



PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

JANUARY 1996 NO. 1

A MESSAGE FROM THE PRESIDENT

Announcements are starting to trickle out for the San Diego Convention, May 19 - 22. The early mailing is for exhibitors, officers, etc. Take special note, as a Pacific Section member, of those short courses and field trips that we are sponsoring. Note also that many of these can be taken for university credit through California State University, Bakersfield. One, two, or in some cases, three units will be possible for the nominal cost of \$50 per quarter unit. Contact me by fax at (805)763-6659. Here, in the San Joaquin Valley with our recent tule fog, the cover photo on the meeting announcement has considerable appeal. I can't wait to see me in San Diego! I hope to see you there, too.

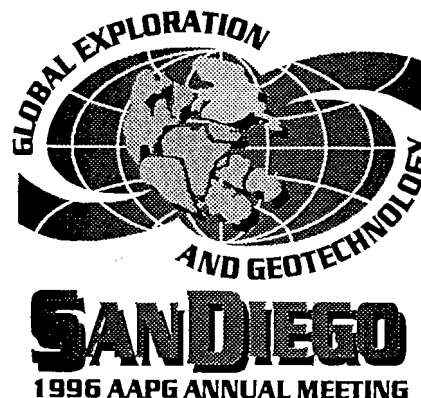
The passing of the holidays always seems to bring time to reflect on the past year. On average, if we don't reflect too far back, 1995 was a very good year for the Pacific Section. A small, but very comfortable convention in San Francisco was profitable. The convention committee taught us some valuable lessons on how to conduct a successful meeting in tough territory. A reactivated Committee on Conventions headed by Tom Wright, including Kay Pitts, Bob Timmer, Ben Cahill and Terry Thompson, will formalize and provide a template for future convention business.

1995 saw the return of something many of us only vaguely remember, so vaguely and "mirage-like", we began to wonder if these were real or a dream. What I refer to is newspaper and Oil and Gas Journal advertisements for petroleum geologists. In Bakersfield, "thank you" Santa Fe and Berry Petroleum! You warm our hearts. Apparently, the purchase of UNOCAL's properties by TORCH has not resulted in mass layoffs of geologists, most appear to have found employment either with UNOCAL or TORCH.

Again, here in Bakersfield, Bill Rintoul's column in the Californian has revitalized us with reported discoveries by Texas Crude-Texaco, and Royale Energy. Congress finally lifted the ban on Alaskan crude exports which should improve the marketability of both that crude and California crude. In addition, both Occidental and Texaco are moving people and jobs back to Bakersfield.

All is not well, however. The California Well Sample Repository is in dire financial straits. Downsizing, budget cuts and ownership changes have broken the continuity of support for the facility. The Repository is now operating with emergency funds. The Pacific Section Executive Committee has donated \$1000 for this year and committed to donate \$1000 in each of the next two years. The San Joaquin Geological Society has donated \$500 and plans a 1/2 day short course for April 10, 1996 with proceeds to be donated to the Repository. The course is the very popular, "Economic Evaluation of Oil Properties for Geologists", by James Weddle and Donna Thompson. Your attendance will be an important contribution to the Repository. It would be very appropriate to send letters and donations directly to the Repository c/o Jack West or James Weddle during these troubling times. As Frank Cressy noted at the last San Joaquin meeting, the Repository is a valuable information resource for both exploration and development. Cores, cuttings, well logs, paleo collections from all over California are available for examination and study. The collection includes data and samples from adjacent states. Russ Robinson, the curator, and his crew of volunteers and student helpers want to continue to provide this service to the geologic community. Russ will have some Stevens cores on display in San Diego. See you there.

— Mark L. Wilson



GOODE CORE ANALYSIS SERVICE

The company was founded in Bakersfield, California, in 1977 to provide high quality and reliable routine core analysis services to the petroleum industry. King Vaughn and Bryan Bell purchased the operations in 1988 — bringing with them a long history of service to the core analysis needs of the western United States. Goode provides a full service to meet all your core analysis needs. We pride ourselves on delivering to our clients *QUALITY DATA* and *QUALITY SERVICE*. This means accurate results are presented when you need them and presented in the best way to meet your needs.

QUALITY DATA

Important to the Quality Control (QC) process is the experience of Goode employees. Goode employees have had over 70 years of experience in core analysis. Every sample under goes a multi-stage QC process. Equipment and instruments are calibrated before and after each analysis procedure. There are three stages of checks on data measured upon completion of data acquisition. emphasize

QUALITY SERVICE

Tailoring our services to meet the needs and desires of our clients is the focal point of our service. Let us know what you need and we will find a way to provide it or give us your goals and we'll make recommendations on how to fill them. We will also keep you informed on processing status. When possible, every core report is personally delivered so that opinions, observations, or recommendations may be given. Part of providing a quality service is providing timely data. On a routine basis, Goode can process over 500 Dean Stark samples per week (lithologies permitting)— which allows preliminary core analysis reports for larger conventional core jobs to be given in less than two weeks. Sidewall analysis reports are routinely finalized in 5-7 days. If quicker service is needed, let us know your requirements and we will provide the quickest service possible. Summation of Fluids analysis can be provided in as little as 3 hours. Dean Stark analysis of unconsolidated samples can be provided in as little as 24 hours.

FIELD SERVICES

Goode provides experienced personnel who have serviced many thousands of feet of conventional core of all varieties. Following are core stabilization methods which can be supplied
CHILLING AND/OR FREEZING: Refer Truck; Dry Ice, LN2
RESIN INJECTION
PRESERVATION Strippable Plastic, Protecore

CORE PROCESSING

CORE SLABBING: Core can be cut either chilled or frozen using liquid nitrogen, water, brine, or oil as a coolant.

SURFACE GAMMA CORRELATION: When core recovery is low or when spot cores are taken, surface gamma correlation provides a reliable method of putting core on log depth.

CORE LAYOUT: Goode has the facilities to lay out up to 1000 feet of core at a time for viewing. We also have a viewing room set up for our clients needs which can handle up to 300 feet of core at a time.

DOWNHOLE LOG CORRELATION: Goode will place cores on log depth based on log response. This service is provided at no additional charge.

CORE PHOTOGRAPHY: The photography of both sidewall and conventional core can be presented in a variety of formats under white and/or ultraviolet light. The most common are foot by foot at half scale or several feet per frame.

CORE DESCRIPTION: Goode has geologists on staff that can provide detailed descriptions of the finer lithologic variations important in understanding the geologic environment and engineering needs of formations encountered.

CORE SAMPLING: The wide variety of lithologies encountered in California require a wide variety of sampling methods.

UNCONSOLIDATED: Plunge Cut / Drilled with LN2 (frozen)

CONSOLIDATED: Drilled with LN2, Air, Brine, or Oil

DIATOMACEOUS: Drilled with LN2 or Air / Carved

LABORATORY SERVICES

PKS: At ambient conditions, samples can be measured by mercury displacement, Archimedes' Principle, or Summation of Fluids. Samples are routinely measured by Boyle's Law method under overburden pressures between 200 and 10,000 psig.

GRAIN DENSITY: Boyle's Law or Archimedes' Principle can be used to determine grain density.

SIEVE ANALYSIS: Grain size analysis is performed by sonic sieve, through 270 mesh. A plot of cumulative percentage along with histogram is included.

MINI-PERMEAMETER: A profile of permeability variations can be measured economically at high frequencies.

OIL GRAVITY: Oil gravity on produced crude or on solvent extracted oil can be determined by pycnometer.

PYRO-CHROMATOGRAPHY: Detailed hydrocarbon compositional analysis can be run on either rock samples and/or fluid samples. This provides a measurement of oil quality variations.

NEW SERVICES

There is an increasing need to understand the vertical and areal variations in oil viscosity. Viscosity can vary substantially over fairly small intervals. We have measured increases from less than 2000 cp to greater than 10000 cp over as little as ten feet. In the past, 15-20 cc of oil was necessary to measure viscosity. This required large volumes of core material and typically centrifuge extraction. This extraction process could be quite costly; in addition, conventional core is not always available. With these points in mind, Goode acquired technology which allows direct viscosity measurements on only one or two drops of crude oil. This means we can now extract sufficient volumes of oil from sidewall cores, drill cuttings, and conventional core to measure viscosity at temperature. For more information or a demonstration give us a call.

Continued on page 3

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RELATED SERVICES

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805-643-9180 (F)

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P.O. Box 390, Fillmore, CA 93016
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805-652-0793 (F)
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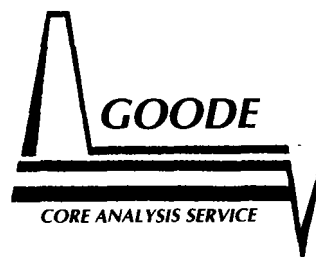
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Zymax Enviro-Technology, Inc.
71 Zaca Ln., Ste. 100
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Jesper Nielsen
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805-834-2450 (F)

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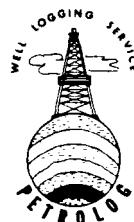
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Fax (805) 397-0588

1996 Community Energy Night

The 1996 Community Energy Night is scheduled for Wednesday, April 24, 1996 at the Holiday Inn Select, Bakersfield. The purpose of this event is to provide an opportunity for exchange between members of the Bakersfield-area community and members of the oil industry in a social setting. The event is hosted by the CEN Board, which has the support of eighteen oil industry organizations, and is funded by the local oil industry.

The CEN event will include a social hour with a no-host bar, dinner, and an after-dinner program. The main speaker will be Mr. David Kilpatrick, Division Manager of Santa Fe Energy Resources. In addition, a Pyle's Boys Camp film will be highlights. Oil industry sponsorships and tickets will be on sale January, 1996 for \$30 per person. For more information, please contact Lynn Sampson Smith at (805)321-4338.

NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Northwest

1/12/96 - Multnomah Athletic Club,
1849 S.W. Salmon St.
Program: E.F. "Bud" Reid, President,
A.A.P.G., "Overview of the Oil & Gas
Industry - Past, Present and Future"

Please call Shelley Thomas at (503)
693-9822 (please leave message on
machine if no answer) or Treck
Cardwell at (503) 220-2573.

Northwest Energy Association
P.O. Box 6679
Portland, OR 97228-6679
Contact: Bill Rodgers (503) 294-9681

Los Angeles Basin

Luncheon meeting alternate third
Thursdays at noon at Unocal Center,
Los Angeles.

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505
Contact: Mark Legg (310) 378-6254

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Bring your sweetheart and enjoy a
program of general interest to all.

March 12 the program will feature
Karl W. Stauffer, Panterra Petroleum,
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our regular Tuesday evening meeting,
the SJGS will sponsor a half day short
course on "Economic Evaluation of Oil

Alaska

1/25/96 - 11:30 Pre-lunch Activities
Anchorage Hilton, 500 W. 3rd Ave.,
Aleutian Room
Program: TBA

Please contact Agatha Rutka at ARCO,
263-4414 before noon, Monday, Janu-
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From the President's Desk . . .

As I write this, most of us are cur-
rently looking forward to a few day
off for the holidays. Meanwhile, our
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As usual, attitude adjustment begins
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followed by the technical program.

San Joaquin Geological Society
P.O. Box 1056
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Contact: Richard Hager (805) 665-3732

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Committee and its associated files of
strategic names for Alaska. Some of you
may have not even known of the exist-
ence of these files, but they do serve an
important function for geologists inter-
ested in publishing articles using
proper stratigraphic nomenclature. The
files are especially important if a geolo-
gist is planning to formally name a new
formation. After discussing this subject
at the November AGS Board meeting, I
wrote a letter to Dr. Patrick Leahy, Chief
Geologist of the USGS (911 National
Center, Reston, VA 22092, email:
pleahy@usgs.gov)), requesting that he
reconsider dropping this function from
their responsibilities, despite the diffi-
cult budget cutting environment in
which they find themselves.

While the Alaska Geological Society
can not have any political agenda, I do
believe that it is the Society's business
to be involved on the side of geologists
when the issues affect the long-term
vitality of the Alaska geological com-
munity. I also want to present items
such as this to the Membership so that
you can respond with letters of your
own to the proper officials. Whether
you agree or not with reducing specific
USGS functions, it is important to at
least be informed as to what is happen-
ing to this important connection for ge-
ologists with the federal government.
If you have strong feelings one way or
the other on this subject, please contact
Dr. Leahy and let him know what you
think.

Other important events are occurring
more locally. You may have recently
read or heard about an important mast-
odon skeleton languishing in storage
here in Anchorage. Anne Pasch, UA
Professor and Curator of the
Southcentral Alaska Museum of Natu-
ral History, has told me that there is a
major effort in the works to raise
enough money locally to purchase the
skeleton in order to keep it in Alaska
and hopefully even Southcentral
Alaska. Anne and I will be discussing
ways that the AGS can help the cause.

Alaska Geological Society
P.O. Box 101288
Anchorage, AK 99510
Contact: Tim Ryherd (907) 762-2140

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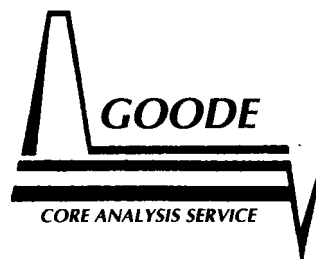
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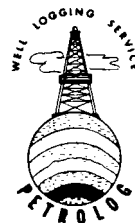
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Contact: Tim Ryherd (907) 762-2140

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Continued from page 2**RELATED SERVICES**

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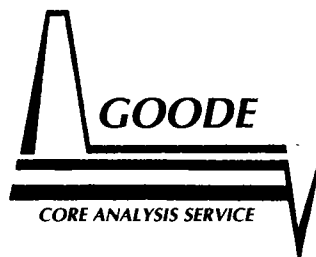
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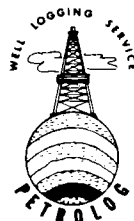
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1996 Community Energy Night

The 1996 Community Energy Night is scheduled for Wednesday, April 24, 1996 at the Holiday Inn Select, Bakersfield. The purpose of this event is to provide an opportunity for exchange between members of the Bakersfield-area community and members of the oil industry in a social setting. The event is hosted by the CEN Board, which has the support of eighteen oil industry organizations, and is funded by the local oil industry.

The CEN event will include a social hour with a no-host bar, dinner, and an after-dinner program. The main speaker will be Mr. David Kilpatrick, Division Manager of Santa Fe Energy Resources. In addition, a Pyle's Boys Camp film will be highlights. Oil industry sponsorships and tickets will be on sale January, 1996 for \$30 per person. For more information, please contact Lynn Sampson Smith at (805)321-4338.

NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Northwest

1/12/96 - Multnomah Athletic Club,
1849 S.W. Salmon St.

Program: E.F. "Bud" Reid, President,
A.A.P.G., "Overview of the Oil & Gas
Industry - Past, Present and Future"

Please call Shelley Thomas at (503)
693-9822 (please leave message on
machine if no answer) or Treck
Cardwell at (503) 220-2573.

Northwest Energy Association
P.O. Box 6679
Portland, OR 97228-6679
Contact: Bill Rodgers (503) 294-9681

Los Angeles Basin

Luncheon meeting alternate third
Thursdays at noon at Unocal Center,
Los Angeles.

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505
Contact: Mark Legg (310) 378-6254

San Joaquin

Feb. 13 is "Spouses Night" at the SJGS.
Bring your sweetheart and enjoy a
program of general interest to all.

March 12 the program will feature
Karl W. Stauffer, Panterra Petroleum,
presenting "Heavy Oils of South
America".

April 9: TBA

April 10: Wednesday morning following
our regular Tuesday evening meeting,
the SJGS will sponsor a half day short
course on "Economic Evaluation of Oil

Alaska

1/25/96 - 11:30 Pre-lunch Activities
Anchorage Hilton, 500 W. 3rd Ave.,
Aleutian Room
Program: TBA

Please contact Agatha Rutka at ARCO,
263-4414 before noon, Monday, Janu-
ary 22nd for reservations.

From the President's Desk . . .

As I write this, most of us are cur-
rently looking forward to a few day
off for the holidays. Meanwhile, our
colleagues who work for the federal
government are happy to be back at
work again after an unexpected hia-
tus. A new atmosphere of govern-
ment-by-crises seems to be prevailing
in Washington. I hope that the Legis-
lature in Juneau doesn't get any ideas
from the latest impasse.

On the subject of budget cuts, some-
thing was brought to my attention re-
cently. The U.S. Geological Survey is
currently planning to eliminate main-

Properties for Geologists" presented by
Jim Weddle and Donna Thompson, San
Joaquin Energy Consultants. Proceeds
to help fund the California Well Sample
Repository. Details to follow.

Mark your calendars today! Meetings
will be held at the American Legion
Hall, 2020 "H" Street, Bakersfield, CA.
As usual, attitude adjustment begins
at 6:00 p.m. with dinner at 7:00 p.m.
followed by the technical program.

San Joaquin Geological Society
P.O. Box 1056
Bakersfield, CA 93302
Contact: Richard Hager (805) 665-3732

tenance of its **Geologic Names Review
Committee** and its associated files of
strategic names for Alaska. Some of you
may have not even known of the exist-
ence of these files, but they do serve an
important function for geologists inter-
ested in publishing articles using
proper stratigraphic nomenclature. The
files are especially important if a geolo-
gist is planning to formally name a new
formation. After discussing this subject
at the November AGS Board meeting, I
wrote a letter to Dr. Patrick Leahy, Chief
Geologist of the USGS (911 National
Center, Reston, VA 22092, email:
pleahy@usgs.gov)), requesting that he
reconsider dropping this function from
their responsibilities, despite the diffi-
cult budget cutting environment in
which they find themselves.

While the Alaska Geological Society
can not have any political agenda, I do
believe that it is the Society's business
to be involved on the side of geologists
when the issues affect the long-term
vitality of the Alaska geological com-
munity. I also want to present items
such as this to the Membership so that
you can respond with letters of your
own to the proper officials. Whether
you agree or not with reducing specific
USGS functions, it is important to at
least be informed as to what is happen-
ing to this important connection for ge-
ologists with the federal government.
If you have strong feelings one way or
the other on this subject, please contact
Dr. Leahy and let him know what you
think.

Other important events are occurring
more locally. You may have recently
read or heard about an important **mas-
tadon skeleton** languishing in storage
here in Anchorage. Anne Pasch, UA
Professor and Curator of the
Southcentral Alaska Museum of Natu-
ral History, has told me that there is a
major effort in the works to raise
enough money locally to purchase the
skeleton in order to keep it in Alaska
and hopefully even Southcentral
Alaska. Anne and I will be discussing
ways that the AGS can help the cause.

Alaska Geological Society
P.O. Box 101288
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Contact: Tim Ryherd (907) 762-2140

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Northern California

12/12/95 - Chevron Park, San Ramon
Program: Dr. H. Edward Clifton, Conoco Inc., Houston, Texas, AAPG Distinguished Lecturer

Open-Coast Clastic Deposits: Theme and Variations

Depositional facies models distill the complexity of nature into relatively simple, easily grasped concepts that provide an important basis for reconstructing ancient depositional environments. The generalizations that allow models to be constructed, however, also inherently limit the range of their applicability. Models can be enhanced by documenting the variations that are likely to occur in natural settings. A consideration of open-coast clastic deposits shows how this approach can be used. Studies of modern coastal systems indicate that an upward-trending sequence of depositional facies characterizes most open-coast clastic successions. This generalized model (bioturbated or storm-dominated inner shelf/crossbedded upper shoreface/planar-laminated foreshore/nonmarine deposits in an upward-trending sequence) has

been applied successfully to a variety of ancient coastal deposits, owing largely to the consistency of both processes and preservation through geologic time. The model, however, must accommodate significant internal variability imposed by differences in sediment texture, nearshore morphology, ambient energy, storm events, and relative sea level change. The influence of available texture is strong and commonly underappreciated.

This talk will discuss the influences of sediment texture, nearshore morphology, ambient wave energy, storm effects, and relative sea level changes on variations around the basic theme of the open-coast clastic depositional facies model. It will be shown that these variations are reasonably predictable and provide a basis for enhanced paleo-environment interpretation. Ignoring them and relying on the general model can, however, lead of misinterpretation of ancient coastal deposits.

No. Cal. Geological Society
 9 Bramblewood Court
 Danville, CA 94506-1130
Contact: Dan Day (510) 294-7530

Coast

1/16/96 - American Legion Hall - 83 S. Palm St., Ventura

2/20/96 - Dr. Peter Weigand "Equador & the Galapagos - Volcanos & Animals"

Program: Rachel Haymon, PhD., U.C.S.B. Marine Sciences Institute, "Life After Death: Cycles of Magmatic, Hydrothermal, and Tectonic Activity Along the Mid-Ocean Ridge"

In April, 1991, we witnessed for the first time a deep sea volcanic eruption of the Mid Ocean Ridge. Using the Alvin submersible, we dove into an eruption along the fast-spreading East Pacific Rise axis at 9-10 deg. N latitude. Since then we have monitored biological and geological evolution of the eruption area during a series of five return dive programs, the last of which was concluded in December, 1995. Observations from these programs and a pre-eruption ROV (Argo) survey in later 1989, demonstrate unequivocally that the axial zone is highly dynamic, changing drastically and rapidly on a time scale of hours to years. Hydrothermal vent distribution along the ridge axis is strongly controlled by magma supply.

Coast Geological Society
 P.O. Box 3055
 Ventura, CA 93006
Contact: Terry Adcock (805) 650-2473

Sacramento

Noon luncheon meetings are held at the HUNGRY HUNTER RESTAURANT, 450 Bercut Drive, Sacramento, on the second and fourth Wednesdays

Reflections from the (Exiled in Paradise) President

Well, by now you've either figured out that I'm not there anymore or you don't need to know. Well, I'm down in Phoenix working on a geological project for AT&T on microwave towers for cellular telephones (Mountain tops-rocks-tower stability-earthquakes... you get the idea.) Anyway, it's a good job and I've moved the family down since they have good schools and I have family down here. (For those who did not know, my B.S. degree in geology was from Northern Arizona University.)

I want to apologize for not giving everyone more notice but I bid the contract and was told I won the bid and had to be here in three days. I packed

up and got here and I have been so busy that I have only had one chance to return to Sacramento.

Anyway, I can be reached at (602) 905-8689 (work) or (602) 662-9515 (home) or faxed at (602) 922-0916. I am in the process of distributing all of the work files to those loyal clients that gave me projects to work on during my tenure in Sacramento. Contact me if you have any questions about a particular project.

I hope that my faithful Vice President and long time friend, Steve Burke, has made my absence barely noticeable. I hope that my efforts in bringing good speakers and quality newsletters (and humorous with the efforts of the ever wonderful Arsen Shahnazarian, editor and former bunko of Herb Wheeler) was not diminished by my sudden departure.

With the departure of Guy Burge to the LA Basin, Steve Ward to the center of geophysics (Houston) and now me, to the "but it's a dry heat" Phoenix, the geologists and engineers would have run out of geophysicists had not

Enerofin imported a new one for you guys to pick on.

My season tickets to the Sun's are in the nose-bleed section versus row 7 with Steve Burke, et al. The cost is the same but NOW the Kings are winning. So now I live where there is both a bad basketball team and really bad football team. So much for my sports analysis.

Feel free to call (not collect-Dalton) and email at dgray@ix.netcom.com. Keep me informed and I'll return as an investor rather than geologist/geophysicist.

Thank you for honoring me with being your President. I hope that you all prosper in the days ahead.

— Dale Gray

Sacramento Petroleum Association
 P.O. Box 254443
 Sacramento, CA 95865-4443
Contact: Steve Burke (916) 641-9360

THE UPPER CRETACEOUS TURLOCK SUBMARINE CHANNEL

Northern San Joaquin Valley, Merced County,
California

by
Frank B. Cressy*

INTRODUCTION

Many articles have been written about the Tertiary Princeton, Martinez, Meganos and Markley channels, the four major submarine canyons that have been identified in the Sacramento Valley of California. Much less known are two Upper Cretaceous submarine canyons located in the Northern San Joaquin Valley; the Chowchilla channel, identified by Calloway (1964) and the Turlock channel, described in this paper.

The Chowchilla channel, located north of the Chowchilla gas field in southernmost Merced county (T.9S.-R.13E., R.14E. & R.15E.) is growing in importance because of the discovery of several new gas fields and pools in the area. Upper Cretaceous Blewett or Brown Mountain sandstones appear to have originated from this submarine canyon and closures in these proximal submarine fan sandstones trap gas in the Merrill Avenue, Ash Slough, and Mint Road fields located west and southwest of the Chowchilla field.

The purpose of this paper is to identify and describe the Turlock channel, an ancient submarine canyon similar in age and configuration to the Chowchilla channel. The Turlock channel is located approximately 22 miles north-northwest of the Chowchilla channel in townships T.5S.-R.11E. and T.5S.-R.12E. along the Stanislaus/Merced county line (Index Map).

RECOGNITION & CONCEPT

The Turlock channel was recognized during regional geologic studies of the northern San Joaquin Valley using subsurface well control. Regional mapping of the Upper Cretaceous Starkey (Panoche) sandstones indicated remarkably uniform and predictable units located along the eastern margin of the basin. These sandstones were deposited in a broad shallow marine and deltaic shelf environment and can be correlated long distances along depositional strike. At the shelf edge Starkey sandstones thin and shale out into a coeval shale facies.

Both the Turlock and Chowchilla channels were identified by recognition of nearly east-west trending, channelized erosion into Starkey sandstones. Calloway showed that the Chowchilla channel eroded completely through the First and Second Panoche (Starkey, zone D-2) sandstones and was back-filled primarily by zone C/D-1 Moreno shales. Several wells in Township 5 South, Ranges 11 and 12 East indicated a similar situation in which the First Panoche sandstone was missing, replaced by zone C/D-1 shales and Blewett sandstones. This erosional feature is referred here as the Turlock channel. As interpreted in the OHIO (Marathon) "Evans & Cook" No. 1 (Section 23, T.5S.-R.11E.), it eroded completely through the thick First Panoche sandstone, almost to the Second Panoche (Starkey) sandstone. This represents the deepest observed erosion of the channel.

Both the Turlock and Chowchilla channels acted as conduits across the wide eastern shelf for coarse-grained sediments to reach the basin and be deposited as lower Blewett turbidite sandstones. The thickest areas of deep-water Blewett sandstone deposition occur basinward of both the Turlock and Chowchilla channels.

PHYSICAL CHARACTERISTICS

The Turlock channel is poorly understood as only five wells show definite Starkey erosion and/or thick Blewett channel fill sandstones (stratigraphic section A-A'). A detailed interpretation of this area is impossible without the benefit of excellent quality seismic data which the author is lacking. However, the dimensions of this feature can be estimated. The minimum length of the Turlock channel, based on erosion of the First Panoche sandstone, is four miles, stretching from the PHILLIPS "Brand A" No. 1 (Section 5, T.5S.-R.12E.) to the PHILLIPS "Asai A" No. 1 (Section 23, T.5S.-R.11E.). It appears to extend two to three miles farther westward from the "Asai" well based on the presence of thick Blewett sandstones and possible erosion of upper Ragged Valley shale. The channel probably extends farther than the seven miles interpreted from well control and could easily extend another five miles to the east. As a comparison, the Chowchilla channel can be traced in the subsurface for a distance of approximately ten miles.

Correlations are extremely difficult where paleontological data are lacking and recognizable strata are not eroded, thus the sides of the channel are difficult to delineate as is the top of the channel fill. For the

purpose of this paper the top of Blewett sandstones is considered the top of the channel fill, although the actual top may lie deeper in the section. This figure is the maximum amount of channel erosion which could have occurred and is what the accompanying isopach map depicts. Where Starkey sandstones are eroded a minimum estimate of the amount of channel erosion can be calculated; the actual amount of erosion probably lies somewhere in between the two figures. In the OHIO "Evans & Cook" well, a minimum of 600 feet has been removed based on Starkey erosion, whereas nearly 1300 feet of sediment is present between the base of the channel and the top Blewett. The Chowchilla channel are estimated to have eroded nearly 800 feet into older Starkey sediments.

Lithologies vary considerably within the Turlock channel, especially within the lower portion (stratigraphic section A-A'). The upper part of the channel typically consists of a thick sandstone interval up to 200 feet thick which may represent Blewett sandstones overlapping the previously filled channel. Sandstone percentages in the channel fill below this upper unit range from 30% to nearly 90% and are erratic in their distribution. In general however, Blewett sandstone percentages increase to the west and are interpreted as proximal submarine fan sediments back-filling the canyon.

AGE AND CORRELATION

The Turlock channel is Late Cretaceous Maestrichtian in age, having eroded Goudkoff zone D-2 Starkey sandstones. It was filled with zone C/D-1 Blewett sandstones and Moreno shales. Erosion of the channel was rapid and probably occurred during a low-stand regressive sequence following deposition of the Ragged Valley shale (early D-1 time).

Both the Turlock and Chowchilla channels differ from the younger Paleogene channels of the Sacramento Valley in that they are not associated with a major basinwide unconformity. It is therefore felt that erosion of these Upper Cretaceous channels occurred in the marine environment seaward of major river systems. The growing Sierra Nevada supplied a large sediment load which quickly eroded existing shelf sediments. This eroded channel provided a conduit for the deposition of thick lower Blewett submarine fans which later back-filled the canyon and in turn were covered by thick regressive Garzas shelf sandstones.

HYDROCARBON POTENTIAL

In 1990, the PHILLIPS "Masuda A" No. 1 (Section 26, T.5S.-R.11E.) discovered gas near the top of thick Blewett sandstones deposited as fill within the Turlock channel. Nearly 55 feet of gross pay at 3745 feet tested gas at rates up to 9300 MCF/D. Unfortunately the gas contained 29.6% Nitrogen and had a heating value of 714 BTU. The well currently is idle waiting pipeline hookup.

Other trapping possibilities exist along this trend, both in erosional traps of Starkey sandstones and in stratigraphic traps associated with Blewett channel fill sandstones. Additional stratigraphic traps may also exist in proximal Blewett submarine fan sandstones at the mouth of the Turlock channel, similar to those at Merrill Avenue, Ash Slough and Mint Road, located basinward from the mouth of the Chowchilla channel. Because of the relative low quality gas, the current low gas prices, and distance from established pipelines, no further exploration of the Turlock channel has occurred. Perhaps when economic conditions change this area will see the activity it deserves.

References:

Calloway, David C., 1964, *Distribution of Uppermost Cretaceous Sands in the Sacramento-Northern San Joaquin Basin of California*, in Edmondson, William F., ed., *Selected Papers presented to San Joaquin Geological Society*, Vol. 2, p. 5-18.

* Consulting Geologist, Bakersfield, CA.

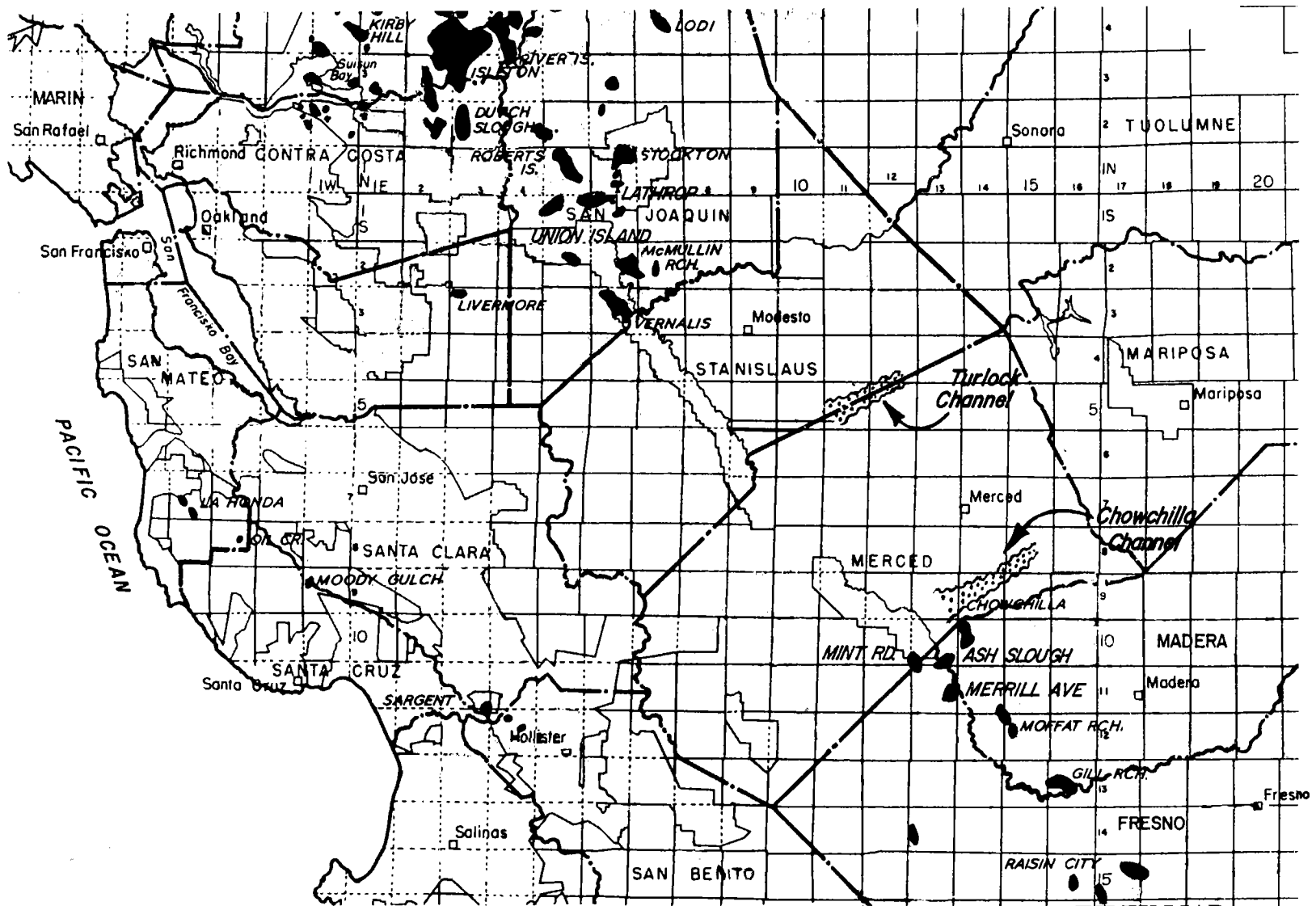


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INDEX MAP
NORTHERN SAN JOAQUIN VALLEY

Pacific Section AAPG 1996 Annual Survey

.....
RETURN TO: Bob Countryman, PS-AAPG Membership Chairman, P.O. Box 1072, Bakersfield, CA 93302 or
fax to (805) 633-4345, No later than February 16, 1996
.....

1. Years of PS-AAPG Membership _____
 2. Male ☐ Female ☐
 3. Are you a graduate geologist? Yes ☐ No ☐ Your degree? _____
Do you have an advanced degree? Yes ☐ No ☐ Your degree? _____
 4. Are you registered? Yes ☐ No ☐ Branch? _____
By exam? _____ Passed the RG? Yes ☐ No ☐
Plan to take registration exam? _____
 5. Years in the oil business? _____ yrs.
With present employer? _____ yrs.
 6. Job description: ☐ Geology (non supv.) ☐ Geological Supv (1st Line Supv)
☐ Management (2nd Line & above) ☐ Government
☐ Academic ☐ Technician
☐ Other _____
 7. Primary professional responsibility? Exploration ☐ Production ☐ Reservoir/Evaluation ☐ Teaching ☐
Research ☐ Service ☐ Environmental ☐ Other (State) _____
 8. Type Employer: Major ☐ Independent ☐ Government ☐ Contr./Other ☐ Consultant/Self Service/Supply ☐
 9. 1995 Income: _____ Total 1995 Base Income: _____
 10. Income Change From 1994 (TOTAL) \$ _____
 11. Did you receive a raise to base salary in 1995? _____ % of Base
 12. Did you have a job scope change in 1995?
 13. Would you recommend a major in Geology to a High School senior? Yes ☐ No ☐
Petroleum Geology? Yes ☐ No ☐
 14. Compare job satisfaction to last year: Better ☐ Same ☐ Worse ☐ Any particular reason? _____
 15. Anticipate foreign employment in next two years? Yes ☐ No ☐
- Subjects of dinner or lunch meetings you would like to attend in 1996?

COMMENTS (constructive!) TOWARDS IMPROVING SECTION'S WORTH TO YOU:

Thank you.

TULARE FORMATION

The formation of a new organization appropriately named "Friends of our Tulare" or "FOOT" will be "kicked" off in late February at Core Laboratories. This is an offshoot of the well known "Friends of Diatomite" luncheon meetings held every quarter at Core Labs.

The purpose of the new organization is to study the Tulare formation using cores, logs and oral presentations. The guest speaker at the first FOOT meeting will be CalResource's Tulare geologist, Matt Holman. In addition to providing a forum for the acquisition and exchange of information, Dan Fargo and the gang at Core Labs offer the best BBQ in town. So bring your appetite and your questions and prepare to enjoy a great lunch and learn something too. Those requesting 2nds will be required to pass a test! For more information, please contact Dan Fargo or Allen Britton at 392-8600



Some of the crew at Core Labs (from left to right: Frank Ene, Allen Britton, Dan Fargo & Jeff Smith). photo by L. Knauer.

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1996 National Convention FIELD TRIPS, San Diego, California

PS-AAPG and PS-SEPM are jointly sponsoring 15 of the 21 field trips at the National Convention in San Diego in May 1996. There are eight pre-convention trips and seven post-convention trips.

University credit is available for these field trips.

More details on all of the trips, including registration and university credit will be sent with the pre-registration circular.

◆ ◆ ◆ Pre Convention Trips ◆ ◆ ◆

Trip #1 *Thick-Bedded, Coarse-grained, Deep-Water Deposits, Cretaceous and Paleogene, Central California; May 18-19; Stephan A. Graham, Donald R. Lowe; (\$290.00).*

Trip #2 *Geology of the Midway-Sunset Oil Field and Adjacent Temblor Range, San Joaquin Basin, California; May 17-19; Tor H. Nilsen, Albert S. "Buddy" Wylie, Glenn J. Gregory; (\$200.00).*

Trip #3 *Tertiary Sedimentary and Depositional History of the Santa Monica Mountains of California; May 18-19; A. Eugene Fritsche, Ivan Colburn, Pedro Ramirez; (\$120.00).*

Trip #4 *Neoproterozoic Carbonate Successions, Death Valley, California: Comparison and Contrast with Phanerozoic Examples; May 16-18; Anthony R. Prave; (\$185.00).*

Trip #5 *Paleokarst in Lower-Middle Ordovician Dolomites, Southern Great Basin: Evidence for Multiple Sea-Level Changes; May 16-18; John D. Cooper, Martin Keller; (\$185.00).*

Trip #6 *Stratigraphy of a Marine Rift Basin: Neogene Imperial Formation, Salton Trough, California; May 17-19; Charles D. Winter, Susan M. Kidwell; (\$335.00).*

Trip #7 *Neogene Detachment Faulting in the Salton Trough Region: Extensional Geometries and Their Influence on Strike-Slip Faulting; May 16-18; Eric G. Frost, Mitra J. Fattahipour, Kevin L. Robinson; (\$250.00).*

Trip #8 *Early Rift Sedimentation and Structure along the Northeastern Margin of Baja California; May 16-18; Joann Stock, Arturo Martin Barajas, Miguel Tellez Duarte; (\$260.00).*

◆ ◆ ◆ Post Convention Trips ◆ ◆ ◆

Trip #11 *Monterey Formation Fractured Reservoir and Source Rock; May 22-24; Thomas C. MacKinnon, J. Scott Hornafius, Gena M. Evola; (\$255.00).*

Trip #12 *Structure and Hydrocarbon Exploration in the Transpressive Basins of Southern California; May 23-24; Thomas L. Davis, Jay Namson, Stuart A. Gordon; (\$200.00).*

Trip #13 *Sequence Stratigraphy along a Tectonically Active Margin, Paleogene of Southern California; May 23-25; Kirt M. Campion, Morgan D. Sullivan, Jeffrey A. May, John E. Warme; (\$270.00).*

Trip #14 *Cycle and Sequence Stratigraphy of Middle Cambrian Bonanza King Carbonates, Southern Great Basin; May 22-24; Isabel P. Montanez, David A. Osleger; (\$195.00).*

Trip #15 *Stratigraphic and Tectonic Evolution of Early Miocene Extensional Basins, Central Mojave Desert, California; May 23-25; Robert P. Fillmore, John M. Fletcher; (\$265.00).*

Trip #16 *Tectonic Effects on the High-Resolution Sequence Stratigraphic Framework of Upper Cretaceous-Paleocene Nonmarine to Deep-Marine Forearc Basin Deposits, Baja California, Mexico; May 23-25; William Morris, Henry W. Posamentier, Cathy Busby; (\$215.00).*

Trip #17 *Geology and Culture of Northern Baja California, Mexico; May 23-24; John A. Minch, Jorge Ledesma-Vasquez; (\$140.00).*

MOVING ON...



Reinhard Suchland, Exploration Manager
McFarland Energy, Santa Fe Springs, CA 90670
(310) 944-0181

Owen M. Kittredge, Senior Project Manager
Delta Environmental Consultants Inc.
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Rancho Cordova, CA 95670
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J P Oil
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318-278-3592

K-12 Youth Activities Program

"California's offshore oil production has doubled in four years to a record 200,000 barrels a day, nearly a quarter of the nation's offshore yield and enough oil to fuel the city of Los Angeles." (Ventura County Star, November 13, 1995.)

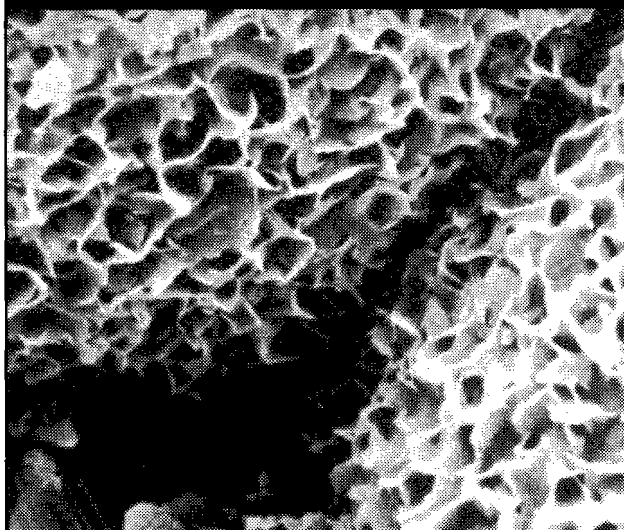
How is oil found beneath the ocean floor? And how are these oil deposits being safely developed?

Offshore oil drilling and environmental protection are among the many topics students and teachers can discuss with scientists and engineers from the U.S. Minerals Management Service (MMS) during this years Energy Information Day at the Ventura County Fairgrounds on March 13, 1996.

The Energy Information Day is sponsored by the California Coastal Chapter of the American Petroleum Institute and will feature exhibits to help students and teachers learn more about contemporary energy-related technologies, energy choices and future energy needs. Representatives from gas, electric and solar energy companies, recycling agencies, the petroleum industry, environmental consulting firms government regulatory agencies, colleges and universities, and technical training schools will be onsite to talk to students and teachers about energy issues and job opportunities in energy-related fields.

For more information on Energy Information Day contact Ken Miner at (805) 899-1702 or Bob Peterson at (818) 951-3990.

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Problem: Pay zones hidden in low-contrast formations containing shaly sands, laminated sand-shale sequences, microporosity, and conductive matrix.

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SPE Continuing Education Workshops:

- 1. Evaluating Cement Integrity Logs**
- 2. Understanding and Applying Open Hole Logs**
- 3. How to Recognize a Good Log**

Three separate one-day professional workshops will be taught by G. W. Batcheller on Thursday to Saturday, March 29-30, 1996 from 8:00 a.m. to 5:00 p.m., tentatively at the Chevron offices at 5001 California Ave., Bakersfield.

1. Evaluating Cement Integrity Logs (Thurs., March 28)

This practical workshop reviews log pitfalls and proper techniques and includes discussions of the effects of quality control, reliable interpretation techniques, new technology - its value and limitations and identifying potential problems with cement integrity. Cement integrity logs are essential to consistent successful well completions and this workshop will help your with those decisions. Actual log examples will be the basis of this training program including a comparison of different type logs. This workshop is a practical guide for successful evaluation of cement integrity.

2. Understanding & Applying Open Hole Logs (Fri., March 29)

This workshop illustrates log responses to rocks and their fluids including: detecting permeability and salt water from resistivity logs, fluid and rock type identification from porosity logs, hydrocarbon identification and net pay estimations and the effects of gas and shale on logs. Once you understand these simple relationships (common throughout the world) you can apply logs easily. A complete workbook and practical exercises will enable you to learn these techniques and be making better decisions immediately.

3. How to Recognize a Good Log (Sat., March 30)

Techniques for recognizing log validity are illustrated in this practical workshop. These easy-to-use procedures will help the participants find the reliability of data used in making important and costly decisions. Professional staff and managers will find this workshop essential in their decision making. The workbook/reference manual illustrates methods for repeatability and comparisons, hold conditions versus tool problems, individual log checks and limitations and the use of computers in validation. Workshop participants are encouraged to bring their own logs.

Gary Batcheller, president of GWB Consultants, Oklahoma City, has conducted training in North America for independents, majors, service companies and government agencies. He has held both open hole and cased hole log workshops for over 50 companies throughout the United States and Canada. He has helped develop international training programs for engineers and geologists at Mobil Oil and ORYX. With over 25 years of experience, he has developed simplified training techniques that work.

The registration deadline is March 8. The registration fee is \$195 (one day), \$345 (two days) and \$495 (three days) and is fully refundable until that time. For more details, contact either Bill Peake at 395-6447 or Gary Batcheller at 405-324-5828. Make check payable to: Treasurer - SPE S.J.V.S. and send to SPE at P.O. Box 653, Bakersfield, CA, 93302.

ECOLOGY FIELD TRIPS

*Sponsored by
Bureau of Land Management*

The Bureau of Land Management has initiated a program of monthly earth science field trips to points of ecologic, geologic, paleontologic and historic interest throughout central California. These trips are designed for persons of high school age or older. It is not necessary to have a technical background to attend or benefit from the trips.

These field trips are recommended for teachers and many of them can be taken for in-service continuing education credit through California State University Bakersfield. Each trip includes a full spectrum of environmental and land management topics. The field trips are conducted using buses or vans. Private vehicles are not used except in special circumstances. A field guide is prepared for each trip which includes maps and directions which can be used by anyone for self-guided investigation of the ecology along the field trip route.

1996 SCHEDULE

San Andreas Fault: Gorman to Wallace Creek — Sat., Feb. 3, 1996

This trip examines the "Big Bend" segment of the San Andreas Fault. Exposures of the 1857 Ft. Tejon fault scarp are inspected along with several pressure ridges and sag ponds. The timing of earthquake activity along this stretch of the San Andreas is discussed in relation to the offset drainage at Wallace Creek.

Santa Maria-Black Mountain-Carrizo Plains — Sat., March 9, 1996

This trip starts in Santa Maria and investigates the ecology of the Santa Margarita Lake region. There we examine archaeological and historic mining sites in Black Mountain on the Los Padres National Forest. The tour continues on Highway 58 to the Carrizo Plains for a look at the San Andreas Fault and wildflowers. We return to Santa Maria by way of Highway 166.

Mother Lode '96 Part I: Southern Mines — April 12-14, 1996

This two day field conference examines the mines, geology and mining history between Maricopa and Jackson. Saturday's trip will be from Jamestown to Jackson and Sunday's trip will be from Jamestown to Mariposa. There will be a Friday Evening Lecture Series in Jamestown at the Community Hall 7:00-9:00 p.m. on April 12.

Make check payable to Mother Lode and mail to Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308. For persons taking their own vehicles, registration is \$20.00 per person or \$40.00 per vehicle. If you have any questions or to register call Dr. Wilkerson at 805-391-6177 or write to MOTHER LODGE c/o Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308.

Bill Rintoul

Midway-Sunset: A Steamy Story

By the end of the 1950's, the Midway-Sunset field seemed safely settled into old age. The days of gushers and glory were gone, and there seemed little reason to believe they would be revived.

The Lakeview gusher had established the field as a giant in 1910 with a blow-out that produced an estimated 9 million barrels of oil. The gusher finally had caved on bottom and died after 18 months of uncontrolled flow.

Production from Midway-Sunset had peaked in 1914 at 94,200 barrels per day. The field was the top producing field in California, which in turn was the number one oil-producing state in the nation.

Decline set in. Though Midway-Sunset continued to play an important role in California's production picture, the discovery of giant fields in the Los Angeles Basin in the 1920's took the spotlight away from the aging field.

In 1960, production in the Midway-Sunset field averaged 38,200 b/d, a drop of almost 60 percent from peak production 46 years before. The field slipped to fourth place in California behind Wilmington, 75,500 b/d; Huntington Beach, 45,300 b/d; and Ventura, 45,100 b/d. The East Coalinga Extension field was fifth with 35,900 b/d and continuing to climb.

In April of that same year, Shell Oil Co. quietly began a pilot steam injection project in the Yorba Linda field designed to increase production of 12-gravity oil from sand at a depth of about 600 feet. Before the year ended, Shell had begun preparations to inject steam in a pilot project in the Coalinga field.

The following year, there was an interesting development in California's heavy crude fields, especially in the San

Joaquin Valley. Almost overnight, producing leases owned by independents, mostly stripper leases that produced heavy crude, became hotly sought-after items in what before the end of 1962 was described as the greatest seller's market in the history of California oil.

Some sales brought prices as high as \$9,000 barrels per day of daily production. The prices made ancient history out of those of five years earlier, when \$2,000 per daily barrel was considered par for the course, and even dwarfed those of one year before when \$3,500 to \$4,500 per daily barrel sufficed to transfer producing properties from one owner to another.

Though details were lacking, it was obvious steam injection had made a breakthrough in enhanced recovery of heavy crude oil.

By 1965, steam had become an integral part of the San Joaquin Valley's heavy crude fields. One of the most important success stories was then enacted in the Midway-Sunset field.

In Vol. 51, No. 2 of the Fifty-First Annual Report of the State Oil and Gas Supervisor issued by the Division of Oil and Gas, G. G. Pierce, Deputy Supervisor of District No. 4, wrote of the Midway-Sunset field:

"The favorable response to steam injection has not only increased production from older wells but has resulted in much new drilling of accumulations formerly considered noncommercial. Annual oil production for the field, which is over 70 years old, reached the highest rate since 1918. Most of the increase of nearly four million barrels over last year is attributed to cyclic injection of steam."

In 1968, the Midway-Sunset field joined the one-billion-barrel club, becoming only the fourth field in the United States to reach that mark. Earlier, the East Texas and Panhandle fields in Texas and the Wilmington field in California had qualified.

By 1975, production had climbed to 102,100 b/d from 6,284 wells. Cumulative production stood at 1.265 billion

barrels. Reserves were estimated at 431 million barrels.

In 1991, Midway-Sunset joined an even more exclusive club than the one it had joined 23 years before. The field produced its two billionth barrel. Only three other U.S. fields had qualified: Prudhoe Bay, East Texas and Wilmington. Alaska's Kuparuk River field with cumulative production of 1.26 billion barrels and estimated reserves of 1.11 billion barrels today appears to be the only remaining field in America certain to qualify for the two-billion-barrel club.

Since reserves were estimated at 431 million barrels in 1975, the Midway-Sunset field has produced 1.033 billion barrels, or more than twice what it was estimated to have 20 years ago. Production had climbed to 164,700 b/d by September 1995 from some 9,600 wells, an increase of 61.3 percent from daily production 20 years ago. Cumulative production is 2.298 billion barrels.

The Division of Oil, Gas, and Geothermal Resources has estimated Midway-Sunset's present reserves at approximately 454 million barrels, or 5.3 percent more than estimated reserves two decades ago. The impact of steam has been underscored by figures released by the Division that credited steam injection with 42.3 million barrels of incremental oil production in 1994, or 70.7 percent of the field's total production of 69.8 million barrels that year.

Last year the field produced some 59.7 million barrels of oil, only slightly below the preceding year's 59.8 million barrels. Midway-Sunset for the fifth year in a row was the No. 1 oil-producing field in the Lower 48 states and with its daily production of 164,700 b/d runnerup nationally only to Alaska's Prudhoe Bay, 816,000 b/d, and Kuparuk River, 282,800 b/d.

more Bill Rintoul

Repository Well Short of Funding to Survive

The oil industry has undergone numerous changes since the California Well Sample Repository was established in 1975 at California State University, Bakersfield as the only public facility in California for core storage and use.

Like other segments of the industry, the Repository has fallen on hard times. In response, the unique facility is embarking on a campaign to elicit pledges of support sufficient to keep its commitment, as it has done for two decades, to preserve cores that would otherwise be lost forever.

In recent years, with the shift in emphasis of the major petroleum companies away from California and domestic exploration, there has been a corresponding decrease in financial support for the Repository.

Several companies which did contribute have withdrawn or have merged with other companies. Only a few major companies still provide support on a regular basis, primarily through a two-tiered plan which provides certain usage of the Repository for an annual donation of \$5,000 or \$2,000.

At the same time, use of the Repository has been changing, so that educational faculty and student research almost equals commercial use. The Repository is becoming an important resource, not only for research but also for the education and training of future petroleum geologists and engineers, especially at a time when private core storage is being shut down and cores destroyed.

It has been Repository policy that university and other school faculty and students may use the Repository free of charge. Given declining industry support and a limited operating budget, it is not clear how much longer this policy can continue without additional support to cover at least the cost of pulling, transporting and reshelving core and related records for researchers.

In fact, the continued operation of the Repository – a bare-bones operation with one curator, a part-time student assistant and senior volunteers – is in jeopardy without help.

The funding the Repository is seeking would be used to cover that portion of the operation involving faculty and students. Up to half of such donations would be made available to encourage such users by covering some of their expenses such as transportation to the Repository, shipping costs and costs of tests on samples.

In order to plan for the future, the Repository is seeking a three-year commitment of funds, beginning with this fiscal year. Those interested in further information may contact

Russ Robinson, curator, California Well Sample Repository, 9001 Stockdale Highway, Bakersfield, Calif. 93311-1099; Telephone (805)664-2324.

Through 20 years of operation, the California Well Sample Repository has served as an important "library" of the formations through which Kern County drillers and those from other parts of California have put down the wells that have made the county the site of production exceeded in the United States only by the production of three states, notably Texas, Alaska and Louisiana.

In addition to the oil companies and independents that have used the Repository's cores in the search for more oil and gas, faculty and students from various universities have examined wellcores as part of research projects.

Since 1990, researchers from no less than 12 institutions of higher learning have made use of the facility. The list of those whose faculty/students have used the Repository includes CSUB, CSU Northridge, San Jose State, CSU Sacramento, University of California, Riverside, UC Davis, UC Santa Cruz, UC Santa Barbara, Duke University, University of Missouri, University of Texas and Stanford University.

Samples from the Repository have been used in field trips and workshops of the American Association of Petroleum Geologists, in Bureau of Land Management field trips and at four open houses.

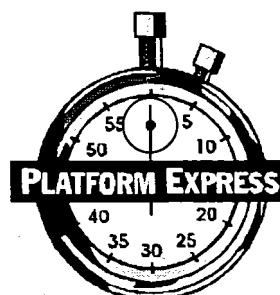
The study of samples from the Repository has resulted in, or contributed to, at least 36 published papers, 18 abstracts, 13 doctoral theses, five master's theses, seven student papers, nine poster sessions at regional and national meetings and three guide books for field trips.

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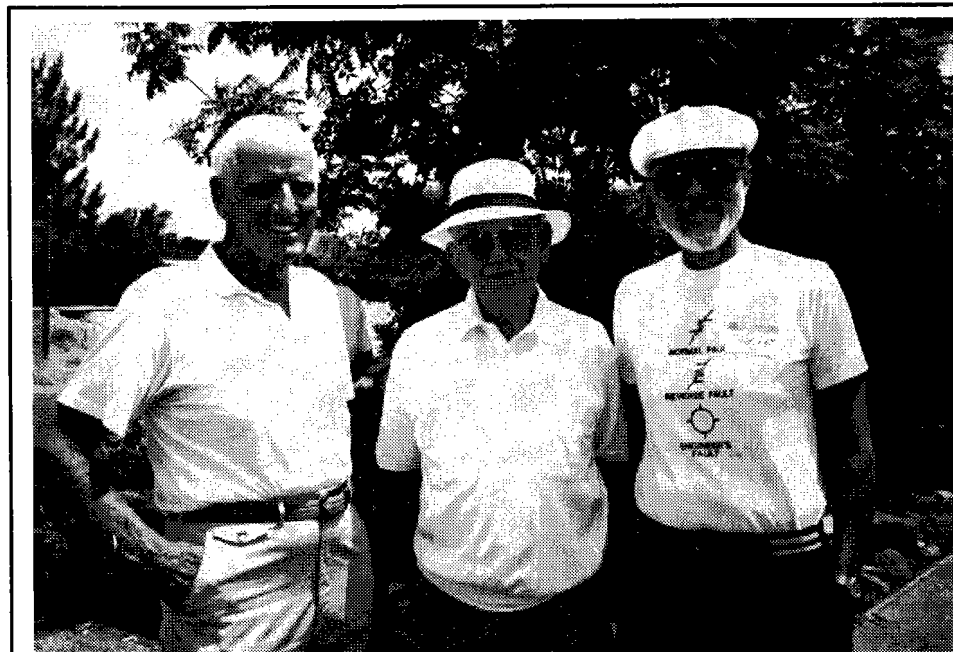


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Pacific Section AAPG members at work and ...

California Well Sample Repository supporters and members of the Board of Directors (from left to right: Vic Church, Ed Stinemeyer & Jack West). Photo by L. Knauer



Bechtel geologist, Joe Davidson, standing in front of Cleveland Rig #5 while it was drilling the first horizontal well in the Shallow Oil Zone in the Elk Hills Field, Kern County, California. The well went to a total depth of 5,648 feet, bottoming southwest of the surface location at a true vertical depth of 3,998 feet. Photo by L. Knauer.



Looking SSE from the top of Boundary Peak, Nevada at 13,140 ft. (from left to right: Tony Reid, Credentials Committee Chairman for the National AAPG House of Delegates; Larry Knauer, President-elect PS-AAPG; and Mark Wilson President PS-AAPG). Photo by T. Reid.

RISK

A D.E.G. Environmental Issues Committee report

Florida governor once said about offshore drilling, "Accidents do happen. Any risk is too much risk."¹

Certainly, accidents do happen: Bhopal, the Exxon Valdez, Three Mile Island - all accidents resulting from our technological society. But there is no such thing as a risk-free alternative. For instance, banning offshore drilling increases tanker-borne-imports (greater oil spill risk) and trade deficits (economic-risk). The presence of risk is the commonest fact of life.

As geologists, many of us wear two hats, one belonging to the petroleum explorer and the other to the environmental geoscientist. We are particularly well placed to understand and to explain the various conceptions of risk to a public which has too often been misled (or has misunderstood) the subject. First, though, we must understand how the public feels about the hazards we all face every day, and why.

The Public accepts certain risks because they are either:

- *beneficial* (e.g., a hazardous but fun, high-paying job, such as a race car driver or volcanologist);
- *voluntary* (e.g., driving a car - one chance in eight of being in an accident this year)²;
- *inescapable* (e.g., death from any cause: one chance in 120 in the U.S., each year);
- *obviously trivial* (e.g., being hit by a meteorite: one chance in 5 billion).³

The public heartily detests certain other risks which appear to:

- *affect public or individual safety to preserve profit or efficiency;*
- *impact negatively on children;*
- *spoil natural beauty;*
- *cause irreversible change or loss in biological, environmental or cultural diversity;*
- *lead to the end of the world* (e.g., climate change, ozone loss, rain forest destruction).

Because it hates these risks, the public is often misled into believing an issue falls into one or more of these categories. Many organizations prosper by promoting concerns that are scientifically and/or statistically insignificant.

How does the geologist respond to public concerns about environmental risks? Contrast scientifically provable, relevant facts of an issue with speculation, rumor or exaggeration.

- *What is or is not known? Is this a concern about a possible or an actual problem?*
- *What are the economics? Will we spend a dollar to save a penny? Will jobs be lost, families displaced?*
- *What is the degree of risk - as likely as catching a cold...or a meteorite?*
- *How much exposure of dosage is necessary to be hazardous? Will it ever happen?*
- *Identify person or organizations who benefit politically and/or economically by generating controversy.*

References: 1. Martinez, Bob, quoted in New Orleans Times Picayune, 1989. 2. Laudan, Harry, The Book of Risks, 1994. 3. Krantz, Les, What are the Odds, 1992.

SALE OF CALIFORNIA GEOLOGIC FILES

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Office Humor

○ PRESIDENT

Leaps tall buildings in a single bound, more powerful than a locomotive, faster than a speeding bullet. Walks on water. Gives policy to God.

○ EXECUTIVE VICE PRESIDENT

Leaps short buildings in a single bound, more powerful than a switch engine, just as fast as a speeding bullet. Walks on water if the sea is calm. Talks with God

○ DIRECTOR

Leaps short buildings with a running start & favorable winds, almost as powerful as a switch engine, faster than a speeding BB. Walks on water in an indoor swimming pool. Talks with God, if special request is approved.

○ DIVISIONAL MANAGER

Barely clears a quonset hut. Loses tug-of-war with a locomotive. Can fire a speeding bullet. Swims well occasionally. Addressed by God.

○ MANAGER

Makes high marks on the wall when trying to leap buildings, run over by a locomotive. Can sometimes handle a gun without inflicting self-injury. Dog paddles. Talks to animals.

○ COORDINATOR

Runs into buildings. Recognizes locomotive two out of three times, not issued ammunition. Can't stay afloat with a life preserver. Talks to walls.

○ TRAINEE

Falls over doorsteps when trying to enter buildings. Says "Look at the choo-choo". Wets himself with a water pistol. Plays in mud puddles. Mumbles to himself.

○ SECRETARY

Lifts buildings and walks under them. Kicks locomotives off the tracks. Catches speeding bullets in her teeth and eats them. Freezes water with a single glance. She is God.

Pacific Section AAPG members at work and ...

California Well Sample Repository supporters and members of the Board of Directors (from left to right: Vic Church, Ed Stinemeyer & Jack West). Photo by L. Knauer



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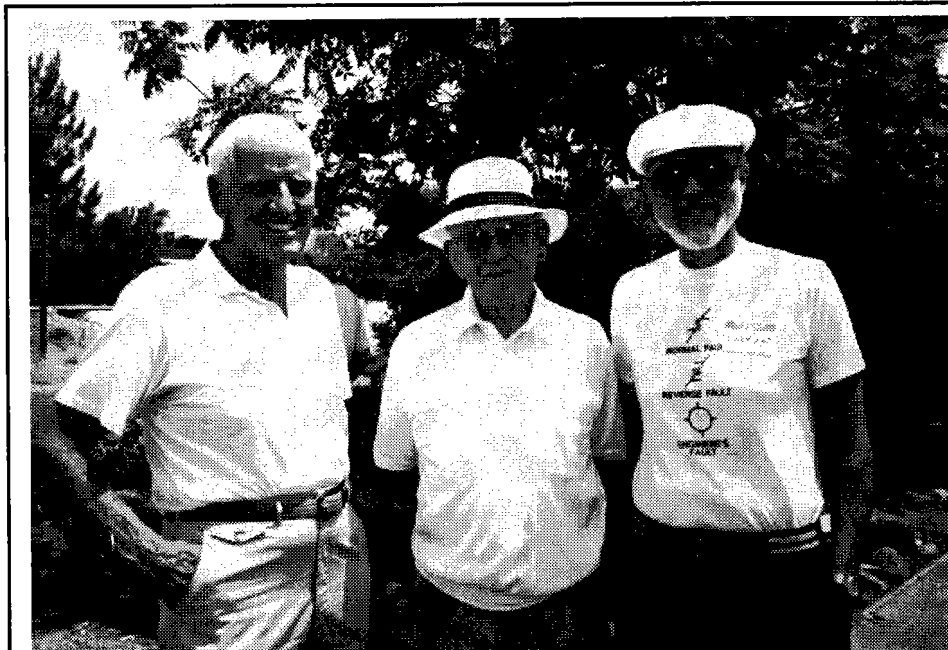
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Certainly, accidents do happen: Bhopal, the Exxon Valdez, Three Mile Island - all accidents resulting from our technological society. But there is no such thing as a risk-free alternative. For instance, banning offshore drilling increases tanker-borne-imports (greater oil spill risk) and trade deficits (economic-risk). The presence of risk is the commonest fact of life.

As geologists, many of us wear two hats, one belonging to the petroleum explorer and the other to the environmental geoscientist. We are particularly well placed to understand and to explain the various conceptions of risk to a public which has too often been misled (or has misunderstood) the subject. First, though, we must understand how the public feels about the hazards we all face every day, and why.

The Public accepts certain risks because they are either:

- *beneficial (e.g., a hazardous but fun, high-paying job, such as a race car driver or volcanologist);*
- *voluntary (e.g., driving a car - one chance in eight of being in an accident this year);²*
- *inescapable (e.g., death from any cause: one chance in 120 in the U.S., each year);*
- *obviously trivial (e.g., being hit by a meteorite: one chance in 5 billion).³*

The public heartily detests certain other risks which appear to:

- *affect public or individual safety to preserve profit or efficiency;*
- *impact negatively on children;*
- *spoil natural beauty;*
- *cause irreversible change or loss in biological, environmental or cultural diversity;*
- *lead to the end of the world (e.g., climate change, ozone loss, rain forest destruction).*

Because it hates these risks, the public is often misled into believing an issue falls into one or more of these categories. Many organizations prosper by promoting concerns that are scientifically and/or statistically insignificant.

How does the geologist respond to public concerns about environmental risks? Contrast scientifically provable, relevant facts of an issue with speculation, rumor or exaggeration.

- *What is or is not known? Is this a concern about a possible or an actual problem?*
- *What are the economics? Will we spend a dollar to save a penny? Will jobs be lost, families displaced?*
- *What is the degree of risk - as likely as catching a cold...or a meteorite?*
- *How much exposure of dosage is necessary to be hazardous? Will it ever happen?*
- *Identify person or organizations who benefit politically and/or economically by generating controversy.*

References: 1. Martinez, Bob, quoted in New Orleans Times Picayune, 1989. 2. Laudan, Harry, The Book of Risks, 1994. 3. Krantz, Les, What are the Odds, 1992.

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Office Humor

○ PRESIDENT

Leaps tall buildings in a single bound, more powerful than a locomotive, faster than a speeding bullet. Walks on water. Gives policy to God.

○ EXECUTIVE VICE PRESIDENT

Leaps short buildings in a single bound, more powerful than a switch engine, just as fast as a speeding bullet. Walks on water if the sea is calm. Talks with God

○ DIRECTOR

Leaps short buildings with a running start & favorable winds, almost as powerful as a switch engine, faster than a speeding BB. Walks on water in an indoor swimming pool. Talks with God, if special request is approved.

○ DIVISIONAL MANAGER

Barely clears a quonset hut. Loses tug-of-war with a locomotive. Can fire a speeding bullet. Swims well occasionally. Addressed by God.

○ MANAGER

Makes high marks on the wall when trying to leap buildings, run over by a locomotive. Can sometimes handle a gun without inflicting self-injury. Dog paddles. Talks to animals.

○ COORDINATOR

Runs into buildings. Recognizes locomotive two out of three times, not issued ammunition. Can't stay afloat with a life preserver. Talks to walls.

○ TRAINEE

Falls over doorsteps when trying to enter buildings. Says "Look at the choo-choo". Wets himself with a water pistol. Plays in mud puddles. Mumbles to himself.

○ SECRETARY

Lifts buildings and walks under them. Kicks locomotives off the tracks. Catches speeding bullets in her teeth and eats them. Freezes water with a single glance. She is God.

WHY DPA CERTIFICATION?

Why should we in California be concerned about becoming Certified Petroleum Geologists? To do so requires being certified by the Division of Professional Affairs of the AAPG. After all, California has a registration process for geologists and geophysicists that is required in order to practice the geoscience in the public realm.

The answer is that we are professionals.

Recognition of professional status in the work environment may be obtained by state registration, allowing one to practice geoscience in California in the public domain. But recognition of professional status within the petroleum geology "fraternity" can best be obtained by becoming certified as a Certified Petroleum Geologist (CPG) by the DPA of the AAPG. After all, the AAPG is the premier professional association for petroleum geologists worldwide. It is the AMA, ADA or ABA of our profession.

There are currently approximately 100 CPGs in the Pacific Section who have seen fit to go through the certification process. This alone does not give us the right to practice geology in California - state registration is required for that. But AAPG certification does grant us credibility with industry investors and operators. It also gives us increased recognition by peers and federal governmental agencies, and ensures credibility to the public by enforced ethical standards.

DPA certification also gives us a stronger voice in both industry and governmental affairs through the established committees within the DPA. These include the Governmental Affairs Committee and its Instant Response subcommittee, the Model Form Professional Agreements Committee and the State Registration Committee.

These committees constantly strive to keep abreast of current activity in their respective areas of interest, and take appropriate action when required to further the interests and wellbeing of our profession. Believe me, these are "active" committees.

What are the requirements for DPA certification? You must be an active member of AAPG and a college graduate with at least 45 quarter-hours of geological course work. You must also have at least 8 years of experience doing petroleum geologic work (7 years with a masters degree, or 5 years with a PhD).

You must find three certified AAPG members (or active members who are qualified certification) to act as sponsors. These sponsors must be able to attest to your scientific competence and high professional and ethical standards. You must also find three additional references who will vouch for your character, integrity and responsibility within your local community.

Interested? Contact the Membership Department of the AAPG for application forms: AAPG, P.O. Box 979, Tulsa OK 74101-0979. Or talk with John Howe or myself, or any of the other CPGs in the Pacific Section.

BRANNER CLUB IS 74 YEARS OLD

The Branner Geological Club of Southern California was founded in 1921, when 34 charter members met on July 29 at the Gingham Dog and Calico Cat Restaurant at 7th Street in Los Angeles. Ralph Arnold and William S. W. Kew of the US Geological Survey were the organizers of this informal club. Arnold became the first president.

Why Branner Club? It was named for Dr. John Casper Branner, former state geologist of Arkansas, who started the geology department at Stanford University and trained many Southern California geologists. Branner was named the first honorary member of the Branner Club along with James Perrin Smith of Stanford, J.C. Merriam of the Carnegie Institute and Andrew Lawson of the University of California, Berkeley.

The club was founded at a time when geologists of one petroleum company could not associate with geologists of another company.

The Constitution reads that the Branner Club was started, "...to foster the study of geology in Southern California and stimulate good fellowship among geologists...those actively engaged or interested in some phase of science...and cooperation with kindred scientific associations in Southern California..."

Branner Club meets quarterly at the Athenaeum at the California Institute of Technology in Pasadena.

As one reads through the names of presenters throughout the years since 1921, it reads like a litany of geologic history that includes Harold W. Fairbanks, George Louderback, William Morris Davis, Chester Stock, A. O. Woodford, Ralph Reed, Harold Hoots, Eliot Blackwelder, Ian Campbell, Beno Gutenberg, Thomas Clements, Francois Matthes, Francis Shepard, Hugo Benioff, Roger Revelle, Aaron Waters, Harry Hess, Richard Jahns, Robert Sharp, Gordon Eaton, Eugene Shoemaker, Charles Richter and Martin Stout.

THE BRANNER CLUB — FEBRUARY MEETING

- Date: *Thursday, February 8, 1996*
 Place: *The Athenaeum, Cal Tech, Pasadena (Hill Ave & California Blvd.)*
 Time: *Social Hour: 6:00 p.m.; Dinner: 7:00 p.m.; Meeting and Talk: 8:00 p.m.*
 Price: *\$30.00 - Students are half-price. Introduce a colleague or friend to the Branner Club and the Athenaeum - special price of \$25 for newcomers*
 Speaker: *Dr. Robert E. Crippen*
 Topic: *Visualizing the Earth's Crust: Geomorphically, Spectrally, Temporally and Seismically*

RESERVATIONS ARE IMPERATIVE. Please phone by Tuesday, February 6, 1996. Martine Alter (818) 248-7715.

LETTERS TO THE EDITOR

I can't remember when I was so pleased to read a PPG Newsletter. What a delightful breath of fresh air. After reading through it a couple of times, I seemed to detect the inescapable aroma of the way the PacSec used to be when we were all out there having fun and working our butts off, doing geology.

For too many years past, the executive committee seemed to have forgotten how or why our group ever got started. Your latest edition was just about what it was like when it was at its very best - only yours seems much better, with insightful, timely useful and amusing articles. I could hardly believe my eyes. It was like having a photo-brown filter lifted.

The President's Message told me WE were finally back on track in understanding the fiscal nature of the PacSec and the source of funds for Publications. Our people have put out some uniquely great guidebooks and other useful tomes throughout the years. Your obvious emphasis on getting us back on the track is - to me and others out there who worked earnestly toward the Publication goal, most warmly heartening. We've had too many years of doldrum in between - can't tell you how great it is to have you finally on board.

— Richard L. Hester

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PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

MARCH 1996 NO. 2

A MESSAGE FROM THE PRESIDENT

I have just returned from what was billed as the last organizational meeting prior to the San Diego Convention, May 19-22. Advance registration is going quite well with more than 1,100 attendees committed so far. Two of our field trips have sold out and the others appear to be making good progress toward their minimum break even points. A couple of our short courses are also doing fine in terms of registration, but several still need more participation to avoid being dropped. The exhibit area is doing better than ever with a greater number of exhibitors than the recent excellent participation at the Denver and Houston national conventions. Advance registration closes April 10 and we will be making our go-no go decisions on short courses and field trips shortly thereafter. Don't wait until it's too late to add a field trip or short course to your Annual Meeting experience! Remember what a value these trips and short courses are. You might pay two or three times these prices any other time.

Another very exciting aspect of the convention is the field trip guidebook which will cover thirteen trips not already having published guidebooks. Pat Abbott of San Diego State University and John Cooper of California State University, Fullerton are editing this volume which will be fresh off the presses for the San Diego meeting. The volume is co-sponsored by the Pacific Section AAPG (that's us!) and the Pacific Section SEPM.

One featured trip being heavily subscribed to is a Santa Fe Energy-sponsored trip to examine the geology of the Midway-Sunset Oil Field. This trip runs Friday, Saturday, and Sunday before the convention. Tor Nilsen, Buddy Wylie, and Glenn Gregory are leading the trip. Rumor is that Santa Fe is publishing a field guide in color for this trip. Should be a great experience.

The most popular trip thus far is John Minch's Geology and Culture of Northern Baja. He and Jorge Ledesma-Vazquez have agreed to add a second bus. A good time will be had by all who go on this trip.

Spouse events at San Diego, including trips to the San Diego Zoo, Tijuana, the Wild Animal Park, and the Hotel del Coronado are also being heavily subscribed. Special events, including the Jazz and Cocktail Cruise, the Natural History Museum Reception and the Evening at Sea World have actually been filled, but each has been increased about 50% to accommodate stragglers. Plan to go, but don't hesitate, the registration deadline is April 10. See you in San Diego!

The Pacific Section is again proud to be able to offer financial assistance awards to students at several colleges and universities in the Southern California area for the purpose of attending the convention. The awards include student registration, a luncheon, and about \$50 spending money. The awards are funded by the earnings and contributions from our Van Couvering fund; a fund established specifically for this purpose.

Students can also earn registration, lunch, and a \$25 book store coupon for volunteering to work for one day at the convention. Students should contact Monte Marshall at San Diego State (619)594-1394 or Fax (619)594-4372.

— Mark L. Wilson

STUDENT ASSISTANTS

are needed for the
1996 AAPG Annual Convention
May 19-22 – San Diego

For more information contact
Monte Marshall
San Diego State University
Dept. of Geology

(619) 594-1395 • Fax (619) 594-4372
E-mail mmarshall@geology.sdsu.edu

DELEGATE'S CORNER *by Earl Cummings, SJGS*

Q: What do the following have in common:

- Cave Legislation
- Wetlands Losses
- Mud Pit Strategies
- Risk Management
- CERCLA (Super fund)???
- NORM (naturally occurring radioactive material)

A: They have all been topics addressed in "Reporter" ... a quarterly publication of AAPG's Division of Environmental Geoscience (DEG).

Environmental legislation has been significantly impacting industry and our individual lives since the early 1970's. The DEG was formed in 1992. It is a direct outgrowth of AAPG's ongoing involvement in environmental issues. As of January 1995, DEG membership stands at 3,205.

The new division offers AAPG members an opportunity to increase their knowledge about environmental issues which tie to the Petroleum industry. Ongoing DEG activities include: training courses, promotion of appropriate environmental practices, publication of a Journal and Newsletter, and sponsorship of sessions at regional, national, and international conventions. Additionally, the DEG:

- supports and encourages research on Petroleum Industry environmental effects,
- has been establishing ties with other professional societies, and
- provides a scientific voice in the public arena.

A goal associated with the latter is the promotion of science as a basis for environmental law, including the application of the geoscience.

If you would like to become more knowledgeable about how environmental law (and regulations) impact the industry, check-out the DEG and the local programs they sponsor in your area. For example the local SJGS-DEG meetings occur prior to the SJGS meetings every other month.

For information on joining DEG contact the National AAPG office in Tulsa by calling (918) 584-2555.



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Super Science Bowl Saturday

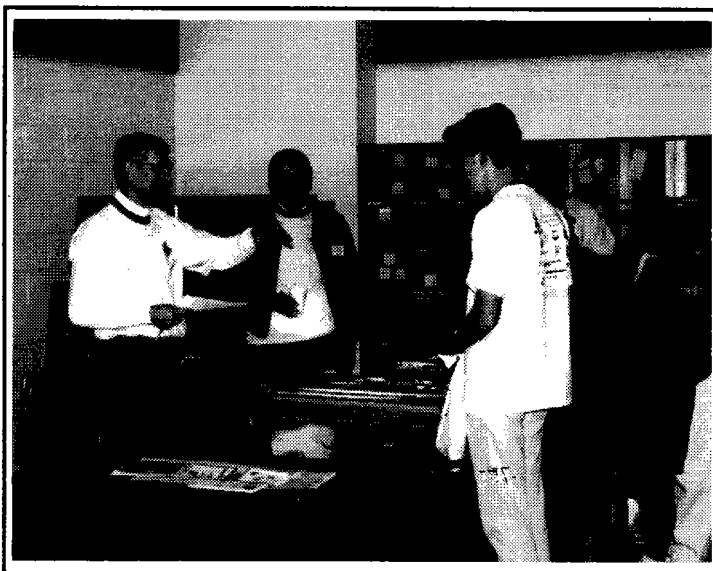
Thirty five teams from 15 different high schools went head to head on January 27, 1996 at Ridgeview High School. Teams from Tehachapi, Stockdale and Bakersfield High School presented a tough challenge during the final rounds, but once again Highland High School finished on top at the 4th annual Kern County Regional Science Bowl, hosted by Elk Hills.

Science Bowl is a competition where teams consisting of 4 students and 1 alternate play against one another very much like the "Jeopardy" TV show. Students answer questions about physics, chemistry, mathematics, physical science, computer science, astronomy and general science.

The top 3 teams won scholarships to the school of the choice, including a \$1000 scholarship donated by AAPG. Highland High School's Blue team, the winning team, will go to Washington, D.C. to compete against 53 other teams at the National Science Bowl on May 3-6.

Three Science Enhancements Booths gave the students an additional opportunity to solve science related problems during their spare time. The problems are designed to be challenging and at the same time intriguing. Each member of the winning teams for the Science Enhancement Booths received a ticket to Magic Mountain, 1 hour of pool at Jimmy's Arcade and coupon for Camelot Park.

Geologists were well represented as coaches, scientific judges, moderators, rules judges, scorekeepers, timekeepers and Science Enhancement Officials. Volunteers included JoAnn Conard, BPOI; Joe Davidson, BPOI; Bob Dennis, STA; Paul Henshaw, CUSA; Larry Knauer, BPOI; Jana McIntyre, BPOI; Mark Milliken, DOE; Joe Nahama; Phil Rarey, CUSA and Ginny Weyland, DOE.



Paul Henshaw (CUSA) and Dan Fargo (Core Lab), helping students at Science Bowl '96.

**New Cross Section
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**CS 30 Central Ventura Basin:1995
(T5N/R19W to T1N/R18W);
T.E. Hopps, H.E. Stark, R.J. Hindle,
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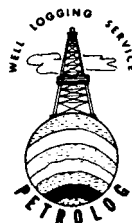
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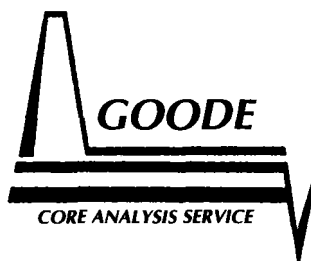
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1996 Community Energy Night

The 1996 Community Energy Night is scheduled for Wednesday, April 24, 1996 at the Holiday Inn Select, Bakersfield. The purpose of this event is to provide an opportunity for exchange between members of the Bakersfield-area community and members of the oil industry in a social setting. The event is hosted by the CEN Board, which has the support of eighteen oil industry organizations, and is funded by the local oil industry.

The CEN event will include a social hour with a no-host bar, dinner, and an after-dinner program. The main speaker will be Mr. David Kilpatrick, Division Manager of Santa Fe Energy Resources. In addition, a Pyle's Boys Camp film will be highlights. Oil industry sponsorships and tickets will be on sale January, 1996 for \$30 per person. For more information, please contact Lynn Sampson Smith at (805)321-4338.

NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Alaska

3/28/96 - 11:30 Pre-lunch Activities, 11:45 Lunch Served

Anchorage Hilton, 500 W. 3rd Ave., Aleutian Room

Program: Subduction-zone Model for Gold in the Chugach Mountains, presented by Peter Haeussler, USGS.

This will be a joint meeting with the Alaska Miners Association.

Please contact Agatha Rutka at ARCO, 263-4414 for reservations.

Alaska Geological Society
P.O. Box 101288

Anchorage, AK 99510

Contact: Tim Ryherd (907) 762-2140

Northern California

3/18/96 - Dr. Bernard Duval, Institut Francais du Petrole, France, AAPG Distinguished Lecturer

4/20/96 - Geo Scientist PicNic, Black Diamond Mines

5/4/96 - Spring Field Trip, Anna Buising

6/15-16/96 - 2-Day Field Trip, Coleman/Graham

No. Cal. Geological Society
9 Bramblewood Court

Danville, CA 94506-1130

Contact: Dan Day (510) 294-7530

Los Angeles Basin

Luncheon meeting alternate third Thursdays at noon at Unocal Center, Los Angeles.

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505

Contact: Mark Legg (310) 378-6254

Northwest

Please call Shelley Thomas at (503) 693-9822 (please leave message on machine if no answer) or Treck Cardwell at (503) 220-2573.

Northwest Energy Association
P.O. Box 6679

Portland, OR 97228-6679

Contact: Bill Rodgers (503) 294-9681

Coast

4/16/96 - Dr. Tanya Atwater, UCSB, "A Billion Years of Plate Tectonics in Western North America" - Joint Meeting with Association of Women Geoscientists (AWG) and Scholarship Night!

5/21/96 - Joint Meeting with Groundwater Resources Association (Topic TBA)

Coast Geological Society is donating \$1,000 to the Dibblee Foundation in order to sponsor the upcoming publication of the Newhall and Mint Canyon Quadrangles. CGS is proud to contribute to this effort, and equally proud of our long-standing relationship with the Dibblee Foundation.

Santa Paula Union Oil Museum, 1001 East Main Street, is featuring "Animals and Art", a collection of rare bird paintings by Jessie Arms Botke. On permanent display are artifacts reflecting the history of oil exploration and development in Ventura County.

On February 20, 1996, our featured speaker was Dr. Peter Weigand, California State University, Northridge. He spoke on "Equador and the Galapagos - Volcanoes and Animals".

Abstract: The Ecuadorean Andes are dominated by strato-volcanoes of Quaternary age, none of which have been active over the past 450 years. Vulcanism is related to the subduction of the Nazca Plate beneath the South American Plate. In contrast, the vulcanism of the Galapagos Islands, on

one of the most active groups in the world located 1,000 km west of the Ecuadorean coast, is related to the Galapagos Hotspot. The islands support a limited but extremely diverse flora and fauna. Darwin, after a five-week stay in 1835, recognized that the islands were geologically young, had never been connected to the mainland, and were separated from each other. His observations and insights lead to his theories of evolution and natural selection published in *The Origin of Species* in 1859.

March 19, 1996

Program: AAPG Distinguished Lecturer, Bernard Duval "Solving Geoscience Problems in the Coming Century by Integrating New Technologies and Different Disciplines"

At the turn of the century, oil and gas exploration is becoming more difficult as petroleum provinces are attaining maturity. Thus the need to find more "subtle" new fields is critical. Geoscientists can make a major contribution, provided they take into account all parameters controlling petroleum systems, make the best use of available technologies, and are prepared to work within integrated teams. The lecture describes multidisciplinary approaches to petroleum exploration. These same concepts and methodologies are receiving increased attention in other areas where earth sciences are applied, like mining and environment.

Coast Geological Society
P.O. Box 3055

Ventura, CA 93006

Contact: Bernie Sentianin
(805) 656-4677

***** OFFICIAL NOTICE *****

Candidates for office in the PACIFIC SECTION AAPG 1996-1997

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Paul Henshaw

WZI
Chevron

Secretary

Terry Thompson
Jaime Roig

Bechtel Petroleum
Berry Petroleum

Ballot and biographies/photographs will be published in the May Newsletter. Any comments or changes regarding this ticket must be submitted to the PS-AAPG Executive Committee by May 1, 1996.

San Joaquin

April 9: "Wes Bruer Night"

A new feature is being added to the SJGS technical program. Poster exhibits will be displayed during the "attitude adjustment" hour to stimulate intellectual discussions. Dr. Bob Horton and Nat MacKevett will be our first poster presenters. The evening technical presentation will soon be announced. Watch your mailbox!

April 10: 8:00 a.m. - 12:00 p.m. "Economic Evaluation of Oil Properties for Geologists" presented by Jim Weddle and Donna Thompson, San Joaquin Energy Consultants at Chevron. \$35 if registered prior to noon April 8. \$40 late registration. Price includes BBQ lunch provided by CoreLab. Proceeds to benefit the Core Repository. Contact Mike Simmons (805) 321-4113 for more information.

May 14: "CSUB Night"

Students from CSUB will exhibit posters and make oral presentations on current research topics of interest to all!

June 11

Tony Reid and Henry Walrond will present posters for your enlightenment. The evening technical presentation will soon be announced.

Mark your calendars today! Meetings will be held at the American Legion Hall, 2020 "H" Street, Bakersfield, CA. As usual, attitude adjustment begins at 6:00 p.m. with dinner at 7:00 p.m. followed by the technical program.

San Joaquin Geological Society
P.O. Box 1056

Bakersfield, CA 93302

Contact: Richard Hager (805) 665-3732

Sacramento

Noon luncheon meetings are held at the **HUNGRY HUNTER RESTAURANT**, 450 Bercut Drive, Sacramento.

For luncheon reservations, please call Rose Kuntz at AA Production Inc., (916) 641-9360, at least one day in advance.

March 6th

Risk Based Corrective Action. Lawrence Livermore Labs (LLL) recently produced a report on petroleum contaminated sites and how money has been wasted on cleanup activities. The LLL report suggested that contaminated sites be evaluated on a risk basis and "low risk" sites be closed. Owen M. Kittredge, Senior Project Manager, Delta Environmental Consultants, Inc.

March 20th

Regulatory and Market Developments affecting the Natural Gas Industry. Brian Sway, Independent Producer, Arena Resources Corp.

Unocal Sells California Oil & Gas Fields

Sacramento Bee, 2/21/96

In a continuing trend by major oil and gas fields in California for \$500 million to a fast-growing independent company, **Nuevo Energy Company** of Houston. John Myers, who is the oil analyst for exploration and production at **Morgan Keegan & Co.** of Austin,

Texas, said the acquisition would triple Nuevo's oil and gas reserves and thrust the company formed in 1990, into the ranks of the mid-sized independents.

The fields involved belong to Unocal's California subsidiary, **Union Oil Co. of California**.

Mobil Scraps SoCal Drilling Operation

Associated Press

SANTA BARBARA—Mobil Corp. has killed plans for a slant drilling operation to tap undersea oil deposits from onshore wells.

The company cited financial reasons. Conservationists who have been fighting the project for three years claimed a victory.

"When you consider all the business factors, there are better opportunities for Mobil and our stockholders than the Clearview Project. For this reason we have decided not to go forward," said Mobil Area Manager Terry Laudick.

"We're obviously very thrilled," said Linda Krop, senior staff attorney with the Environmental Defense Center.

"We've been working with a broad range of Community groups for the last three years trying to convince Mobil that this is the wrong place for the project," Krop said after the announcement Thursday.

The University of California, Santa Barbara, which leases the site to Mobil,

also opposed the plan. The school said it was planning student and faculty housing nearby.

Mobil had said that by using advanced drilling technology to reach "sideways," it could take oil from the 155 million-barrel South Ellwood Offshore field. The company said it would be able to pump reserves that can't be reached from offshore Platform Holly.

The project would have meant building a 175-foot tower on university land and pumping the crude to Mobil's refinery in Torrance, 110 miles away.

Environmentalists said the project would set a dangerous precedent and could pollute nearby schools, neighborhoods, beaches and a nature preserve.

"We thought the Clearview project was incompatible with surrounding land uses, current and proposed, both residential and recreational," said Robert Kuntz, UCSB's assistant chancellor for budget and planning.

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Fuel for Thought



Geologist K.D. White, 1916

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- **Distinguished Lectures**

Eight AAPG Lecturers spoke to 6,440 people in 106 societies and universities last year. Expenses were \$134,770, of which the Foundation could fund only \$28,910.

- **Secondary Education**

146 teachers attended Denver Earth Science Project's training modules in 1995. The AAPG Foundation currently provided \$15,000 toward this program. Continued support is needed for 1996 training workshops.

- **Energy Resources Library**

This Library is fully funded by the AAPG Foundation. It is open for walk-in service, as well as mail, phone, FAX, or E-mail requests. As they learn about it, more and more people are utilizing the Library each year. No designated Fund exists for the Library, but gifts so specified will help maintain up-to-date technology, resources, and qualified staff.

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A GAGGLE OF GEOLOGISTS + ONE

A gathering in the oilpatch, a year ago last July, to say happy trails to Maurice Fishburn who retired from the Department of Energy at Elk Hills. Just to be "politically correct" we made sure to include the gentleman in the upper right corner. He is a petroleum engineer.



(back row: left to right) Russ Simonson (consultant), Stuart Smith (consultant), Terry Thompson (BPOI), Kevin Beacom (STA), George McJannet (DOE), Mark Millikan (DOE), Tony Reid (BPOI), Mark Wilson (BPOI), Harvey Deutsch (BPOI/LANDMARK), Joe Davidson (BPOI), Mark Querin (DOE engineer);

(middle row: left to right) Norm Stone (CUSA), Jana McIntyre (BPOI), Kay Pitts (BPOI), Maurice Fishburn (DOE, ret.), Ginny Weyland (DOE), Leon Earnest (BPOI), Stan Obernyer (STA);

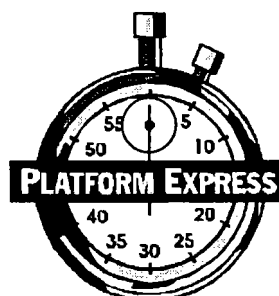
(front row: left to right) Dick Darrow (CUSA, ret.), Orville Hart (CUSA, ret.), Larry Knauer (BPOI), John Fricke (CUSA)
Photo by Ray Wilson



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ENERFIN ACQUIRES \$11 MILLION IN CALIFORNIA AND OREGON OIL AND GAS PROPERTIES

HOUSTON, TEXAS – Enerfin Resources Company announced today the acquisition of numerous natural gas production properties located in California and Oregon. The properties owned by Nahama & Weagant Energy Company of Bakersfield, California and Oregon Natural Gas Development Corp., a subsidiary of Northwest Natural Gas Company of Portland, Oregon. The California properties consist primarily of majority interests in eight natural gas fields in the Sacramento Basin and an interest in the Round Mountain Field, an oil production property located in the San Joaquin Basin. The Oregon property consists of a 100% interest in a significant portion of the Mist Field, including approximately 60,000 undeveloped acres and a natural gas pipeline gathering system. The Mist Field, with original recoverable reserves of 60 Bcf, is the only commercially producing natural gas field in the state of Oregon.

Houston based Enerfin will operate most of the properties acquired and has opened offices in Bakersfield and Sacramento, California in connection with the acquisition. The total acquisition is valued in excess of \$11 million.

"These properties off the company promising exploration prospects, added diversification to our gas pipeline and processing businesses and augment the company's overall growth strategy. We will increase existing production with operational improvements while selectively developing and exploring for natural gas on the properties" states Donald W. Keller, president and CEO of Enerfin.

Enerfin Resources is a privately held company based in Houston Texas. In addition to the California and Oregon properties, Enerfin and its affiliate partnerships, own and operate natural gas pipelines, processing plants and oil and gas production in Texas, Oklahoma and Alabama. The Company also markets natural gas and natural gas liquids and has managed several business turnarounds during the past few years. The company continues to actively pursue the acquisition of additional natural gas pipeline, processing and production properties.

ENVIRONMENT AND SAFETY

The following article appeared in the January, 1996 issue of "Journal of Petroleum Technology"

Seismic • Exxon Corporation faced protests late last year over its plans to conduct a seismic survey offshore California, near Santa Barbara. The U.S. National Marine Fisheries Service granted Exxon permission to discharge 240-decibel underwater air blasts during the proposed 45-day survey. The agency said the blast would result in more than 2,000 incidents of whale "harassment". Environmental groups said the survey could harm nine species of whales. Plans call for approved observers to monitor operation 24 hours a day. Exxon planned to set up safety zones around the seismic boat, suspend operations if any mammals were spotted within 500 feet of the mapping area, and lower the decibel level if whales were detected within 1,476 feet.

CLINTON DEPLOYS VOWELS TO BOSNIA

Cities of Sjlbdnzv and Grzny to be first recipients.

Before an emergency joint session of Congress yesterday, president Clinton announced US plans to deploy over 75,000 vowels to the war-torn region of Bosnia. The deployment, the largest of its kind in American A,E,I,O and U, and its hoped to render countless Bosnian names more pronounceable.

"For six years, we have stood by while names like Ygrjvslhv and Txlynhr and Glrm have been horribly butchered by millions around the world," Clinton said. "Today, the United States must finally stand up and say, 'ENOUGH!' It is time the people of Bosnia finally had some vowels in their incomprehensible words. The US is proud to lead the crusade in the noble endeavor."

The deployment, dubbed "Operations Vowel Storm" by the State Department, is set for early next week, with the Adriatic port cities of Sjlbdnzv and Grzny slated to be the first recipients. Two C-130 transport plane, each carrying over 500 24-count boxes of "E's", will fly from Andrews Air Force Base across the Atlantic and airdrop the letters over the cities.

Citizens of Grzny and Sjlbdnzv eagerly await the arrival of the vowels. "My God, I do not think we can last another day," Trszg GrzdnjklN, 44, said. "I have six children and none of them has a name that is understandable to me or anyone else. Mr. Clinton, please

send my poor wretched family just one 'E', please."

Said Sjlbdnzv resident Grg Hmphrs, 67: "With just a few key letters, I could be George Humphries. This is my dream."

The airdrop represents the largest deployment of any letters to a foreign county since 1984. During the summer of that year, the US shipped 92,000 consonants to Ethiopia, providing cities like Ouaouoaua, Eaoliuae, and Aao with vital, life-giving supplies of L's, S's and T's. The consonant-relief effort failed, however, when vast quantities of the letters were intercepted and hoarded by violent, gun-toting warlords.

The California State University Bakersfield Geology Club, a student chapter of the AAPG, hosted a AAPG distinguished lecturer on Friday, March 1st at the American Legion Hall. All proceeds went to the CSUB Geology Club.

1995-1996 AAPG Distinguished Lecturer

Byron Kulander

Department of Geological Sciences

Wright State University, Dayton Ohio

FRACTOGRAPHY APPLIED TO INVESTIGATIONS OF CORES, OUTCROPS AND FRACTURED RESERVOIRS

Fractography focuses investigations on the topography of fracture surfaces. This topography is composed of fractographic features produced by changing stress magnitudes and directions along the advancing crack tip. Fractographic features commonly useful in core and outcrop analysis include the origin, twist hackle, inclusion hackle, and rib marks. These structures develop during brittle failure by Mode I loading at the crack tip and act together to form a hackle plume. Fractographic components show, to the limit of visual scale, the principle stress directions, as well as relative stress magnitudes and propagation velocities, that existed at the advancing fracture front. This information contributes to more meaningful conclusions in fracture investigations.

In core studies, fractography aids identification of induced and natural

fractures. Induced fractures and fractographic features show distinct geometry with that of the core and reflect the effects of the core boundary, in-situ stresses, drilling stresses, and rock anisotropies. Certain drilling and coring-induced fractures possess orientations and fractographic features that suggest the direction of minimum in-situ stress and that this direction may change abruptly within the drilled volume of rock. Cored natural fractures generally originated away from the bit and possess fractographic features that bear no geometrical relationship to core parameters. However, fractographic information from a small segment of the fracture may permit extrapolation of fracture characteristics away from the well. Abrupt changes of natural fracture strike and development of twist hackle suggest locally complex paleostress distributions. A combined knowledge

of in-situ stress and natural fracture trends is useful in predicting reservoir permeability.

In outcrop, fractographic features, including abutting relationship between joints, more readily depict order of development, intra stratum distribution of fracturing stress, and size for joints in any set. Outcrop and core data may permit partitioning of joint patterns into domains separated by distinct domain boundaries. The unique joint signature within a domain reflects stresses responsible for joint development. In-situ stress and joint-derived paleostress trends might be partitioned into domains by the same domain boundaries. This congruity suggests the long-standing effect of regional geological features on stress configurations.

MOVING ON...



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EARLY SOIL GAS SAMPLING METHOD

In a recent discussion concerning soil gas sampling with my good friend and geologist, Mark A. Nahabedian, I learned of an early, inexpensive technique used by prospectors in and near Baku by the Caspian Sea. Mark's grandfather had seen this method used right after the turn of this century. Sizeable buckets of water were positioned at stations about 1000' apart. A shovel full of soil from about one to two foot depths was deposited in the water bucket. A day later, the water surface in the bucket was carefully examined for an oil sheen and the results were posted on a map. Well locations were made on the basis of these soil oil-show sites, and a fairly good success ratio resulted. This technique, although very primitive when compared with today's soil gas sampling and measurement methods, may have had a higher degree of accuracy than one might suspect. Also, the degree of surface contamination was far less than it is now. Near vertical migration of a gas bubble with oil affinities was considered to be the tie-in to a direct hydrocarbon accumulation detection method.

- Nat H. MacKevett

THE GEOLOGY AND PERFORMANCE OF THE MAIN BODY B -WESTERN 31S WATER-FLOOD PROJECT, ELK HILLS FIELD, CALIFORNIA

**by Mark L. Wilson,
Bechtel Petroleum Operations, Inc.
and George S. McJannet, Department of Energy**

INTRODUCTION

The Elk Hills oil field is located about 25 miles west southwest of Bakersfield in Kern County, California (fig. 1). The field has an anticlinal surface expression. The field produces about 60,000 barrels of oil per day and more than 360 million cubic feet of gas per day from Pliocene and Miocene sand and shale reservoirs. Elk Hills has produced more than 1.1 billion barrels of oil.

Although there is some production at Elk Hills from the Carneros zone, the vast majority of Miocene production is from the Elk Hills shale member of the Monterey Formation. The Elk Hills shale member contains a number of thick sand reservoirs including the Main Body B, Western 31S, 26R, and Northwest Stevens. The sands are correlative to other Miocene sands called the Stevens Zone elsewhere in the Southern San Joaquin basin. At Elk Hills the oil productive shales that encase the sands are also called Stevens zone.

The Main Body B - Western 31S peripheral waterflood in the Elk Hills field currently produces about 16,000 barrels of oil per day or one-fourth of the field's production. Although placed in very complex turbidite reservoirs, the project will ultimately produce about 40% of its original oil-in-place due to early pressure maintenance, sweep efficiency of the waterflood process, and relatively low well spacing (10 acres). Currently ultimate recovery is projected to be 244 million barrels.

The project is divided into two reservoirs. The Main Body B (MBB) is by far the larger of the two having produced 128 million barrels with 84 million barrels of remaining reserves. The Western 31S (W31S) has produced 27 million barrels with remaining reserves of 5 million barrels. The percentage ultimate recovery from each is expected to be similar.

The MBB and W31S reservoirs are of similar origin but each is reacting differently to peripheral injection. The MBB sands are continuous enough to allow this rapid floodfront movement upstructure. The W31S fluid appears to have stalled out and has not moved upstructure significantly in 13 years. The W31S is much thinner and less laterally continuous than the MBB and owes the success of its waterflood to high dips and a significant production contribution from gravity drainage. The MBB, in contrast, has experienced rapidly moving piston-like displacement of oil upstructure in low to moderately dipping reservoirs.

STRUCTURE

Both the MBB and W31S reservoirs are on the 31S anticline, the largest of three structures that provide the structural trap for Stevens production at Elk Hills (fig. 2). The 31S anticline is about 9 miles long and 1.5 miles wide and is bent at about its mid point to form a banana-like appearance (fig. 3).

The eastern half of the anticline has structural relief of 2500 feet and plunges eastward toward the North Coles Levee field. The western half of the anticline has a structural relief of 2000 feet and plunges N60 W. The MBB and W31S project segments overlap with the younger MBB occupying the eastern two-thirds of the anticline and the W31S occupying the western two-thirds. Where they overlap the MBB and W31S are commingled in both producers and injectors. Dips on the eastern half of the anticline are lower ranging up to about 30, dips on the flanks of the western half of the structure can exceed 60.

STRATIGRAPHY

The Stevens zone at Elk Hills is divided into the N, A, B, C, D, and DD shales. The MBB and W31S sands are in the B interval and are roughly correlative to the Western sands at the North Coles Levee field. The W31S sands are stratigraphically lower than the MBB sands.

The MBB and W31S sands have similar origins as turbidites. It is generally assumed that these turbidites originated on the Sierran side of the San Joaquin Basin and are the distal portion of large subsea fans. The sands are sub- angular and feldspathic. Fining upward sequences are the dominant bedform but only rarely does the grain size exceed medium to coarse sand. The occasional appearance of laterally correlatable debris and grain flows of similar thickness in the sequence, suggests that the permeability of the reservoirs is somewhat dependent on sorting in the source area of the sediments. The thickest fining upward sequence measured in core is about 9 feet thick and with a range down to less than one inch, the average sequence is 3 to 3.5 feet in thickness. In both the MBB and W31S, the relatively thin turbidites are amalgamated into thicker, correlatable layers (as shown by a typical log of the Main Body B reservoir - (fig. 4). Pay thicknesses of greater than 400 feet are reached in the MBB portion of the project.

Although each is a composite of similar depositional events the MBB and W31S are geometrically distinct. The MBB layers are laterally continuous and some of the layers can be readily correlated across the entire extent of the reservoir (fig. 5). Reservoir properties of these layers are also continuous, those layers that have good porosity and permeability are likely to have those properties over a relatively large area. The layers of the W31S in contrast are much less persistent laterally (fig. 6) and, in fact, some layers range from several tens of feet thick to virtual pinchout between the common well spacing of 660 feet (ten acre).

PRODUCTION HISTORY

The Stevens zone at Elk Hills was discovered in 1941. This initial discovery was on the 31S anticline. From its discov-

PRODUCTION HISTORY

The Stevens zone at Elk Hills was discovered in 1941. This initial discovery was on the 31S anticline. From its discovery until 1976 when the Stevens zone was opened up to full production, wells in the Elk Hills field were only periodically produced. This production was part of a program to hold the field in reserve as Naval Petroleum Reserve No. 1, to meet emergency fuel needs during wartime.

From its opening up in 1976, the MBB-W31S project area was developed on twenty-acre spacing. Pressure maintenance was early on deemed advantageous and gas injection began in 1976. Pilot peripheral water injection began in 1979 and was expanded to full pressure maintenance in 1983. First row injectors were drilled at the oil-water contact and when the first row of producers watered out, they were converted to injection. Although waste water from the shallow oil zone was used in the pilot, all subsequent injection has used relatively fresh water (6000 ppm) from shallow source wells drilled into the Pleistocene Tulare Formation. The Tulare water has caused some compatibility problems with Stevens water which has about 30,000 ppm dissolved solids. Poorer quality Stevens sands have up to 30% swelling clays. These clays swell when contacted by Tulare water. In addition, the Tulare water exhibits scale formation tendencies. Fortunately, because scale formation is related to a decrease in pressure, scale formation is restricted to perforation tunnels, casing and tubulars at the producers where it can be removed.

From the onset of peripheral water injection, the goal of the project has been pressure maintenance through balancing voidage. Prior to initiation of water injection, a secondary gas cap had formed in both the MBB and the W31S. This gas cap resulted from primary depletion and gas injection. Wells in the gas cap have not been produced and a nominal gas-oil ratio of 5000 has been used to limit production to a voidage that could be readily replaced by water injection. Water injection has filled the reservoir from the bottom up banking oil into upstructure locations previously occupied by gas. Infill wells have been drilled to exploit that banked oil, those wells in general have been drilled on a ten-acre spacing based on a combination of accelerated and incremental-recovery economics.

CONCLUSIONS

Peripheral injection has produced surprisingly different results in the MBB and the W31S. In the MBB with relatively continuous sand layers and low to moderate dips, peripheral injection has produced a rapidly moving floodfront where active production is confined to two or three rows of producers. Today, wells are watering-out more than one-half mile from the injector locations. Moving injection upstructure is only just now being considered. In the W31S, after twelve years of peripheral injection, most producers are still first and second line wells.

Despite the fact that one flood appears to be progressing rapidly and the other not, both appear to be recovering an equal percentage of original oil-in-place in about the same rate.

Several factors probably account for the similarity of results. The turbidites that make up the MBB are more laterally continuous (fig. 5) than those that make up the W31S and the success of the waterflood in the MBB is more readily explained. The W31S sands are less continuous but are thickest on the flanks of the structure. (fig. 6) A factor in overall recovery, therefore, is the fact that most of the reserves are just up dip of the injectors. Apparently, the steeper dips present on the western end of the 31S anticline also allow a much more complete fill up and more efficient displacement of oil than might be possible in a more rapidly progressing flood. Gravity drainage is also a significant factor related to the steeper dips. Several W31S wells have cumulative production higher than oil-in-place on a ten-acre spacing basis.

ACKNOWLEDGMENTS

The authors would like to thank their geologic colleagues at Elk Hills, especially Maurice Fishburn of the Department of Energy, Tony Reid, Malcolm Allan and Ridge Dorsey of Bechtel Petroleum Operations, Inc. who have contributed to our understanding of Stevens reservoirs like the Main Body B and Western 31S. We would also like to thank Sherry Hall, June Hale, and Pat Atkins who helped prepare this paper as well as the management of DOE and Chevron for permission to publish this information as presented in SPE paper #35673.

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Starcher, M.; Engineer, R.; Nelson, M.; and Wilson, M.; 1996, Case History of the 31S Peripheral Waterflood Project, Stevens Zone, Elk Hills Field, California, SPE Preprint 35673 for Western Regional Meeting in Anchorage, Alaska May 22-24, 1996.

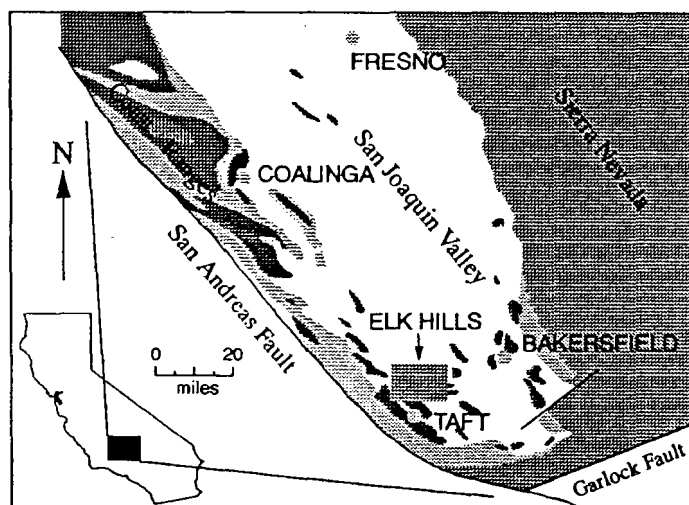


Fig. 1 - Location map of the Elk Hills oil field. From SPE Paper 35673.

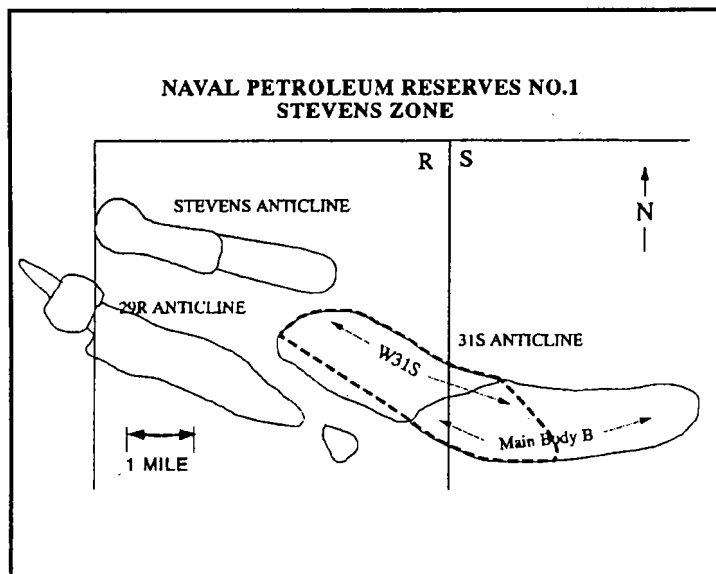


Fig. 2 - Anticlines at the Elk Hills showing areas of W31S and MBB project segments. From SPE Paper 35673.

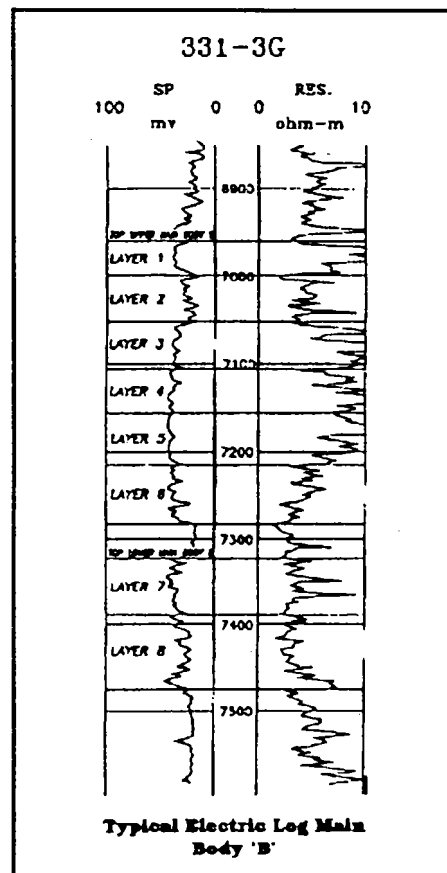


Fig. 4 - Typical log MMB showing layer correlations. From SPE Paper 35673.

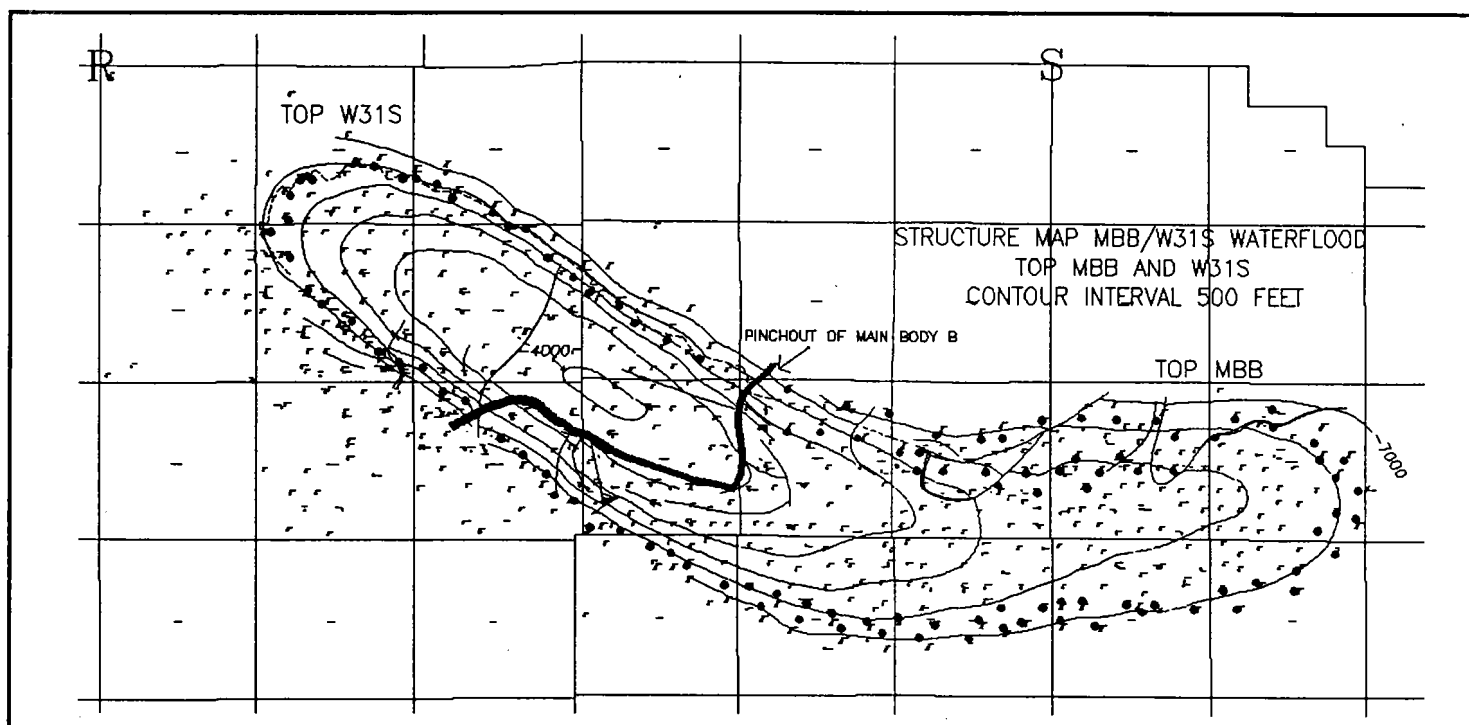


Fig. 3 - Structure map of the MBB/W31S waterflood project.

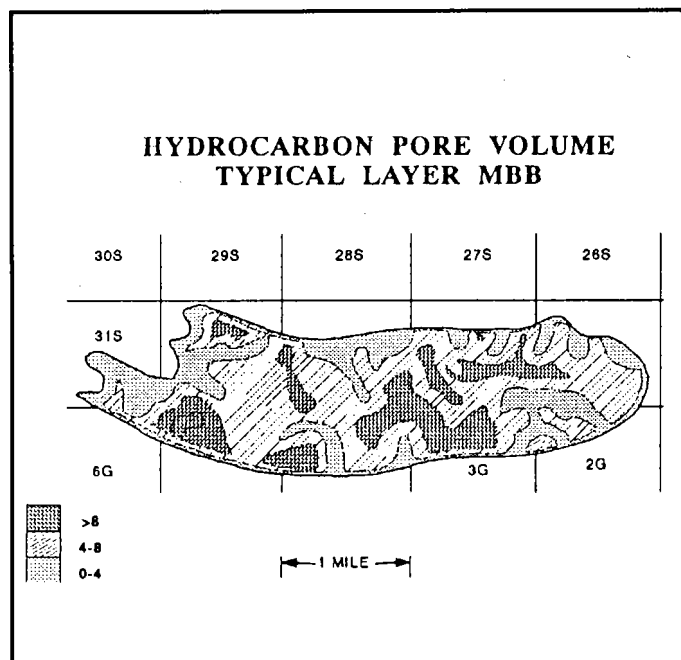


Fig. 5 - Typical Layer MBB demonstrating lateral continuity.
From SPE Paper 35673.

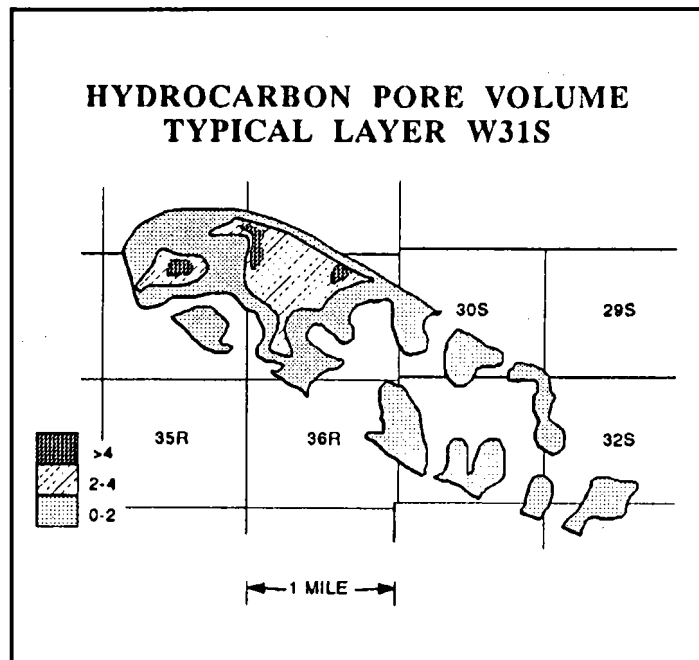
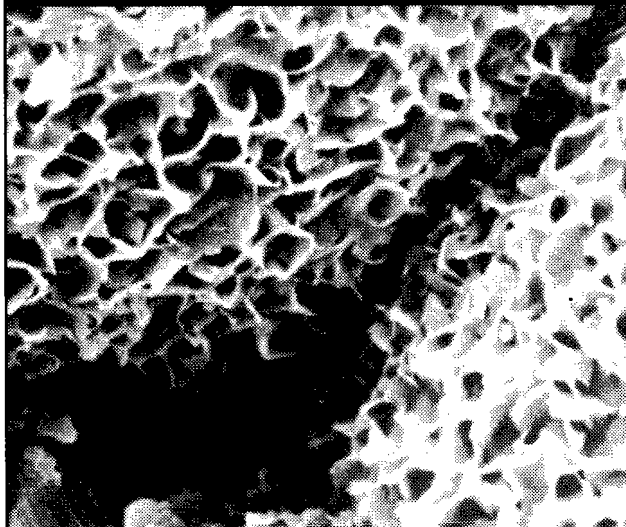


Fig. 6 - Typical Layer W31S showing discontinuity. From SPE
Paper 35673.

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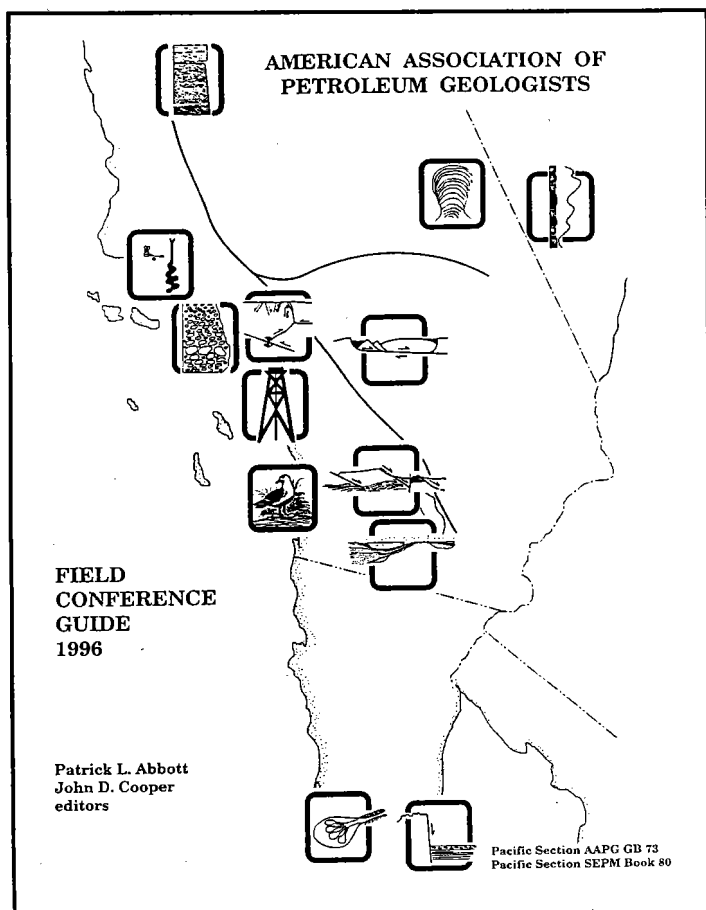
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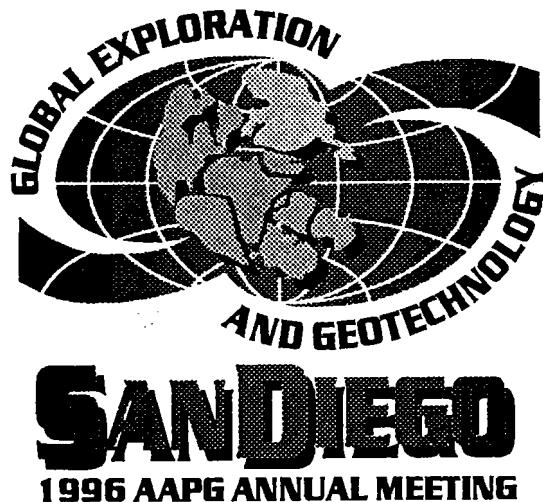
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This is the cover of the guidebook which includes information on thirteen of the field trips being held in conjunction with the National AAPG convention in San Diego, May 19-22, 1996. John Cooper and Pat Abbott are working their butts off getting this thing together. If you happen to see them at the convention, you might compliment them on their trim new look. The book will be available at the Pacific Section AAPG and the Pacific Section SEPM booths in the Exhibits Hall.



ECOLOGY FIELD TRIPS

*Sponsored by
Bureau of Land Management*

The Bureau of Land Management has initiated a program of monthly earth science field trips to points of ecologic, geologic, paleontologic and historic interest throughout central California. These trips are designed for persons of high school age or older. It is **not** necessary to have a technical background to attend or benefit from the trips.

These field trips are recommended for teachers and many of them can be taken for in-service continuing education credit through California State University Bakersfield. Each trip includes a full spectrum of environmental and land management topics. The field trips are conducted using buses or vans. Private vehicles are not used except in special circumstances. A field guide is prepared for each trip which includes maps and directions which can be used by anyone for self-guided investigation of the ecology along the field trip route.

1996 SCHEDULE

Mother Lode '96 Part I: Southern Mines — April 12-14, 1996

This two day field conference examines the mines, geology and mining history between Maricopa and Jackson. Saturday's trip will be from Jamestown to Jackson and Sunday's trip will be from Jamestown to Mariposa. There will be a Friday Evening Lecture Series in Jamestown at the Community Hall 7:00-9:00 p.m. on April 12.

Make check payable to Mother Lode and mail to Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308. For persons taking their own vehicles, registration is \$20.00 per person or \$40.00 per vehicle. If you have any questions or to register call Dr. Wilkerson at 805-391-6177 or write to MOTHER LODE c/o Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308.

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A stalwart band of volunteers spent the better part of a Saturday moving the inventory of Pacific Section publications out of the storage locker so that shelves could be built. We moved everything out, cleaned the place, built the shelves and moved everything back onto the shelves in about seven hours. We set up files with copies of all the past newsletters and the out-of-print field guides and other publications. There are also files from past Pacific Section conventions and executive committees.



(left to right) Mark Wilson, President of the Pacific Section AAPG; Russ Robinson, Curator of the California Well Sample Repository; Terry Thompson, Senior Geologist with Bechtel Petroleum; Bob Countryman, Chevron Geologist and Membership Chairman of the PS-AAPG. Not in the photograph are Joe Davidson, Senior Geologist with Bechtel Petroleum (he got away before I got the camera out) and Larry Knauer, Newsletter Editor and Publications Chairman (I was behind the camera).

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SEDIMENTOLOGY OF COARSE-GRAINED BASINAL LOWSTAND DEPOSITS OF THE MIDDLE BROOKIAN SEQUENCE: AN OUTCROP BASED STUDY

Presented by Mark Myers, State of Alaska, Division of Oil and Gas

As exploration of Alaska's North Slope enters maturity, more emphasis is being placed on the search for subtle, stratigraphically trapped oil accumulations. Due in part to oil discoveries such as those found at Badami, Stump Island and Flaxman Island, deep water turbidite sandstone reservoirs of the Middle Brookian sequence have been of particular interest. Since these turbidite reservoirs lack closely spaced well control or a history of production, little is known about their internal reservoir quality or continuity. However, Middle Brookian sequence turbidites which crop out on the coastal plain of the Beaufort Sea in the vicinity of the border of the Yukon and Northwest Territories may provide insight to the depositional processes, lithofacies architecture, and depositional history of some of the Alaskan reservoirs.

The Late Cretaceous (Maastrichtian) Cuesta Creek Member of the Tent Island Formation is interpreted as a lowstand submarine canyon deposit. It reaches a maximum thickness of 151 m and consists of stacked fining-upward channels containing discontinuous beds of conglomerate, sandstone, and siltstone. The dominant lithology is fine-to very fine-grained sandstone. It is incised into deep marine shale of the underlying Boundary Creek Formation and blanketed by non-channeled hemipelagic mudstone member of the Tent Island Formation.

The internal organization of the Cuesta Creek can best be characterized as a hierarchy of channel fill successions which can be differentiated based on scale and geometry of the bounding erosional surface. Complete large scale channel successions within the Cuesta Creek range from 7 to 60 m in thickness and record a history of event sedimentation indicative of decreasing energy within the depositional system. The following process model is proposed for these successions: 1) the channel is carved into the underlying sediment with little deposition in the active channel - the channel acts only as a sediment conduit; 2) deposition of debris flows, slumps and slides from up-slope and lateral channel margins; 3) deposition of traction carpets and coarse-grained high-density turbidites; 4) deposition of finer-grained high-density turbidites; 5) deposition of low-density turbidites and fine-grained traction current deposits; and, 6) erosion of the upper part of the succession to form the base overlying channel.

In a strike direction, lateral continuity of reservoir quality sandstone and conglomerate is very limited due to internal channelization and erosion. Since the width of large channels is typically limited to a maximum of a few hundred meters, correlation of individual channels using well and seismic data may not be possible in the subsurface.

PALEOSEISMICITY OF THE COOK INLET REGION

by Rod Combellick, Alaska Division of Geological & Geophysical Surveys

Alternating tidal-mud and peat layers in seven coastal marshes of upper Cook Inlet record repeated subsidence associated with major, probably great ($M \geq 8$) subduction earthquakes. Marsh deposits at Girdwood and Portage, submerged and buried as a result of the 1964 great earthquake (M_w 9.2), provide a stratigraphic model of coseismic subsidence and post-earthquake burial that can be used as an analog for interpreting older deposits. The main elements of this stratigraphic model are (1) gradual upward increase in peat content of tidal-mud associated with marsh development on an emerging tidal flat, (2) a sharp contact between the peat layer and overlying mud, indicating rapid burial following coseismic subsidence, and (3) dominance of plant fossils with salt-water affinity in otherwise organic-poor mud immediately above the contact, indicating transition back to low-intertidal conditions. Repetition of this stratigraphy occurs where interseismic rebound is less than coseismic subsidence, resulting in long-term net submergence.

As a result of coseismic subsidence, tidal-marsh vegetation is suddenly submerged and killed by salt water, then rapidly buried by tide-deposited mud. Radiocarbon dating of vegetation killed by this process closely approximates the time of submergence. Samples collected for dating include plant fossils at the top of the peat layer and the other rings of tree stumps rooted in the peat.

From the available paleoseismic data, there is sufficient regional evidence to conclude that (1) there have been six to nine earthquake-related subsidence events in the Cook Inlet region during approximately the past 5,000 yr., giving an average recurrence interval of 600-800 yr., (2) the most recent pre-1964 event of comparable magnitude was 700-900 yr. ago, and (3) the pattern of coseismic deformation during major late-Holocene earthquakes was similar to that associated with the 1964 event. Uncertainties in radiocarbon dating and stratigraphic correlation preclude precise dating of most paleoseismic events. Additionally, there is insufficient data on the areal extent of deformation in most events to allow estimation of earthquake magnitudes. Empirical data from other subduction earthquakes indicate that measurable permanent crustal deformation does not occur below a threshold magnitude of about 7. A larger event is probably necessary to cause enough submerges to bury marsh vegetation beneath tidal-mud.

For several reasons, it would be erroneous to conclude from these paleoseismic data that the next damaging earthquake in South central Alaska is not due for another 600-800 yr. First, the paleoseismic data show wide variation in recurrence intervals, with some evidence of intervals as brief as a few decades. Second, probably only the largest events ($M > 8$?) are recorded in the tidal-marsh stratigraphy in upper Cook Inlet; "smaller" (M 7-8) yet highly destructive earthquakes undoubtedly occur more frequently. Third, although some buried peat layers that have limited areal extent may record local crustal events, most probably represent deformation

Continued on page 17

Continued from page 16

related to megathrust earthquakes. There are other possible sources of damaging earthquakes in the region, including the Castle Mountain and Border Ranges faults, other unmapped or blind crustal faults, and the subducting Pacific plate. A strong (M 6-8) earthquake on any of these sources near or beneath a populated area could be locally as destructive as the 1964 event. The long-term recurrence frequency of earthquakes on these sources is unknown.

Recent Fund Contributors

Jack B. Carter (Dibblee Fund)
10 Song Sparrow, The Woodlands, TX 77381

Robert R. Chanpong (CA Well Repository)
1102 Fairgate Dr., Houston, TX 77094

Helmut Ehrenspeck (Dibblee Fund)
Dibblee Geologic Foundation
7259 Del Norte Dr., Goleta, CA 93117-1326

Paul D. Hacker (Hacker Publication Fund)
1400 Easton Dr., #142, Bakersfield, CA 93309

AAPG YOUTH ACTIVITIES (K-12) REPORT

The Pacific Section wants to get more information exchange going on your activities with schools! If you are working with K - 12 programs send me a note so that we can print in the NEWSLETTER. We hope to have at least 2 entries for each edition.

Kern County members are still trying to get volunteers for the major "science" programs. A volunteer form from SEE is included in this issue. If you can help out please fill it out and send it to me.

SPECIAL NOTE!!! AAPG has started an award program: Excellence in the Teaching of Natural Resources in the Earth Sciences. Nominations are still being solicited. If you have a possible nominee contact me, and I will send you a nomination form. The award is for \$5,000 - \$2,500 for the teacher's school and \$2,500 for the teacher.

If you have questions please call me, Paul C. Henshaw, at (805) 395-6436 or email to phns@chevron.com .

**SCIENCE SCIENCE/MATH, ENERGY FOR EDUCATION****(SEE)**

Join AAPG, SPE, SWE and API in an effort to provide better support to Kern County schools through volunteers for national educational programs in the science and math fields. For further information, contacts are provided on the back of this survey. Please feel free to contact any of these individuals if you have questions.

We respectfully request that you fill out this survey and return it. Feel free to attach additional pages, if sufficient room is not provided for your responses on this form. Fold the form, staple, attach \$0.32 stamp and mail.

Please provide as complete answers as possible to the following questions:

Name: _____ Affiliation: SPE AAPG SWE API Other
Contact Phone: _____; FAX: _____; email: _____
Best time to call: Day Evening
Company: _____

Mailing Address: _____
City _____ Zip Code _____

Science Fairs (Local/County)

Would you like to judge at a local school science fair? Yes _____ No _____

If yes, do you have a school preference? _____ Grade Preference: 4-6, 7-9, 10-12 ?

Are you interested in judging at the Kern County Science Fair, April 16, 1996? Yes _____ No _____

TO: Paul Henshaw
Chevron U.S.A. Production Company
P.O. Box 1392
Bakersfield, CA 93302

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SEE is the coordinated effort of the following organizations:

**Society of Petroleum Engineers
San Joaquin Valley Section**

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(805)395-6423 fax: 805-395-6403

**American Association of Petroleum Geologist
National and Pacific Section**

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**San Joaquin Valley Chapter of the
American Petroleum Institute**

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**Society of Women Engineers
Kern County Chapter**

Helen Ordway, Chevron USA Production Company
(805)395-6400 fax: 805-395-6403

A special thanks to the Kern County Superintendent of Schools Office and the Kern County Science Foundation. Without their assistance we would not be able to so readily coordinate with all the local Kern County schools.

AAPG YOUTH ACTIVITIES (K-12) REPORT

National Engineering Week, Science Bowl and most school level Science Fairs have been completed. A big thank you to all you members who participated!! We did have problems finding people for National Engineering Week and local Science Fairs for Mojave, Rosmond and Lancaster area schools. Anyone interested in helping later in 1996-97 please contact Paul Henshaw: (805) 395-6436. County and state level Science Fair's are coming. Kern County's Science Fair is April 16, 1996.

The AAPG Science Teachers' Day at the 1996 Annual Convention is moving forward. Invitations have gone out to school districts, but we know that we will miss some people. If you know a teacher wants to attend please give them the attached schedule and registration form. Registration will be limited, due to space, so get your applications in early. Attendees will be able to earn 1 credit of graduate level continuing education for attending both days. (Registration for credit through SJSU will be available on site, registration will be - \$50.00.)

We need AAPG volunteers as guides for groups of 4-8 teachers on Monday afternoon of the convention - FREE LUNCH provided. Please contact Paul Henshaw at (805) 395-6436, if you are interested.

Are you working with schools or youth organizations? Let us know. We are looking for material for this NEWSLETTER column that will let members know what is going on, and how they may help or get involved.

AAPG SCIENCE TEACHERS' DAY SCHEDULE OF EVENTS

Day 1

- 7:30-8:15 Continental Breakfast
- 8:15-8:25 Introduction: Paul Henshaw, Chevron USA, Production, Bakersfield
- 8:25-9:05 David Hartney, Cal Tech - Cal Tech Pre-college Science Initiative in the Pasadena School District: Partners in Science Education Reform
- 9:05-9:30 Philip Ryal/Donna Thompson, San Joaquin Energy - Desk to Derricks Science Teachers Program

Break/Poster Session:

Norb Cygan, Chevron (retired) - Denver's Dinosaur Ridge Program
 Steve Williams, Celsius Energy, Denver Earth Science Project for Teachers
 Dale Ridge, SDSU - *Show Me Geology*

- 10:00-10:45 Ellen Metzger, SJSU - Teaching Resources and Activities from the San Francisco Bay Area Earth Science Institute
- 10:45-11:15 Kevin Robinson, SDSU - Application of the World Wide Web for the Earth Science Classroom
- 11:15-12:00 Dale Ridge, SDSU - Geology of the San Diego Area, overview for the field trip

Lunch and Awards Ceremony:

Fred Dix, Executive Director, AAPG, will present the AAPG Excellence in Teaching Natural Resources in the Earth Sciences Award for 1995.

- 1:15-4:30 Tours of convention exhibits and education films in the Tobin Theater

Day 2

- 8:00-3:00 Dale Ridge, SDSU - Geology field trip of San Diego Area. Emphasis on the geologic forces which are responsible for our spectacular coast line.

AAPG SCIENCE TEACHERS' DAY REGISTRATION FORM

NAME: _____

MAILING ADDRESS: _____

NAME OF SCHOOL: _____ PHONE: _____

REGISTRATION FEE \$10.00 (PLEASE MAKE CHECKS PAYABLE TO AAPG)

REMEMBER ALL ATTENDEES MUST SUBMIT PRE-PAID REGISTRATION AND REGISTRATION FORM BY APRIL 19, 1996.

Mail to: DALE RIDGE
 DEPARTMENT OF GEOLOGICAL SCIENCES
 SAN DIEGO STATE UNIVERSITY

LETTERS TO THE EDITOR

Editor's Note: The following update was received from the University de Lyon, France, floated on the internet by his five year old nephew Ponce, concerning the peregrinations of the peripatetic Pacific Section Geologist of French persuasion, Jean B. Senteur de Boue:

From: poncesenteurdeboue@univdelyonfrance.edu
To: aapg@aol.com

Because of the slow-down of oil activity in the United States, my Uncle left Beverly Hills and returned to teach at the University here. Recently, he took a sabbatical to stake a deep test in the hills about 50 miles northeast of Katmandu, but was run off by the Chinese Coast Guard.

It was all for the best, however, because he needed to come back to the University anyway, so I could teach him how to work Windows 95 - he was never very good at typing.

Most recently, he took a leave of absence from his Sabbatical to stake a Miocene test on Mt. Williamson in the Eastern Sierra. He was happy to be back in California until the Rangers warned him to be on the lookout for extremely dangerous flat-footed, Uglyamericanus gingrichii, which was a beast rumored to be on the loose in the wilderness and which can be recognized by the bone through his nose. One bite or scratch results in a terminal case of diarrhetioic.

Strangely, I have not heard from him in months, but when I do, I'll let you know.

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NEWSLETTER

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DEADLINE FOR NEXT ISSUE -
MAY 1, 1996

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PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

MAY 1996 NO. 3

A MESSAGE FROM THE PRESIDENT

The four-weeks-out numbers from San Diego showed a pre-registration of more than 4200, an exhibit hall that is going to be one of the largest ever, and a great list of short courses, field trips and social activities that are filling up. Who says San Diego isn't an oil town? It certainly will be May 19-22. I invite you to join us at the 1996 National Convention. There is still plenty of room. One of the less publicized "events" is the annual meeting of the Pacific Section Executive Committee, which will be held Wednesday afternoon at 5:00 P.M. in the Century City Room at the Marriott. This would be a good opportunity for you to comment and make suggestions on how the Pacific Section's business is run. Several of the officers also plan to "hang out" near the AAPG bookstore where we plan to have some "Bakersfield in '97" handouts. Those of you with something to sell should be looking for Frank Cooper, who is already marketing exhibit space for the 1997 Pacific Section convention in Bakersfield.

Last month I had the distinct pleasure of attending the annual meeting of the Dibblee Foundation. Helmut Ehrenspeck and Tom Dibblee made presentations which included not only a resume of the four maps just completed, but a preview of the next several quadrangles. The latest maps, which are in the Valencia-Newhall area, are beautiful and loaded with description and references. The Pacific Section should be very proud of the small part we have played in the establishment and continued success of the Dibblee Foundation. A donation to the foundation or the purchase of their maps is certainly money well spent. Helmut and Tom will be manning a booth in San Diego and never get tired of telling about their mapping experiences. I hear that their mapelopes (envelopes made from map seconds) are again available!

Van Couvering awards this year went to Steve Borron, Kevin Rogers and Corey Rapp of San Diego State, Paula DeLong, Claudia Kobisz, Bernard Yost of California State, Fullerton; Christoph Lehman and Virginia Price

of University of California, Riverside; Allysa Peleo-Alampay and Memoric Yasuda of Scripps in La Jolla, and Francisco Staines and Luis Guzman of the Universidad Autonoma de Baja California. These students will be introduced at the Dibblee Luncheon on Wednesday, May 22.

The Well Sample Repository is still having difficulty, but did receive many letters of support as well as donations from Trio Petroleum, San Joaquin Geology Society, Northern California Geologic Society, the Pacific Section and others. Stop by and see Russ Robinson at the convention. The Executive Committee of the Pacific Section has established an ad hoc committee to study the many proposals and suggestions out there to preserve core in the absence of major oil company largess. We feel that focus is needed and hope that we can help establish that focus. Any suggestions? Please let us know.

If you can, try to attend the opening session of the San Diego Convention. Several of your Pacific Section colleagues will be honored with awards. Wes Bruer and Tom Dibblee will be receiving national awards. Tom Wright will be receiving a certificate of merit from the Pacific Section and Jim Weddle will be given an honorary lifetime membership in the Pacific Section. Very inspirational stuff! It reminds me that the real benefit of becoming involved with Pacific Section business or a convention is the really outstanding people that you get a chance to meet and work with. Take that chance!

— Mark L. Wilson

BALLOT ENCLOSED
PLEASE VOTE!

DELEGATE'S CORNER

by Bob Horton

The House of Delegates meets once each year to discuss business and vote on issues which are brought before it. However, business must be attended to year round. Much of this is done by AAPG's very competent staff and officers, but some issues require review and discussion by one of the House's five standing committees (Nomination and Election Committee, Credentials Committee, Rules and Procedures Committee, Constitution and Bylaws Committee, and Resolutions Committee), each of which has specific charges as specified in the Rules and Procedures of the House of Delegates. The Rules and Procedures Committee is to "...review the Rules and Procedures of the House of Delegates annually...review other proposals for changes in the Rules and Procedures...[and] make recommendations for changes in existing Rules and Procedures."

During the past two years two proposals were brought before the Rules and Procedures Committee. The first involved rules for campaigning by candidates for the House of Delegates. Basically this proposal encouraged candidates to attend their local meetings but discouraged them from openly campaigning for the position (e.g. no mass mailings, no negative campaign propaganda, no meetings or receptions to specifically promote or exclude a particular candidate). It also spelled out due process actions to be followed by the House in the event of charges of campaign violations. These proposed changes were brought before the full House and adopted at last years meeting.

The second proposal has a far greater potential to effect the future of the House of Delegates and, thus, the entire AAPG. This proposal deals with unaffiliated members, most of whom reside outside North America (this is separate from, though not necessarily unrelated to, efforts to change the name of the society). This has been a sticky issue for several years now. For the purpose of delegate election North American members are assigned to affiliated societies based on where they get their mail; delegates are apportioned on this basis with the local societies handling their election. This procedure has served well in the past, but as the petroleum industry has become increasingly international so has the AAPG membership. Presently there are 1768 unaffiliated AAPG members residing in 86 countries. Under current rules, these members are not represented in the House of Delegates. The original proposal called for changes of the rules to grant these members representation. It was complicated by the fact that changes also must be made to the AAPG bylaws and thus the Constitution and Bylaws Committee also was reviewing (separately) these changes (proposed changes to the Constitution and Bylaws were published on page 43 of the March issue of the Explorer). These reviews have taken most of the last two years as various discussions and counter-proposals were considered. The document adopted by the committee, which specifies procedures for unaffiliated members to form affiliated societies and thus gain delegate representation, has been forwarded to the Chairman for submission before House of Delegates in San Diego. Anyone interested in obtaining a copy of the final document should contact AAPG in Tulsa.

YOUTH ACTIVITIES - K-12

CSUN Provides Free Field Trips and Video!

Cal State University Northridge provides science field trips and a video on geology and oceanography to Los Angeles area schools. They are running two free field trips in May: May 11, a geology field trip to the San Gabriel Mountains and Canyon Country areas; and May 18, a geology and oceanography trip to the Palos Verdes and Los Angeles Harbor areas, including half day boat trip. These trips are designed for science teachers and their two best earth science-oriented students. Field trips are being planned for Fall. Contact Drs. Eugene Fritsche or Herb Adams (Chair), Department of Geological Sciences, CSUN, (818) 885-3541, if you are interested. The video describes "the nature of the science geology and its impact on society, the various fields of employment open to geologists, and the kinds of university training needed to become a geologist." The video is 11 minutes long and is provided free of charge for use in earth science classrooms or career counseling.

Are you working with schools or youth organizations? Let us know. We are looking for material for this NEWSLETTER column that will let members know what is going on, and how they may help or get involved.

Contact Paul Henshaw at (805) 395-6436, or FAX (805) 395-6304.

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BILL RINTOUL

A new chapter is opening in the search for oil in Kern County

Enron Oil & Gas Co., operating out of Denver, Texaco Exploration & Production Inc. have teamed up as joint venture partners to make a \$2 million 3-D seismic survey that could lead to a significant new round of exploratory drilling about 10 miles southwest of Bakersfield.

The area of interest is bounded on the north by the Ten Section and Canfield Ranch oil fields, on the west by the South Coles Levee oil field and on the south by the Paloma oil field. Geologically, the survey will be of South Flank of the Bakersfield Arch.

The survey will cover a 50-square-mile area, including 36 sections in Township 31S-26E and 14 additional sections in offsetting townships. It is believed the survey will be the largest 3-D seismic survey ever made in the San Joaquin Valley.

The 3-D survey is expected to give geologists a more detailed look at subsurface geology and with it a chance to uncover oil and gas accumulations missed by earlier seismic surveys. Tidelands Geophysical, of Plano, Texas, will provide crews and in April began surveying for seismic lines. It will probably take a mid-summer to complete the 3-D survey, said Ty Stillman, Enron's project landman. Then we will take data to the processing house in Denver. The next step will be prospect generation. Hopefully by the first quarter of 1997 we'll be drilling prospects out there testing our ideas.

The primary target will be Stevens sands, which would involve drilling exploratory wells in an 8,000 to 12,000 foot range. We have some leads off 2-D seismic, said Rob Sterling, Enron's project geologist. Texaco has a portfolio of ideas of their own they're contributing to our portfolio for joint exploration.

Under terms of the partnership, Enron will serve as operator for drilling and completing exploratory and development wells. Texaco will operate producing wells.

We'll be looking for stratigraphic traps in the Stevens that 2-D data has not been read well enough to define, Sterling said. With 3-D data we feel very competent. Increases resolution of subtle stratigraphic changes. The results here could lead to subsequent 3-D surveys targeting Stevens and other formations elsewhere in the basin.

We have brought in equipment from Louisiana to minimize the impact on farming operations in the area of interest, Stillman added. "We have three different types of drilling equipment on hand to minimize the impact of shothole drilling. Each shothole will go to a depth of 15 feet. Bob Kidney, Enron's project geophysicist, will be in charge of day-to-day survey operations.

The 3-D seismic is a significant step in Enron's effort to evaluate the 630,000 acres of wildcat fee land acquired from ARCO in 1994. The company's goal is to accelerate evaluation of the land by stimulating exploration activity in the San Joaquin basin.

To accomplish the goal, the company adopted an "open door and open mind" policy to encourage industry to participate in the broad spectrum of exploration opportunities.

Since signaling its intent at the North American Prospect Expo last year in Houston, the company has supported 14 exploratory wells in Kern County, Stillman said. A conservative estimate of well costs puts them at \$7 million.

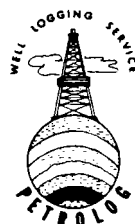
It's still our company's goal to stimulate not only our own exploration but others as well, Stillman said.

On a historical note, 60 years have passed since the first seismic-based exploration chapter was opened in the San Joaquin Valley on the township offsetting to the north the one that plays the major role in the Enron-Texaco

On June 2, 1936, Shell Oil Co. completed Stevens No. 1 on Sec. 29, 30S-26E, flowing 1,200 barrels per day of oil. The discovery proved up the Ten Section field, which took its name from the 10 section tract Shell has leased from Kern County Land Co.

Shell had drilled the discovery well on the basis of a reflection seismograph survey and to the accompaniment of widespread opinion that the floor of the valley would prove to be a wildcatter's graveyard.

The find set off a series of seismograph-based discoveries, including the Canfield Ranch field by Standard Oil Co. of California in the same township as Shell's find, the South Coles Levee field by the Ohio Oil Co. in the township offsetting to the west the site of the Enron-Texaco project and the Paloma field by Ohio Oil in the southern portion of the main Enron-Texaco township. Cumulative production from the four fields to the first of this year was 239 million barrels of oil.



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66 Lakefield Rd., Westlake Village, CA 91361
(805) 529-3762 (H) (805) 497-9363 (W)

Sandra Szymanski, Chevron
7301 Pagoca Court, Bakersfield, CA 93309
(805) 837-0628 (H) (805) 633-4336 (W)

Carolyn A. Walch, Walch Geosciences
1517-I Stowell Center Plaza, Santa Maria, CA 93454
(805) 349-8434 (H) (805) 349-9988 (W)

ECOLOGY FIELD TRIPS

Sponsored by
Bureau of Land Management

The Bureau of Land Management has initiated a program of monthly earth science field trips to points of ecologic, geologic, paleontologic and historic interest throughout central California. These trips are designed for persons of high school age or older. It is not necessary to have a technical background to attend or benefit from the trips.

These field trips are recommended for teachers and many of them can be taken for in-service continuing education credit through California State University Bakersfield. Each trip includes a full spectrum of environmental and land management topics. The field trips are conducted using buses or vans. Private vehicles are not used except in special circumstances. A field guide is prepared for each trip which includes maps and directions which can be used by anyone for self-guided investigation of the ecology along the field trip route.

1996 SCHEDULE

Mother Lode '96 Part II: Central and East Belt Mines — May 31- June 4, 1996

This 2-day field conference examines the mines east of Placerville and between Placerville and Auburn. Examines mining history and ecology at Coloma, Garden Valley, Georgetown, Volcanville, Kelsey, and Cool. Includes a tour of the Georgia Slide and other mines. There will be a Friday Evening Lecture at the Consumnes River College 6:00-9:30 p.m. on May 30.

Mother Lode '96 Part III: The Northern Mines — June 28 - 30, 1996

This 3-day field conference looks at the structure, stratigraphy and ecology of the Northern Mines of the Mother Lode in Sierra and Plumas Counties. Friday's field trip explores the rugged backcountry between Downieville, La Porte, and Quincy. Saturday's trip will be from Quincy to Downieville by way of Greenwood and Johnsville (Plumas-Eureka State Park.) Sunday's trip will be from Downieville to Grass Valley. There will be a FREE Friday Evening Lecture at the Quincy Community Library on June 28, 6:00 to 9:00 p.m.

Bakersfield to Point Sal — July 13, 1996

The ecology and geology of the Santa Maria area is considered with stops at Point Sal and Celite's diatomaceous earth mine in Lompoc. Plate tectonics and continental accretion are topics of discussion.

Make check payable to Mother Lode and mail to Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308. For persons taking their own vehicles, registration is \$20.00 per person or \$40.00 per vehicle. If you have any questions or to register call Dr. Wilkerson at 805-391-6177 or write to MOTHER LODGE c/o Gregg Wilkerson, 7005 Hooper Ave., Bakersfield, CA 93308.

CERTIFICATE OF MERIT



Thomas L. Wright

For many years, Thomas L. Wright has been a genuine force in California geology, in the Pacific Section and in local geological societies. He has presented the petroleum industry's views to the public, and forged links between the AAPG and environmental geologists.

Born in San Diego, California, in 1930, Tom received a B.S. in geology at Stanford in 1951, and an M.S. in 1952. Along the way, he met his wife, Louise, at Stanford, commencing a relationship that produced five children and more recently, eight grandchildren.

Tom started work with the Standard Oil Company of California as a field geologist in Salt Lake City, Utah. Moves to Salinas, California, and Yakima, Washington, followed and then, based in Seattle, Washington, Tom spent five years working on Alaska. In the vanguard of the industry rush, he led three summer field programs on the North Slope, sometimes via helicopter and at other times, in tight budget years, via small floatplane and on foot.

Tom moved his family to southern California in 1961, where they stayed for ten years and where he became a Los Angeles basin expert. He participated in the discovery of 140 million bbl of oil in and near the East Beverly Hills oil field. Also, in a portent of things to come, Tom provided technical testimony following the Baldwin Hills dam collapse in 1963.

Moving to the Bay Area in 1971, Tom spent seven years in South American oil exploration. From 1979 to 1986, Tom

prepared environmental evaluations for offshore California exploration. During these years, Tom served as exploration liaison between the Western Oil and Gas Association and the Outer Continental Shelf/Coastal Zone Management Committee of the American Petroleum Institute. He represented Chevron and the industry in numerous hearings and negotiations covering offshore drilling. With his combination of unfailing good humor and highly knowledgeable professional background, no one could have better represented industry's side than Tom Wright.

Tom has contributed greatly to his profession. He was chair from 1983 to 1990 of the Professional Practices Committee of the California State Board of Registration for Geologists and Geophysicists. His more than three decades of activity in the Pacific Section of AAPG as editor, treasurer, finance chair, fieldtrip leader and coordinator, continuing education chair, environmental chair, vice president, and president (in 1980-1981) was recognized by the award in 1989 of Honorary Life Membership in the section.

Tom, on the national level, served on the Business Committee/House of Delegates, was a Visiting Petroleum Geologist, and has been active on the Environmental Geology Committee for more than 20 years. Tom represented the AAPG at the 1975 American Geological Institute's White House Conference on Earth Science. Since 1975, he has organized six symposia on exploration and environmental issues. He was instrumental in the creation of AAPG's new Division of Environmental Geosciences and serves on its advisory board.

Tom also has been active in local societies, including being president of the Northern California Geological Society.

Since retiring from Chevron in 1986, Tom has directed most of his efforts toward integrating petroleum exploration data into studies of California tectonics and earthquakes. His paper, *Structural Geology and Tectonic Evolution of the Los Angeles Basin, California*, was published in 1991 in AAPG-Memoir 52 and is a definitive reference on Los Angeles basin-structural geology.

Throughout his career in geology and the teaching of geological reasoning to the public, Tom has made hundreds of friends on all sides of the issues. He is widely recognized as an expert on a number of geologic topics. Despite his past contributions, throughout his career Tom has given a great deal of time and energy to our profession and still is undoubtedly the Pacific Section's most active member. The Association is better for having Tom Wright as a member.

We are honored to present this Certificate of Merit to Thomas L. Wright for his decades of service to the Pacific Section, AAPG.

HONORARY LIFETIME MEMBERSHIP



James R. Weddle

James R. Weddle has, for many years, been a leader of the petroleum industry in California and the business community in Bakersfield. Jim was born in Berkeley, California, April 18, 1931. As if to portend his future career, at the time of Jim's birth, his father was mapping the Santa Cruz Mountains for Standard Oil Company of California with his field partner, Jim Kirby (Jim's namesake).

Jim attended the University of California, Berkeley. His college career was interrupted by a four-year stint in the Air Force. After graduating, with a BA in Paleontology in 1957. Jim started his professional career with the California Division of Oil and Gas in Bakersfield. Part of his job was to write technical articles on the oil fields of the State. Jim authored or co-authored 13 articles on oil and gas fields, a correlation study, and a paper on oil field waters which was published in a Pacific Section guidebook.

Jim worked for the Division of Oil and Gas in Bakersfield and Taft before being transferred to Los Angeles in 1969 as Senior Engineer. Soon he was transferred to their headquarters in Sacramento. While there in a staff position, he started an oil and gas seep study and wrote the first environmental regulations governing the oil-field operations. Later, he was promoted to Executive Officer and later to the position of Chief Deputy Supervisor, the latter being an appointee of the Director of the Department of Conservation. He was responsible for the day-to-day operations of the Division. Additional accomplishments include: preparing a white paper on California's Offshore Petroleum Resource

which served as foundation for making State policy, and writing the first State study on overall energy supply and demand in California. The State Energy Commission was an outgrowth of this study.

Jim left State service in July of 1976 and started a consulting business specializing in economic evaluations. In 1979 he returned to Bakersfield and incorporated as San Joaquin Energy Consultants. The firm continues to consult on a wide variety of petroleum related matters for both independent and major oil companies. A companion company, San Joaquin Energy Tax, which he founded, grew to be the largest petroleum property tax consulting service in California. That business was sold in 1991.

AAPG and professional activities include: District representative, 1959; Committee for the Preservation of Cores 1973-1980; Certificate of Merit 1993. In the Pacific Section he served as Secretary, 1973-74, Vice President, 1979-80, President, 1983-84, General chairman of 1978 Convention in Sacramento; and Pacific Section Finance Chairman 1994 to present. Also, he has co-taught short courses on economic evaluation of oil properties at Pacific Section conventions. From 1987 to 1992 he served on the State Board of Registration for Geologists and Geophysicists, being President of the board in 1991. He founded the California Well Sample Repository in 1976 and still serves as Chairman of the Board of Governors of that institution.

James R. Weddle is one of our most important members. Jim has been a member of the Pacific Section for more than 35 years. We currently depend upon Jim for financial advice. He, and his wife and business partner, Alta are prominent, not only in the geologic community, but in the business community at large in Bakersfield, California.

The Pacific Section is very proud to present James R. Weddle with a Lifetime Honorary Membership in the Pacific Section AAPG.

JOHN E. KILKENNY MEMORIAL SCHOLARSHIP



John E. Kilkenny

John E. Kilkenny was a man whose entire life seemed to be a part of California geology. He has rewarded all who have known or been touched by his generosity, warmth, intelligence, honesty, and remarkable ability to achieve sincere relationships with his fellow man and geology.

John was born March 25, 1913, in Salinas, California. John's interest in geology was kindled by the many trips he took with his father, who was principal of Salinas High School, to both the Berkeley Hills and the Sierra Nevada Mountains in the Yosemite area.

After graduating in 1935, John went to work as a seismologist for the Texas Company. They had a new reflection seismograph working in the San Joaquin Valley. He then accepted a job with Pure Oil Company in Bakersfield in 1940. When Pure Oil Company decided to leave California in 1945, John became the San Joaquin Valley district geologist for Chanslor-Canfield Midway Oil Company. In May 1946, John was appointed chief geologist of CCMO with headquarters in Los Angeles.

John joined Union Oil Company as senior staff geologist in 1951. It took him only three years to become chief geologist of the Pacific Coast division.

From 1964 to 1968, John, still with Union, was the domestic geologist coordinator of the Rockies, west Texas, Oklahoma, the Gulf, and the West Coast. During the nine years before his retirement, John was engaged in the exploration and

development of the Geysers geothermal field north of San Francisco in the Coast Ranges.

Most gratifying to John, was his wonderful marriage and family. In 1937, he met Dorothy Mattingly in Bakersfield. They married January 22, 1939, and, as stated by John on their 50th wedding anniversary, "We have shared 50 happy years together." They were a great team and are to be commended for their strong support of AAPG.

John published extensively on petroleum geology. His major publications include the following, *Geology and Exploration in the Salinas Valley, California*, 1948, AAPG Bulletin, v. 32, no. 12; *San Joaquin Valley*, 1951, AAPG Bulletin, v. 35, no. 2; *Ten Million Barrels in a Stratigraphic Trap*, Oil & Gas Journal, Salinas Valley Guide Book, 1964, AAPG-SEPM, San Miguel Dome. *Exploring the Asphalt Jungle*, 1965, Pacific Section Convention, Best Paper Award.

John was very proud of the 1967-1968 AAPG Executive Committee on which he served as vice president. This committee drafted a new AAPG Constitution that has lasted nearly 30 years. His AAPG activities include the following: 1935 Pacific Section vice president, 1949 Pacific Section vice president and Pacific Section Annual Convention program chairman, 1949; 1957-1961 Boy Scout Committee, 1963 Pacific Section President, 1964 Executive Advisory Committee, AAPG Annual Convention General Chairman, 1968-1969 AAPG vice president, 1972 Honorary Membership, 1974 elected Honorary Member, Pacific Section, 1975-1978 Circum Pacific Energy & Mineral Resources Conference program chairman, 1983 Chairman Pacific Section Honors and Awards Committee.

John's academic and professional records are as outstanding as his life of 82 years. He dedicated his life to his profession and his family, and he considered this a privilege.

The Pacific Section proudly takes this opportunity to announce the establishment of a scholarship created in memory of John E. Kilkenny. John was a member of the AAPG for nearly 50 years, reaching the pinnacle of service to that group as its President 1975-76. He was still very active in the Pacific Section and was Chairman of our Honors and Awards committee at the time of his death.

It is our hope that in establishing a perpetual scholarship in his name, the Pacific Section can continue to foster the same kind of grace and devotion to geology that John E. Kilkenny exhibited throughout his life.

Candidates for President-Elect

DALTON F. LOCKMAN

Present Position:

Senior Petroleum Geologist,
Exxon Company, U.S.A.,
Santa Ynez Unit Production
Organization

Education:

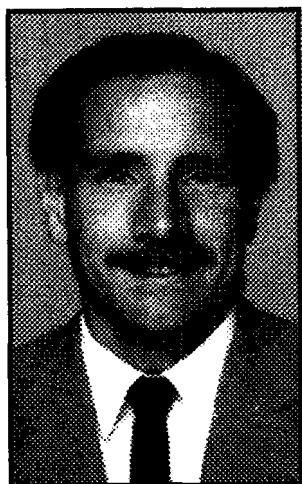
1979: Whittier College,
B. A., Geology
1981: Wright State
University, M. S.,
Geology

Employment:

1981-1986: Production Geologist, Alaska Group,
Exxon Co. USA, Western Prod. Division
1986-1988: Production Geologist, California Group,
Exxon Co. USA, Western Prod. Division
1988-1992: Production Geologist, Exxon San Joaquin
Production Company, Exxon Co., USA
1992-Present: Production Geologist SYU, Exxon Co.
USA, Santa Ynez Unit Prod. Organization

Professional Activities:

1989-1990: Vice President, Coast Geological Society
1990-1991: President, Coast Geological Society
1994: General Chairman, Pacific Section AAPG
Convention
1996: Pacific Section AAPG Continuing Convention
Committee
California Registered Geologist
National Member: AAPG, SEPM, GSA
Pacific Section Member: AAPG, SEPM



BERNARD A. SENTIANIN

Present Position:

Senior Geologist,
PW Environmental

Education:

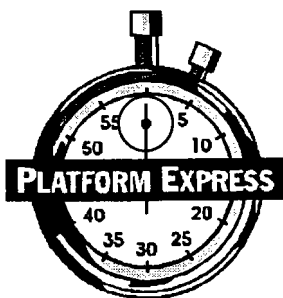
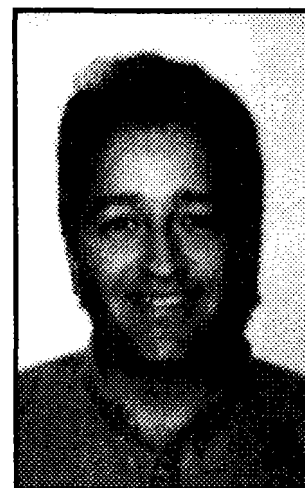
1989: San Diego State
University, M.S.,
Geological
Sciences
1985: California State
University, Bakersfield, B.S., Geology

Employment:

1984-1986: Geologic Technician, DEPCO, Inc.
1988: Assistant Geologist, UNOCAL
1989-1991: Project Geologist, Nachant Environmental,
Inc.
1991-Present: Senior Geologist, PW Environmental

Professional Activities:

1995-1996: President, Coast Geological Society
1994-1995: Vice President, Coast Geological Society
Member: Pacific Section AAPG
American Institute of Professional Geologists
American Society for Microbiology
National Groundwater Association
California Registered Geologist #5530
Certified Professional Geologist #9059
California Registered Environmental Assessor
#3477



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Candidates for Vice-President

PAUL C. HENSHAW

Present Position:

Team Leader Heavy Oil
Team, Western Business
Unit, Chevron Production Co.

Education:

- 1969: University of California, Berkeley, A.B. Geology
- 1975: University of Washington, Seattle, M.S. Oceanography
- 1978: University of Washington, Seattle, PhD. Oceanography



Employment:

- 1969-1972: U.S. Navy Reserve (Active)
- 1973-1995: U.S. Navy Reserve (Ready)
- 1977-1981: Exploration/Productio ResearchGeologist, Chevron Oil Field Research Co.
- 1981-1986: Exploration/Production Geologist, Technical Supervisor, Chevron USA, Denver
- 1986-1990: Research Supervisor, Chevron Oil Field Research Co.
- 1990-1993: Technical Supervisor, Chevron Canada Resources, Calgary
- 1993-Present: Senior Staff Development Geologist, Heavy Oil Team Leader, Chevron Production Co., Bakersfield

Professional Activities:

- 1978-1980: NSF program reviewer
- 1979: Lecturer, CalPoly, Pomona
- 1980: Lecturer, Cal State U., Fullerton
- 1988: NRC Committee on Hydrocarbon Research Drilling
- 1988-Present: Member AAPG Youth ActivitiesCommittee
- 1991-1993: Science Hotline, Calgary
- 1992: AAPG Annual Meeting Science Teachers' Day Co-Chair
- 1994: Lecturer, CalState U., Bakersfield
- 1996: AAPG Annual Meeting Co-Chair of Technical Session & AAPG Science Teachers' Day
- Member: American Geophysical Union, AAPG, Rocky Mountain Assoc. of Geologists, Canadian S.P.G., SJWLS, PS-AAPG, SPE

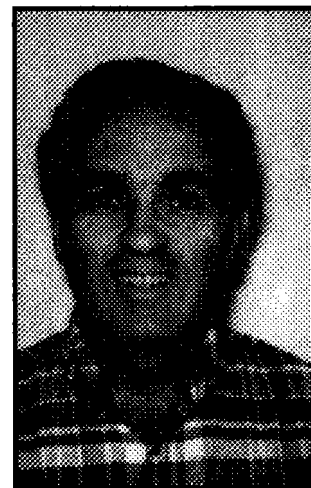
JAMES ALLEN WAGGONER

Present Position:

Geologist, WZI Inc.,
Bakersfield

Education:

- 1976: San Diego State, B. S., Geology
- 1979: San Diego State, M.S. Geology

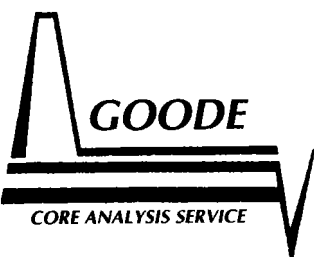


Employment:

- 1979 -1985: Exploration Geologist, Senior Exploration Geologist, Tenneco Oil Co., Bakersfield
- 1985 -1987: Senior Geologist, Great American Resources, San Diego
- 1988 -1991: Project Geologist, ICG Inc., San Diego
- 1987 -Present: Geological Consultant, World Resource Development, San Diego
- 1992 -Present: Geologist, WZI Inc., Bakersfield

Professional Activities:

- 1981-1982: Secretary, San Joaquin Geological Society
- 1995-1996: Secretary, Pacific Section AAPG
- State of California Registered Geologist
- State of California Certified Engineering Geologist
- Member: National AAPG, Pacific Section AAPG, AAPG Division of Environmental Geosciences, San Diego Association of Geologists, National Ground Water Association, Golden Empire Air and Waste Management Association.



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Candidates for Secretary

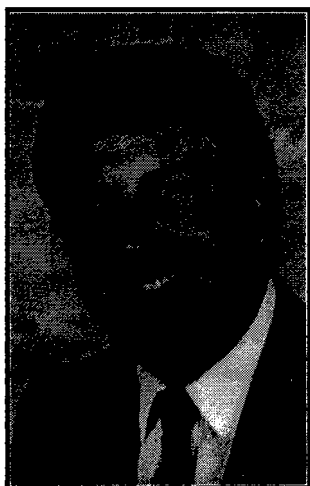
JAIME H. ROIG

Present Position:

Senior Geologist, Berry
Petroleum, Taft, CA

Education:

M. S. Geology, University of
Southern California
B. S. Oceanography,
Humboldt State University,
Arcata, CA
B. A. Geology, Humboldt
State College, Arcata, CA



Employment:

1974-78: Geologist, Unocal, Santa Fe Springs, CA
1978-91: District Geologist, Santa Fe Energy
Resources, Bakersfield, CA
1991-92: Consulting Geologist, Bakersfield, CA
1992-Present: Senior Geologist, Berry Petroleum, Taft, CA

Primary work interest involves geologic applications for
stepout, development and EOR projects. Worked extensively
in the San Joaquin Valley, Los Angeles and Ventura Basins.
Participated in exploratory activities throughout California.

Professional Activities:

AAPG
National and SJGS SEPM
National and Pacific Section, San Joaquin Well Log
Society
California Registered Geologist

TERRY W. THOMPSON

Present Position:

Senior Geologist, Bechtel
Petroleum Operations, Inc.
Elk Hills Naval Petroleum
Reserve

Education:

1980: California State
Univ., Northridge,
B.S. Geology
1981: University of
California, Santa Barbara, Graduate Studies in
Geology
1993: California State University, Bakersfield,
Hydrogeology Certification Program



Employment:

1976-1977: Geologic Assistant, Rocky Mountain
Energy Company, Denver
1979-1980: Assistant Geologist, Getty Oil Company,
Bakersfield
1981-1991: Petroleum Geologist, Senior Grade, Getty
Oil Company/Texaco Exploration and
Production, Inc., Bakersfield, Ventura &
Denver
1991-present: Senior Geologist, Bechtel Petroleum
Operations, Inc., Elk Hills Naval Petroleum
Reserve

Professional Activities:

1992-93: Secretary, SJGS
1993-94: Acting President, SJGS
1994-95: President, San Joaquin Geological Society
1996-97: Operating Committee Co-chair, Pacific Section
AAPG Convention

Pac Sec Member: AAPG; National Member: AAPG & DEG;
California Registered Geologist; California Certified
Hydrogeologist.

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BALLOT

Pacific Section American Association of Petroleum Geologists Election of Officers for 1996–1997

Candidates for President-Elect

- ☐ Dalton F. Lockman
- ☐ Bernard Sentianin

Candidates for Secretary

- ☐ Jaime Roig
- ☐ Terry Thompson

Candidates for Vice-President

- ☐ Paul Henshaw
- ☐ Allen Waggoner

Please vote for one person for each office and return the ballot **BEFORE** June 28, 1996 to PS-AAPG, P.O. Box 1072, Bakersfield, CA 93302.

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- Unconsolidated Core Analysis
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- Reservoir Flow Studies
- Formation Damage Assessment
- Completion Recommendations
- Reservoir Description
- Reservoir Geology and Petrographic Services
- Reservoir Fluid Analyses – PVT and compositional
- Organic Geochemistry
- Environmental and Geotechnical Analyses



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HIGHLIGHTS OF NATURAL GAS DRILLING ACTIVITIES IN NORTHERN CALIFORNIA'S SACRAMENTO VALLEY DURING 1995

by Roland J. Bain

During recent years in the Sacramento Valley natural gas province, a low has been recorded in at least one drilling and/or production category. The record in 1995 was no different. Both the number of holes drilled (72 holes) and the number of Operators (27) orchestrating the drilling were the lowest in at least 50 years. These lows can be coupled with the continuing nose-dive in the volume of gas produced (65 Million Mcf). Even though the scene was a gloomy one, there was a bright side; the gas-well completion rate was one of the all-time best - 46%. Also, two-thirds of the Operators completed at least one gas well.

With an average PG&E well-head price of only \$11.26 (low of \$1.00; high of \$1.90), no one is surprised that drilling activities remain so low. This level of price cannot be expected to attract much in the way of risk dollars, this having been reflected in the 1995 record. Most of the drilling projects were in the proximity of production. It is doubtful that any of the completions will be accorded a new gas field designation. On the other hand, the discovery list included 17 extensions and one deeper pool.

Of the 27 Operators, 10 (37%) drilled one hole, 4 (15%) drilled 2 holes, 4 (15%) drilled 3 holes, and 9 (33%) drilled 4 or more holes. ABA Energy and Donald Slawson Exploration each drilled 6 holes. The focus of Slawson's activities was in the East Grimes area, an area that formed a part of a 3-D seismic evaluation program.

Several other companies have conducted 3-D surveys in various parts of the Sacramento Valley in recent years. The anticipation is that the results of these will translate into drilling projects. The knowledge that the sediments and contained hydrocarbons in the Valley respond well to seismic investigations coupled with the fact that an abundance of gas remains to be found serves as the incentive for many of the companies that appear on the drilling-activity chart year-in and year-out.

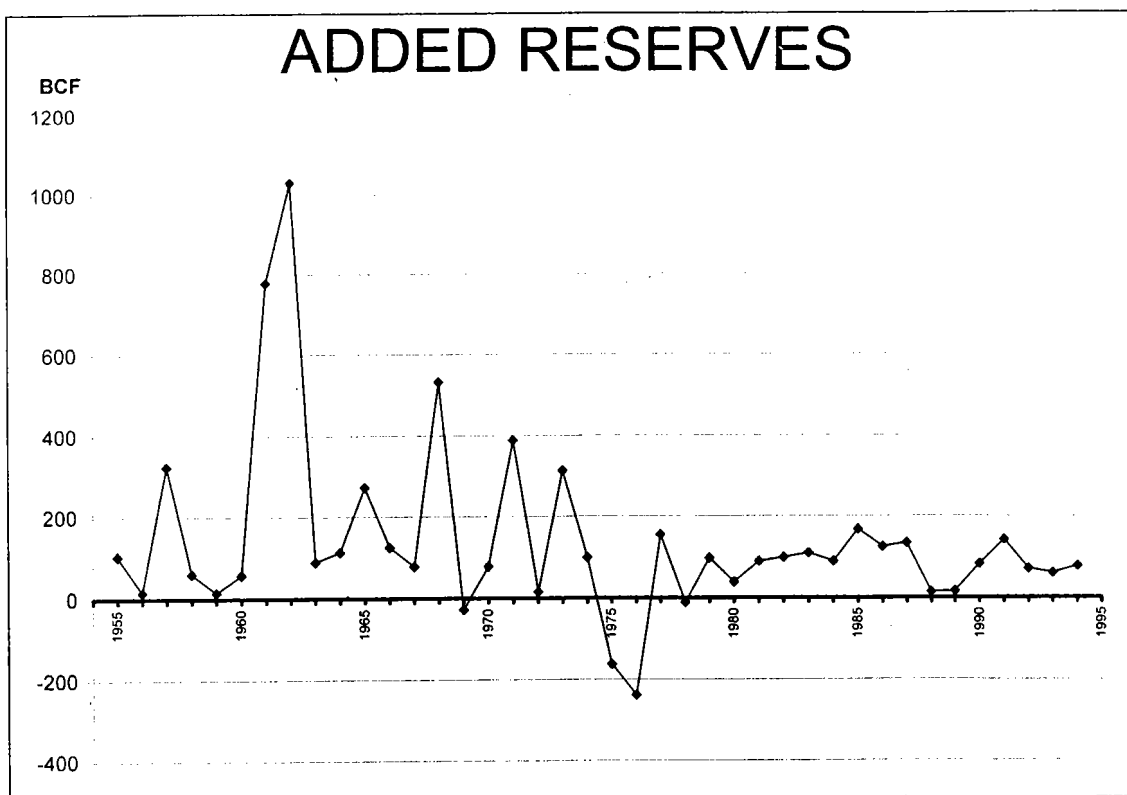
1996 opened with a well-head price of \$2.14. This compares very favorably with the \$1.61 in January, 1995. Any strengthening in the price of gas during 1996, should translate into an increase in drilling and in discoveries.

SUMMARY OF DRILLING ACTIVITY IN THE SACRAMENTO VALLEY (Continued)

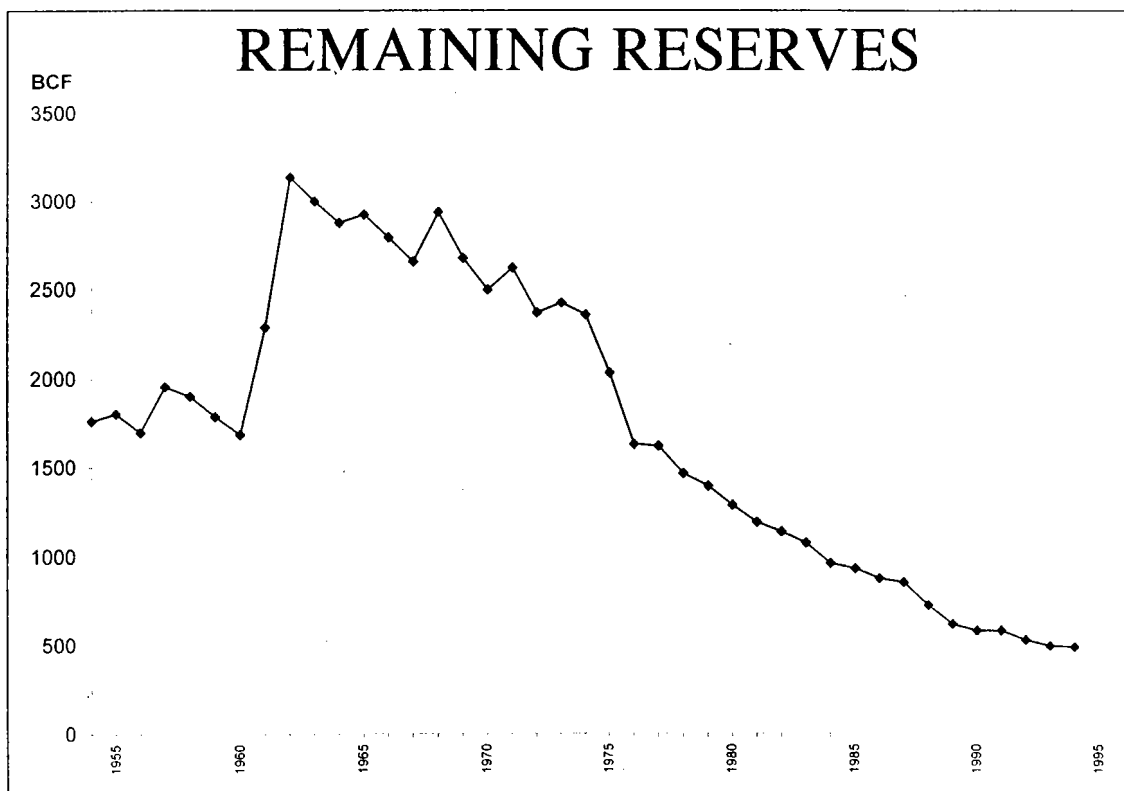
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Number of holes drilled	164	153	155	163	156	228	238	214	234	270	241	148	174	159	141	156	115	95	130	75	72
Number of Redrills	43	19	15	18	11	32	35	26	29	20	21	12	16	13	10	12	7	12	19	5	4
Total number of holes	207	172	170	181	167	260	273	240	263	290	262	160	190	172	151	168	122	107	149	80	76
Holes completed as Gas Wells	49	60	74	51	41	83	96	82	97	114	124	76	67	74	59	69	48	45	57	33	35
Success Percentage	24%	34%	43%	31%	25%	31%	35%	38%	37%	39%	46%	48%	35%	43%	39%	41%	39%	42%	38%	44%	46%
Number of Operators	44	44	56	56	53	63	56	68	58	65	72	46	56	41	51	47	38	30	36	36	27
Number drilled below 10,000 Ft.	8	13	4	5	19	24	20	23	21	15	12	8	14	11	2	3	1	4	7	1	7
Deepest hole (000 Feet)	12.4	11.1	12.0	11.8	12.9	19.7*	12.8	14.1	13.2	11.8	12.2	16.8	12.2	10.9	10.3	11.4'	10.3'	12+	11+	13+	12+
Number of Gas Wells	997	1029	968	807	859	803	1111	1168	1218	1261	1354	1355	1330	1298	1235	1195	1184	1146	1103	1044	974
Total gas produced - D.O.G. District 6 (Million Mcf)	162	142	163	142	168	146	184	151	175	207	199	191	155	143	122	119	139	123	94	84	65
Remaining Reserves - D.O.G. District 6 (Million Mcf)	2358	2034	1630	1467	1397	1289	1194	1140	1078	964	935	879	856	726	620	583	585	531	497	491	419E
Well-head Price (PG&E Ave.)	60¢	98¢	\$1.20	\$1.45	\$1.74	\$2.04	\$2.60	\$3.14	\$3.43	\$3.72**\$2.94	\$2.14	\$1.69	\$1.70	\$1.85	\$2.13	\$1.90	\$1.52	\$1.73	\$1.58	\$1.26	

* Valley depth record.

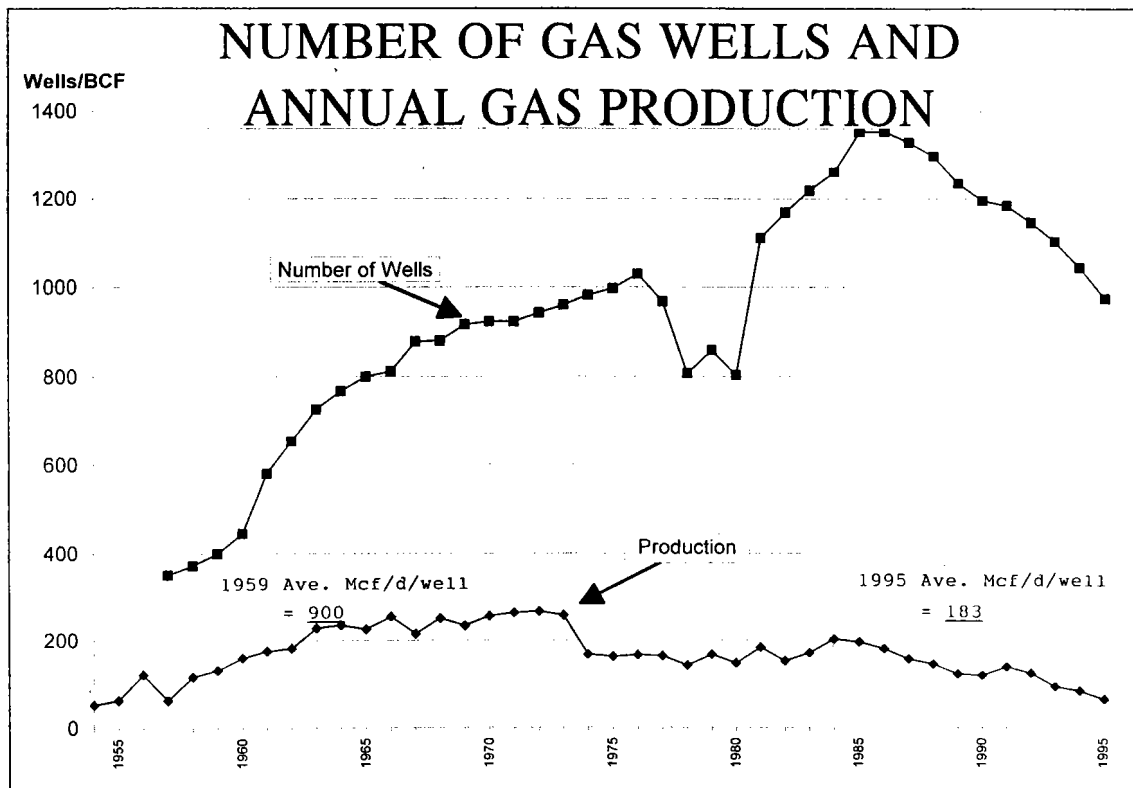
** Highest price = \$3.85 - Dec. 1984



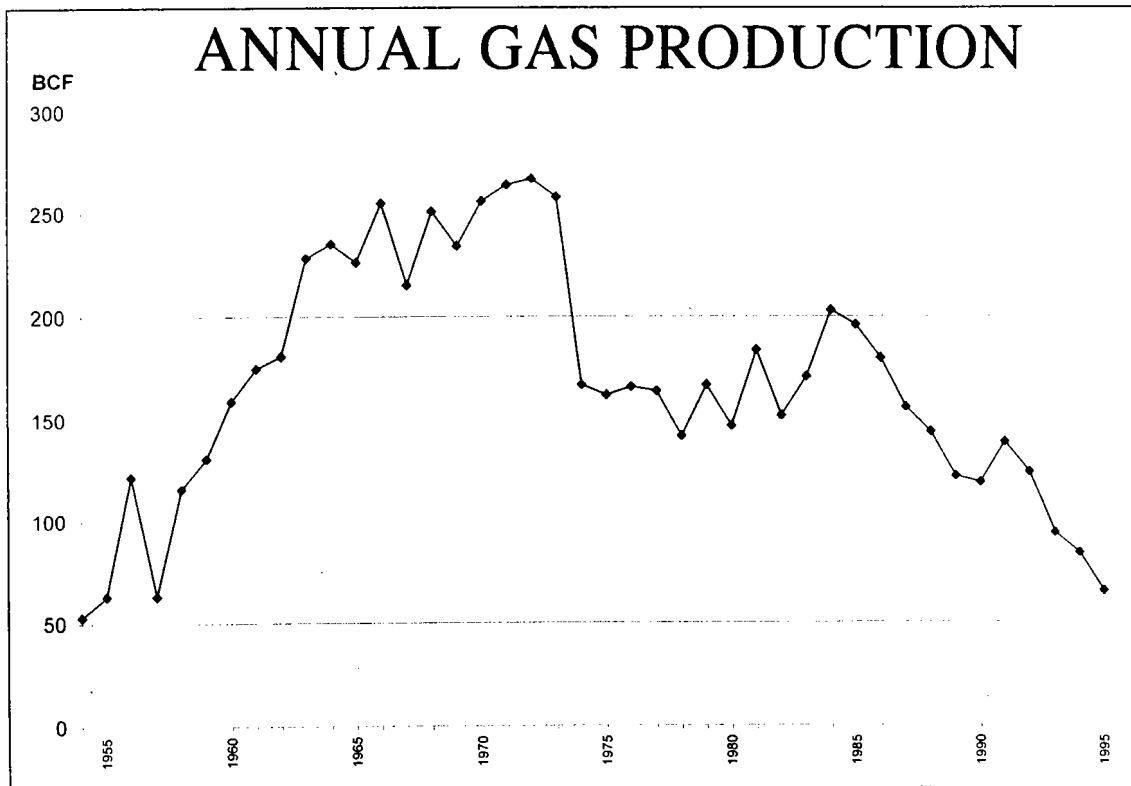
Source: California Division of Oil and Gas



Source: California Division of Oil and Gas



Source: California Division of Oil and Gas



Source: California Division of Oil and Gas

1995

ACTIVE OPERATORS

	<u>Number Drilled</u>	<u>Gas Wells</u>
ABA Energy	6	2
Alanmar Energy	2	1
Amerada Hess	5	1
Anacapa	1	-
Archer Exploration	1	-
Armstrong Petroleum	1	-
Capitol Oil	3	-
Cenex	1	-
Chevron	3	2
Coastal Oil & Gas	2	1
Enron Oil & Gas	4	2
Gary Drilling	1	-
Key Production	4	2
Montis Niger	2	2
Northwest Petroleum	4	1
Production Specialties	1	1
Reunion Energy	4	3
Royale Operating	5	4
St. Croix Resources	1	-
Samedan Oil	3	1
Slawson (Donald) Exploration	6	5
Stream Energy	3	2
E.B. Towne	1	1
Tri-Valley Oil & Gas	1	1
Venada National	2	-
Vintage Petroleum	1	-
Western Continental Operating	4	3

NUMBER OF HOLES BY DRILLING CONTRACTORS

	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1992</u>
Paul Graham	31(43%)	32(43%)	47(36%)	30(32%)
Hexadyne Drilling	31(43%)	32(43%)	48(37%)	51(54%)
Gary Drilling	8(11%)	10(13%)	14(11%)	8(8%)
Veco Drilling	2(3%)	-	-	-

1995

RANGES IN TOTAL DEPTHS*

	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1995</u>	<u>1994</u>	<u>1993</u>
Less Than 2999 feet	1	3	6	1%	4%	3%
3000 - 3999 "	4	2	15	6%	3%	12%
4000 - 4999 "	2	6	30	3%	8%	23%
5000 - 5999 "	10	11	12	14%	15%	9%
6000 - 6999 "	25	17	16	35%	23%	12%
7000 - 7999 "	8	9	11	11%	12%	8%
8000 - 8999 "	9	19	22	13%	25%	17%
9000 - 9999 "	6	7	12	8%	9%	9%
10,000 - 10,999 "	2	-	5	3%	-	4%
11,000 - 11,999 "	3	-	2	4%	-	2%
12,000 - 12,999 "	1	1	-	1%	1%	-

AVERAGE TOTAL DEPTHS*

<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1992</u>	<u>1991</u>	<u>1990</u>
7153 ft.	6942 ft.	6388 ft.	6918 ft.	6320 ft.	6840 ft.

ACTIVITY BY COUNTY

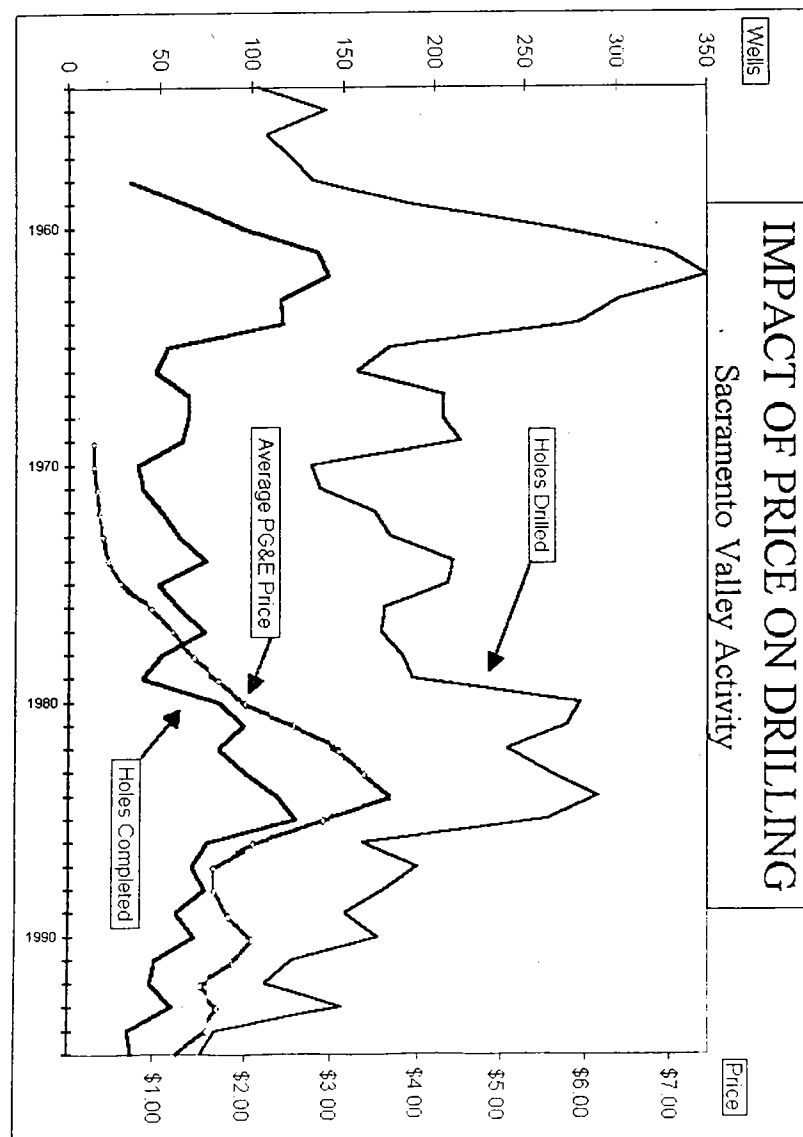
	<u>Number Drilled (% of Total)</u>	<u>Gas Wells (% of Total)</u>	<u>Success Percentage</u>
Glenn	15 (21%)	9 (26%)	60%
Solano	14 (19%)	4 (12%)	29%
Sutter	9 (13%)	7 (21%)	78%
Yolo	9 (13%)	3 (9%)	33%
Colusa	7 (10%)	4 (12%)	57%
Contra Costa	6 (8%)	2 (6%)	33%
Sacramento	6 (8%)	4 (12%)	67%
San Joaquin	4 (6%)	1 (3%)	25%
Tehama	2 (3%)	-	-

* Approximate due to incomplete industry reporting.

SACRAMENTO VALLEY
DRILLING ACTIVITY

	<u>1995</u>			
	<u>1995</u>	<u>1994</u>	<u>1993</u>	<u>1992</u>
Number of holes drilled	72	75	130	95
Redrills	<u>4</u>	<u>5</u>	<u>19</u>	<u>12</u>
TOTAL HOLES DRILLED	76	80	149	107
 HOLES COMPLETED AS GAS WELLS (Including Redrills)	 35	 33	 57	 45
 SUCCESS PERCENTAGE	 46%	 44%	 38%	 42%
 Number of Operators	 27	 36	 36	 30
 Operators finding gas	 18(67%)	 17(47%)	 18(50%)	 17(57%)
 Operators drilling 1 hole	 10(37%)	 20(56%)	 16(44%)	 12(40%)
Operators drilling 2 holes	4(15%)	6(17%)	3(8%)	7(23%)
Operators drilling 3 holes	4(15%)	3(8%)	9(25%)	3(1%)
 <u>MOST ACTIVE OPERATORS</u> <u>(Four or more holes)</u>	 <u>Number</u>	 <u>Gas</u>		
	<u>Drilled</u>	<u>Wells</u>		
ABA Energy	6	2		
Slawson Exploration	6	5		
Amerada Hess	5	1		
Royale Operating	5	4		
Enron Oil & Gas	4	2		
Key Production	4	2		
Northwest Petroleum	4	1		
Reunion Energy	4	3		
Western Continental Operating	4	3		

Source: PG&E and R. J. Bain



Compiled by Roland J. Bain, Certified Petroleum Geologist
Sources: California Division of Oil & Gas and Munger Oilgram

Good to the Core

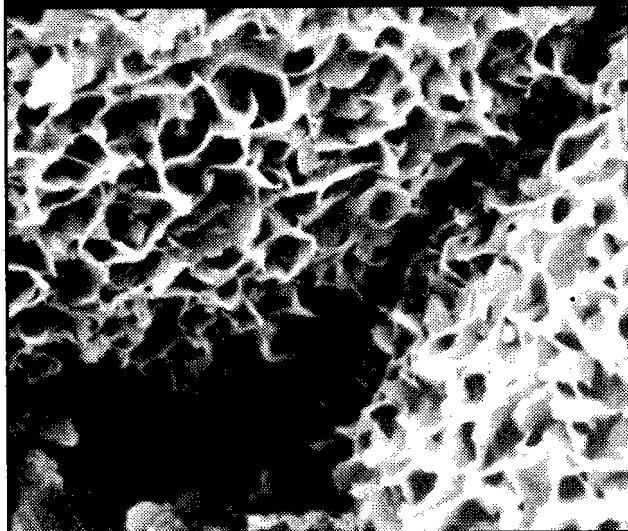
The Repository continues to advance into the world of cyber space with the addition of a web page, and an E-mail address, donated by the Geology Dept. at CSUB. The E-mail and web page addresses are robins@geol.csubak.edu and <http://www.geol.csubak.edu/Geology/wellcore.html> respectively. It is hoped that the E-mail will facilitate the interface with those wishing to use our samples now that the Repository will only be open for 20 hours per week. A recording giving the operating hours for the following week will be placed on our voice mail (805)664-2324 each Sunday.

The Repository needs location and identification data for the following wells:

OPERATOR	WELL NAME	DEEPEST SAMPLE
Associated	Thornton #1	2,557
Bankline	P.T.C. 22	3,341
C. W. Colgrove	Kilpstein #42-18	4,453
Honolulu Oil	Harper-Sabovich	10,860
K. H. Hunter, Jr.	Smith #66-1	5,043
Hunter Resources	Young Fee #45	1,350
Standard	Santa Paula	10,100
Standard	H-25	1,970
Texas	Boychester #83	3,612
Trigood Oil Co.	Kinler #1	11,803
Union	Barnheisel #1	7,504
Union	Chapman #52	2,636
Victory	Donolon #1	7,195

The Repository will have a display of interesting cores at the National Convention. Unlike past years, we will be on the mezzanine, between the exhibit hall and the session rooms. So, please stop by and take a look at the cores, our latest catalog, and Special Publications.

Are You Overlooking Productive Zones?



Problem: Pay zones hidden in low-contrast formations containing shaly sands, laminated sand-shale sequences, microporosity, and conductive matrix.

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3430 Unicorn Road
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NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Alaska

Alaska Geological Society
P.O. Box 101288
Anchorage, AK 99510
Contact: Tim Ryherd (907) 762-2140

Northwest

Your new Officers are:

Presidentt-Bob Pinotti, Vice-President-Bill Prehm, Secretary-Treck Cardwell, Treasurer, Mark Seedall. The 1996-97 Directors are: Western Washington-Willis Brown*, Eastern OR/WA-Brent Cunderla, Lands-Jeff Penick, Legal Bert Mueller*, At-Large-Dennis Olmstead* and Bruce Cox. Congratulations to all and Thank You to all outgoing officersr another great year!!

*denotes new Director

Please call Shelley Thomas at (503) 693-9822 (please leave message on machine if no answer) or Treck Cardwell at (503) 220-2573.

Northwest Energy Association
P.O. Box 6679
Portland, OR 97228-6679
Contact: Bill Rodgers (503) 294-9681

Coast

On April 16, 1996 our featured speaker was Michael S. Clark, ARCO Western Energy spoke on "The Sespe Oil Fields - A Possible Kinetic Accumulation with a Subthrust Source."

Abstract: Since 1887, the Sespe oil fields have produced more than 42 MMBL of oil and 50BCF of gas from the upper plate of the San Cayetano thrust. Fractured non-marine redbeds of the Upper Eocene to Oligocene Sespe Formation account for 90% of production. Historically, the Sespe oils were assumed to be derived from organic-rich Eocene shales in the San Cayetano overthrust. However, biomarker and isotope data indicate that the oils are derived from even richer shales of the subthrust Monterey Formation. If so, secondary oil migration across the San Cayetano thrust from subthrust source rocks into overthrust reservoirs is required. Tertiary migration is also evident. Tar seeps west of the field result from oil leaking updip out of upper plate res-

ervoirs while those along the San Cayetano thrust result from oil leaking out of subthrust reservoirs and/or source rocks. This indicates that the field may be a "kinematic accumulation" with subthrust sources supplying oil to overthrust reservoirs. Because fractures associated with the through-going upper plate faults may be migration conduits, fractured upper-plate reservoirs along these faults, and oil-filled subthrust reservoirs below the faults, are potential exploration targets.

5/21/96 - Joint Meeting with Groundwater Resources Association and the Association of Women Geoscientists and Scholarship Night. Also Tanya Atwater, Ph.D., UCSB Marine Sciences Institute, will be speaking on "A Billion years of Plate Tectonics in Western North America".

Coast Geological Society
P.O. Box 3055
Ventura, CA 93006
Contact: Bernie Sentianin
(805) 656-4677

Sacramento

The Sacramento Petroleum Association will hold its annual Gold Tournament and Dinner on Friday, May 24, 1996, at the Yolo Fliers Club (west of Woodland, CA). The cost of golf and dinner is \$65; golf only, \$50; and dinner only \$15. Hole sponsorships are \$50. Checks can be made out to Sacramento Petroleum Association and, along with any and all donations, mailed to SPA, P.O. Box 254443, Sacramento, CA 95825-4443. The shot-gun start will be at 1:00 p.m.; the buffet dinner at 6:30 p.m.

Noon luncheon meetings are held at the HUNGRY HUNTER RESTAURANT, 450 Bercut Drive, Sacramento. For luncheon reservations, please call Rose Kuntz at AA Production Inc., (916) 641-9360, at least one day in advance.

Occidental of Bangladesh - March 15, 1996

(John Wheaton sends in the following letter from Gerhard Jansen, who was a member of the team involved in the Armenian project in 1994. He is currently working in Bangladesh.)

Fun and games here. There is great political turmoil and we are in the seventh day of an indefinite noncooperation movement sponsored by the political opposition. No motor transport permitted. If you try, you get beaten up and your car gets burned.. I walk to work and ride a bicycle-rickshaw when I have to visit the government oil company. The latter is very hard on the old keister (I looked it up. The spelling is correct.) when you are built like I am! It is very hard on many

of the people as most businesses are closed, food is getting scarce and prices are going up.

If a few days we will probably have to shut down our seismic operations as we can't get supplies in to the crews. And another eight-hundred people will be out of work. So many are required, as everything is carried in by hand.

Regards. Gerhard Jansen (John comments: If Sacramento Gas-Patch occupants want a change there is always Bangladesh.)

The following was submitted by Swiss Holmes.

OBSERVATIONS

An engineer is said to be a man who knows a great deal about very little and who goes along knowing more and more about less and less until finally he knows practically everything about nothing.

Whereas, a geologist, on the other hands, is a man who knows very little about a great deal and keeps knowing less and less about more and more until he knows practically nothing about everything.

A landman starts out knowing practically everything, but ends by knowing nothing about anything, due to his association with engineers and geologists.

Sacramento Petroleum Association
P.O. Box 254443
Sacramento, CA 95865-4443
Contact: Steve Burke (916) 641-9360

Northern California

On April 11, 1996 our featured speaker was Dr. Daniel Orange, Monterey Bay Aquarium Research Institute who spoke on "Submarine Geology in Monterey Bay: Cold Seeps, Active Fault Zones, Erupting Mud Volcanoes, and the Origin of Submarine Canyons."

Abstract: In modern continental margin settings fluids from depth (created by tectonic or stratigraphic compression, or buoyancy drive) are channeled to the surface along permeable fault zones, stratigraphic layers, and mud volcanoes. In addition to the original pore water, these fluids contain sulphide and methane produced during diagenesis of buried organic matter. Where these fluids exit the seafloor they can support unique chemosynthetic "cold seep" communities in a food chain based on microbial utilization of the geochemical fluids. Whereas active fluid venting of sulphide and methane-rich fluids is indicated by the presence of "cold seep" communities (bacterial mats, chemoautotrophic clams, and tube worms), the presence of authigenic carbonate implies past expulsion of bicarbonate and/or methane-rich fluids. Such cold seep communities and authigenic carbonate have been found in Monterey Bay, and provide a conceptual framework for analyzing the relationship between tectonics, sedimentation, and fluid flow.

ROV (Remote Operated Vehicle, or robotic submersible) dives in Monterey Bay have been used to examine the relationship of geologic features to past and present fluid flow in an active transpression regime. Fluid ex-

pulsion in Monterey Bay occurs along fault zones, within headless canyons, and out of a mud volcano. The relationship between seeps and canyons suggests that fluid expulsion may in fact assist in causing slope failures.

New Idria-Coalinga Area Field Trip Synopsis

June 15 and 16, 1996

Leaders: Bob Coleman and Steve Graham, Stanford University

- Day One: Focuses on the structure, mineralogy, and petrology within the serpentinite and includes a visit to the only operating asbestos mine in California.

- Day Two: Evaluates the tectonic and erosional history of sediments surrounding the serpentine body.

The New Idria asbestos-bearing serpentinite represents a unique tectonic situation. Changes in plate motion produced transverse compression across the San Andreas transform fault system near New Idria. Shortening of the former continental margin resulted in sub-parallel thrusting, folding, and diapirism. This tectonic activity exposed a huge body of serpentinitized mantle peridotite (45 sq. mi.) thought to be the Pacific Coast crust basement. Continued wedging of peridotites into the water-rich continental crust caused chain reaction serpentinitization and expansion. During the last 15 million years, the asbestos-bearing

serpentinite of the New Idria body has been eroded, and is presently contributing fibers to the alluvial deposits along the west San Joaquin Valley and San Benito River Basin. Knowledge of the natural geologic origin and distribution of the asbestos-bearing serpentinite illustrates the dilemma facing the U.S. Government as it attempts to remediate small EPA Superfund mining sites within this vast region of serpentinite.

The western San Joaquin basin sedimentary section, now exposed in the Southern Diablo Range, contains a rich record of the range's uplift. Upper Jurassic-Cretaceous sedimentary rocks of the area are deep marine deposits derived from the Sierra Nevada magmatic arc. The field trip stop along highway 198 west of Coalinga typifies depositional style and provenance of the section predating uplift of the Coast ranges. The uppermost Cretaceous-Eocene sedimentary record, not seen on this trip, reflects widespread uplift of the Diablo Range, and unroofing of the Great Valley Group and Franciscan rocks. The specific stratigraphic fingerprint of the initial unroofing of the serpentinite core of New Idria lies in the remarkable Upper Middle Miocene Big Blue Formation detrital serpentinite strata. This unit varies laterally from alluvial serpentine megabreccias to serpentinuous tidal flat mudstones and sandstone. A field trip stop at the Big Blue Formation will clearly demonstrate that serpentinuous detritus has been a natural component of the Diablo Range and San Joaquin basin for the last 12 million years.

No. Cal. Geological Society
9 Bramblewood Court
Danville, CA 94506-1130

Contact: Dan Day (510) 294-7530

San Joaquin

May 14: "CSUB Night"

Students from CSUB will exhibit posters and make oral presentations on current research topics of interest to all!

June 11

Tony Reid and Henry Walrond will present posters for your enlightenment. The evening technical presentation will soon be announced.

Mark your calendars today! Meetings will be held at the American Legion Hall, 2020 "H" Street, Bakersfield, CA. As usual, attitude adjustment begins at 6:00 p.m. with dinner at 7:00 p.m. followed by the technical program.

San Joaquin Geological Society
P.O. Box 1056
Bakersfield, CA 93302
Contact: Mike Simmons (805) 321-4113

Los Angeles Basin

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505
Contact: Mark Legg (310) 378-6254

LETTERS TO THE EDITOR

Dear Editor:

Just a short note to let you know that the ad got the job done. I sold the whole file. I only received about four calls, but it only took one good one.

I want to thank you and the Pacific Section for running the ad gratuitously. I really appreciate the help.

I also want to compliment you and your PPG staff on what a great job you all are doing on the newsletter. I have been reading it for some forty-five years now and is better now than it has ever been!

Sincerely,

Jack D. Nair

***Look for your dues card
in the mail soon!!***

NEWSLETTER of the Pacific Section-American Association of Petroleum Geologists is published bi-monthly (except in summer) by the Pacific Section. Material for publication, requests for previous copies, and communications about advertising costs should be addressed to LARRY KNAUER Bechtel Petroleum Operations, Inc., P.O. Box 127, Tupman, CA 93276. CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP CHAIRMAN, PACIFIC SECTION AAPG, P.O. Box 1072, Bakersfield, CA 93302. To order publications, write to: PUBLICATIONS COMM.: Pacific Section-AAPG, P.O. Box 1072, Bakersfield, CA 93302.

NEWSLETTER

Pacific Section A.A.P.G.
Post Office Box 1072
Bakersfield, CA 93302

DEADLINE FOR NEXT ISSUE -
AUGUST 13, 1996

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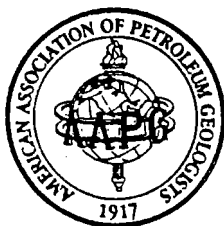
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PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

JULY 1996 NO. 4

A MESSAGE FROM THE PRESIDENT

By the time you read this, the 1995-96 Pacific Section year will be over and I will have passed the Presidency to Larry Knauer. I hope you all agree that this has been a very good year. It was a real adventure being the host society for the National Convention and looking ahead, we have gotten the planning for our 1997 Bakersfield Convention well underway. We also reinstituted a Committee on Conventions to develop a template for future meetings and hopefully, to eliminate some of the uncertainties that arise in every aspect from planning to the final accounting.

After a nearly two-year hiatus, the Pacific Section published a field guide this year. Covering the 13 trips at San Diego that did not previously have guides, we fully expect to recoup our investment. Sales of Southern California field guides are usually very good. The field guide was part of another "grand experiment" in which we co-sponsored three short courses and 15 field trips with the Pacific Section SEPM. With the exception of comments to the effect that some of our field trips could have been *oilier*, I think co-sponsorship is fine, at least in situations like San Diego where a local contingent of petroleum geologists is absent.

By almost all accounts, the San Diego meeting was a success. The final registration count was around 5,500, off about 1,000 from each of the last two nationals in Denver and Houston, both oil towns. The social program handled by Michael Mickey and the spouse events run by Connie Pichel (George) were tremendously successful. Les Collins even pulled off a successful golf tournament despite a flawed (but now abandoned?) method of choosing teams.

As expected, the technical program was the real star of the convention. Many thanks again to Don Lewis. Special recognition to Mike Clark for the innovative special lecture and debate programs. The exhibit hall

Continued on page 2

CALL FOR PAPERS

AAPG - SEPM - SEG - SPWLA - DEG

1997 Pacific Section AAPG Convention
Holiday Inn Select & Bakersfield Convention Center
May 14-16, 1997

The San Joaquin Geological Society is hosting the 1997 AAPG-Pacific Section Meeting in Bakersfield, California, May 14-16, 1997. We are inviting papers for the technical program covering the theme "New Frontiers in Familiar Areas". The technical program consists of 20-minute oral presentations, half-day poster sessions, and several short courses and field trips. There will also be an electronic poster session. A special session is also planned for prospect presentations and presentations of new technologies in the service sector. You are invited to submit abstracts for presentations. Some of the session topics are:

AAPG

Exploration of the Northern San Joaquin Basin Gas Province

Midway-Sunset: A Super-Giant Field

Horizontal Drilling Reviving Mature Fields

Improving Recovery in Siliceous Shales

Research in Advanced EOR Technology

Lessons learned in Giant Fields

SEPM

Magnetic Stratigraphy and High-Resolution
Chronostratigraphy of the Pacific Coast Cenozoic

SEG

Contract Ken Baird, Occidental Petroleum, 805-321-6613

SPWLA

Contact Amy Sullivan, Mobil E&P, U.S., 805-665-4041

DEG

Contact Jan Gillespie, CSUB, 805-664-3040

ELECTRONIC POSTER SESSION

Contact Deborah Olson, DPI, 805-322-8667

For details contact Technical Program Chairman, Larry Knauer, BPOI, P.O. Box 127, Tupman, CA 93276 - 805-763-6280.

DELEGATE'S CORNER

by Robert L. Countryman

The House of Delegates (H.O.D.) met Sunday May 19th 1996 in conjunction with the 81st Annual AAPG convention held in San Diego California. The very successful convention was the 12th time the National AAPG convention has been held in PS-AAPG territory and the fourth time in the last 20 years. Pacific Section members were prominent in all aspects of the convention and the delegates meeting. Thanks go out to PS-AAPG H.O.D. Committee members Joan Barminski (Nomination and Election Committee), Bob Horton (Rules & Procedures Committee) and Credentials Committee Chair Tony Reid and Committee members Eileen McMullin, John Williams, Bob Horton and Bob Countryman. Pacific Section's seven affiliated societies are entitled to 23 delegate positions and 14 were present at the meeting. Thanks to the following PS-AAPG delegates for attending the meeting: Phillip Halstead and David M. Hite of the Alaska Geological Society; Joan Barminski and John Williams of the Coast Geological Society; Bryan Bracken, Tom Dignes, Mel Erskine, and Don Lewis of the Northern California Geological Society; Lanny Fisk of the Northwestern Energy Association; Bob Lindblom representing the Sacramento Geological Society and Bob Countryman, Bob Horton, Eileen McMullin and Tony Reid of the San Joaquin Geological Society. Although 61% is an excellent turnout, I think all the local societies should try to match the 100% attendance achieved by the Alaska, Coast, Sacramento, and San Joaquin geological societies. Perhaps next year at the Dallas convention.

The House of Delegates meeting was a relatively quiet one without the controversial issues evident at some previous meetings. Principal activities conducted at this H.O.D. meeting included a change to the AAPG Constitution and Bylaws, a change in the Rules and Procedures of the H.O.D., and the acceptance of the applications for 1 associated and 3 affiliated societies to the AAPG. The change to the Constitution and Bylaws was basically a house-cleaning issue that allows for the creation of "at large" delegates to permit delegates elected in their final year (of their 3 year term) to serve the House in the subsequent year (when they might no longer be an elected delegate). Details of this change can be found in the March 1996 issue of the AAPG Explorer. It was passed unanimously. The change in the Rules and Procedures of the H.O.D. permits a reduction from 20 to 10 as the minimum required number of AAPG members residing in a country, without AAPG affiliation, to form a "Group" and seek affiliation with the AAPG. Each accepted affiliated group will be eligible for one delegate for each 70 members (as is the case for current affiliated societies). This action was an outgrowth of the Ad-Hoc "Unaffiliated Group Delegate" Committee charged

Continued on page 4

President's Column

(continued from page 1)

was blessed with expansive aisles and convenient food services. Because of a last minute change in location of some food services, traffic was not funneled, as planned by the Core Repository exhibit on the mezzanine level. This was unfortunate for Russ Robinson, as he had put together his best display ever.

One of the highlights of the convention for me was the Dibblee Luncheon. From the introductory saxophone solo by Art Spaulding and my opportunity to introduce the Pacific Section's Van Couvering award winners, to the very informative resume of the history of the Van Couvering awards by Dick Hester, a good time was had by all who attended.

At the Committee on Conventions wrap-up meeting in San Diego, the technical program chairman for the Salt Lake City meeting in 1998 announced that they were considering requiring that papers be written and published in a format similar to that employed by the SPE. Several similar proposals have been made for Pacific Section meetings. I personally feel that it would limit the depth and breadth of the technical program (and said so at the meeting). I would really like feedback on this one, please write or call.

Congratulations to Bob Countryman, who was elected Vice-Chairman of the House of Delegates at the San Diego meeting. Bob is the Pacific Section's membership chairman and was recently appointed our representative to the National Membership Committee. Membership is one of our greatest challenges. Participation in the Los Angeles and Sacramento local societies is at very low ebb. Apparently Los Angeles has not had a local meeting in several months and did not fill its delegate contingent for San Diego. Pretty sad news from the richest oil basin on earth, especially given that there are still more AAPG members in Los Angeles than there are in the San Joaquin.

In Sacramento, Owen Kittredge environmentalist and erstwhile oil man, has assumed the presidency of the SPA. Since there can't possibly be anywhere but up for gas prices, my guess is that the SPA will rebound too. Make a special effort to attend and participate in these local societies, the camaraderie of your fellow professionals may be an important touchstone for you in the future.

In closing, I would like to thank the Executive Committee of the Pacific Section and the San Diego Convention Committee. I feel right now like I did when I left the Pacific Section's annual meeting after the San Diego Convention. I wished that it was still two weeks before the convention so that I could do it all again.

— Mark Wilson

BILL RINTOUL

Thanks to Santa Fe Energy Resources, the curtain may finally be rising on the results of horizontal drilling in the San Joaquin Valley's heavy oil fields.

Until Santa Fe's recent release of information, the success of horizontal drilling in such fields as Midway-Sunset could only be measured by the fact that operators kept drilling such wells, indicating there must be a worthwhile payout.

A certain amount of information was available. If the Division of Oil, Gas, and Geothermal Resources classified the proposed horizontal well as a regular development well and refused to classify it as a confidential effort, the program including surface location, bottomhole location, vertical depth and measured depth was deemed a matter of public knowledge.

As for production figures, release of information rested with the operator. The result was a series of "tight" horizontal wells, with no release of details.

There was one notable exception. The Department of Energy with Bechtel Petroleum Operations as contract operator advanced the horizontal well cause in California with generous release of information about the highly successful Stevens sand program in the Elk Hills field.

The horizontal drilling program that began in 1988 at Elk Hills increased ultimate recovery and extended the economic life of the 26R pool in the Stevens zone. Nineteen out of 19 horizontal wells had been completed by the end of the first quarter of this year, when production from the wells was approximately 9,800 barrels per day of oil. The technology also has been applied successfully in other areas of the field, with the first horizontal well drilled in the Shallow Oil Zone last year.

Before Santa Fe stepped forward to break the silence in a field outside Elk Hills, horizontal drilling was taking a firm hold in heavy crude fields, but production figures remained a secret.

One of the first leaks of information came in May when Alan Kleier, assistant division manager of the Western California Business Unit/Bakersfield Division of Texaco Exploration & Production Inc., spoke before the San Joaquin Valley Chapter of the American Petroleum Institute in Bakersfield.

In some areas where Texaco's conventional wells were producing 20 barrels per day of oil, Kleier said horizontal wells were producing over 100 barrels per day. Without identifying the field by name, he added, "We can get to the bottom part of the barrel with horizontal drilling."

Several weeks later, Santa Fe came forward with the information that three out of three horizontal wells drilled in the North Midway portion of the Midway-Sunset field had hit the heavy crude jackpot.

The independent had kicked off the horizontal program in April 1995 with No. 1H on Sec. 21, 31S-22E, Kern County. The company drilled the well to a vertical depth of 1,465 feet with lateral displacement of 1,865 feet in a northerly direction.

The well was completed in May 1995 for an initial production of about 50 barrels per day of 11-gravity oil. Over the following six months, production increased to an average of over 100 barrels per day per well, then grew to current production level of 250 barrels per day.

Vertical wells in the same section averaged 20 to 25 barrels of oil per day. The cost to drill and complete a horizontal well at Midway-Sunset was about \$350 thousand compared with \$150 thousand for a typical vertical well.

Following the indicated technical and economic success of its first horizontal well, Santa Fe completed two more horizontal wells on the same section in April of this year. The wells are Nos. 2H and 3H. Each had initial production rates approaching 100 barrels per day. The 2H was drilled to a vertical depth of 1,515 feet with lateral displacement of 1,685 feet in a southeast direction. The 3H also was drilled to a vertical depth of 1,515 feet with 2,030 feet of lateral displacement located about 200 feet to the east and parallel to the 2H well.

With release of information, Santa Fe opened the door for industry to break silence and begin putting out information that will help all concerned to produce more oil from heavy oil fields.

There is a parallel in the first few years of steam injection in the early 1960's. Information was tight. Operators gradually began to release details. By the end of the decade, Midway-Sunset, South Belridge and Kern River fields were on their way with steam injection toward becoming the top three producing fields in the Lower 48 states.

ADDRESS CHANGES



William (Rick), Berry II, Digital Petrophysics Inc.
2020 K St., Bakersfield, CA, 93301, (805) 322-8667

J. P. Chauvel, 217 Sierra Rd., Ojai, CA, 93023, (805) 646-8360.

C. Michael Clayton, Texaco Inc.
1400 Suffolk Street, Bakersfield, CA, 93312

Joe D. Davidson, Bechtel Pet. Optrs. Inc.
P.O. Box 127, Tupman, CA, 93376
(805) 326-1691(H) (805) 763-6383(W)

John Forman, 690 N. Fairview, Goleta, CA, 93117, (805) 967-6972

Richard Hager, Mobil Oil, P.O. Box 2173, Liberal, KS, 67905-2173
(316) 626-1131

John T. Isberg, 3243 2H San Amadeo, Laguna Hills, CA, 92653

Jackie E. Stephens, Blue Ridge Associates
N 9 Post, Ste 330, Spokane, WA, 99201, (509) 838-8120

James W. Tucker, 1717 Fernwood Drive, Plano, TX, 75075-7344
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(303) 790-7070(H) (303) 790-7070(W)

Stephanie Vasconcellos, Rincon Consultants
347 Drexel Ave., Ventura, CA, 93003
(805) 650-9778(H) (805) 641-1000(W)

Ed J. Veith, P.O. Box 6161, Pine Mt., CA, 93227
(805) 242-1370(H) (800) 228-3578(W)

Gerald C. Young, 1005 La Reina Dr., San Marcos, CA, 92069
(619) 744-7530

Delegate's Column Continued from page 2

with seeking ways of enfranchising more of the AAPG members currently residing in unaffiliated countries. This item also passed unanimously after some discussion. The House also favorably acted upon applications by the Albania Petroleum Geologist Association, the Argentina Association of Petroleum Geologists and Geophysicists, and the Everglades Geological Society to become Affiliated Societies of the AAPG. The Society of Professional Well Log Analysts (SPWLA) was unanimously accepted as an Associated Society.

The H.O.D. Executive Committee also submitted reports from two Ad-Hoc studies conducted over the past year: the Report of the Ad-Hoc "Future of Earth Scientists" Committee and the Final Report of the Ad-Hoc Unaffiliated Group Delegate Committee. The results of these studies will be reviewed by the House committees for possible additional action in the upcoming year. One of the final activities of the meeting was to announce the new officers of the H.O.D. for the upcoming 1996-97 year. They are: Patrick J.F. Gratton of Dallas as the incoming Chairman, Robert L. Countryman of Bakersfield as Vice-Chairman, and Jeanne E. Harris of Denver as Secretary.

ANNOUNCEMENTS

☛ Anyone interested in an MJ system Rocky Mountain area data base - current through 1990 - contact Pat Haley (909) 672-2966

☛ Treasurer Joan Barminski says that there has been some difficulty in depositing checks made out to the John Kilkenney Memorial Scholarship Fund. She asks that all checks be made out to the PS-AAPG to facilitate depositing. Thanks.



PACIFIC SECTION AAPG ELECTION RESULTS

Officers for the 1996-1997 term are:

President, Larry Knauer (BPOI); President Elect, Dalton Lockman (EXXON); Vice President, Paul Henshaw (CUSA); Secretary, Terry Thompson (BPOI); Treasurer, Joan Barminski (MMS); Past President, Mark Wilson (BPOI).

Looking for Books . . .

Westmont College

has started a new introductory earth science course which emphasizes geology. Local California geology in particular will be used to exemplify basic principles. Please consider helping us to gather basic reference library and resource materials. Donations of any of the following would be especially appreciated:

- Current basic geologic textbooks in physical/historical geology;
- Geologic reference materials of a local Southern California emphasis;
- Recent periodicals or journals, such as California Geology, Geotimes, GSA Bulletin, Earth, etc., in complete or partial sets;
- Reprints or copies of important articles on local geology;
- Local geologic, tectonic and topographic maps and charts;
- Geology/earth sciences-related teaching and laboratory materials.

For Further information, please

Dr. Stanley Anderson
Department of
Westmont College
Santa Barbara, CA 93108
Telephone (805) 565-6190

Thank you for your assistance!

Time to Forget About the Rocks?

By Mark W. Longman

From the beginning, geologists have relied on rocks for data in all aspects of their science. However, it seems that rocks have begun to lose their value to the profession. This is particularly true in the oil and gas business where extensive collections of cores and samples are facing funding problems and are in danger of being dumped and abandoned. These rock "libraries," which contain samples collected from thousands of wells drilled during the past fifty years, have aided in developing countless exploration prospects that resulted in the discovery of incalculable amounts of hydrocarbons during the past few decades. Today, though, new technological developments, combined with a general de-emphasis in the study of "real" rocks (perhaps partly because they do not lend themselves to computerization), is making the core and sample libraries obsolete.

A good indication of this was revealed at the Annual Convention in San Diego where AAPG's Core and Sample Preservation Committee met and seriously discussed whether or not it should disband. Chairman Doug Patchen pointed out that the West Virginia core library had been used only once in the past year. It was also noted that California's core and sample library, which is used extensively, is facing funding problems and in danger of being closed.

All this leads me to ask if AAPG's House of Delegates cares about preservation of rock samples in the form of cores and cuttings. Is it time to admit that we no longer need access to subsurface samples in our profession? If any of you have strong opinions on this subject, please put them in writing for possible publication in a future newsletter. Thank you.

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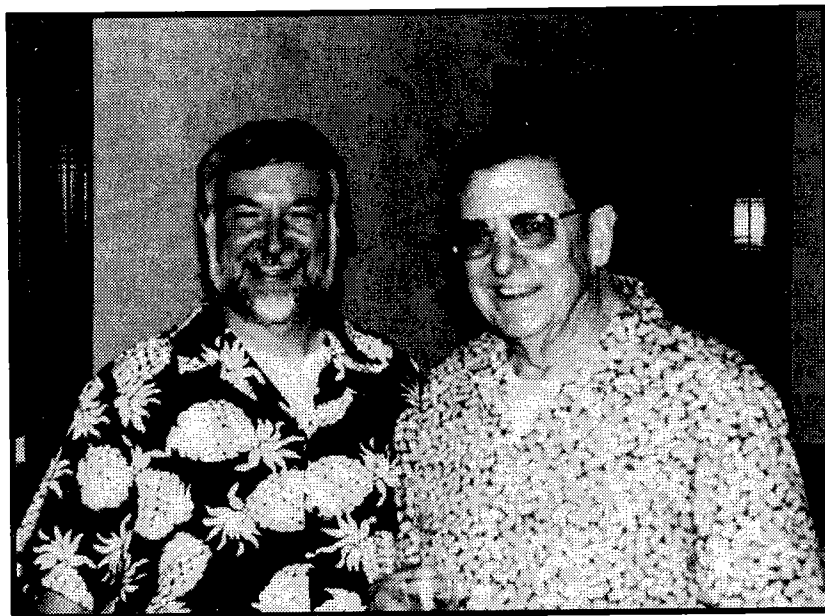
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Any logging suite - modern or old



Another gaggle of geologists getting together to wish George McJannet bon voyage on his retirement from the Department of Energy at Elk Hills.

From left to right: Geoff Davis, consultant; Kay Pitts, BPOI; Malcolm Allan, BPOI; Mark Wilson, BPOI; Tony Reid, BPOI; Stan Obernyer, STA; Ron Dixon, Retired; John Stotts, Independent; Don Lindsay, Independent; Wendall Smith, Independent; JoAnn Conard, BPOI; Terry Thompson, BPOI; Joe Davidson, BPOI; George McJannet, DOE (ret.); Russ Simonson, Independent; Stuart Ross Smith, Mudlogger Extraordinaire; Robert Lindblom, CUSA (ret.); Ginny Weyland, DOE; Ridge Dorsey, BPOI; Larry Knauer, BPOI and Kevin Beacom, STA.

George McJannet (DOE, retired) and Mark Wilson (President of the Pacific Section - AAPG and Senior Geologist with Bechtel Petroleum.)



*George McJannet (DOE, retired) and Ginny Weyland (DOE geologist, not retired.) Editor's Note: Ginny is the **only** geologist at Elk Hills who has never attended a SJGS meeting!*

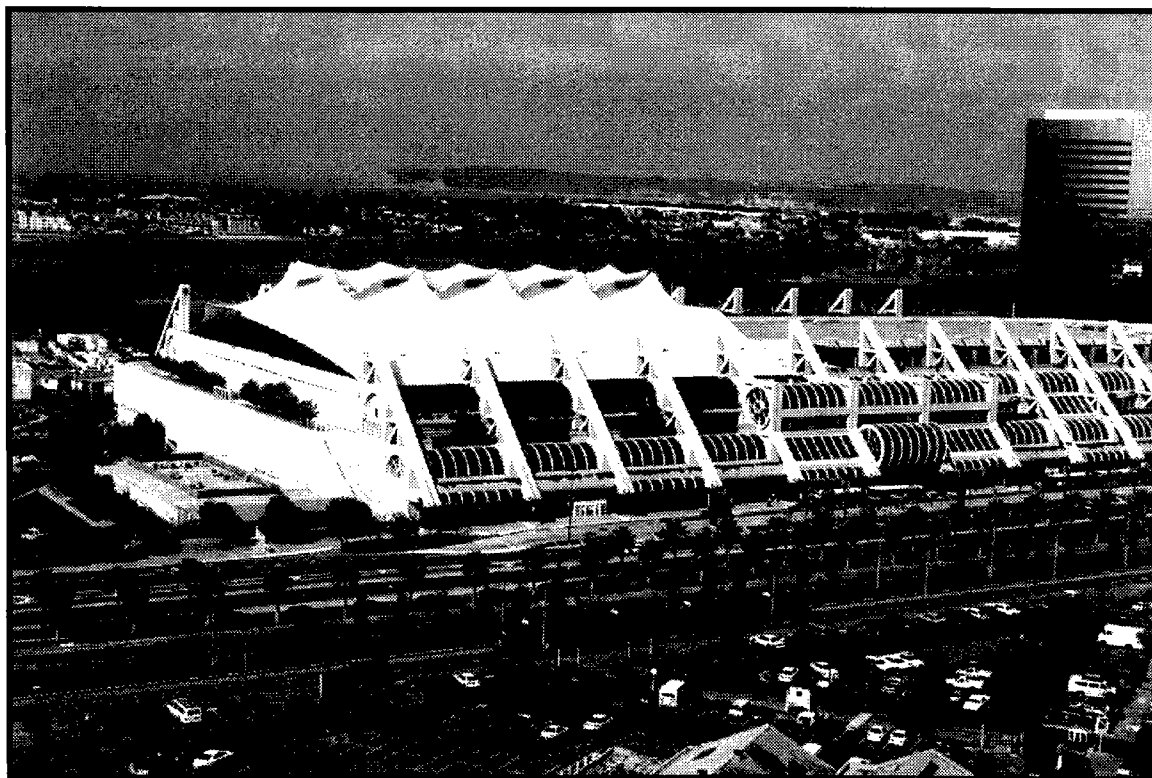


George talking to the crowd after meeting his long lost cousin, G. Scarecrow McJammit.

G. Scarecrow McJammit
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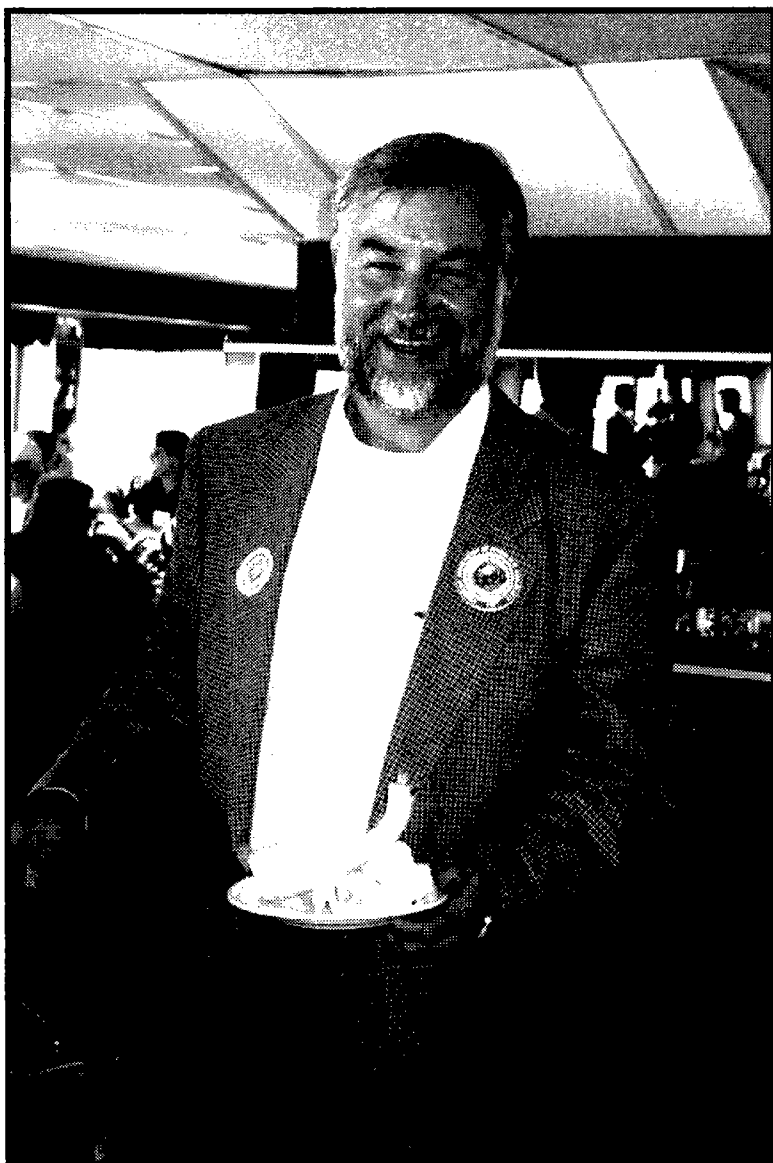
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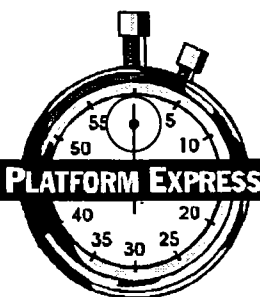


We Came . . .

The San Diego Convention Center - Location of the 1996 National AAPG Convention was a very attractive and convenient facility for our convention.



Mark Wilson - 1995-1996 President of the Pacific Section AAPG proved to be an excellent conduit of communications between the PS-AAPG Executive Committee and the Convention Committee. We appreciate his efforts on behalf of the Section. Mark had more trouble distinguishing decorations from hors d'ouvres at the buffet table.



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Schlumberger

We Saw . . .

Chris Presmyk, a FMI Specialist, at the incredible Schlumberger exhibit. Coffee, donuts and information were in abundance.



Rich Boyd and Curtis Conway making seismic data seem fun.

The Epoch Well Logging booth was manned by the President of the company, Bill Anderson; Operations Manager, Les Collins; and Jim Carson. Many thanks to Les for organizing the golf tournament, and to Epoch for their terrific support of the Pacific Section over the years.





We Conquered?

Left to right - Kay Pitts (BPOI), Dan Fargo (Core Labs), Nancy Knauer (HLD), Allen Britton (Core Lab) and Mark Milliken (DOE) are waiting to conquer the famous margaritas at Casa de Bandini in San Diego's Old Town.

By the time the second round of "Monster Margaritas" arrived, Tony Reid (President-elect, San Joaquin Geological Society) had managed to attract all the ladies to his end of the table.



*Dan Fargo (Core Labs)
just saw the bill!*

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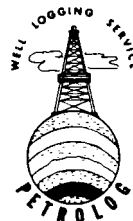


Terry Thompson (incoming Secretary, PS-AAPG), Donna Thompson (Vice-President, PS-AAPG) and Allen Waggoner (Secretary, PS-AAPG) at the wrap-up meeting following the last technical session.

Joan Barminski (Treasurer, PS-AAPG) and Kay Pitts (Financial Chair '97 PS-AAPG Convention.) Sorry Kay, you can't change your mind now.



John Minch, General Chairman 1996 National AAPG Convention, relaxing with a cold brewski (root beer) on the willing lap of Jorge Ledesma-Vasquez (Professor of Geology, University Autonoma de Baja California.)



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Honorary Membership

Thomas Wilson Dibblee Jr.

CITATION: The magnitude, permanence and integrity of Thomas Wilson Dibblee's work in producing geologic maps of one-fourth of the state of California is unprecedented and legendary.

In over 60 active years of geologic mapping, Thomas Wilson Dibblee Jr. has created a true California legacy; his many geologic maps and reports provide an unsurpassed regional perspective that contributes a wealth of locally important information. His knowledge of regional stratigraphy, structure and paleontology has been basic to understanding much of California's geology. The magnitude, integrity and permanence of Dibblee's geologic mapping of one-fourth of the state of California is unprecedented and legendary.

Born in 1911, Tom Dibblee was raised on Rancho San Julian, west of Santa Barbara, and is a descendant of early Spanish and English-American settlers. When Tom's father hired consulting geologist Harry R. Johnson to map the ranch for its oil potential, Tom, then 13, accompanied him and found his life's interest and career in geology, soon thereafter getting his basic training at Stanford.

Tom's graduation in 1936 was followed by geologic mapping for Richfield Oil Company until 1952, which led to major oil finds. His work with the USGS from 1952-77 involved geologic mapping of the Mojave Desert for borates, then mapping the Transverse and

Coast ranges for 25 miles on each side of the San Andreas Fault. His work has led to many published geologic maps, reports, bulletins, and professional papers. His collaboration with Mason L. Hill in their 1953 paper on the San Andreas, Garlock and Big Pine faults of California, proposing a lateral displacement along the San Andreas Fault of more than 350 miles, is considered fundamental to the plate tectonics theory.

Since his retirement in 1977, Dibblee has been devoted to volunteer geologic mapping of large areas of southern and central California for the Los Padres National Forest, U.S. Forest Service, and since 1983, for the Dibblee Geological Foundation. He lives in Santa Barbara with his devoted wife, Loretta, where he actively contributes reports, technical papers, geologic mapping, and field trips to local geological associations and is a research associate at the University of California at Santa Barbara.

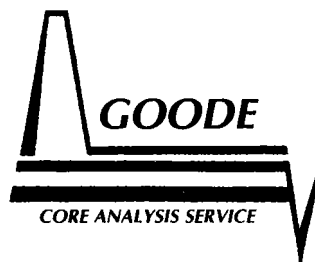
— Dorothy Stout



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Wes Bruer (left) with Jack Clare after receiving his Special Award in San Diego.

Special Award

Wesley G. Bruer

CITATION: To Wesley G. Bruer in recognition of his efforts in the discovery of the only commercial gas field in the Northwest and his long dedication and service on behalf of AAPG.

Wes has made significant contributions to the geologic science, to AAPG societies, and to public service to California, Oregon and his country. As a personal friend, fellow geologist and former co-worker, I have known and observed Wes for 45 years as an extremely dedicated, honest and hardworking geologist.

Wes was born in St. Helens, Oregon, on April 20, 1926. He attended public schools there and was president of his senior class at St. Helens High School. Upon graduation from high school in June 1943, he enlisted in the United States Navy and served aboard a submarine in the southwest Pacific during World War II. While stationed in California, Wes met Dee Purvis; they were married in December 1945 and recently celebrated their 50th wedding anniversary. Wes was honorably discharged from the United States Navy in February 1946. He attended the University of Portland in Portland. In September 1947, he transferred to Oregon State University, majoring in geology, and was awarded a bachelor of science degree in geology in 1950.

Upon graduation, he worked for Oregon Portland Cement Company and then for Superior Oil Company

in Texas, California, Oregon, Washington and Wyoming. Wes became an active member of the AAPG in 1956 and held several offices in the AAPG, including president of the Pacific Section AAPG for the 1975-76 term.

Upon resigning from Superior Oil Company in 1958, he entered consulting in Bakersfield and in 1969 was appointed chief of the Division of Mines and Geology, resigning this position in October 1973 to open a consulting practice in Sacramento in April 1974. When consulting for Reichhold Energy Corporation, Wes made a significant contribution in the discovery of the Mist Gas Field in Oregon, the only commercial gas field in the Northwest with a cumulative production of 56.3 BCF from approximately 54 wells. The field is still under development.

- Jack Clare

SHELL GEOLOGISTS GET TOGETHER

A group of former Shell geologists got together to honor their early leader, Leo R. Newfarmer, a renowned oil finder and exploration leader. A luncheon was held at the LaJolla Country Club on May 21, 1996, concurrent with the National AAPG meeting in San Diego. This event was highlighted by a tribute to Leo and a renewal of old friendships of numerous ex-Shell geologists. Jack Holzman of LaJolla organized this event.

- N.H. MacKevett

Pacific OCS Oil Production Reaches New Milestones

The U. S. Department of the Interior's Minerals Management Service (MMS) reports that California offshore oil production reached new milestones in 1995. In June 1995, the first milestone was achieved when production from the Pacific Outer Continental Shelf (OCS) exceeded 200,000 barrels per day. A Second milestone was reached in December 1995 when the cumulative oil production topped 3/4 of a billion barrels. Oil production for all of 1995 reached a record high of over 72 million barrels.

These milestones were reached largely through the increased production from the Santa Ynez Unit, located 23 miles west of Santa Barbara and home to the Pacific's two newest platforms, Harmony and Heritage. These two platforms, combined with production from Platform Hondo, pushed total production from the Santa Ynez Unit to a level of over half of the oil and gas produced on the Pacific OCS. Platform Heritage alone produces nearly 1 percent of our nation's total oil production, reaching a level of 58,000 barrels of oil per day in December 1995.

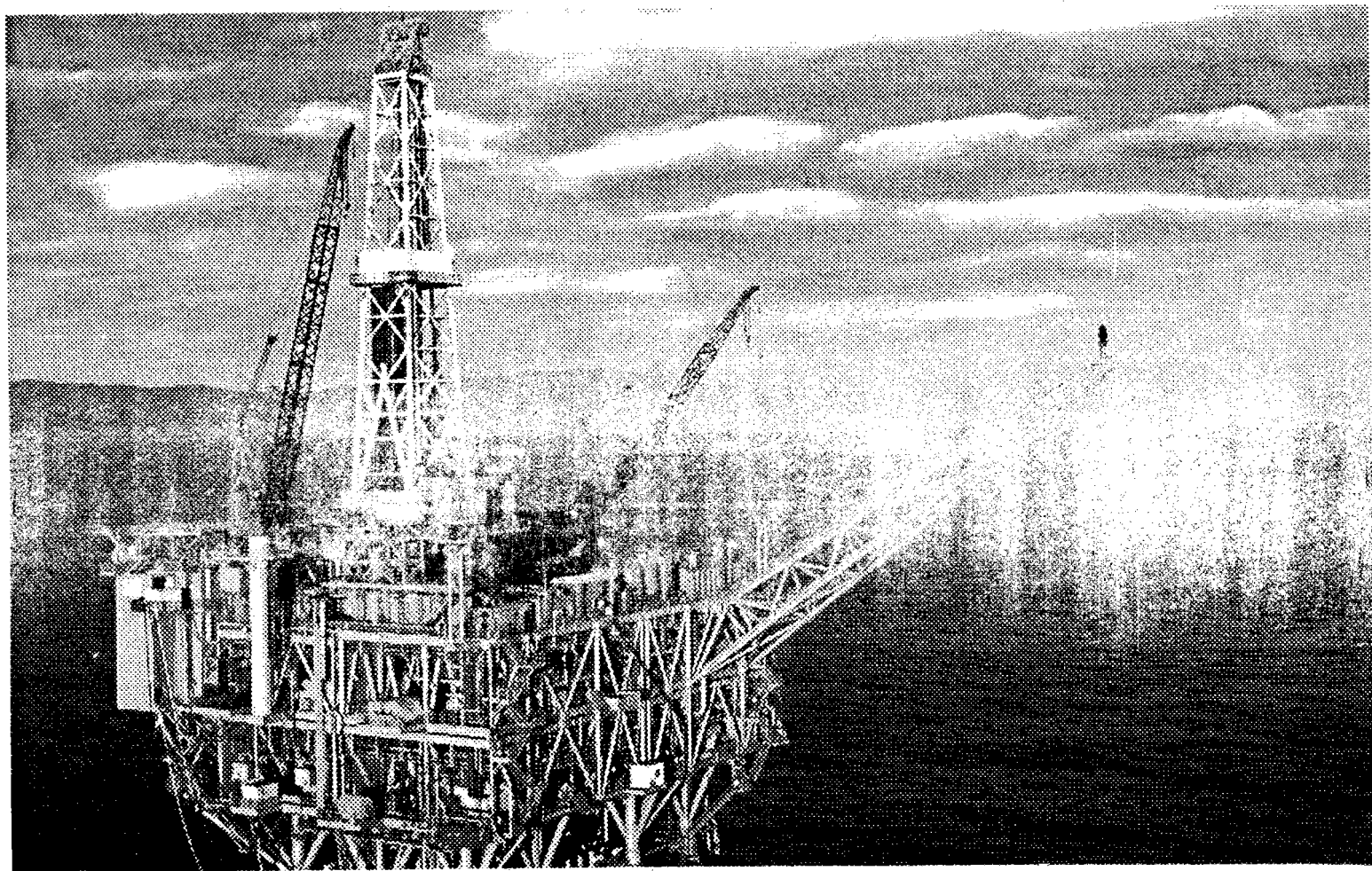
The Pacific OCS 1995 natural gas production hit a 10-year high of 62.7 billion cubic feet, falling just short of the 1985 record of 63.5 billion cubic feet. Cumulative gas production from the Pacific OCS reached 804 billion cubic feet in December of 1995. Gas production for all of 1995 provided nearly four times the consumption of all single family homes in Ventura, Santa Barbara, and San Luis Obispo counties combined.

Currently, 23 platforms produce oil and gas from 11 fields offshore southern California. Nationally, the OCS provides more than 12 percent of all domestically produced oil and over 25 percent of our nation's produced gas.

Production from the Pacific OCS began in June of 1968, when Platform Hogan began production oil and gas from the Carpinteria Offshore Field in the Santa Barbara Channel.

For additional information on Pacific OCS oil and gas production, contact Joan Barminski (805) 389-7556 or Michael Else (805) 389-7572, Minerals Management Service, 770 Paseo Camarillo, California 93010.

**Platform Heritage - Operator: Exxon - Installed: 10/7/89 - No. Slots: 60 - 1st Production: 12/17/93
Water Depth: 1,075 ft - Field: Pescado - Lease: OCS-P 0182**



INTERESTED IN A PETROLEUM ENGINEERING MASTERS DEGREE ?

The Bakersfield Extension Program of the University of Southern California Petroleum Engineering Department will be offering two undergraduate level reservoir engineering courses and a graduate level reservoir engineering course to be taught in Bakersfield. If you are interested in the graduate program, but do not have a BS in Petroleum Engineering, now is the time to take the undergraduate prerequisite classes!

You do not have to be a USC graduate candidate to enroll in these extension courses.

FALL 1996 COURSE OFFERING:

PTE 411x - Introduction to Transport Processes in Porous Media (3 credit units) Properties of porous rocks; capillary effect, single phase and multiphase flow through porous media; diffusion and dispersion, miscible displacement, heat transfer.

PTE 412x - Petroleum Reservoir Engineering (3 credit units) Properties of reservoir fluids, volumetric and material balances for gas and oil reservoirs; reservoir modeling concepts.

PTE 507 - Engineering and Economic Evaluation of Subsurface Reservoirs (3 credit units) Studies, data and methods for estimating size of underground fluid deposits for predicting physical and economic behavior of designed flow schemes, and for quantifying uncertainty.

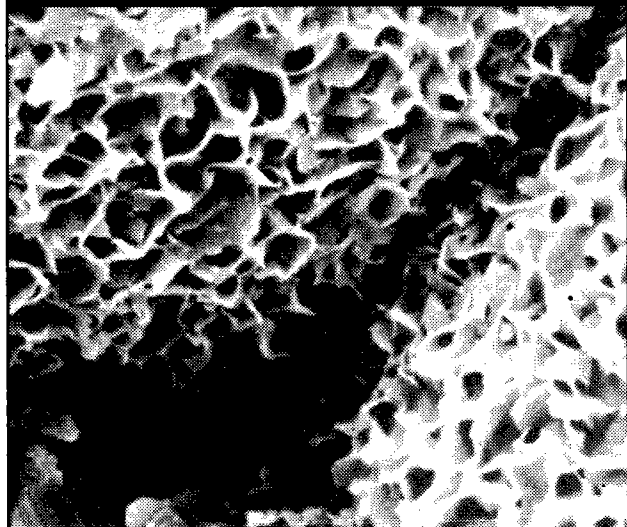
The course schedule will run from August 26 thru December 17 and each class will meet one evening per week.

SUMMER REGISTRATION SESSION:

Wednesday, July 24, 5:00 - 6:00 p.m., OXY Office, 1200 Discovery Drive, Bakersfield.

For more information, contact Program Coordinator, Freda O'Brien at 321-6612.

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NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Alaska

The Endeavor Segment (Juan de Fuca Ridge) and its Associated Hydrothermal Vents

Presented by Veronique Robigou, Oceanography Department, University of Washington

The intermediate spreading rate Juan de Fuca Ridge has been the site of extensive investigation for almost 3 decades because of its accessibility from U.S. and Canadian ports and because it contains a microcosm of most features found on the global mid-ocean ridge system. A multidisciplinary group of researchers at the University of Washington in Seattle collaborated in the exploration and study of the Endeavor Segment, a 90 km-long section of the Juan de Fuca Ridge, since the inception of deep-sea research along ridges and the discovery of hydrothermal activity along this ridge in 1981.

Collaborative studies to examine and better understand the relationship between volcanic, magmatic and hydrothermal processes along this ridge have led to multiple diving cruises using the submersible Alvin and surveys with remote-operated vehicles such as the Jason-Medea system. Fifteen years of concentrated effort in this area resulted in one of the best-studied, best-known portions of the mid-oceanic ridge system. The Endeavor Segment has just

been selected by the RIDGE community as one of the sites for establishing a seafloor observatory for the next five years.

The central portion of the Endeavor Segment is a volcanic high with a well-defined, narrow axial valley about 2200m deep. On the highly-fissured basaltic floor of the axial valley, several active hydrothermal vent fields have been discovered and extensively mapped and sampled by submersible. Two of the hydrothermal vent fields have been mapped in detail and repeatedly sampled in order to design time-series experiments to document the evolution of hydrothermal effluents chemistry and temperature, growth of sulfide, and evolution of biological communities associated with hydrothermal activity. This presentation will give an overview of the geological history of the Endeavor Segment from the segment scale of tens of kilometers to the tube worm and bacteria scale of centimeters and the technology which allows such deep-sea studies.

Alaska Geological Society
P.O. Box 101288
Anchorage, AK 99510
Contact: Sue Karl (907) 786-7428

San Joaquin

The June meeting was very successful and well attended. Richard Blake, Lawrence Livermore National Laboratory, gave a talk on Hydrographic Analysis Used to Optimize Ground Water Remediation at Lawrence, Livermore National Laboratory Superfund Site. Richard clearly and effectively explained how he used common oilfield geological methods of investigation to improve the subsurface picture at the superfund site. Also presented were three very interesting Poster Sessions: Reservoir Description of the C and D Shales, Elk Hills Field by Jana McIntyre, Tom Hampton and Tony Reid; The San Gabriel Faults by Henry Walrond; Unique Contributions of California to

the History of the Oil Industry by Mike Clark. These poster sessions were presented at the National Convention in San Diego as well.

New officers 1996-1997 are: President, Mike Simmons (ARCO); President Elect, Tony Reid (BPOI); Vice President, Mike Clark (ARCO); Secretary, Dan Stewart (ARCO); Treasurer, Brian Bell (Goode Core Analysis).

Look for the announcement regarding the Fall BBQ/Golf Tournament. It will be held at the Kern River Picnic Area on September 13, 1996. That's a Friday. (Hope your aren't superstitious.) The Golf Tournament will be a joint SJGS/SEG effort.

Coast

There are no CGS meetings for the months of July and August. The next CGS Meeting is scheduled for Tuesday, September 17, 1996.

Coast Geological Society
P.O. Box 3055
Ventura, CA 93006
Contact: Bernie Sentianin
(805) 656-4677

Sacramento

On July 24, Mr. Jim Chenoweth of International Training Services, Inc. will speak to us on their well control school. They plan to bring along their simulator and give us a demonstration.

Owen Kittridge is the new President of SPA. Owen is a geologist with Delta Environmental Consultants, Inc.

Noon luncheon meetings are held at the HUNGRY HUNTER RESTAURANT, 450 Bercut Drive, Sacramento.

For luncheon reservations, please call Rose Kuntz at AA Production Inc., (916) 641-9360, at least one day in advance.

Sacramento Petroleum Association
P.O. Box 254443
Sacramento, CA 95865-4443
Contact: Steve Burke (916) 641-9360

Meetings are held at the American Legion Hall, 2020 "H" Street, Bakersfield, CA. As usual, attitude adjustment begins at 6:00 p.m. with dinner at 7:00 p.m. followed by the technical program.

San Joaquin Geological Society
P.O. Box 1056
Bakersfield, CA 93302
Contact: Mike Simmons (805) 321-4113

Northwest

Please call Shelley Thomas at (503) 693-9822 (please leave message on machine if no answer) or Treck Cardwell at (503) 220-2573.

Northwest Energy Association
P.O. Box 6679
Portland, OR 97228-6679
Contact: Bill Rodgers (503) 294-9681

Los Angeles Basin

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505
Contact: Mark Legg (310) 378-6254

Northern California

No. Cal. Geological Society
9 Bramblewood Court
Danville, CA 94506-1130
Contact: Dan Day (510) 294-7530

John Kilkenny Scholarship Fund

Donations are being solicited by the Pacific Section AAPG to help establish a scholarship fund to honor John Kilkenny, a man who devoted much of his life to geology and the Pacific Section. The fund will be used to give a scholarship each year to a deserving geology student. If you would like to contribute to this fund, please send a check made out to the PS-AAPG and mail to: PS-AAPG, P.O. Box 1072, Bakersfield, CA 93302. Thank you for your help.

D.O.E. Workshop and Core Display Set for September

A D.O.E. sponsored core display and project workshop will be held at the California Well Sample Repository and in the Walter Stern Library respectively, on the campus of Cal State Bakersfield, Tuesday, September 24. The theme of the workshop is "Visual Display of Reservoir Parameters" and will be given by the Repository, DPI of Bakersfield, and Michigan Technical University from Houghton, Michigan. The goal of the workshop is to demonstrate to independent operators and consultants that cost effective reservoir analysis and visualization can be achieved on a PC using relatively inexpensive software. The Pioneer Field near Taft, California was selected as the field demonstration site.

The workshop will begin with talks on the Pioneer project which will feature computer demonstrations. Concurrently core from the Union, McKittrick #418 will be on display

at the Repository. Several breaks in both the morning and afternoon sessions are planned to accommodate core study.

A CD ROM describing the project will be made available for purchase at nominal cost. The CD ROM contains several megabytes of data and reports, including LAS files from 80+ wells. It is organized as a manual/textbook and is suited for classroom instruction as well as a detailed example of a reservoir description and visualization.

This workshop is sponsored by the D.O.E. Fossil Energy program on reservoir characterization. It will run from 8:30 a.m. until 5:00 p.m. Approximately 700 feet of core from the calibration well will concurrently be available for viewing.

Persons interested in attending the workshop should call Russ Robinson at (805) 664-2324, or FAX (805) 664-3194 and reserve a space. If there is sufficient interest, a second workshop will be held on September 25.

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CONTENTS OF PS-AAPG GUIDEBOOK - GB73

Field Conference: THICK-BEDDED, COARSE-GRAINED, DEEP-WATER DEPOSITS, CRETACEOUS AND PALEOGENE, CENTRAL CALIFORNIA: Leaders: *Stephen A. Graham, Doanld R. Lowe, Kai S. Anderson and Thomas Hickson*

THE PALEOGENE CANTUA SANDSTONE, SOUTHERN DIABLO RANGE, CALIFORNIA: FACIES ARCHITECTURE OF A SAND-RICH, STRUCTURALLY CONTROLLED, DEEP-SEA DEPOSITIONAL SYSTEM, *Kai S. Anderson*

THE JUNIPER RIDGE CONGLOMERATE, COALINGA, CALIFORNIA SEDIMENTOLOGY AND FACIES ARCHITECTURE OF A SUBMARINE FAN CHANNEL AND LEVEE COMPLEX, *Thomas Hickson and Donald R. Lowe*

Field Conference: NEOPROTEROZOIC CARBONATE SUCCESSIONS, DEATH VALLEY, CALIFORNIA: COMPARISON AND CONTRAST WITH PHANEROZOIC EXAMPLES, *Anthony R. Prave*

Field Conference: CYCLE AND SEQUENCE STRATIGRAPHY OF MIDDLE TO UPPER CAMBRIAN-CARBONATES, BONANZA KING FORMATION, SOUTHERN GREAT BASIN, *David A. Osleger, Isabel P. Montaez, Javier Martin-Chivelet, and Christoph Lehmann*

LATERAL, CONTINUITY OF MIDDLE CAMBRIAN PERITIDAL CYCLES-SOUTHERN NEVADA: IMPLICATIONS FOR THEIR ORIGIN, *Christoph Lehmann, David Osleger, Isabel Montaez, Jeff Jaech, Eric Stokstad, and Milt Kwong*

Field Conference: TERTIARY SEDIMENTOLOGY AND DEPOSITIONAL HISTORY OF THE SANTA MONICA MOUNTAINS OF CALIFORNIA, Leaders: *A. Eugene Fritsche, Ivan P. Colburn, and Pedro C. Ramirez*

STRATIGRAPHY AND SEDIMENTARY STRUCTURES OF THE PALEOCENE-SUCCESSIONS IN THE WEST-CENTRAL SANTA MONICA MOUNTAINS LOS ANGELES COUNTY, CALIFORNIA, *Ivan P. Colburn*

PRELIMINARY PETROGRAPHIC STUDY OF COARSE-GRAINED PALEOCENE SANDSTONES OF THE SOUTHERN TRAVERSE AND NORTHERN-PENINSULAR RANGES, CALIFORNIA, *Pedro C. Ramirez*

Field Conference: SEQUENCE STRATIGRAPHY ALONG A TECTONICALLY ACTIVE MARGIN, PALEOGENE OF SOUTHERN CALIFORNIA, *K. M. Campion, M. D. Sullivan, J. A. May, and J. E. Warme*

Field Conference: STRUCTURE AND HYDROCARBON EXPLORATION IN THE TRANSPRESSIVE BASINS OF SOUTHERN CALIFORNIA, *Thomas L. Davis, Jay S. Namson, and Stuart Gordon*

Field Conference: EARLY MIOCENE CRUSTAL EXTENSION AND BASIN DEVELOPMENT: CENTRAL-MOJAVE DESERT, SOUTHERN CALIFORNIA, *Robert P. Fillmore and John M. Fletcher*

Field Conference: NEOGENE DETACHMENT AND STRIKE-SLIP FAULTING IN THE SALTON TROUGH REGION AND THEIR GEOMETRIC AND GENETIC INTERRELATIONSHIPS, *Eric G. Frost, Mitra J. Fattahipour, and Kevin L. Robinson*

OROCOPIA MOUNTAINS DETACHMENT SYSTEM: PROGRESSIVE DEVELOPMENT OF A TILTED CRUSTAL SLAB AND HALF-GRABEN SEDIMENTARY BASIN DURING REGIONAL EXTENSION: *K. L. Robinson and E. G. Frost*

LOW-ANGLE NORMAL FAULTING ALONG SOUTHERN COASTAL CALIFORNIA AS DISPLAYED BY THE HANGING-WALL ROLLOVER GEOMETRY OF THE SAN ONOFRE BRECCIA, *M. Fattahipour and E.G. Frost*

Field Conference: STRATIGRAPHY OF A MARINE RIFT BASIN: NEOGENE OF THE WESTERN SALTON TROUGH, CALIFORNIA, *Charles D. Winker and Susan M. Kidwell*

Field Conference: EARLY RIFT SEDIMENTATION AND STRUCTURE ALONG THE NE MARGIN OF BAJA CALIFORNIA, *Joann M. Stock, Arturo Martin-Barajas, and Miguel Tellez-Duarte*
 STRATIGRAPHY AND PALEO ENVIRONMENTS OF THE MID-PLIOCENE IMPERIAL FORMATION IN THE EASTERN LAGUNA SALADA AREA, BAJA CALIFORNIA, MEXICO, *S. Vasquez-Hernandez, A.L. Carreno, and A. Martin-Barajas*

Field Conference: THE EFFECTS OF TECTONISM ON THE HIGH RESOLUTION SEQUENCE STRATIGRAPHIC FRAME WORK OF NONMARINE TO DEEP-MARINE DEPOSITS IN THE PENINSULAR RANGES FOREARC BASIN COMPLEX, *William R. Morris and Cathy J. Busby*

Field Conference: OLD OIL FIELDS AND NEW LIFE: A VISIT TO THE GIANTS OF THE LOS ANGELES BASIN, *Donald D. Clarke*

Field Conference: SOUTHERN CALIFORNIA COASTAL WETLANDS, *Prem K. Saint, Neil J. Maloney, and Tony Bomkamp*

Article: DEPOSITIONAL PROCESSES AND CHARACTERISTICS OF 21 DEPOSITIONAL PROCESSES / MEDIUM ASSOCIATIONS WITH EXAMPLES FROM THE TERTIARY OF THE SANTA MONICA MOUNTAINS, *A. Eugene Fritsche*

PREFACE

This hefty volume (475 pages) contains field conference guides and articles for 13 of the 21 field excursions conducted for the 1996 AAPG-SEPM Annual Convention. These excursions provide a diversity of geologic locales, time frames, and subject matter. Combined, they offer travel from the deserts to the mountains to the sea, from southern Nevada, through many of the California geologic provinces, to Baja California Mexico.

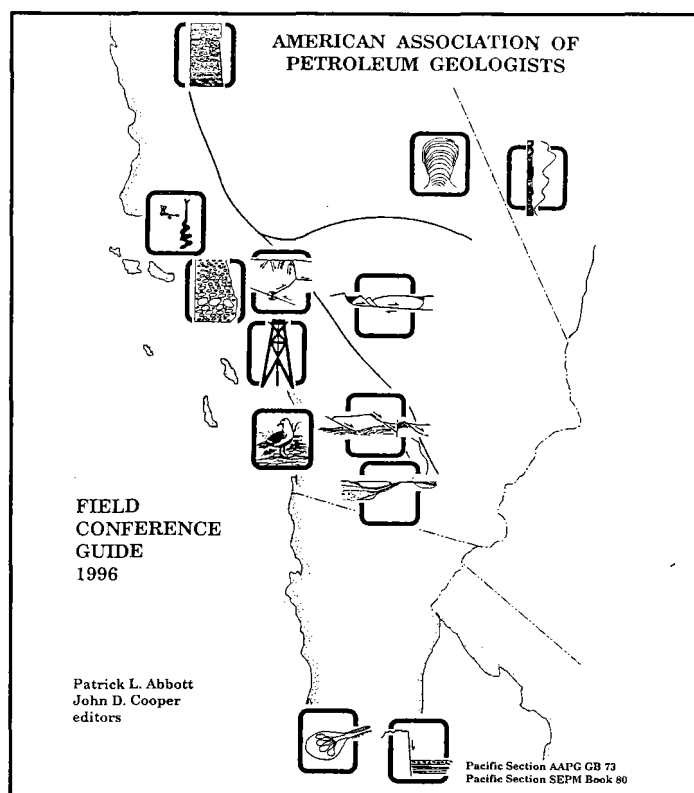
These excursions will take you to: Neoproterozoic—lower Paleozoic carbonates and evolution from rift to passive margin the southern Great Basin; Cretaceous/Paleogene forearc sedimentation in the Coast and Peninsular Ranges, California and Baja California; Transpressive Basins of Southern California; Tertiary Depositional Environments and Sequence Stratigraphy in the Transverse and Peninsular Ranges; Neogene rift-basin tectonics and sedimentation in the Gulf of California-Salton Trough and Mojave Desert; and producing oil fields and coastal wetlands of southern California.

Special thanks are extended to the authors and field conference leaders for their time and effort in producing high-quality manuscripts and expertly run trips. Tempo Offset Services, Santa Fe Springs, California, worked overtime and efficiently to print the volume in a timely manner. Rene Wagemakers, San Diego State University, did the computer graphics for the volume cover.

We hope you enjoy the volume and the field excursion.

Your editors, Pat Abbott and John Cooper — May 1996

TO ORDER THIS VOLUME: SEND A CHECK FOR \$39.50 (INCLUDES SHIPPING AND HANDLING) MADE OUT TO: PS-AAPG PUBLICATIONS, P. O. BOX 1072, BAKERSFIELD, CA 93302.



COUNTRYMAN TO REPRESENT THE PACIFIC SECTION AT THE NATIONAL LEVEL

Bob Countryman (CUSA) is the Membership Chair for the Pacific Section AAPG. He has accepted the additional position of Pacific Section Representative to the National AAPG Membership Committee replacing Tom Dignes from the Northern California Geological Society.

Bob is also a delegate for the San Joaquin Geological Society. He has been elected and accepted the additional responsibilities of being Vice Chair for the National AAPG House of Delegates 7/96 to 7/97.

Congratulations and a huge thank you from all of us for taking on all of these tasks.

***Send your dues card
back soon!!***

NEWSLETTER of the Pacific Section-American Association of Petroleum Geologists is published bi-monthly (except in summer) by the Pacific Section. Material for publication, requests for previous copies, and communications about advertising costs should be addressed to LARRY KNAUER Bechtel Petroleum Operations, Inc., P.O. Box 127, Tupman, CA 93276. CHANGE OF ADDRESS, subscription, and membership inquiries should be directed to: MEMBERSHIP CHAIRMAN, PACIFIC SECTION AAPG, P.O. Box 1072, Bakersfield, CA 93302. To order publications, write to: PUBLICATIONS COMM.: Pacific Section-AAPG, P.O. Box 1072, Bakersfield, CA 93302.

NEWSLETTER
Pacific Section A.A.P.G
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AUGUST 13, 1996

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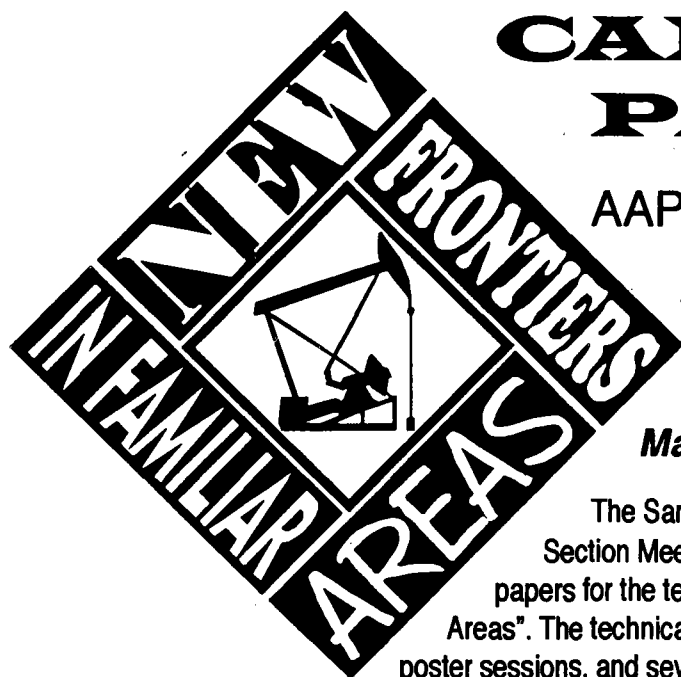


PACIFIC PETROLEUM GEOLOGIST NEWSLETTER

of the Pacific Section

American Association of Petroleum Geologists

SEPTEMBER 1996 NO. 5



CALL FOR PAPERS

AAPG - SEPM - SEG - SPWLA - DEG

**1997 Pacific Section AAPG Convention
Holiday Inn Select and
Bakersfield Convention Center
May 14-16, 1997**

The San Joaquin Geological Society is hosting the 1997 AAPG-Pacific Section Meeting in Bakersfield, California, May 14-16, 1997. We are inviting papers for the technical program covering the theme "New Frontiers in Familiar Areas". The technical program consists of 20-minute oral presentations, half-day poster sessions, and several short courses and field trips. There will also be an electronic poster session. A special session is also planned for prospect presentations and presentations of new technologies in the service sector. You are invited to submit abstracts for presentations. Some of the session topics are:

AAPG

- "Exploration of the Northern San Joaquin Basin Gas Province"
- "Midway-Sunset: A Super-Giant Field"
- "Horizontal Drilling Reviving Mature Fields"
- "Reservoir Characteristics and Improving Recovery in Siliceous Shales"
- "Research in Advanced EOR Technology"
- "Lessons learned in Giant Fields"

SEPM

- "Magnetic Stratigraphy and High-Resolution Chronostratigraphy of the Pacific Coast Cenozoic"
- "New Perspectives on the Mesozoic Evolution of California: Implications for the Development of the Great Valley Province"
- "New Solutions to Old Problems in Stratigraphy"
- "Deposition and Diagenesis of Sedimentary Rocks"

SEG

- "Technology for the 21st Century"

SPWLA

- "Cased Hole Logging Applications"

DEG

- "Management and Environmental Implications of Oil Field Waters"

ELECTRONIC POSTER SESSION

The theme of this session revolves around how one may use a computer solution to resolve a technical problem. Case studies are preferable. Contact Deborah Olson, DPI, 805-322-8667

INSTRUCTIONS FOR SUBMISSIONS

Abstracts (250 words or less) may be submitted for oral or poster presentations. Abstracts are due November 15, 1996. For additional information about the meeting or to request a form for submitting abstracts, please contact Larry Knauer, Technical Program Coordinator, PS-AAPG, P.O. Box 1072, Bakersfield, CA 93302. Phone (805) 763-6280; Fax (805) 763-6659.

*Note: Abstract forms will be mailed out to all AAPG, SEPM, SEG, SPWLA and DEG members during the latter part of September.

A MESSAGE FROM THE PRESIDENT

Greetings! The 1996-1997 Pacific Section officers are in place and already hard at work.

The election of this year's officers has brought some new faces to the table.

Dalton Lockman an Exxon geologist from the Coast Geological Society is the President elect. Dalton, you may recall, did a great job as General Chairman of the 1994 Pacific Section Convention held in Ventura. Dalton will be the Executive Committee's liaison with the 1998 Convention Committee. The 1998 Convention will be held in Ventura and Jon Schwalbach, (also an Exxon geologist) will be the general chairman. Dalton will also act as the Assistant General Chairman for the 1998 convention.

The new Vice President is **Paul Henshaw** a geologist with Chevron. Paul has been active the K-12 program which promotes sciences being taught in the schools. He also helps coordinate putting geologists and engineers in the classroom as guest speakers.

The new Secretary is **Terry Thompson** who was a Bechtel geologist when he got elected, but has jumped ship and will be working for Mobil by the time this newsletter hits the street. We expect him to be an exceptionally good secretary as he has his wife, **Donna Thompson** (San Joaquin Energy Consultants), to coach him. She was the Pacific Section Secretary two years ago. Terry and Donna will be coordinating operations at the 1997 convention. They will be the ones with the walkie-talkies and uzis.

We also have some familiar faces returning.

Joan Barminski (Minerals Management Services) will be covering the Treasurer's position for the second year of her

two year term. Joan is actively keeping up with our bank accounts as well as our insurance needs. Joan is also looking into getting our bulk mail status improved and thereby get us cheaper postage rates.

Mark Wilson is the Past President. Mark did a terrific job last year as President and liaison with the 1996 Convention Committee in San Diego. This year Mark is going to be actively researching options and pursuing remedies to our core storage situation in California. This is a topic on which the Executive Committee hopes to make some real progress over the next twelve months. Mark will also be the liaison for the Executive Committee to the 1997 Convention Committee. What he learned working on the National Convention ought to come in handy for the Bakersfield convention. Mark has a couple of other irons in the fire for us as well. Hopefully we won't wear him out.

I am the President of the PS-AAPG this year so I will be chairing the Executive Committee meetings. I figure my position is one of gently encouraging all of our terrific volunteers to accomplish as many of the goals we set as possible. Mostly I will just stay out of their way as they are all very capable people. In addition I will continue as Newsletter Editor and Publications Chairman. If anyone out there would like to take a turn as Newsletter Editor PLEASE let me know. I enjoy doing it, but feel I am being selfish by not allowing someone else the pleasure. I am also handling the position of Technical Program Coordinator for the 1997 convention. More about that later.

In addition to these elected officers, there are many other people who participate in the running of the Pacific Section AAPG. In the next couple of newsletters I plan to let you know who they are and what they are doing to keep this professional society going.

— Larry Knauer

It's Time To Plan!! SPE Annual Golf Tournament Silent Auction & Bar B. Q.

This year's Golf Tournament will be held at the Kern River Golf Course on Friday, September 27, 1996. Proceeds from the function will go to the SPE Scholarship Fund and the Kern County Oil Museum.

The tournament will start at 10:00 AM and be a Four-Player Scramble format. Lunch will be provided, and Mulligans are available for purchase in advance or at the course.

Following the Golf Tournament will be a terrific TriTip Bar B. Q. with all the fixins, and a Silent Auction full of interesting and assorted items sure to tease and entice even the most finicky of shoppers. The evening festivities will take place at Jastro Park (corner of Truxtun & Myrtle) starting at 6:30 PM. Proceeds go to assist Students interested in our industry through the SPE Scholarship Fund, as well as to aid the formation and growth of the local Kern County Museum Foundation Oil Project.

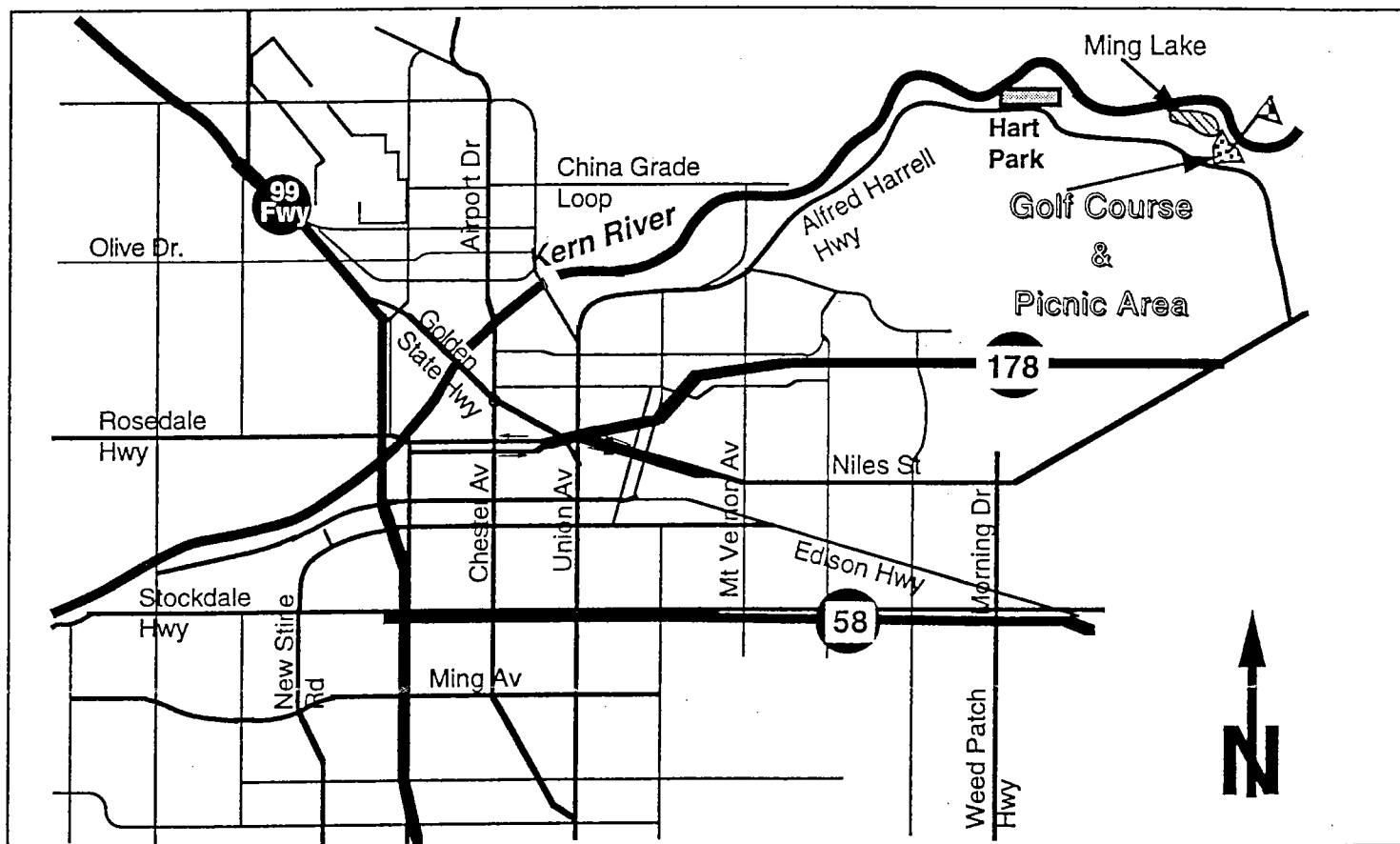
Get off your Duffers and Put Together a Team!

(Individual Players or partial teams are Welcome, and will be joined with others to make foursomes)

Golf Tournament Cost (Includes Green Fees, Cart fee, and Lunch) - \$45.00/each; Mulligans (one per player available) - \$5.00/each; Drink Tickets - \$1.00/ticket; BarB.Q. Ticket (Children 7 & under free - 12 - 8 years \$12.00) - \$15.00/ticket.

For registration and tee time assignments contact: Bill Scanlan 326-1017. The deadline for entry is 5:00 PM Wednesday, September 25, 1996.

**Annual Fall Barbecue & Golf Scramble
at
Kern River Golf Course & Picnic Area
(next to Lake Ming)
Friday, September 13, 1996**



FAMILY BARBECUE

Place: Kern River Picnic Area (next to K.R. Golf Course)
Time: Attitude Adjustment - 5:00 p.m.
Dinner - 6:30 p.m.

Cost: Prepaid - \$15.00 Students: \$7.50
At the Gate - \$18.00
Children - \$5.00

BBQ Questions? Please Call: Dan Fargo @ CoreLab
(805)392-8600

----- Cut on Line and Return -----

Foursome

1. _____
2. _____
3. _____
4. _____
Contact phone# _____

GOLF TOURNAMENT

Place: Kern River Golf Course
Time: 8:00 a.m. (earliest tee time)
Cost: \$40.00 per person (includes green fees, cart, lunch, & prizes)

Golf Questions? Please Call: Les Collins @ Epoch (805)397-7472

Reservation Deadline: September 6, 1996

Name: _____
Total Golf \$ _____
Total BBQ \$ _____
Grand Total \$ _____

Please send form with check to:
San Joaquin Geological Society
P.O. Box 1056
Bakersfield, CA 93302

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**John Kilkenny Scholarship
Fund**

Donations are being requested by the Pacific Section AAPG to help establish a scholarship fund to honor John Kilkenny, a man who devoted much of his life to geology and the Pacific Section. The fund will be used to give a scholarship each year to a deserving geology student. If you would like to contribute to this fund, please send a check made out to the PS-AAPG and mail to: PS-AAPG, P.O. Box 1072, Bakersfield, CA 93302. Thank you for your help.

Do You Have What It Takes To Do An Electronic Poster Session For The 1997 Pacific Section Meeting?

Field studies, basin studies, reservoir characterization, 3D imagery, computer enhanced visualization; these are just some of the buzz words of the computer revolution in the geological sciences. Most of us are now using computer based technologies to develop and demonstrate our ideas. However, new products are evolving faster than many of us can acquire the skills to use them. Each of us may develop special methods and tools to solve particularly complex reservoir or exploration problems in our own particular area of interest. The ELECTRONIC POSTER SESSION is a place for you to share your new innovations with your colleagues. We invite you to demonstrate how you have used modern computer technology to solve difficult problems. We are particularly interested in geological, petrophysical, or reservoir studies in the Pacific Section region. While any level of computer sophistication (main frames, UNIX work stations, or PC's) are welcome, we hope to get a large turn out from the PC

users as the software and hardware are more affordable, and thus appeal to a larger segment of our membership. Whether you sold a play by just using pretty colors and a cheap printer, or if you redetermined equity in a Billion barrel field using extensive reservoir characterization, your tools and methodologies will be of great interest to a major segment of the Society. We will try to accommodate as many exhibits as possible and we want a wide spectrum of technology. For more information, please contact Rick Berry or Deborah Olson at DPI, (805) 322-8667, or EMAIL: 73364.3650@compuserve.com.



MEMBERSHIP INFORMATION UPDATE

Just after the first of the year we will assemble the 1997 Pacific Section AAPG/SEPM/SEG membership directory. This is a very handy little book and one that I use daily. If you want to be included, if you want people to be able to locate you, we need two things. We need your 1996-1997 dues and we need current and correct addresses and telephone numbers. Only dues-paying members will be included in the directory. Everyone in the directory will receive a copy at the convention or through the mail.

Please pay your dues
and
Please send in current address
and telephone information.

Thank you.



Discovering Oil An Exciting project at the Kern County Museum in Bakersfield, California

You can be part of this effort to make the importance of the oil industry known to the average citizen and school child.

Since September 1995, oil industry leaders representing the many facets of the industry have been meeting with museum staff to develop a comprehensive, entertaining and educational exhibit on oil. From the geology, geography and fossils crucial to the formation of oil, to the first uses of it by Native Americans, past the early wildcatters, Discovery Wells and Boom Towns, through the industry's growth and maturity, and on to the future, this exhibit will tell a complete story of which the entire industry can be proud. The story will be told through the use of artifacts, photographs, and interactive devices which will bring the story of oil, from a Kern County perspective, to life for visitors of all ages. Those who see it will truly leave with an appreciation for what oil has meant to the past, how it has shaped the present, and how it will impact the future. To make this dynamic undertaking a reality we would appreciate your help. We are in the process of refining the exhibits' outline and determining which artifacts best tell our story of oil, developing a funding plan, and implementing the project for a 1998 opening. Your help would be welcome in any of

the areas listed below. For more information, please contact the Kern County Museum Foundation Oil Project, 3801 Chester Avenue, Bakersfield, CA 93301, (805) 861-2132 or 322-6415 (fax).

- **Oil Industry Artifacts.** If you have or know of any artifacts which might enhance this exhibit, please let us know. Items must be relative to the oil story on shore.
- **Industry Pioneers.** If you know old-timers who might be interested in telling us about a particular aspect of the industry of old, we want to know more about them.
- **Company materials, working models, trade show items.** We may be able to utilize aspects of trade show models or promotion pieces.
- **Photographs and Video.** We want to make extensive use of photographs and video in the exhibits. While the museum has many photographs, we would be happy to know of any which particularly illustrate oil processes, or the family life in the camps or boomtowns of Kern County. We are interested in any video productions from home movies to company marketing pieces.
- **In-kind and Cash Contributions.** It will take a great effort to make this world class exhibit a reality. We need professional services, materials and of course, dollars. To make your tax deductible contribution, please make your check payable to the Kern County Museum Foundation - Oil Project and send it today!

GEOLOGY DEPARTMENTS UNDER ATTACK

Maybe it is human nature to respond to threats only when they reach a crisis. This is certainly the general public's approach to energy and other environmental issues. Waiting for a crisis is also what geologists seem to have done. The threat of eliminating the U.S. Geological Survey aroused much of the geological community last year. On a more local level, academic geology departments have come under scrutiny from their administrations. Recent efforts to eliminate academic geology programs, in both the United States and Canada, bear a startling similarity to threats to federal geology programs.

Under siege

The administration at Whittier College, Whittier, Calif., recently moved to eliminate the school's geology department. In February, the academic dean met with the chair of the geology department, who thought the meeting was to discuss finalists in a tenure-track search to replace the retiring senior member of the department. Instead, the dean informed the chair that the department was to be phased out, effective immediately. There would be no replacement for the retiring professor, no new students, and as soon as possible, no major.

No, the dean had not discussed this decision with this department. No, he hadn't consulted the faculty curriculum committee. Yes, he had already announced his decision to the Board of Trustees the previous weekend.

The Whittier geology department had been following Dr. Geoffrey Feiss' recommendations for improving administrative support ("The Survival of Academic Geology Programs," *GSA Today*, January 1996, p. 16-17). They were tracking graduates and their successes, enrolling larger numbers of students, revising the curriculum for a more environmental emphasis, attracting external funding (with recent grants from the National Science Foundation, National Oceanic and Atmospheric Administration, and the

W.M. Keck Foundation), obtaining outside evaluations of the program by geologists at comparable colleges, and reinforcing programmatic links to the central mission of the college.

But these efforts weren't enough. Enrollments are too low in the upper-division classes, said the administration. Quality, the administrators insisted, isn't the issue; numbers are.

The department turned to the Internet for help. An outpouring of letters, faxes, and electronic-mail messages to the dean and the president at Whittier defended the value of teaching geology at a liberal arts college located in a tectonically active area. This response from the geological community, along with concern (if not alarm) expressed by faculty on campus about the process used to make the curricular decision, resulted in a stay of execution for Whittier's geology department. The decision has been postponed until the fall, but there is as yet, no agreement by the administration on how the decision will be made, who will be involved, or what criteria will be used.

In March, the Dean of the Faculty of Arts and Sciences at the Université de Montreal informed the geology department that it would no longer exist after June 1. Montreal and Whittier are very different institutions, but the reason cited was the same - low enrollments.

As at Whittier, the faculty turned to the Internet to seek help from the scientific and academic community in persuading the administration to reconsider. Once again, the volume of letters, faxes, and electronic mail caused the administration to delay a decision.

Easy targets?

The recent events at Whittier and Montreal - and elsewhere - dramatically underline the vulnerability of academic geology departments. Factors contributing to this vulnerability included the rising costs of higher education, decreased enrollments in geology and other science programs, and the unfortunate administrative equation that assumes that downsizing

(or restructuring, or re-engineering, or reinventing, or revisioning, or whatever euphemism is employed for cutting programs) equals leadership.

Geologists are also a factor. We have neglected to remind the public of the importance of geology. During previous energy crises, the popular media highlighted the issue for geologists. Employment opportunities and enrollments increased dramatically. But the public does not yet see current environmental problems as a crisis that affects them personally: The letters that geologists wrote to administrators at Whittier and Montreal emphasized this point, and the reminder is important. We shouldn't wait for emergencies to put the importance of geology into the public view.

As faculty members who began their academic careers in the early 1960s begin to retire, departments can use these retirements as an opportunity to revise the curriculum, adjust departmental emphases, and reallocate resources. If faculty members don't take the initiative, administration will. Geology programs often do have low enrollments in their upper-division classes. When administrators view these numbers through a budgetary lens, we must be ready to respond with strong and carefully crafted explanations.

Saving the programs

Unless we are satisfied with the idea that geology should be relegated to a few elective courses housed in departments of physics or geography or mathematics, geologists need a two-part plan with both long- and short-range goals.

The long-range plan will focus on increasing the understanding - by administrators, legislators, other decision-makers, and the general public - of the importance of geology to society. Feiss' suggestions to academic departments for planning ahead to avoid being restructured out of existence are critical.

Some specialties within geology have already realized this. Paleontologists have made real progress in connecting

their discipline to societal issues. Geomorphologists have heard a call to action. Geologists, as a unified group, need to respond as well. The professional societies, working together, can provide real leadership.

The short-range plan must provide a coherent, organized response when an academic department - or a state or federal agency - is targeted for elimination. Geoff Feiss is collecting case histories about departments that have faced serious reductions or elimination; these histories offer useful lessons. To date, departments that found themselves under siege have very effectively evoked support from colleagues, largely through the Internet. But each call for assistance has been a unique effort - individual requests, individual responses.

The National Association of Geoscience Teachers is moving rapidly to respond to this need for a short-term defense strategy by posting information on the World Wide Web about how departments can effectively respond

when they are threatened with extinction. The address is <<http://oldsci.eiu.edu/geology/nagt/nagt.html>>. (As Geoff Feiss observes, "Deans don't give you time to order a booklet about what to do next.") The long-term plan - a coordinated effort among all the disciplines within geology to highlight geology's importance to society - must follow.

The goal is to strengthen support for geology - and to ensure a continued supply of geologists and geologically-literate citizens. Ensuring that geology

remains a part of higher education is a vital part of this plan. If geology departments are eliminated now, our society will be less prepared to deal with the next energy or environmental crisis. One of the fundamental lessons that geology teaches us about crises is that the proper question is not what to do "if," but "when."

Lisa A. Rossbacher
Geotimes@agi.umd.edu
(From Geotimes June 1996)

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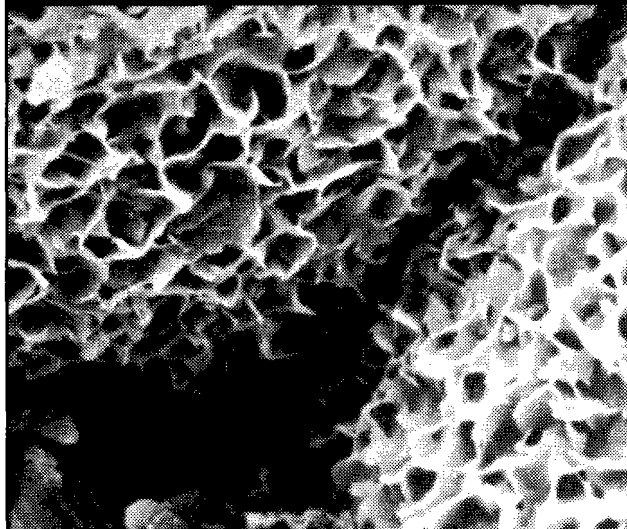
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JOHN G. VEDDER, 4TH RECIPIENT OF THE DIBBLEE MEDAL

The annual AAPG meeting held in San Diego this year was a particularly memorable meeting for Thomas Wilson Dibblee, Jr., for he received Honorary Membership in AAPG at the awards ceremony. At the annual Dibblee Luncheon, held in conjunction with this year's AAPG meeting, the fourth recipient of the Dibblee Medal was awarded to John G. Vedder. This medal, presented by the Thomas Wilson Dibblee, Jr., Geological Foundation, underscores the importance of geologic field mapping as a means of solving complex geological problems and commemorates the extraordinary geologic mapping achievements of Tom Dibblee.

Some of the numerous accomplishments of Vedder's career were highlighted by his mapping colleague at the USGS, David Howell. Howell, who during his career has worked with more than 50 field geologists at the USGS, considers, "Jack the most accomplished stratigrapher and mapper of this elite group." Howell marked Vedder's education at the Webb School in Claremont, a short stint at Occidental College before coming under the influence of the legendary A.O. Woodford at Pomona College and Claremont Graduate School where he obtained both Bachelor's and Master's degrees followed by service in the Navy. In examining Vedder's work in California, he stated that, "Vedder is a recognized authority on Pacific margin geology. Among his special fields of study are the regional geologic framework and tectonic evolution of complex provinces such as the California Continental Borderland, southern Coast Ranges, western Transverse Ranges, and the northern Peninsular Ranges, as well as the Los Angeles, Ventura, Santa Maria, and Cuyama basins. His combined talent in field geology and biostratigraphy began coming to fruition just as new concepts of plate tectonics were unfolding for continental geology. Jack quickly grasped these new concepts and applied them to his mapping strategy resulting in important contributions to the knowledge of stratigraphic and the tectonic framework and petroleum potential of southwestern California and the adjacent continental shelf. These contributions include numerous published detailed geologic maps and scientific papers supplemented by oral presentations at universities and national and sectional meetings of geologic societies."

Howell outlined some of the other geographic areas that Vedder has worked as Chief Scientist (or co-Chief) and is considered an expert which include the western Caribbean, the borderland of California and northwestern Mexico, and a large segment of the Melanesian arc system (Solomon Islands and Papua New Guinea). In the latter he has just recently completed editing and contributing to a two volume publication on the geology of the Solomon Islands arc in the southwestern Pacific.

Howell, in presenting Vedder's role as a leader stated that he, "has contributed to the scientific direction of the Survey by serving as Deputy Chief, Office of Marine Geology, during which time he served as the Survey's repre-

sentative on Interior, State, Navy, and on the Wayland and Miller Committees. Noteworthy was his leadership role in directing the Survey research activities into the 1969 Santa Barbara oil spill and the resulting Professional paper that provided an unbiased examination of the geologic conditions surrounding the blowout and lead to improved monitoring of offshore drilling.

In a highly complimentary summary of Vedder's working philosophy, Howell stated that Vedder was "focused, flexible, dependable, always available, continually curious, painfully thorough, and above all a marvelous mentor.

In thanking Howell for his eloquent and laudatory testimonial, Vedder expressed his appreciation for the award by indicating he was caught completely by surprise, upon being notified that he was to receive the 1996 Dibblee Medal, as he said, "I reminded myself that for years I followed in Tom's footsteps (literally) through many parts of the Coast Ranges. I well remember Mase Hill chiding me, 'What in the world are you doing in the Caliente Range Tom Dibblee has already mapped it?' Not only was I surprised, but also somewhat chagrined. From time to time I took a few verbal potshots at some of Tom's geologic interpretations and mapping philosophy with which I disagreed. Particularly at variance were the usage of several fault names, explanation of deformed low-angle surfaces of dislocations, depositional versus tectonic nature of certain contacts, distribution and number of mappable landslides, and the identification of diachronous units. "With a grin that evinced all the spirited competition among field mappers, Vedder went on to wonder, 'How could I possibly be a deserving candidate?'"

Vedder went on to explain, "One primary difference between Tom's mapping and mine is that I had a great deal of help, whereas Tom worked alone. Most of my maps were co-authored by others, including Tom. For example, projects in the southern Coast Ranges could not have been accomplished without the contributions of U.S. Geological Survey colleagues, especially Chuck Repenning, Ed Clifton, and Bob Brown during the early years and more recently, David Howell, Hugh McLean, Rick Stanley, and Tom Wiley."

Noting the current backlog of unpublished USGS materials, Vedder went on to say, "I have few regrets other than that several field endeavors to which I devoted considerable effort may never be published in the form of finished colored maps. Among these are a depiction of rock units exposed on the sea floor off the western end of San Nicolas Island, a final version of the San Joaquin Hills-San Juan Capistrano area map, and the detailed geology of Santa Catalan Island. However, a number of uncolored preliminary maps of parts of the southern Coast Ranges are still in preparation for the Survey's Open-file series."

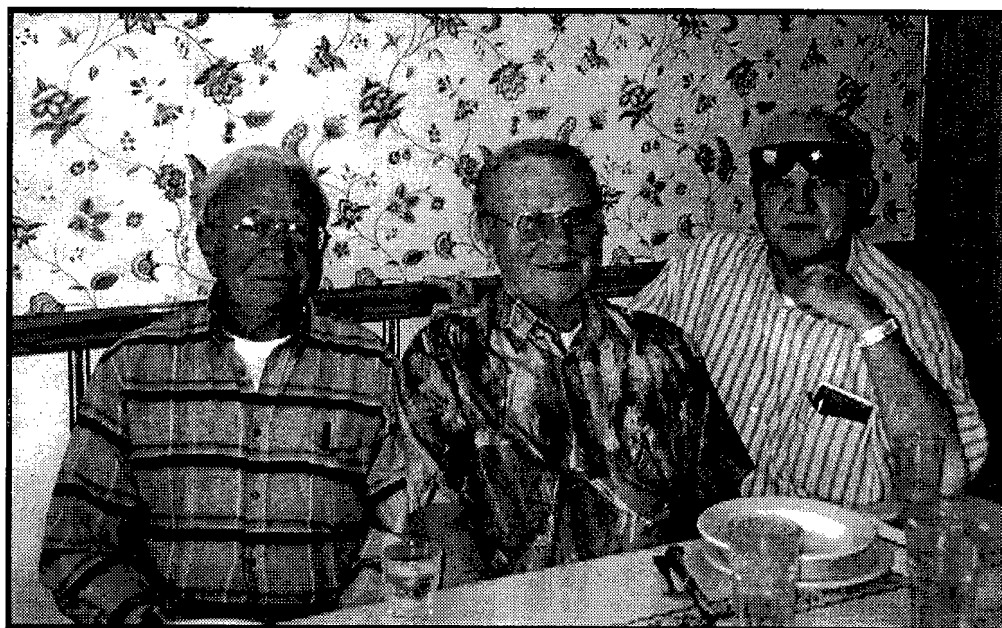
In conclusion, Vedder stated, "After years of reading and hearing that geologic mapping 'serves no useful purpose', is 'an exercise in futility', or is 'out of style', it is truly gratifying to be the recipient of this prestigious award. My heartfelt thanks to Tom, the Selection Committee, and the dauntless individuals who worked with me in the field."

HERB'S GAS-PATCH TRIVIA by Herb Wheeler
District 6 Gas Field (as of the end of 1995)

There is a total of 158 gas fields in District 6. Of these, about one-third, (55, actually) have been abandoned. Of the 158 named gas fields, there have been 20 fields that have cumulative production of 100 BCF, or more. These are listed below, with their year of discovery, their total production to date, and their estimated remaining recoverable reserves.

FIELD	YEAR OF DISCOVERY	PRODUCTION BCF	RESERVES BCF
Rio Vista	1936	3424	76
Grimes	1960	605	56
Willows-Beehive Bend	1938	378	15
Lathrop	1961	353	6
Lindsey Slough	1963	284	16
Union Island	1972	256	17
Sutter Buttes	1933	188	6
McDonald Island	1936	184	0
Maine Prairie	1945	174	8
Bunker	1960	173	12
Millar	1944	156	19
River Island	1950	151	9
Ryer Island	1967	135	7
Dutch Slough	1963	131	17
Malton-Black Butte	1964	130	6
Thornton West-Walnut Grove	1956	124	4
Sutter City	1952	112	16
Tompkins Hill	1937	109	6
Wild Goose	1951	103	0
Vernalis	1941	102	1
Close, but no cigar:			
Todhunters Lake	1967	94	3
Suisun Bay	1944	90	0

No other existing field looks like it will make 100+ BCF. Those 20 gas fields, out of the 158, (12.5%), have produced 80% of all the gas ever produced in District 6, (7272 BCF out of 9040 BCF). The most recent discovery of a 100+ BCF field (Union Island) was 24 years ago. It's time these exploration geologists come up with something!!



Left to right: Jack Clare, Barney Yancey and Nat MacKevett.



Betty Bean Heads to Texas??

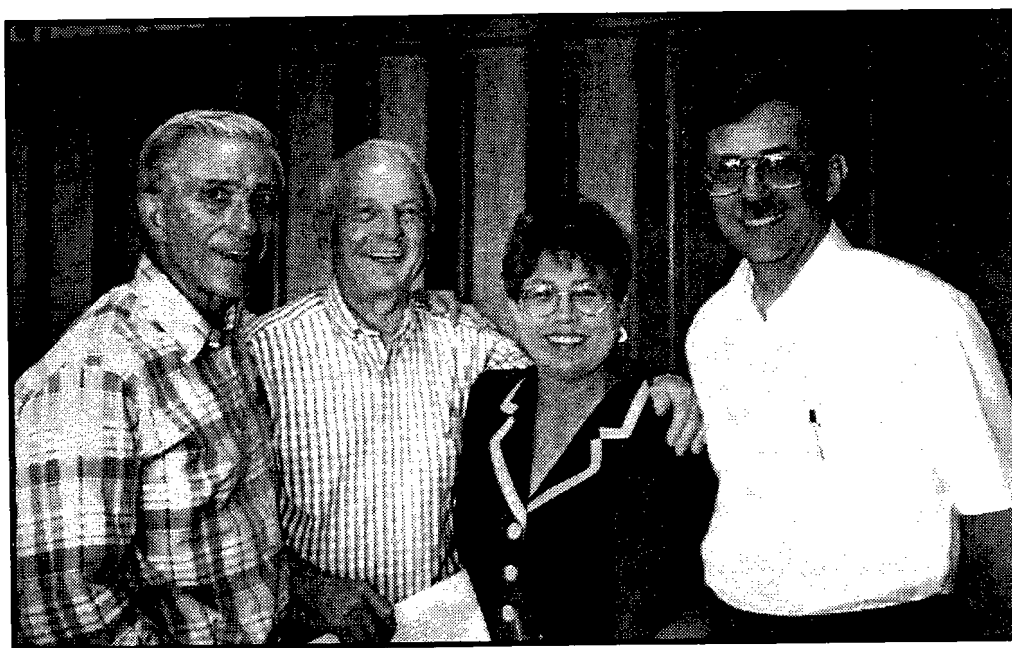


A going-away luncheon for Betty Bean at the Chalet Basque was a good reason for a score of geologists to gather to drink, eat and tell stories.

Betty is presently working in Santa Maria. When she heads to Texas is still up in the air.



Left to right: Bob Countryman, President PS-AAPG 1994-95; Wes Bruer, President PS-AAPG 1975-76; Betty Bean, Membership Secretary PS-AAPG 1975-95; Reinhard Suchsland, President PS-AAPG 1993-94; Larry Knauer, President PS-AAPG 1996-97.



Left to right: Bob Hoffman, Henry Walrond, Betty Bean and Bob Countryman.

Elk Hills Gears up for SciFive - "The Next Generation"

The Elk Hills Naval Petroleum Reserve is gearing up for the fifth annual Kern County Regional Science Bowl slated for January 25, 1997. The theme for the 1997 Science Bowl is SciFive, "The Next Generation." Last year, AAPG provided scholarship money which was awarded to the top three teams. In addition, AAPG provided volunteer support for the program.

Set up in a question-and-answer format, the Science Bowl is a fast-paced and exciting academic competition which recognizes students for their knowledge of math and science. Students tackle questions in difficult subject categories including math, computer science, biology, geology, chemistry, astronomy, physics and general science. With the growing interest in the program, it is anticipated that 36 teams will register for the 1997 Science Bowl, the maximum number of allowable teams.

More than 100 people volunteer for the program each year. Volunteer positions include coaching a team, officiating as a moderator, rules judge, scientific judge, time keeper or score keeper. Other positions range from working the Science Enhancement Booths to registering teams the morning of the event. A science background is not essential for every position.

With a field of 36 teams from 15 Kern County High Schools, 180 students participated in the Science Bowl last year. For the third consecutive year, Highland High school won the regional title and traveled to Washington, D.C. to compete nationally. From a field of 52 regional finalist teams, the group of five Highland students ranked #17 in the nation.

For more information about the Science Bowl, please contact Todd Goode, Science Bowl coordinator at (805)763-6067. The location of the Science Bowl will be announced in September.

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Unique Contributions of California to the History of the Oil Industry

presented by Michael S. Clark, Steve Mulqueen, John Nichols, J. P. Chauvel, and Dean Van Zant in conjunction with the Carpinteria Valley Museum of History, Santa Paula Union Oil Museum, West Kern Oil Museum, and the Kern County Museum.

The following is a selection of the figure captions from the historical posters exhibit shown at the National Convention of the American Association of Petroleum Geologists, San Diego, May 19-22, 1996. The exhibits have been donated to the museums.

The Asphaltum Pits of Carpinteria, CA

A Spanish expedition in 1769, led by Gaspar de Portola, observed Chumash Indians constructing tomols, or plank canoes, using asphaltum to caulk the canoe seams. Consequently, the Spaniards named a nearby Chumash village "La Carpinteria", meaning "The Carpenter Shop".

These tomols were carefully made of wooden planks that were joined at the seams with strong thread and the joints fitted with pitch. To apply the pitch, a spatula-shaped rock was heated and held against a lump of asphaltum, making hot liquid tar drip into the desired place in the manner of a soldering technique. Water-proof jars were made by dropping asphaltum pieces along with fire-heated pebbles into a tall, narrow-necked basket and swirling the contents around until the interior was covered with a thin, even coat of tar.

During the Mission and Mexican Rancho periods (c. 1790-1850), this same natural tar, which oozed from coastal bluffs in the Carpinteria area, was used throughout Santa Barbara County for roofing and flooring.

In the early 1880's, the William Crocker Company of San Francisco began large-scale asphalt mining operations in the open pit Las Conchas mine with two-hundred men working round-the-clock shifts. These men were quartered next to the mine and in the nearby Alcatraz refinery where the asphalt was processed.

To dig the asphalt, shovel-like cutters were heated in a box furnace. These hot blades cut the asphalt like hot knives cutting butter, after which smoking blocks of asphalt were loaded onto flatcars and hauled to the Alcatraz refinery to be melted down and cleaned with sea water. After mixing with sand, gravel, and flux (a refined asphaltum tar), the asphalt was fed into a hot mixing plant called a "torpedo".

Early paved roads in Santa Barbara County, Linden Avenue being the first, were surfaced with asphalt from the Carpinteria mines. Because asphalt from these mines assayed out as the highest grade and purity of all known asphalt deposits worldwide, it was shipped throughout the country. Prior to development of the Carpinteria deposits, almost all of the asphalt used in the United States came from the island

of Trinidad off the coast of Venezuela.

"This is to certify that an asphaltic pavement was laid in the intersection of Homes and Eddy Streets, in San Francisco, at least thirteen years ago. To my personal knowledge, this pavement has stood the wear and tear incident to street travel during that time, without any perceptible deterioration; and, except where torn up for railroad, gas water and sewer purposes, it is today in apparently as good condition as when just laid. The Asphaltum used in constructing the pavement came from mines located in southern California" - Mayor's office, city of San Francisco, Aug. 3rd, 1891

"GENTLEMEN - The superiority of your Alcatraz blend of Asphalt mastic over others is that it is manufactured from heavy mineral asphalt tar, from which the volatile portions have been eliminated. It is ductile, tenacious, adhesive and jet black, and not changed by exposure to the weather. Whereas, in other Asphalt mastics they are manufactured from hard asphalt, which has become brown through age and are tempered with light petroleum oils or the residuum of Eastern stills, consisting of vaseline and paraffine which add no cementitious qualities to the mastic, their only effect being to soften the brown mastic" - A. S. Cooper, civil engineer, Santa Barbara, California, Nov. 2d, 1893, written to the California Petroleum and Asphalt Company.

The Las Conchas mine closed in 1903 after the deposit played out. About the same time, an oil boom in nearby Summerland diverted interest from the less-lucrative asphalt industry. But as popularity for automobiles grew, so did the need for paved roads.

In 1912, Santa Barbara County secured a lease on the Higgins ranch, just east of the old Las Conchas mine, and produced asphalt for county road projects for the next 25 years. Although the Higgins deposit covered an area of twenty acres to depths of eleven to twenty feet, it too was eventually exhausted, after which the county turned the remaining mine pit into a dump which operated until the mid 1950's. Ultimately, the mine pit was filled in, and all that remains today of the old mining operations are some brick refinery ruins that are exposed on the beach at low tide.

Tar sands exposed at Carpinteria State Beach result from the same natural seeps which formed the Las Conchas and Higgins asphalt deposits. These sands consist of Pleistocene river, beach and sand dune deposits that unconformably overlie organic-rich shales of the Monterey Formation thrust up between the Red Mountain and Carpinteria faults. Oil that forms from the organic matter within these shales migrates upward and accumulates in the overlying Pleistocene sands where bacterial action, evaporation, and oxidation convert the oil into tar.

The Tar Mines of McKittrick and Asphalto, CA

Spanish explorers traveling through California in the 1700's observed Indians using asphalt for many purposes. In particular, Yokuts Indians of the southern San Joaquin Valley collected asphaltum from natural seeps near the Yokuts village of Wogitu on the west side of the valley. This asphalt was molded into fist-sized tar balls used for trading, waterproofing, and as an adhesive. Decorating was accomplished by inlaying bits of abalone shell into tar stuck on pottery, knives, masks, and clothes.

When Pahmit, a member of the Dumna Yokuts tribe, was about 105 years old, he remembered watching San Joaquin Valley pioneers collect tar from the same seeps he and his family once mined. These pioneers used the tar primarily for waterproofing roofs and to grease wagon wheels.

Inevitably, the Wogitu tar seeps attracted the attention of entrepreneurs who sought to capitalize on this unusual resource. The most successful were John Hambleton and Judge Lovejoy who in 1864 dug shallow pits, 8 to 10 feet deep, near active seeps in what became known as the Asphalto area. They built a small still and refined the tar they collected into lamp kerosene which was shipped by wagon to their agents in Stockton.

Working the asphalt pits was difficult and dangerous. Valley temperatures often hovered around 120° F, reaching as high as 140° F in the pits. Consequently, work was limited to twenty-minute shifts, lest the workers become debilitated by the heat or overcome by noxious fumes rising from the seeps.

By 1891, several 5-foot by 6-foot shafts, many lined with railroad ties for stability, were sunk up to one-hundred feet deep into the McKittrick tar seeps. Because the miners working these shafts quickly became covered with asphalt, they usually worked naked. At days end, they cleaned themselves with case knives or wooden scrapers made for race horses, then washed with distillate. Because it was impractical to clean up at noon, they ate lunch 'au naturale' sitting on newspapers at the camp mess.

Rather than dig pits, some prospectors, many of them former Mother Lode miners, dug tunnels in search of the "black gold" of the San Joaquin. These mines were located just outside of McKittrick, a pioneer town that sprang up near the old Asphalto tar pits.

The mines, some up to 300 feet in length, yielded a high-quality asphalt, as much as 90-percent pure, that was better quality than asphalt produced on the island of Trinidad, then the world's main supplier for this resource. Generally, McKittrick asphalt was used to pave streets and sidewalks in San Francisco or to grease log skids in the timber country. Apparently, this commodity was valuable enough to command \$30 a ton in the days when a nickel might buy a decent meal.

Gradually, the tar mines were replaced by wells that drilled for the same oil which sourced the tar seeps. A new chapter in the story of the tar mines began in 1896 when the Shamrock gusher blew in at McKittrick field flowing 1,300 barrels of oil per day. Additional discoveries gave rise to nearby Midway-Sunset field, which today is one of the giant oil fields of the United States. Ultimately, the McKittrick and Midway-Sunset areas are expected to produce 3 billion barrels of oil over the life of the field.

Like most tars and oils in California, McKittrick oil forms from organic matter deposited in shales of the Miocene Monterey Formation. The combined effects of heat and time slowly convert the solid organic matter into liquid oil which migrates upward to the surface through fractures and permeable beds of sandstone. Bacterial action near the surface, called biodegradation, together with evaporation and oxidation converts this oil into the heavy asphaltum of the tar seeps.

More than 30 kinds of Pleistocene mammals have been found in the McKittrick tar pits. Many of these animals were excavated from 1925 to 1928. These photos are from a dig conducted by the Los Angeles and Kern County Museums in 1949.

The oil pool at McKittrick is trapped beneath a cap of Monterey Shale that appears to have slid off the Temblor Range in the distant geologic past. Most of the seeps are found where erosion has removed the tight cap rock and exposed underlying permeable beds of the Tulare Formation.

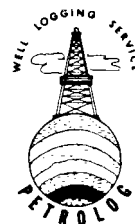
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We look forward to hearing from you and getting more AAPG members involved in supporting their local youth programs and schools.

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Mono Lake, Owens Valley, Panamint Valley, Death Valley, and Amargosa basins, and the exhumed Nova and Furnace Creek basins.

Who Should Attend

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BILL RINTOUL

Joe Louis Was There!

The exact date was August 25, 1971. From the floor of the drilling rig on that afternoon twenty-five years ago, the gang of noisy men converging on the McCulloch wildcat near Kettleman City looked like a bunch of happy-go-lucky pirates.

Suddenly a quiet man in the raucous group heading toward the rig from the bus newly arrived on the gravel parking lot came into startling focus. There was no mistaking him. What in the world was Joe Louis doing at a wildcat oil well out in the middle of nowhere on the hot, dry floor of what once had been Tulare Lake?

As the realization dawned on top officials of McCulloch Oil Corp. that the visitor to their discovery well was none other than the former heavyweight champion of the world, there was a rush to meet him, led by Bob McCulloch, chairman of the board of the Los Angeles-based company.

Forget about the 14,338-foot well they were getting ready to complete, proving up an oil field that looked like another Kettleman Hills. The well could wait. It wasn't every day you got a chance to meet one of the greatest, if not the greatest, heavyweight champions of all time.

Louis, who would later be posthumously honored in 1993 by issuance of a commemorative stamp by the U.S. Postal Service, had flown in to Coalinga from Las Vegas at the invitation of Mike Davis, who had chartered the plane bringing the former champion and other friends to see the big well in California. Davis' Tiger Oil Co., out of Denver, owned interest in the McCulloch well. From Coalinga, the group had motored out to the well site to share the excitement of an oil discovery,

Surrounded by admirers, Louis, looking fit and much younger than he was, handled himself with the grace and dignity that had transcended his fame in the ring to make him a genuine American hero whose popularity cut across all lines.

Some of those who gathered around him wanted a handshake, presumably so they could tell friends they had shaken hands with the champion. Others sought autographs on whatever paper they could find, including the back of a tour sheet ripped out of the book in the doghouse. Some wanted their pictures taken with the champion.

As senior executive, Bob McCulloch rated a picture of himself and Louis without others in it. He had flown in earlier in the day, bringing with him top officials, deplaning in Coalinga to motor to the drill site two miles northeast of Kettleman City.

Other McCulloch officials included C.V. Wood Jr., president; Mike Witte, executive vice president and general manager; and Lou d'Assalenaux IV, vice president. Accompanying them was Charley Dodson, who was in charge of oil operations for Investors Diversified Services, partner with McCulloch Oil in the Kettleman City wildcat.

Between patiently signing his name, shaking hands and posing for pictures, Louis said frankly he wasn't an oil expert. In time, the group moved over to the well. Louis watched with interest as McCulloch's Bob Freeny opened the well to the sump. As oil sprayed out, the former heavyweight champion smiled and said, "The well looks good enough."

Mike Davis went down the sumphole bank with a bucket, which he filled with dark brown oil, getting sprayed in the process. He brought the high gravity oil back up to show Louis and others present.

Davis wanted his picture taken with the champion. He squared off in a fighting pose. Louis grinned and faced Tiger Mike in the classic stance that would one day grace an American postage stamp, left hand extended, right cocked close to his body. He towered head and shoulders over his smaller friend.

It looked by far like a worse mismatch than the infamous Sam Langford-Jack "Kid" Lester fight in Taft in 1913 that was supposed to produce a "white hope" to challenge Jack Johnson for the heavyweight title. At the well site, there was no doubt in the minds of any of those present who would end up in the sump if the pair-off were a real match.

From his portable separator equipment on the location, Chuck Mandl reported the well was flowing at a rate of more than 4,000 barrels per day. McCulloch shut in the well less than three hours after it was opened up in order to install high pressure production equipment and round up more of L.W. Potter Trucking Co.'s storage tanks.

The crowd of company officials, Las Vegas onlookers and the man who had been the world champion went on their way, leaving Art Calanchini, R. B. Montgomery Drilling Inc.'s toolpusher, and the crew on afternoon tour to mull over events of the momentous day, which, unfortunately, would prove to be far less than an introduction to a latter-day Kettleman Hills.

On the following day, a friend of this writer's remarked, making no mention of the well or the not yet disproved belief that the discovery was a big one, "My father really got excited when he read Joe Louis was there."

NEWS FROM THE AFFILIATED GEOLOGICAL SOCIETIES

Northwest

13th Annual Symposium
"ENERGY TRENDS IN THE PACIFIC
NORTHWEST"
LaCONNER, WASHINGTON
September 15 - 17, 1996

Confirmed speakers include:

Tim Walsh, Div. of Geology, Wash. Dept. Nat. Res. - Recent Seismic Events & Earthquake Hazards, Duvall Area, N. Puget Sound Basin; **Terry Mitchell**, InterGen - Challenges of Developing Natural Gas-Fueled Power Plants in International Settings - the Columbian Example; **Mark Sedall**, Pacific Gas Transmission - Current Natural Gas Transportation, Storage and Sales Issues, Pacific Northwest; **Ron Davis**, Wa. Natural Gas and **Jim Torgeson**, Puget Power - Utility Consolidation, Pacific Northwest & Elsewhere: Impact on Producers; **Cyrus Noe**, Editor, "Clearing

Up" - Salmon vs. Electricity: Giant Fish Destroy Dams in the Pacific Northwest; **Robert Lamar**, Texaco - Dunkards Wash Proj.: Coalbed Methane Prod., East-Central Utah; **Curt Hart**, Energy Preparedness and **Paul O'Brien**, Oil Spill Response, PNW - Environmental Considerations, Oil Transportation in Puget Sound

Questions? Contact Steve Pappajohn, P.O. Box 1432, Maple Valley, WA 98038. Phone (206)432-3424, Fax (206) 727-4972, E-Mail 74511.1374@compuserve.com.

Please call Shelley Thomas at (503) 693-9822 (please leave message on machine, if no answer) or Treck Cardwell at (503)220-2573.

Northwest Energy Association
P.O. Box 6679
Portland, OR 97228-6679
Contact: Bill Rodgers (503) 294-9681

San Joaquin

Our schedule for the coming year is as follows:

- 9/13/96: Fall BBQ at Kern River Picnic Area, Lake Ming
- 10/8/96: William A. Lingo "Wild Gas Blowout on McDonald Island"
- 11/12/96: to be announced
- 12/10/96: Tim Carr, Kansas Geological Survey "Pseudo-Seismic Approach to Sequence Stratigraphy"
- 1/14/97: Brian Zaitland, AAPG Distinguished Lecturer "High-Resolution Sequence Stratigraphy of Incised Valley Systems"
- 2/11/97: Dean Van Zant, Kern County Energy Coordinator "The Lakeview Gusher"

- 3/11/97: Jan Gillespie, CSUB "Comparison of Foreland Basin Subsidence in SW Alberta and NW Montana"
- 4/8/97: to be announced
- 5/13/97: Student Thesis Night
- 6/10/97: to be announced

Dinner meetings are held the second Tuesday of each month at the American Legion Hall, 2020 "H" Street, Bakersfield, CA. The social hour starts at 6:00 p.m. and dinner is served at 7:00 p.m., with a talk at 8:00 p.m. following dinner. Contact George Stewart at 321-4150 for more information

San Joaquin Geological Society
P.O. Box 1056
Bakersfield, CA 93302
Contact: Mike Simmons (805) 321-4113

Sacramento

Noon luncheon meetings are held at the HUNGRY HUNTER RESTAURANT, 450 Bercut Drive, Sacramento.

For luncheon reservations, please call Rose Kuntz at AA Production Inc., (916) 641-9360, at least one day in advance.

Sacramento Petroleum Association
P.O. Box 254443
Sacramento, CA 95865-4443
Contact: Owen Kittredge (916) 638-2085

Alaska

Alaska Geological Society
P.O. Box 101288
Anchorage, AK 99510
Contact: Sue Karl (907) 786-7428

Los Angeles Basin

Los Angeles Basin
23430 Hawthorne Blvd., Ste. 380
Torrance, CA 90505
Contact: Mark Legg (310) 378-6254

Northern California

The new officers are:

President: **Tridib Guha**
President-Elect: **John Karachewski**
Vice President: **Dan Day**
(assisted by **Greg Bartow**)
Secretary: **Dan Day**
Treasurer: **William Bailey & Ed Simonis**
Program Chair: **Don Hill**
(assisted by **Clif Davenport**)
Scholarship Chair: **John Sciacca**
Councilors: **Laurel DiSilvestro**
Helen Grinstead
Chris Lewis
Don Lewis

The fall field trip will be lead by Earl Brabb and Joseph Clark of the USGS, Menlo Park, on Oct. 19 & 20. The tentative title is "When did Point Reyes move north from Monterey?" Contact Tim Ault, 125 Banbury Way, Benecia, CA 94510 or call (510) 372-9100 ext. 3160 for more information.

No. Cal. Geological Society
9 Bramblewood Court
Danville, CA 94506-1130
Contact: Dan Day (510) 294-7530

Coast

The 1996-97 Executive Board Members

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Secretary: **Lori Prentice**
Treasurer: **David Salter**
CGS Delegates: **Joan Barminski**
John Willaims

Speakers for Upcoming Meetings:
9/17/96: **Dr. Matthew P. Golombek**, NASA Jet Propulsion Laboratory, Project Scientist & Geologist, "Roving for Rocks on the Red Planet: The Mars Pathfinder Project" (a full scale model of Rocky IV, the Martian surface vehicle will be on display.)

10/15/96: **Dr. Kate Hutton**, California Institute of Technology.

Fall Field Trip: Depositional Environment, Structure and Tectonics of the Western Transverse Ranges Ventura County, CA - Field trip leaders: Butch Brown, Tom Hopps, Bernard Sentianin

Coast Geological Society
P.O. Box 3055
Ventura, CA 93006
Contact: **Imelda Cragin**
(805) 681-4052

D.O.E. Workshop and Core Display Set for September

A.D.O.E. sponsored core display and project workshop will be held at the California Well Sample Repository and in the Walter Stern Library respectively, on the campus of Cal State Bakersfield, Tuesday, September 24, 1996. The theme of the workshop is "Visual Display of Reservoir Parameters". It will be hosted by the Repository, Digital Petrophysics, Inc. of Bakersfield, and Michigan Technological University. The purpose of the workshop is to demonstrate to independent operators and consultants that cost effective reservoir analysis and visualization can be achieved on a PC using relatively inexpensive software.

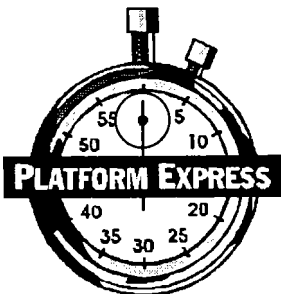
A field trial of the technology was performed in the Monterey Formation at Pioneer Field, near Taft, CA. Pioneer Field is a typical small, older field that contains wells with old electric logs, a few wells with modern log suites, and limited sidewall core coverage. Since it is essential in old fields to extract maximum information from old logs and to accurately assess their reliability, novel ways were developed to calibrate old logs to core data and modern logs in order to compute lithology, porosity, and saturation.

Conventional core material was not available in Pioneer Field. Logs were calibrated to two wells in the McKittrick Front area of Cymric Field. A 700-ft research core from one of these wells, will be on display at the Repository. Core samples from Elk Hills 934-29R well, the deepest well (24,442 feet) in the San Joaquin Valley, will also be on display. A thermal study that suggests that depth to economic basement in the souther San Joaquin Valley is greater than previously expected will be presented. Breaks in the morning and afternoon sessions are planned to accommodate core study.

Log evaluations for the project were performed using Pfeffer, GeoGraphix' QLA2, and Symbilog. Maps and cross sections were prepared using the GeoGraphix Exploration System. 3-D visualizations were prepared in MatLab. All of these programs will be discussed and computer demonstrations will be presented. A Multimedia Database Management System, which runs on a PC and can be used as a data archive for small companies, was developed at Michigan Tech in the commercial program Toolbook. The database manager will be demonstrated and the project database, which contains core data, maps, cross sections, and digitized logs in LAS format from over 45 wells, will be distributed on CD ROM to workshop participants.

This workshop is sponsored by the D.O.E. Fossil Energy program on reservoir characterization. It will be held between 8:30 a.m. and 5:00 p.m. in Studio C in the Walter Stern Library at Cal State Bakersfield and at the Well Sample Repository on campus. Admission is \$20. Profits will be donated to the Repository.

Persons interested in attending should telephone Russ Robinson, the Curator of the Repository, at (805) 664-2324, or fax him at (805) 664-3194 to reserve a space. Workshop conveners will be available on September 25 to participate in additional discussions, computer demonstrations, and core study.



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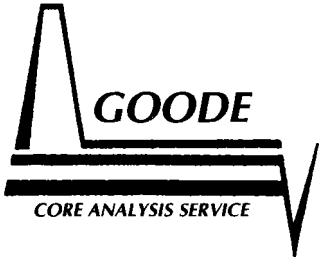


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U.S. Geological Survey Will Preserve Enormous Core Sample Collection at Denver Facility

The Core Research Center at the USGS has recently acquired a major addition of drill bit cuttings and core chip samples that will be housed at its facility in Denver. The cuttings collection was obtained from American Stratigraphic and represents 230 million feet of subsurface information from 50,000 wells in 25 states. The new inventory of cuttings adds to the 1.4 million feet of core currently housed at the facility.

The USGS Core Research Center was established in 1974. The original purpose of the center was to obtain and preserve cores that were in danger of being discarded or destroyed. It has since grown to be one of the largest and most frequently utilized public core libraries in the United States. According to Tom Michalski, Curator of the Core Research Center, most of the cores have been donated to the facility by companies in the petroleum and mining industries, as well as federal and state agencies, and various universities.

The petroleum industry traditionally has relied on cuttings examination as a direct indication of hydrocarbons. In addition to information gained from evaluation of samples while drilling, there are many other uses for a well maintained inventory of drill cuttings. Traditional binocular examination can be used to visually assess effective porosity, permeability, and hydrocarbon presence where cores were not taken. After visual calibration to cores with known petrophysical properties, interpretations can be made in "cuttings only" wells with respect to these same properties. Typical applications range from augmenting log analysis and bypassed pay evaluation to evaluating reservoir heterogeneity for secondary recovery projects. Many "high-tech" applications such as SEM, X-ray diffraction, and enhanced image analysis also can be applied to cuttings with results comparable to cores.

American Stratigraphic decided to eliminate its library because of the high maintenance costs. Under strong encouragement from AAPG, RMAG, and industry, the Survey agreed to acquire and store the cuttings for public

use. The loss of a library of this magnitude would certainly have been a major loss to the oil industry.

The samples took four months and 75 truck loads to move. New shelves and material-handling equipment were purchased, and more storage area was acquired. The samples currently are being sorted and shelved, and the file should be in place and totally available for use by December 1993. Parts are available now, and being actively utilized.

The total cost of this project was \$250,000. Because the Survey has no funding to offset these costs, a Joint Advisory Committee for cuttings preservation was formed and is presently seeking funds to help cover the cost of transferring the samples to USGS. A tax-deductible contribution to help save this vast collection, can be made to RMAG Cutting Preservation Account, c/o Rocky Mountain Association of Geologists, 730 17th St., Suite 350, Denver, CO 80202. In addition to the new library, the Survey is building a new cuttings observation room that will be equipped with cubicles, tables, microscopes, UV boxes, chemicals, vented hood and sink, and other tools of the trade. This facility will be completed and open to the public at no cost in June 1994. The cost of this facility is not included in the \$250,000 and is not a part of the funds being raised.

The Center also has obtained from Amoco a complete set of unwashed cuttings. This collection contains sample sets from 655 wells in Texas, Louisiana, and northern Gulf of Mexico. They will be added to the Amstrat set, making this one of the largest collections of cuttings and core chips available to the industry.

USGS is providing a tremendous service to the industry. It is now time for the oil and gas industry to show its support by making a financial contribution to offset the cost incurred in rescuing and preserving these extremely valuable and irreplaceable resources. Let's all do our part to insure that the Amstrat collection will be available for use now and in the future by showing our support for this important rescue project.

For further information or questions, contact Steve Goolsby at 303/893-1718, or Lorraine Druyff at 303/825-5212.



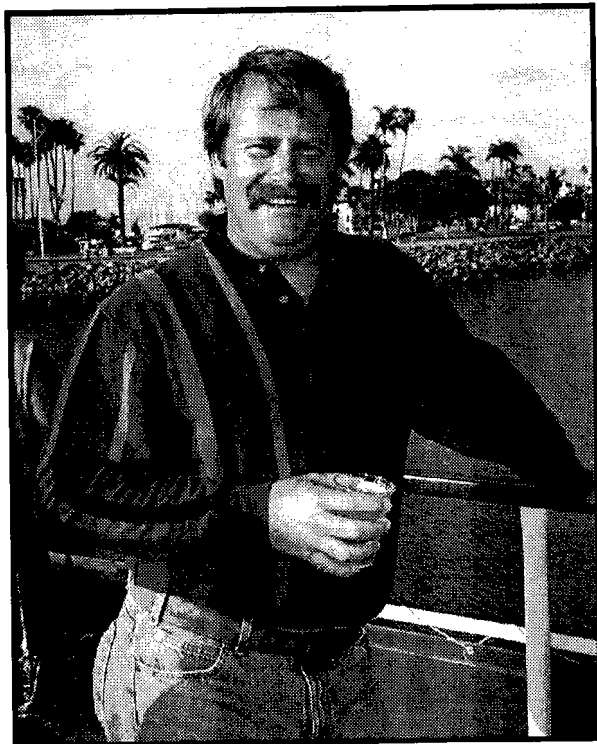
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In the course of keeping a mailing list up-to-date, we unintentionally impose upon relatives of PS-AAPG members who have passed away. We apologize for the intrusion, but thank you for letting us know when to remove someone from our mailing list.

We recently received word that the following members passed away last year: Stanley A. Beck, Stanley A. Carlson and O.F. Van Bever.



Greg Cavette, formerly with Unocal in Ventura, now with Torch in Santa Maria.



Above: Left to right - Brian Bell, Goode Core Analysis; Jaime Roig, Berry Petroleum; Mark Wilson, Bechtel Petroleum, Past President, PS-AAPG.

John Williams, President of Petrolog, Ventura, CA and his wife, Cindy.

LETTER TO THE EDITOR

Dear Mr. Longman:

In response to your essay: "Time to Forget About Rocks?" in the July 1996 issue of the Pacific Petroleum Geologist Newsletter, my answer is a resounding "NO"!!!

Back in the mid-1960's when I was in college and decided to pursue a career in geology, I and my colleagues discussed that one of the main reasons we were drawn to geology in the first place was because of our fascination with ROCKS. We were looking for a career to get us out of an office and into the outdoors. Furthermore, we wanted a career that was NOT the 9 to 5 "rat race" that other careers were. But now, with all the advanced technology, rarely do most of us get outside. We spend our days in air conditioned offices staring like zombies into computer screens. Are we anything more than "computer jocks"? I, for one, miss the "good old days" and to be honest, I am bored spending my days staring mindlessly into a computer screen. That's why at 48, I am "retooling" for a future career as an ER nurse. I need some excitement, I need to feel the adrenaline pumping again, like the days in college when I was crawling around in the bush, doing field mapping with the sun and wind at my back.

If you do away with rocks, you might as well do away with geology: it just is NOT the same.

That's my PERSONAL opinion on this matter.

Sincerely,
James J. Tanner

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