reserve Ratios.

ROEHL, P. O.

Diagenetic Hydrocarbons — Anatomical and Geochronological Clues in the Developmental History of Petroleum Reservoirs.

SHARIFF, Asghar J.

An Approach for Determining the Drainage Boundary of the Wells Producing from Low Permeability Sandstone Reservoirs.

BROOKS, A., et. al.

Realtime Formation Evaluation Using a Well-Site Data Management System to Integrate MWD, Surface Measurements and Enhanced Mud Logging Data.

GALANIS, S. P., Jr.

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CLARKE, D. D., et. al.

Creative Use of Computer Software Greatly Improves Geological Results.

LANKFORD, S. M., et. al.

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- TELLEEN, K. E.
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Maturation Anomalies in Cretaceous Sediments Underlying Volcanic Plateaus in Oregon.
- KOENEN, K. H.
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- GRADY, M. T.
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- SEELING, A.
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ROUSH, K. A., et. al.

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WILSON, M. J., et. al.

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Lacustrine Gas In California.

RENTSCHLER, Mark S.

A Transpressional Piggyback Basin In the
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CARLOS, A., et. al.

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Monterey Formation, Newport Bay,
CA.

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Eocene Marine to Nonmarine (Deltaic) De-
posits, Lower Piru Creek, Los
Angeles and Ventura Counties,
California.

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A New Occurrence of Lower Eocene
("Capay Stage") Strata, Lower Piru
Creek, Topatopa Mountains, South-
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Trace Fossils in Diatomaceous Strata of the
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Character and Implications.

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Evidence for a Late Oligocene-Early
Miocene episode of transtension along
the San Andreas Fault System in Cen-
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WEAVER, J. C.

Lower to Middle Miocene foraminifera
from Graves Creek, San Luis Obispo
County, CA.

LUCAS-CLARK, J.

Age and Environmental Interpretation of
mid-Cretaceous Dinoflagellate as-
semblages from the Central Belt Fran-
ciscan and Great Valley Sequence
Outliers, northern California Coast
Ranges.

SPIRA, M. O.

Calcite Veins in the Northeastern Puente
Hills, Southern California.

KRAEMER, K.

Morphology and Acoustic Characteristics
of late Quaternary Fan Growth of the
Conception Fan, Santa Barbara
Basin, California.

HOLLANDER, D., et. al.

Comparative Study of Cenozoic Organic
Rich Basinal Mudstones and Shale of
the La Honda Basin, Santa Cruz
County, CA.

SEPM CRETACEOUS SYMPOSIUM

NILSEN, T. H.

Regional Overview of Cretaceous
Paleogeography of Western North
America.

SAUL, L. R.

Pacific West Coast Cretaceous Molluscan-
Faunas: Time and Aspect of Changes.

BOLES, J. R.

Summary of Mesozoic Sedimentary Rocks
and Depositional Facies, Vizcaino-
Cedros Area, Baja California,
Mexico.

ABBOTT, Patrick L.

Latest Cretaceous Sedimentation on the
Peninsular Ranges block.

DICKINSON, W. R., et. al.

The Bisbee Basin and its Bearing on Late
Mesozoic Paleogeographic and
Paleotectonic Relations Between the
Cordilleran and Caribbean Regions.

PROVONE, Karen Grove

Depositional Environments of Cretaceous
Strata on the Salinian Terrane, Cen-
tral California.

ALMGREN, A. A.

Benthonic Foraminiferal Zonation and
Correlation of Late Cretaceous Strata
in the Great Valley of California —
A Modification.

MOXON, Ian W.

Subsidence History of the Great Valley:
Forearc Basin Evolution During the
Laramide Orogeny.

GASTIL, R. G.

The Cretaceous Paleogeography of Penin-
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HICKEY, J. J.

Paleogeographic Implications of the Facies
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California Sur.

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Evolution of Subsidence Styles in a
Forearc Basin: An Example from the
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FRANCISCO, Suarez-Vidal

The Alisitos Fm. Calcareous Facies, an
Early Cretaceous Episode of Tectonic
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Coarse Grained Volcaniclastic Sediments
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ous Volcanism, Alisitos Group, Baja
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A Submarine Canyon in a Forearc Basin,
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DUARTE, M. A. T., et. al.

Paleoenvironmental Interpretation of a
Section of the Rosario Formation in
Ensenada, Baja California, Mexico.

DEL CORRAL, EDUARDO, et. al.

Analysis of Syngenetic Structures Present
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Stratigraphy of the Redding Formation of
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on Late Cretaceous Paleogeography.

RUSSELL, John S., et. al.

Paleogeography of Late Cretaceous Clastic
Shelf Deposits, Northeastern Sac-
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Source Rock Potential of the Franciscan
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A New Petrofacies In The Upper Cretace-
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The Modern California Current System and Radiolarian Responses to "Normal" (anti-El Niño) Conditions.
- CARSON, T.
Radiolarian Responses to the 1983 California El Niño current.
- CLEVELAND, M. N., et. al.
Radiolarian Indices of Physical and Chemical Oceanographic Phenomena in Recent Sediments of the Southern California Continental Borderland.
- WEINHEIMER, A. L.
Radiolarian Indicators of El Niño and Anti-El Niño Events in the Recent Sediments of the Santa Barbara Basin.
- DRISKILL, L. E.
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Phaeodarian Radiolarians as Potential Indicators of Thermal Maturation.
- MURNANE, Richard J.
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- NELSON, C. O., et. al.
Siliceous Microfossil Extraction from Altered Monterey Rocks.
- BARRON, John A.
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- NAVARETTE, R. J., et. al.
Neogene Diatom and Silicoflagellate Biostratigraphy of Naples Beach, California.
- ARENDS, R. G., et. al.
Biostratigraphy and Paleoecology of the Naples Bluff Coastal Section from Diatoms and Benthic Foraminifers.
- WORNARDT, W. W.
Diatom Biostratigraphy from Dolomites in the Monterey Formation, Rodeo Canyon to Point Pedernales, Southwestern Santa Barbara County, California.
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Paleoceanographic Reconstruction from Radiolarian-Bearing Baja California and Adjacent Sections.
- NELSON, C. O.
Radiolarian Paleoceanographic Studies of the Humboldt Basin and Adjacent Areas.

- DOMACK, C. R.
Reconstruction of the California Current at 5, 8, and 10 Million Years B.P. Using Radiolarian Indicators.
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Zoogeography, Paleozoogeography, and Evolution of the Radiolarian Genus *Spongaster* in the North Pacific.

SEPM SACRAMENTO VALLEY SESSION

- TROSPER, E. J., et. al.
Foraminiferal Taphonomy — Examples from the Upper Cretaceous Forbes Formation.
- MOSER, J., et. al.
Electrofacies- and Dipmeter-Aided Modeling of Forbes Formation, Sacramento Valley.
- VIELLENAVE, J., et. al.
Sal-gas Fingerprinting of Forbes gas, Northern Sacramento, CA.
- FISCHER, P. J., et. al.
Evolution of Paleogene Submarine Canyon Fan Systems, Sacramento Basin, CA.
- RIDER, Jonathan
Reconstruction of the Submarine Canyon Systems Associated with the "Proto-Stockton Arch" During Late Cretaceous Time...Conjectural Paleogeography Based on Accessible Information.
- CHERVEN, V. R., et. al.
Reservoir Geometry and Trapping Mechanisms, Lindsey Slough Gas Field, Southern Sacramento Basin, CA.
- SHARIFF, Asghar J.
Geology and Paleoenvironment of the Bunker Gas Field, Solano County, Ca.
- ROUSH, K. A.
Depositional Environments of the Early to Middle Eocene Domengine Formation of the southern Diablo Range, Fresno County, CA.
- FISCHER, P. J.
Core Description and Analysis Using X-Radiography and Cat Scanning: Examples from the S. Sacramento and San Joaquin Basins, CA.

SEG SOCIETY OF EXPLORATION GEOPHYSICISTS

- HOLLIS, D. D., et. al.
Comparison Between GEOCOR IV SIGN-BIT™ and DFS-V 16-Bit Floating Point Recording Systems.

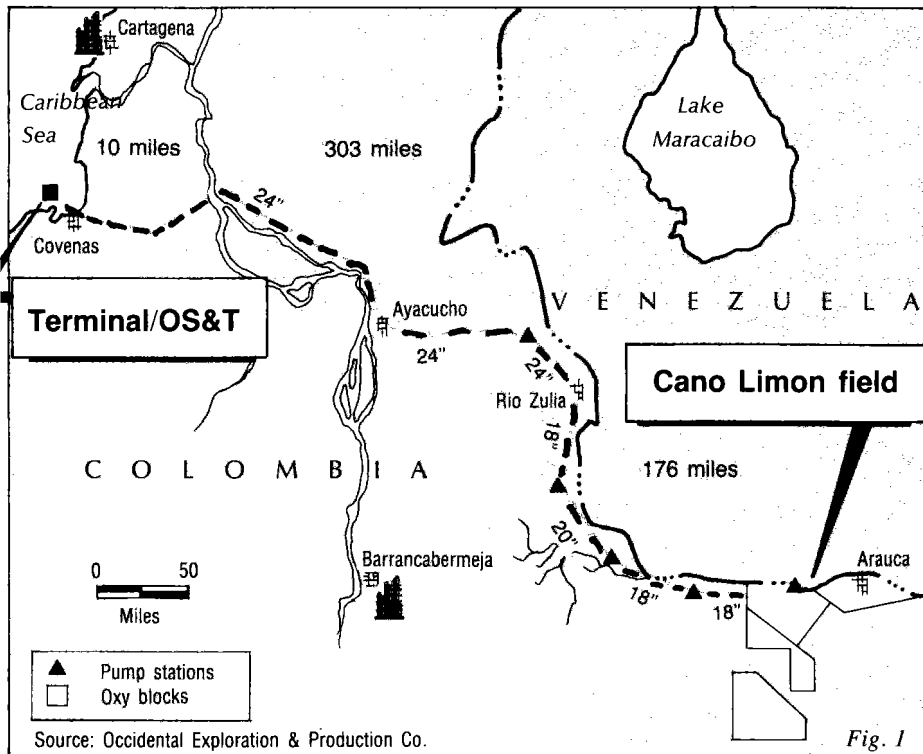
- BROWN, Richard A., et. al.
Pitfalls in Seismic Amplitude vs. Offset Analysis — Case Histories.
- ABBOTT, Ward O.
Outcrop, Subsurface and Seismic Mapping of a Basal Transgressive Sand.
- LARNER, Ken, et. al.
Cascaded Migrations: A Way of Improving the Accuracy of Finite-Difference Time Migration.
- DAVIS, E. L., et. al.
Edge Detection Processing in Finding Subtle Oil Traps in Complex Stratigraphic and Structural Environments.
- SAGASTA, P. F.
Comparisons Between Physical Model and Numerical Model Results.
- DAVIS, Edward L.
Landsat Real-Time Processing.
- LARNER, Ken, et. al.
3-D Seismic Lithologic Modeling to Delineate Rapidly Changing Reservoir Facies: Case History from Alberta, Canada.
- LANE, B.
Stereoscopic seismic displays of 3d Survey data.
- GRANT, S.
Seismic Modeling of Reflectors Beneath the Cayamasa Thrust, Peru.
- WIGGINS, J. Wendell, et. al.
A Demonstration of Long-Period Multiple Attenuation by Wave Extrapolation.
- BEYER, L. A.
Computational Methods for Analysis of Borehole Gravity Surveys.
- AUSTIN, J. A., et. al.
Improved Acquisition, Processing and Interpretation Techniques in the Sacramento River Delta.
- CONNARD, G., et. al.
Regional Structures in the Pacific Northwest from the Integrated Interpretation of Geophysical Data.
- WORK, P. L.
You Ain't Seen Nothin' Yet.
- WARFORD, A., et. al.
A Set of Programs to Extract and Analyze Offset Data (with Examples).
- CARMICHAEL, W. C.
Adaptive AGC — A Solution to the Shadow Zone Problem.
- SENGBUSH, R. L., et. al.
Optimal Deconvolution of Non-Minimum Phase Seismic Data.
- NOBES, D. C., et. al.
Prediction of Bulk Physical Properties of Oceanic Sediments at Depth from Sea Floor Geophysical Measurements.

(Continued, Page 8)

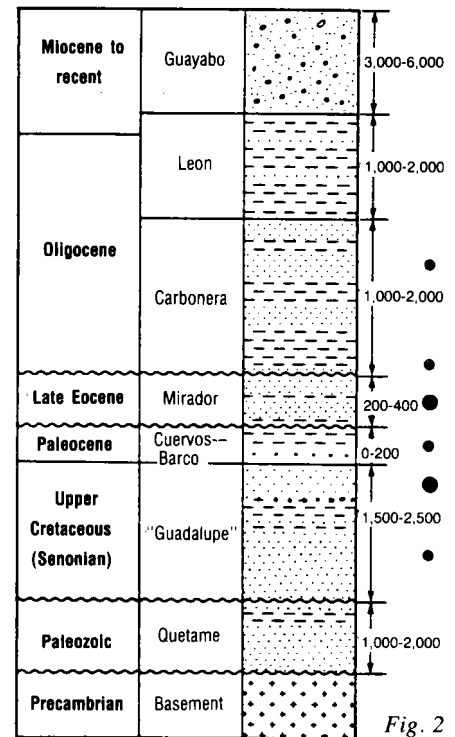
OXY Announces Cano Limon Production

Occidental Petroleum Corp., Los Angeles, recently announced that Occidental de Colombia, operator for Cravo Norte Association in Colombia, has commenced production from the Cano Limon field as scheduled. Crude oil began flowing into the field facilities at an initial rate of 30,000 B/D on December 7, 1985.

Until the entire pipeline and terminal system is completed in May 1986, initial production will be transported to Rio Zulia through the recently completed first phase of the Association's 769-Km. pipeline from Rio Zulia to the coast via leased facilities.



Several operators have developed their own stratigraphic nomenclature; thus no standard exists. The names used herein are those of Empresa Colombiana de Petroleos (Ecopetrol), the Colombian state oil company. A simplified stratigraphic column is shown in figure 2. The Cretaceous and Early Tertiary Los-Barcos, Mirador, and Carbonera formations are the intervals of greatest economic significance. The most important reservoir rock in the basin is the Eocene Mirador which contains 80% of the reserves in Cano Limon. Its gross thickness ranges from 200 to 400 feet, with an average porosity and permeability of 25% and 4 darcies respectively.



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REGISTRATION EXAMS OFFERED BY STATE

Examinations for registration as a geologist and geophysicist and for certification as an engineering geologist will be scheduled twice this year between February 1 and November 30 and are expected to be given at the following locations: Sacramento, Los Angeles, and San Francisco.

EXAMINATION SCHEDULE

Geology & Geophysicist — May 16, 1986.

Engineering Geologist — May 17, 1986.

FINAL FILING DATE FOR MAY EXAMINATIONS — FEBRUARY 17, 1986.

Geology & Geophysicist — November 14, 1986.

Engineering Geologist — November 15, 1986.

FINAL FILING DATE FOR NOVEMBER EXAMINATIONS — AUGUST 15, 1986.

Application to take a registration exam should be made to:

State Board of Registration for Geologists and Geophysicists
1021 O Street
Sacramento, CA 95814

Discovery of the more than 1 billion Bbl. field has rekindled interest in Colombia's Llano basin. The Llano is a Paleozoic through Tertiary clastic sedimentary basin that is bounded by the Guyana shield on the east and the Eastern Cordillera on the west. The basin is separated from the Putumayo basin to the south by the Vaupes swell, and the northern boundary is thought to be a subtle basement feature known as the Arauca arch.

The Llanos is part of the Sub-Andean trend, a series of Paleozoic to Quaternary sedimentary basin that parallels the Andes. In northern South America the eastern margin of this trend is characterized by thinning of the sediments onto the granitic craton. Throughout the Cretaceous and into the Early Tertiary, when strata of greatest hydrocarbon and reservoir potential were deposited, the Llanos and Middle Magdalena basin formed a single depocenter. The basins separated and developed their present configuration during the Miocene-Pliocene Andean Orogeny.

The most striking structural element in the Llanos is the post-paleozoic foothills belt where compressional stress from the Andean Orogeny created large folds and westward dipping thrust faults. Other notable structural features are a series of antithetic, up to the basin normal faults, east of the foothills belt, and the Cano Limon trend. The latter is composed of a structural feature created by inferred right-lateral motion along several major faults. Most of the fault movement, and related structural development, apparently occurred during the Early Oligocene.

Exploration in the Llanos began during the 40's with the drilling of the Shell Oil, 1 San Martin, and continued episodically for the next 40 years with more than 80 wells being drilled by several operators. Exploration success picked up in 1983 with Oxy's 1 Cano Limon discovery, which tested oil from two Mirador zones at a rate of 10,690 B/D. Subsequent drilling has established the discovery as a giant oil field. Oxy estimated production could ultimately be more than 1 billion Bbls.

**AAPG, SEPM, & SEG
PACIFIC SECTION
Field Trip Summaries**

"Eastside Symposium" — Randy Metz, et. al.

Stratigraphy and structure of the east side San Joaquin Valley. Visit outcrops of Eastside Formations (Bealville, Walker, Olcese, Round Mountain, Bena, Chanac).

"San Emigdio Mountains" — Peter DeCelles.

Study of the sedimentology of the middle to lower tertiary units which crop out in the San Emigdio Mountains.

"Transverse Range" — Tom Davis, Jay Namson, Tom Dibblee.

Structure of the Transverse Ranges, Ojai and San Emigdio Mtns. via Hwy. 33.

New Members

COAST

James H. Ballard — Conoco, Ventura; **Steven Sanders** — Consultant, Ojai.

LOS ANGELES

Steve Durham — Northridge; **Karl J. Schmid** — UNOCAL, Los Angeles.

SAN JOAQUIN

Randle M. Cambell, David M. De-Sonier, Laurie Fedofin, and Mark E. Wood — ARCO; **Inge Riis McDonald** — Oxy; **Daniel B. Noland** — Sante Fe; **Bernard Santianin** — DEPCO; all in Bakersfield.

NORTHERN CALIFORNIA

David B. Serena — RDI Pacific, Redwood City.

COLORADO

Thomas H. Neel — DEPCO; **Andrea M. Jobling** — Phillips Pet., both in Denver.

Recent Moves

Thomas H. Neel to DEPCO, as president of operations from Kerr-McGee. *Editor's Note:* Thomas is the son of H. H. Neel whose words are often seen in this Newsletter.

Recommended Reading

JOURNALS AND BULLETINS

Magnetostratigraphy of displaced Upper Cretaceous strata in southern California. By J. Gilbert Fry, David J. Bottjer, and Steve P. Lund. *Geology* (Boulder), v. 13, no. 9, September 1985. p. 648-651.

The petroleum source-rock potential of the Upper Cretaceous Hornbrook Formation, north-central California and southwestern Oregon. By B. E. Law, D. E. Anders and T. H. Nilsen. *Society of Economic Paleontologists and Mineralogists, Field Trip Guidebook—Pacific Section*, v. 42, 1984. p. 133-140.

Evidence for dike intrusion earthquake mechanisms near Long Valley Caldera, California. By B. R. Julian. *Nature* (London), v. 303, no. 283, May 26, 1983. p. 323-325.

Research drilling at Inyo Domes, California; 1984 results. By J. C. Eichelberger, P. C. Lysne, C. D. Miller and L. W. Younker. *American Geophysical Union*, v. 66 no. 17, April 13, 1985. p. 186-187.

Compiled by: Louis Lopez
USGS, L.A.

San Joaquin

January 14 Tor Nielsen presented a day long program covering "Turbidite Sedimentation in California and Eocene Tectonics, Sedimentation, and Stratigraphy of the San Joaquin Valley" to 120 participants in the first of three AAPG Single Speaker programs sponsored by the SJGS.

The second program in the series will be

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CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP SECRETARY, PACIFIC SECTION AAPG, P.O. BOX 1072, BAKERSFIELD, CALIFORNIA 93302.

PUBLICATIONS COMMITTEE: Pacific Section American Association of Petroleum Geologists, 3600 S. Harbor Blvd., Box 198, Oxnard, CA 93030.

presented by Robert Berg and will feature a 6 hour presentation on "Exploration for Sandstone Stratigraphic Traps". The Casa Royal Motor Inn, Bakersfield will be the site for this March 11, 1986 program.

For reservations send a \$60.00 check to: San Joaquin Geologic Society, P.O. Box 1056, Bakersfield, CA 93302.

Ted Blevins will be presenting a program entitled "Oil and Gas Operations in China" to the SJGS's regular monthly meeting, February 11, 1986. This will be the annual spouses night meeting. For reservations call: Herman Schymiczek at (805) 399-2961, Ext. 2256.

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