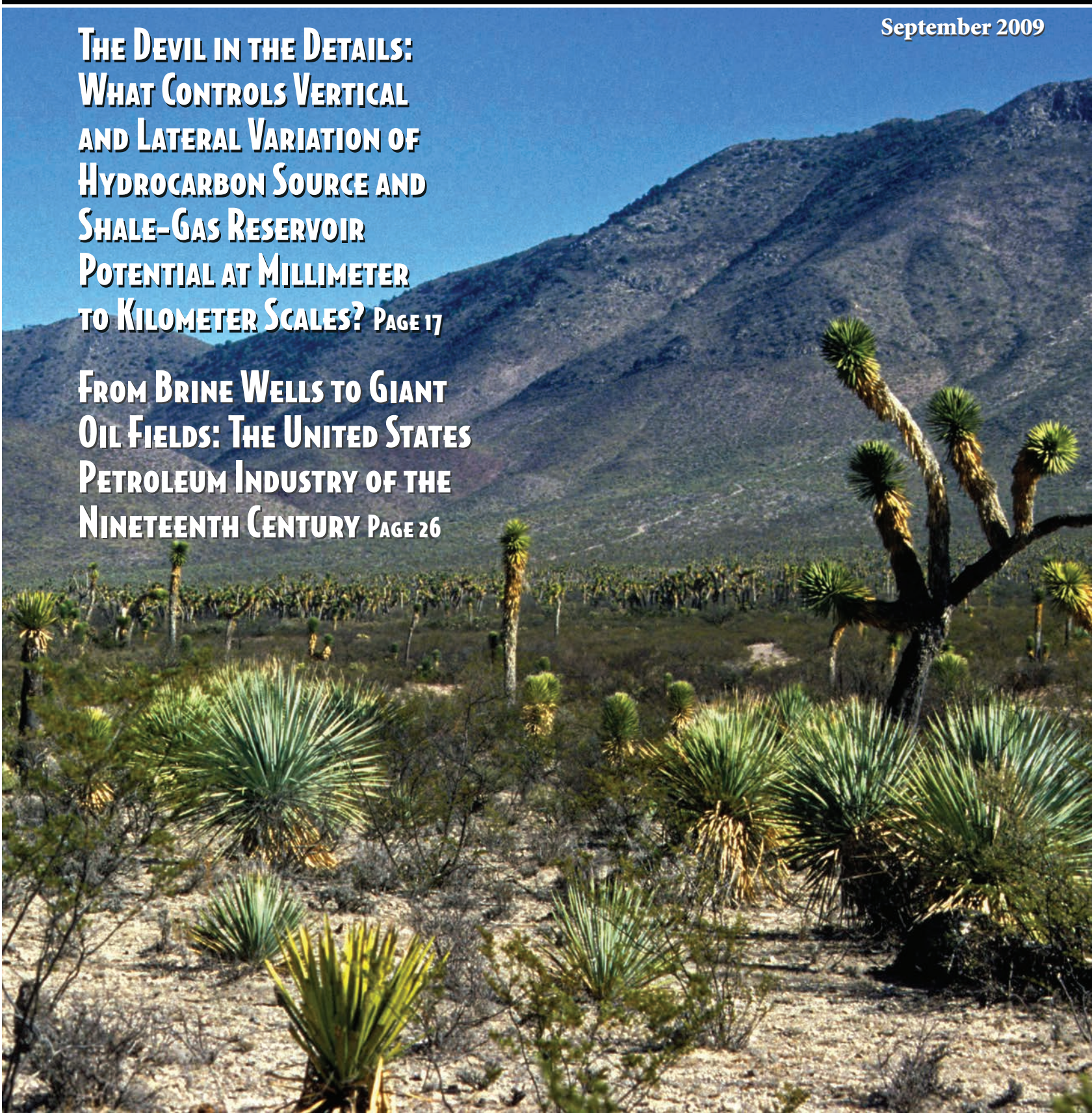
HGS Bulletin
Houston Geological Society
Volume 52 Number 1
September 2009



The Devil in the Details: What Controls Vertical and Lateral Variation of Hydrocarbon Source and Shale-Gas Reservoir Potential at Millimeter to Kilometer Scales?

Page 17

From Brine Wells to Giant Oil Fields: The United States Petroleum Industry of the Nineteenth Century

Page 26

The Bulletin
Houston Geological Society

Volume 52, Number 1 September 2009

In Every Issue

5 **From the President**
by Gary Coburn

7 **From the Editor**
by Gordon Shields

38 **GeoEvents Calendar**

71 **HGS Membership Application**

72 **HPAC**

73 **Professional Directory**

The Houston Geological Society Bulletin (ISSN-018-6686) is published monthly except for July and August by the Houston Geological Society, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916. Phone: 713-463-9476; fax: 281-679-5504

Editorial correspondence and material submitted for publication should be addressed to the Editor, Houston Geological Society *Bulletin*, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916 or to gshields.hgs@gmail.com

Subscriptions: Subscription to this publication is included in the membership dues ($24.00 annually). Subscription price for non-members within the contiguous U.S. is $30.00 per year. For those outside the contiguous U.S. the subscription price is $46.00 per year. Single-copy price is $3.00. Periodicals postage paid in Houston, Texas.

POSTMASTER: Send address changes to Houston Geological Society Bulletin, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916

Technical Meetings

17 **HGS General Dinner Meeting**
The Devil in the Details: What Controls Vertical and Lateral Variation of Hydrocarbon Source and Shale-Gas Reservoir Potential at Millimeter to Kilometer Scales?

21 **HGS Northsiders Luncheon Meeting**
Deep Water Gulf of Mexico High Gamma-Ray Shales and Their Implications for Flooding Surfaces, Source Rocks, and Extinctions

23 **Joint HGS International and North American Explorationists Dinner Meeting**
World Oil Reserves, Future Production Levels and Pricing
What Challenges Lie Ahead for the USA?

26 **HGS General Luncheon Meeting**
From Brine Wells to Giant Oil Fields: The United States Petroleum Industry of the Nineteenth Century

Other Features

11 **The 7th HGS/PESGB International Conference on African E & P**

29 **Feature Article**
Channels: Size Matters
Dr. Franz L. Kessler

35 **HGS Guest Night 2009**
In Search of the First Americans: Recent Discoveries and the Role of Geology in the Pursuit of the Past
Bonnie Milne-Andrews

43 **Grand Canyon Geology Field Trip 2009: Whitewater and Tall Tales**
By Linda Sternbach, Charles Sternbach, Dave Lazor

53 **26th Annual HGS Skeet Shoot**

55 **Science and Engineering Fair of Houston, 2009**

57 **Book Review**
The Mountains of Saint Francis
George O. Chandlee

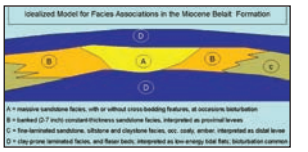
60 **Remembrances**

61 **Mesozoic Geology and Desert Landscape**

63 **Government Update**
Henry M. Wise and Arlin Howles

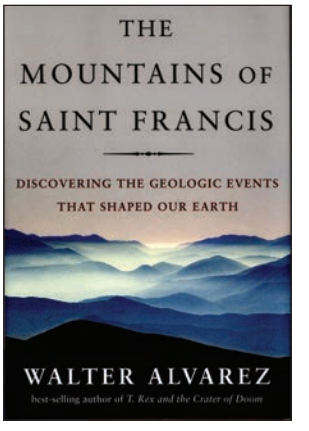
page 6

page 7



page 29

page 35



page 57

About the Cover: Upper Triassic to Middle Jurassic sedimentary-volcanic successions of the Nazas Formation (gray/red colors) unconformably overlain by early Oxfordian marine limestones of Zuloaga Formation (gray, cliff-forming rocks). Dips are against the hill. These outcrops are widely exposed in northern Zacatecas State, central Mexico desert. More photos on page 61.
Photograph by Dr. Claudio Bartolini. Taken during his doctoral field work in central Mexico's desert.

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Check your email for a reminder notice and renew online at *www.hgs.org*

Alternately, you may fill out this form and return with your remittance—include your CURRENT EMAIL (important)

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Gary Coburn
garycoburn.hgs@gmail.com

A New Year for the HGS

Welcome to a new year for the HGS. This year will see some excellent papers presented at the General Lunch and Dinner Meetings as well as at the committees meetings. In addition, there will be a Legends Night, HGS sponsored continuing education, and Earth Geoscience Day (September 24th). Conferences include the Mudstone Conference and the upcoming HGS Africa Conference "Africa: New Concepts for the Oldest Continent". The latter is being held in London September 9 and 10. The new year will, hopefully, bring about some new and/or expanded alliances to create more useful benefits for our members. This year we will be making a real effort to get our members into the public schools to inspire and get our children turned on to science, preferably the geosciences! The HGS will be hosting AAPG Conventions in both 2011 and 2013. This accelerated schedule means we will be forming and staffing two groups of volunteers simultaneously. Hosting national conventions take a lot of effort and manpower and I urge everyone to help in this effort.

The shale plays, excuse me, resource plays seemed to be the darlings of the convention…

I had intended to use this space to talk about meaningful geologic activities such as the recent convention in Denver. The convention was one of the best I have been to in a while. The talks were superb with some talks having standing room only. It was nice to see companies allowing employees to present papers of such technical quality in a timely fashion. I was pleased to see the number of quality poster sessions as well. The shale plays, excuse me, resource plays seemed to be the darlings of the convention as evidenced by the talk and poster session attendance. The overall attendance at the convention was approximately 7,200 members representing over 60 countries. The most puzzling thing I saw and heard people talking about, was the absence of some of the large companies such as Schlumberger and Landmark. These companies pulled out of the convention leaving a gap on the floor which the convention struggled to fill. There was much speculation as to the health of these companies given that they elected to forego a convention attended by people representing almost every company in the energy industry. Those companies that did continue to support the AAPG by their presence on the convention floor found their booths quite active. SMT, for example, definitely benefitted from Landmarks absence as their booth seemed to be full every time I went passed it. Hopefully the companies who pulled out of the convention this year will see their fortunes improve enough that they will be able to attend the 2010 convention. Congratulations, by the way, to HGS Past President Dave Rensink who is now the President Elect of the AAPG.

The convention was one of the things I wanted to mention as a recent event. Technofest was another. Technofest promises to be very good so I hope many attended. The problem that I am having with most items I wanted to talk about is simply this. By the time the HGS *Bulletin* this appears in is published, things such as Technofest will be in the past. You see, in order to get the column in this month's *Bulletin*, I have to submit this by July 15th. That is, of course why we urge our members to check the HGS Website. The website contains a lot of useful information, such as committee information, HGS calendar and membership directory. It also has the advantage of being quite current. Check it out and be sure to tell us what you think of the new format!

Today is a beautiful Houston summer day. It is a little over 100 in the shade and we have not had any appreciable rain in my part of the world in a month. We have all just finished celebrating the 4th of July and the weighty issues of the petroleum industry seem very far away. By the time you read this, school will have started, everyone will have put away their vacation photos and another summer will be fast fading into memories. There will be a time to expound upon weighty subjects such as the future of geosciences in our public schools and how new national and state policies will affect our industry and our lives. Today is not that time. Today I have burgers on the grill and children in the pool. Today instead of watching the oil prices I am watching my little girls swim and laugh and build a childhood. In the end, that's what all of this is about. I hope everyone had a great summer. I am quite sure I did. ■

HGS Golf Tournament

Monday – October 26, 2009
Kingwood Country Club

CHECK OUT OUR NEW DATE!

Come out and join us for golf, food, friends and fun at the annual HGS Golf Tournament at Kingwood Country Club. This year's format will be a four man scramble, with three flights determined by handicap. First, second, and third place awards (blind draw for 3rd place) will be awarded for each flight. There will be prizes awarded for closest to the pin (4 holes per course) and long drive (3 holes per course) as well as many great door prizes and raffle prizes for participants.

The entry fee is $125.00 per person or $500.00 per team on entries received before October 16th and $150.00 per person or $600.00 per team on entries received after October 16th. Individual entries will be grouped with other individual golfers to make a foursome. Entries are limited and will be accepted on a first-in basis.

Companies or individuals interested in sponsoring the event should contact Mark Dennis at 281-494-2522 (office), 281-705-4346 (mobile) or by email at mdennis@petrolog.com

To enter, fill out the entry form at the bottom of this page and mail or fax with your entry fee (payable to **HGS Entertainment Fund**) to:

HGS Office
14811 St Mary's Lane, Suite 250 • Houston, TX 77079
713-463-9476 (office), 281-679-5504 (fax)

SCHEDULE OF EVENTS

9:30 – 11:30 a.m.	Registration and free use of driving range
10:30 – 11:30 a.m.	Optional lunch
11:45 a.m.	Shotgun start
4:45 p.m.	Cash bar, open buffet
5:30 p.m.	Dinner with awards presentation

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Gordon Shields
gshields.hgs@gmail.com

Hurricanes, Weather and Otherwise

I recall my first experience "hunkering down" last year and, besides the other hurricane in my life, I did not like it one bit. However, the days leading up to landfall were infinitely worse: the waiting, the unknown but certain troubles to come, and then more waiting just to make sure I had enough time to completely over-think the situation. Stoopid hurricanes.

Unoccupied lawn chairs are tumbling down the driveway.

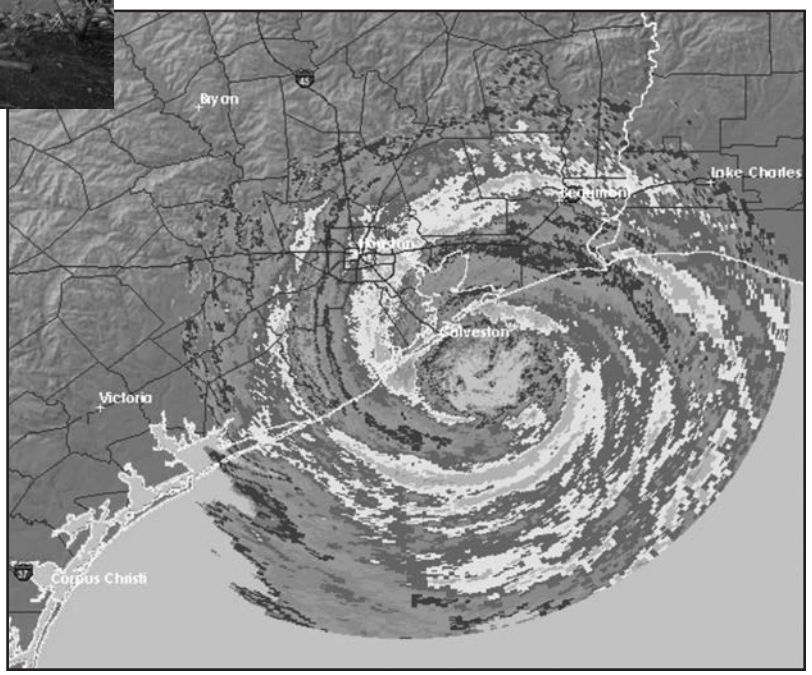
Another thing that survived Ike, besides my sorry butt, was a pretty little tree next to a gulf-side table of my favorite restaurant. This is particularly remarkable given its position relative to the eye of the storm. I'll give you one hint: "Tequila Lime Shrimp." Anyway, I cannot begin to imagine what this little guy saw and the beating he endured.

Kudos to anyone who helped rebuild my favorite beach. But to those who rebuild flimsy stilt houses that will inevitably add to the strange new geological formation in the gulf, or plague the beaches of communities that were lucky enough to be on the "good" side of the storm? And to those who have started a perhaps even more disturbing trend with jacked up doublewides? At three feet above sea level? Well, perhaps I misjudge hurricanes.

The experience leading up to Ike was not unlike the onset of my tenure of editor for this once fine publication. I say once fine because, despite my efforts this fiscal year, crash and burn is imminent. While crash and burn may be better than crash and drown, the one to blame is the one who suckered me into this. I was merely helping out with other aspects of the HGS, and when approached about this I said, "Sure, I can edit stuff." But I had no idea the hours required, and that the editor was supposed to write stuff too. Perhaps if I had read at least one *Bulletin* and seen what I was expected to uphold before submitting my candidacy, I may have thought twice. Taking almost a year to approve the membership of "the new kid in town" had something to do with that. Merely a coincidence?

Reasons to volunteer vary I suppose, and probably not all are

From the Editor *continued on page 9*



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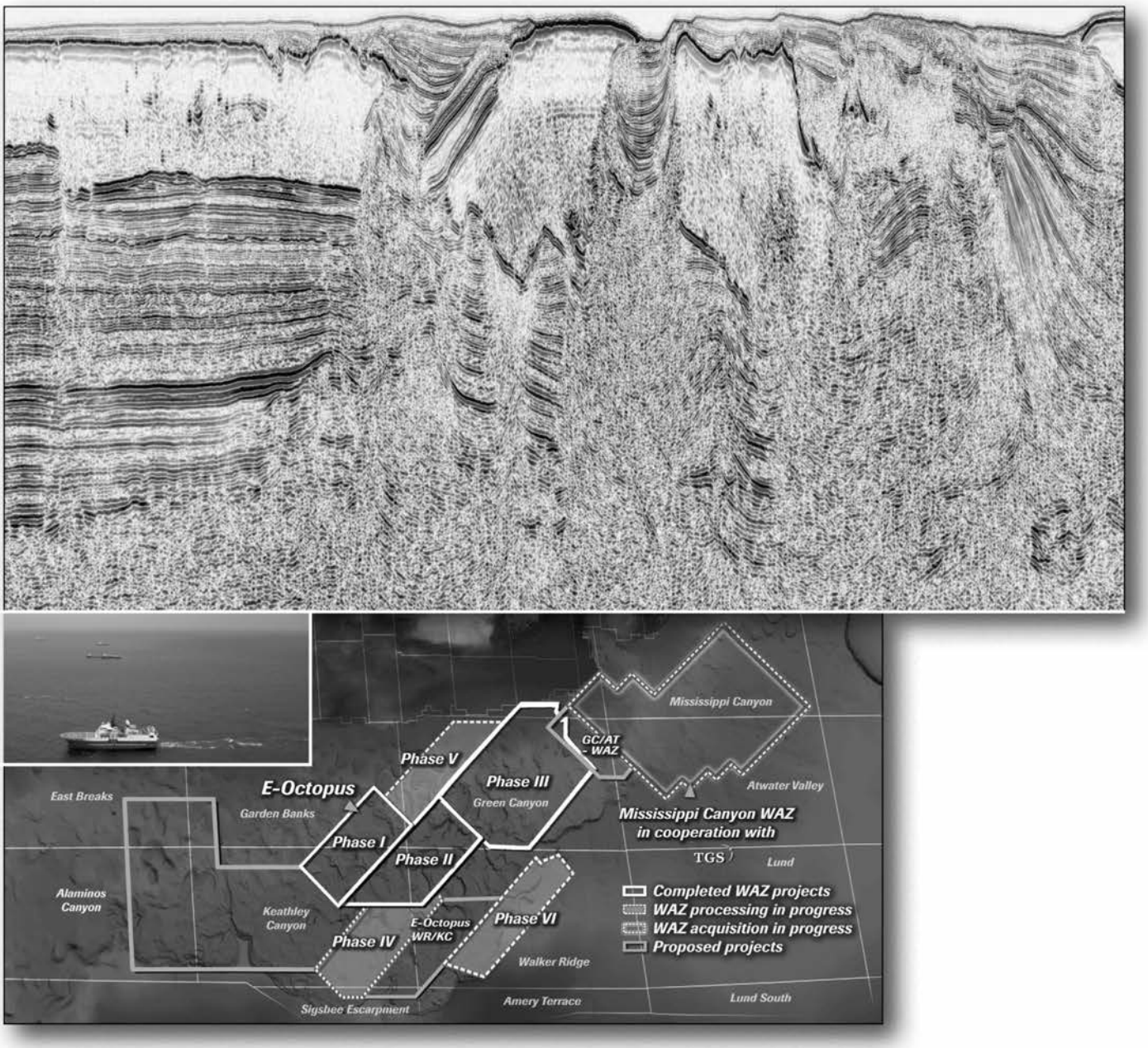

*Mark of Schlumberger © 2009 Schlumberger 07-1536

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From the Editor continued from page 7

selfless. F'rinstance, I must admit that I only give blood regularly for the cookies and juice. Reasons not to volunteer, aside from the well-deserved criticisms and death threats to come with regards to my current responsibilities, are easier to define. Presidents everywhere should repeat the following words to all board members and committee chairpersons at the beginning of each fiscal year, "Do not beat up your volunteers." The beatings cause one to ponder the most basic nature of volunteering, which is of course that you don't have to do it. I was mesmerized at a Cub Scout rally when little Jimmy's parents were queried whether either of them would like to step up to the plate. The mother said, and with a quite unabashed smile on her face, "Oh, I'm sorry, we don't volunteer any more." Huh?

It's actually not the fault of that one opportunistic soul, who should remain anonymous, but whose initials are BO, for which I am certain he suffered enough as a child. It's the members' fault. You're the ones who elected me in a landslide victory. Or was there not exactly a lineup to accept this position? Regardless, and like volunteers everywhere, we do our best. This leads me to recall certain words of wisdom from my work experience: Even if everyone in the room is upset, so long as no one is really angry then everything is okay.

In this first issue I should give a disclaimer, for what they are worth, which is nothing. "The opinions expressed here do not necessarily, well almost certainly, do not reflect those of the HGS." Nor do they reflect those of my employer (please don't fire me again). The opinions expressed here may not even reflect my own opinions, depending on my BAL. Or maybe this is a made-up persona? That's perhaps the most believable because no one could be quite this deranged in real life. That's my story and I'm sticking to it.

Regardless, and frankly, I am poised on the slippery and inversely exponential slope of caring less and less about many things. No, not in the Warren Zevon sense regarding grandpa and his possible thoughts on his latest bout of incontinence. It's more something that happens when you realize that you are old as Alaska - old as Cougar Barbie. Not a mid-life crisis per se, but more like the awakening of Kevin Spacey's character in "American Beauty". When you finally realize: "I - don't - have - to - (put just about anything here) - anymore." Well, maybe I'm not quite there yet.

So, what am I supposed to write here every month? I feel like Andy Warhol has given me the Golden Telephone and I too have nothing to say. Or should I live out my childhood twisted fantasy to stand up in church and yell an obscenity? Of course none of you have ever had that notion. Nor should the readers of this be compared as such. Or should you? Or should I? I routinely place my cursor on the Mohorovičić discontinuity and violently wrench it up and down, knowing full well it could cause problems for some on this planet.

I have also been known to change the entire magnetic field of the earth so that we are all at the equator. No, I changed my mind. Having all of us at the North Pole more often than not suits my interpretive purposes best. Santa? No Santa for you this year because maybe I instead have a notion to place my thumb and forefinger next to the poles and suddenly end this silly little planet's spin. Would not all of you in Houston be flung about terribly? From an apparent velocity of 787 nautical miles per hour to zero in less than one second? I think perhaps that you would.

Getting back to hurricanes, weather or otherwise, once I'm deep in the fray - alles kla. Bring it on. Let's fire up them bad boy Heidelbergs. I can deal with what's in front of me, to the best of my abilities anyway. The unknown is quite another matter.

Limbs are snapping above us. The fire pit is being fanned dangerously. Unoccupied lawn chairs are tumbling down the driveway. The waiting is finally over. And in the words of Holly Cole (or perhaps Tom Waits?):

Here we go ...

Gordon Shields
(I'd rather have a bottle in front of me, than a frontal lobotomy.)

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LAST CHANCE - DON'T MISS OUT!!

AAPG Fall Education Conference – The Business of Petroleum Exploration
September 21-25 / Houston, TX
Instructors: 13 expert instructors, 10 in-depth courses

OTHER UPCOMING SHORT COURSES

Risk, Uncertainty and Decision-Making in Unconventional Resource Plays
October 10 - 11 / Tulsa, OK, with AAPG Mid-Continent Section Meeting
Instructor: William Haskett, Decision Strategies, Inc., Houston, TX

Optimizing Horizontal Well Applications - The Asset Team Approach
November 2 - 6 / Dallas, TX
Instructor: Bob Knoll, H-Tech. Petroleum Consulting Inc., Calgary, AB, Canada

Fluvial Stratigraphy
November 14 - 15 / Rio de Janeiro, Brazil, with the AAPG International Conference & Exhibition. Instructor: John Holbrook, University of Texas at Arlington, TX

Getting Started in Fluvial Stratigraphy
December 1 / Dallas, TX
Instructor: John Holbrook, University of Texas at Arlington, TX

FIELD SEMINARS

Lacustrine Basin Exploration
September 13 - 20 / Begins and ends in Salt Lake City, UT
Leaders: Alan Carroll, University Of Wisconsin, Madison, WI;
Meredith Rhodes Carson, Geofuels LLC, Madison, WI

Sedimentology and Sequence Stratigraphic Response of Paralic Deposits to Changes in Accommodation: Predicting Reservoir Architecture, Book Cliffs, Utah
September 24 - October 1 / Begins and ends in Grand Junction, CO
Leaders: Keith W. Shanley, Consultant, Denver, CO; J. Michael Boyles,
Shell International E&P, Houston, TX

Modern Terrigenous Clastic Depositional Environments
September 30 - October 7 / Begins in Columbia and ends in Charleston, SC
Leader: Walter J. Sexton, Athena Technologies, Inc., Columbia, SC

Applied Stratigraphy of Paleozoic Carbonate Platforms; Facies, Cycles, Sequences, Reefs, Reservoirs
October 4 - 7 / Begins and ends in the Las Vegas airport
Leader: John E. Warme, Colorado School of Mines, Golden, CO

More Science Than You Can Shake A Pick At.

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THIRD ANNOUNCEMENT
THE 8TH PESGB / HGS CONFERENCE ON AFRICAN E & P

Africa: New Concepts for the Oldest Continent

QE II Conference Centre, London, 9 - 10 September 2009

Alternating between London and Houston, this annual conference has established itself as the primary technical E & P conference on Africa for Operators, Consultants, Governments and Academics.

Oral programme to include about 25 high quality presentations with an associated large poster display. A preliminary programme is on the PESGB website.

Papers on this preliminary programme (subject to permissions) include: * Deepwater Plays in Gulf of Sirt (BP) * New Plays in Sirt Basin (Shell) * Ghana Discoveries (Kosmos) * Albert Basin (Tullow, Heritage) * South Atlantic Conjugate Margin and Turbidite Play Prediction Studies (Consultants) * New Plate Tectonic Models and Regional Tectonics (Academics) * East African Regional Petroleum Systems and New Plays *

Image courtesy of Fugro NPA and Surestream Petroleum : Lake Tanganyika, Neogene rift basin exploiting Permian rift trends and PanAfrican lineaments, composite topographic and satellite gravity image

Pre-Registration is now available at £325 for PESGB/HGS/ Geol Soc. Members and £375 for Non-Members.

Please complete a Registration Form which can be found on the PESGB website and return to the PESGB Office or register Online.

To book an Exhibition Booth please complete the Booth Application Form and return to the PESGB Office.

For Sponsorship Opportunities please contact Rebecca at the PESGB Office on 020 7408 2000 or email rebecca@pesgb.org.uk.

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2009 Conference Committee: Ray Bate (Chairman), Duncan MacGregor & Richard Dixon (Technical Co-ordinators), Kevin Dale (London) and Al Danforth and Ian Poyntz (HGS, Houston).

HOUSTON GEOLOGICAL SOCIETY 1923

PESGB

8th PESGB/HGS Conference on African E & P

Queen Elizabeth II Conference Centre, London
9-10 September 2009

New Concepts for the Oldest Continent
Preliminary Programme

Wednesday 9th September

08.30	***Registration & Coffee***	
09.20	Welcome and Introduction	*Ray Bate, Chairman*
	Session 1: Tectonics and Sediment Hinterland Studies	
09.30	Re-examining the evidence from Plate-Tectonics for the initiation of Africa's Passive Margins	***C.Reeves*** *Earthworks*
09.55	Thermochronology and Landscape Development in Southern Africa	***P. Green[1]***, *R. Swart[2], J. Jacob[3], J. Ward[4], B. Bluck[5]* *[1]Geotrack International, [2]Black Gold, [3]Namdeb, [4]Gem Diamonds, [5]University of Glasgow*
10.20	Evidence for Post-Rift Uplift around the North and South Atlantic	***P. Japsen[1]***, *P. Green[2], J. Bonow[1], J. Chalmers[1], P. Cobbold[3]* *[1]GEUS, [2]Geotrack International, [3]Géosciences*
10.45	***Coffee & Poster Presentations***	
11.15	Africa's 'Oblique Margins': What's Special About Them?	***S. Lawrence[1]***, *A. Pather[2]* *[1]Darnoc Ltd., [2]RPS Energy*
11.40	The Late Miocene to Recent Drainage Systems of Libya	***N. Drake[1]***, *A. Hawat[2], P. Turner[3], S. Armitage[4], M. Salem[5], K. White[6], S. McLaren[7]* *[1]Kings College London, [2]University of Garyounis, [3]University of Birmingham, [4]Royal Holloway University of London, [5]Al-Fateh University, [6]The University of Reading, [7]University of Leicester*
12.05	The "Hercynian" Unconformity in North Africa: It's Nature & Significance; A case study from the Ghadames/Illizi Basin (Algeria, Tunisia & Libya)	***R. Dixon***, *C. Simmons, J. Hossack, T. Dunn, J. Moore, N. Roberts, D. Haig* *BP Exploration*
12.30	***Lunch & Poster Presentations***	
	Session 2: North Africa	
13.45	North Africa Clastic Palaeozoic Plays; General Setting and Geometrical Features	***G. Serafini*** *ENI E&P*
14.10	Ice & Oil: Glaciations and Hydrocarbons in North Africa and the Middle East	***D. Le Heron[1]***, *J. Craig[2], J. Etienne[3]* *[1]Royal Holloway University of London, [2]ENI E&P, [3]Neftex Petroleum Consultants Ltd*
14.35	Gravity-induced Deep-Water Carbonate Deposits: Potential New Plays in the Eocene of the Sirte Basin, Libya	***U. Baaske[1]***, *P. Tricker[1], J. Van Itterbeeck[2], H. Griffiths[2], J. Pickens[1]* *[1]Shell International Exploration & Production B. V., [2]Shell Exploration & Production Libya GmbH*
15.00	***Coffee & Poster Presentations***	
15.30	Petroleum Systems and Prospectivity of the Gulf Of Hammamet, Tunisia	***A. Craig*** *Cooper Energy Ltd*
15.55	Structural & Stratigraphic Evolution of the Offshore Sirt Basin, Libya	***M. Bourne***, *K. Benjamin, T. Bevan, R. Dixon, A. Fraser, J. Iliffe, M. Kamel, T. Mason, C. Simmons, J. Slack, K. Widden* *BP Exploration Libya*
16.20	Messinian Seismic Facies in Offshore Libya and implications for Sub-Messinian Seismic Imaging	***J. Illife***, *T. Sabato Ceraldi, M. Kamel, T. Mason, A. Poole, J. Hossack, J. Slack, A. Fraser* *BP Exploration Libya*
16.45	Deepwater Play types of NW Egypt	***G. Tari[1]***, *K. Hannke[2], B. Novotny[3], T. Bayoumi[3], H. Hussein[3]* *[1]OMV E&P, [2]OMV UK, [3]OMV Egypt*
17.10	Emerging Sub-Salt Giants in the Eastern Mediterranean	***D. Peace*** *EastMedCo - PetroMed*
17.40	***Evening Reception***	

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Thursday 10th September

08.30	***Registration & Coffee***	
	Session 3: The East African and Earlier Rift Systems	
09.00	Tectonic Evolution of the Tanganyika-Rukwa-Malawi segment of the East African Rift	***D. Delvaux***, *M. Fernandez* *Royal Museum for Central Africa*
09.25	Western Rift Evolution and Mountain Formation in Uganda	***U. Glasmacher***[1], *F. Bauer*[1], *B. Nagudi*[2] [1]*University Heidelberg,* [2]*Makerere University*
09.50	Elephant Hunting in the Pakwach Basin, Block 1, Uganda	***P. Logan,*** *R. Downie* *Heritage*
10.15	Upper Pliocene Fluvio-Alluvial and Lacustrine-Deltaic reservoirs of the Victoria Nile/Butiaba Play, Albert Rift, Western Uganda	***T. Ovington*** *Tullow Oil*
10.40	***Coffee & Poster Presentations***	
11.10	Interfering Cretaceous and Tertiary Rift Systems - update on the exploration of the Turkana Depression (Sudan-Ethiopia-Kenya)	***I. Hutchinson***[1], *S. Lawrence*[2], *A. Beach*[3] [1]*RPS Energy Ltd,* [2]*Darnoc Ltd,* [3]*Exploration Outcomes Ltd*
11.35	African Interior Basins: Integrating Potential Fields Data and Geology to Extrapolate from Known to Unknown Basins	***M. Taylor***[1], *T. Cunha, I. Davison*[2], *P. Baptista*[2], *C. Finch*[3], *I. Steel*[1] [1]*GeoInternational,* [2]*Earthmoves,* [3]*Royal Holloway University of London*
12.00	The newly recognised Jurassic Petroleum System in the Onshore Majunga Basin, Madagascar	***P. Howlett***[1], *N. Banks*[1], *B. Cooper*[1], *S. Jenkins*[1], *E. Razafindrakoto*[2] [1]*Wilton Petroleum Ltd, London,* [2]*Wilton Petroleum Ltd, Antananarivo*
12.25	***Lunch & Poster Presentations***	
	Session 4: West and East African Margins	
13.45	Active and Palaeo-Petroleum Systems of the East African Coastal Basins	***D. Boote***[1], *C. Matchette-Downes*[2] [1]*David Boote Consulting Ltd,* [2]*East African Exploration Ltd*
14.10	The Songo Songo Gas Field, Tanzania: Increasing Reserves and Expanding Gas Distribution	***L. Williams*** *PanAfrican Energy Tanzania Ltd*
14.35	The Congo Deep-Sea Fan: how far and for how long?	*Z. Anka*[1], ***M. Séranne***[2], *M. Lopez*[2], *M. Scheck-Wenderoth*[1], *B. Savoye*[3] [1]*GFZ,* [2]*CNRS-Université Montpellier II,* [3]*IFREMER*
15.00	***Coffee & Poster Presentations***	
15.30	Exploration of the Tano Basin and Discovery of the Jubilee Field, Ghana	***P. Lowry***, *P. Dailly, K. Goh, T. Henderson, E. Hudgens, K. Kanschat, B. Maxted* *Kosmos Energy*
15.55	Jubilee Field: A Step Change for Ghana	***D. Hanley*** *Tullow*
16.20	Prediction of Hidden Cretaceous Turbidite Systems in West Africa	***K. Durtnell*** *Neftex*
16.45	The Prospectivity of Offshore Sierra Leone using newly acquired 3D data	***M. Grand***[1], *A. Jessop*[2] [1]*TGS-Nopec,* [2]*Jessop & Associates*
17.10	***Closing Address***	

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Preliminary Programme of Posters

	Poster Session: Stratigraphic Studies, Reservoirs and Reserves	
	South Atlantic Deepwater Reservoirs: Responses to Tectonic, Climatic and Eustatic Controls on two not-so-Passive Margins	***D. MacGregor*** *Neftex Petroleum Consultants*
	Tectono-Stratigraphic Evolution of the Offshore Sierra Leone Basin	***C. Elenwa**, M. Watkinson, M. Anderson* *University of Plymouth*
	Best Practices for Exploring and Producing Oil and Gas from Basement Reservoirs	***T. Koning*** *Tullow Oil*
	The Okoro Field: a successful Development Case Study	***Wright*** *Afren*
	Kingfisher Field, Uganda - A Bird in the Hand!	***R. Downie,** S.R. Curd, P.C. Logan* *Heritage*
	Rock-based regional geology analysis reveals how structural architecture played a key role in controlling the location, thickness and quality of key reservoir intervals in the Tanzanian Coastal Basins	***A. McAfee**, R. Woollam* *Core Laboratories*
	A new look at the Carboniferous Marar Fm, Murzuk/Ghadames Basin, Libya: Implications for Sequence Stratigraphic Framework, Reservoir Characterisation and Distribution	***L. Petitpierre**, J. Redfern, S. Bodin* *The University of Manchester*
	Assessment of regional control on Early Cretaceous reservoirs in Libya: Preliminary results from the Messak Formation (Murzuq Basin)	***J. Wood**, S. Bodin, J. Redfern* *The University of Manchester*
	Depositional model and allostratigraphic architecture of Late Ordovician syn-glacial strata from the Tiguentourine Field (Illizi Basin, Algeria)	***S. Roussé**[2], S. Sandvik[1], B. Murat[2], A. Hutchinson[1],* *K. Saadi[1], E. Leguerroué[2]* *[1]BP/Statoil/Sonatrach, [2]Beicip-Franlab*
	A New Approach to Stratigraphic Analysis in the Pre-Upper Cretaceous of the Sirt Basin, Libya	***R. Woollam**[1], T. Pearce[2]* *[1]Core Laboratories, [2]Chemostrat Ltd*
	Gas Accumulations, Reserves and Future Potential in Libya	***T. Barsoum*** *Exploration & Development Consultants*
	North Africa, a keystone of European gas supply	***J. Véron**, M. Zine, G. Girbig* *IHS*
	Geoligical Evaluation of Sinapa (Block 2) and Esperanca (Blocks 4A and 5A), Offshore Guinea Bissau	*H. van den Brink, S. Wells* *Svenska Petroleum Exploration Guinea Bissau AB*
	Seismic Sequence Stratigraphic Analysis, well-log Sequence Stratigraphy and Source Rock Geochemistry of the three wells in the Chellif Basin Offshore Northwest Algeria	***W. Wornardt*** *Micro-Strat Inc.*

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New Concepts for the Oldest Continent
Preliminary Programme of Posters

	Poster Session: Petroleum Systems	
	Source Rocks of the Lake Albert Sediments, Albert Rift, Western Uganda	***N. Grobbler*** *Tullow Oil*
	Source Rock Deposition in East African Rifts: Past and Present	***C. Saunders*** *Neftex Petroleum Consultants*
	Prospectivity of Block D, Burundi, Lake Tanganyika	***D. MacGregor[1]***, *J. Brown[1], C. Pitman[1], C. Scholtz[2], P. Phillips[1]* *[1]Surestream Petroleum, [2]Lacustrine Systems Analysis*
	East Africa: unrealistic hopes or unrealised potential	***L. Gill***, *A. Quallington, G. Scougal, C. Hill, A. Galsworthy* *GETECH*
	The Seychelles and their place in the break up of Gondwana based by recourse to oils geochemistry and source rock analysis	***C. Matchette-Downes*** *East African Exploration Ltd*
	Seychelles Petroleum Systems and relation to conjugate margins of India's Bombay High and Madagascar investigated with new PSDM Seismic	***A. Danforth[1]***, *S. Venkatraman[2], P. Wakeling[2]* *[1]GX Technology, [2]ION/GX Technology*
	Modelling Basin Evolution and Assessing Source Rock Potential within the Orange Basin, Offshore South Africa	***S. Adams[1]***, *R. Domoney[1], R. di Primio[2], G. Kuhlmann[2]* *[1]University of Western Cape, [2]GFZ*
	Geology and Petroleum Potential of the Taoudenni Basin	***M. Raddadi***, *L. Gill, M. Hammill* *GETECH*
	A New Look at an Old Frontier Basin, The Zag Basin of Morocco	***C. Brown[1]***, *J. Exton[2]* *[1]Petro-Canada, [2]Barrowden Consultants*
	Petroleum Geochemical Evaluation of the Sirt Basin - Libya	***D. Boutoutaou***, *R. Harding, P. Walko, O. Soyhan, J. Roddy* *Fugro Robertson*
	A Quantitative Assessment of 30 Defined Petroleum Systems in the Sirt Basin focusing on Future Potential	***D. Clark-Lowes*** *Nubian Consulting*

	Poster Session: Structural Geology	
	Pre-EARS (East African Rift System) Interior basins of Sub-Saharan Africa: what's the potential?	***A. Pather[1]***, *I. Hutchinson[1], S. Lawrence[2]* *[1]RPS Energy, [2]Darnoc Ltd*
	Structural development of the Niger Delta outer fold and thrust belt	*W. Jones,* ***J. Clark*** *PGS*
	Paleo-tweezers: Extracting continental splinters from the West Africa margin	***W. Dickson***, *M. Odegard, C. Schiefelbein*
	Diachronous Rifting: A New Model for the Campos and Santos Basins, Offshore Brazil	*S. Henry[1],* ***A. Danforth[2]***, *N. Kumar[3], S. Venkatraman[4]* *[1]Rift Institute for Teaching and Training, [2]Consultant, [3]Growth Oil & Gas, [4]ION/GX Technologies*
	"Dual sensor examples from North Africa" The Pre Messinian Buster... Examples from Cyprus, Lebanon, Egypt and Libya	***M. Spencer-Jones***, *O. Lie* *PGS*

Monday, September 14, 2009

Westchase Hilton • 9999 Westheimer
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
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Kevin M. Bohacs
ExxonMobil Upstream Research Company
Houston, Texas

The Devil in the Details:
What Controls Vertical and Lateral Variation of Hydrocarbon Source and Shale-Gas Reservoir Potential at Millimeter to Kilometer Scales?

Hydrocarbon source and shale-gas reservoir character varies at the cm-scale vertically and at the km-scale laterally in systematic ways that can be deciphered using process-based models within a sequence-stratigraphic framework. Even in mudstone-dominated strata deposited hundreds of kilometers from coeval shorelines, parasequences exhibit systematic variations in physical, biogenic, and chemical attributes. These variations arise from changing relations among the key sets of processes that influence the production, destruction, and dilution of organic matter.

Paleozoic, Mesozoic, and Cenozoic examples (including the New Albany, Barnett, and Mowry Shales, Monterey and Sisquoc Formations) exhibit major shifts in mudstone properties at sequence boundaries, flooding, and downlap surfaces. These shifts can be recognized independently on seismic, log, core, and thin-section data. They also show systematic vertical and lateral variations in those properties at the parasequence- and parasequence-set scale. Prospective facies tend to occur in discrete packages that are diachronous across a basin, making it essential to employ the various physical sequence-stratigraphic surfaces to correlate appropriately and to decipher the distribution of hydrocarbon potential.

An appreciation of variations at such small scales should enable the selection of appropriate and representative samples, an understanding of how they correlate away from sample control, and the calculation of net source or reservoir.

Location with respect to sediment sources and shorelines is a key factor that can be discerned using close examination of sedimentary structures in thin section and hand specimen, integrated with detailed well-log correlation and geochemical analyses. Parasequences in proximal reaches tend to have total-organic-carbon (TOC) content inversely related to sandstone content, maximum grain size, sandstone-bed thickness, level of bioturbation, and skeletal phosphate content. The maximum TOC is positively correlated with hydrogen index (HI) at small TOC values and inversely correlated with HI at large TOC values. TOC is largest at parasequence bases. All observations in proximal sections indicate that dilution by non-hydrogen-rich material is the dominant control on source potential.

In distal areas, maximum TOC content is positively correlated, but only weakly, with maximum grain size and bed thickness. Maximum TOC content is also positively related to phosphate content, HI, and, counter-intuitively, level of bioturbation. TOC is largest near parasequence tops—the opposite of what is seen in proximal areas. The positive correlation of TOC, HI, and phosphorous content suggests that variations in primary organic production or preservation were the key influence on source character (and not dilution). The positive correlation of TOC and HI with bioturbation index further indicates that production was the controlling factor in this setting. Increased bioturbation and slow sedimentation rates should lead to decreased preservation of organic matter through increased consumption and decreased burial efficiency. The observed accumulation of organic matter under these conditions points to production rates of organic matter in excess of the capacity to consume or degrade it.

An appreciation of variations at such small scales should enable the selection of appropriate and representative samples, an understanding of how they correlate away from sample control, and the calculation of net source or reservoir. These relations influence such economically important factors as evaluation and assessment of net volumes of source or gas-in-place, expected hydrocarbon type and quality, and timing of generation.

HGS General Dinner *continued on page 19*

HGS General Dinner continued from page 17

Biographical Sketch

From Greenwich, Connecticut, **Kevin M. Bohacs** received his B.Sc.(Honors) in geology from the University of Connecticut in 1976 and his Sc.D. in experimental sedimentology from M.I.T. in 1981(where he built and operated the world's largest flume). He joined Exxon Production Research Company in Houston, Texas in 1981, where he is currently a sedimentologist and stratigrapher with the Hydrocarbon Systems Division.

At ExxonMobil Upstream Research Company, Kevin leads the application of sequence stratigraphy and sedimentology to fine-grained rocks from deep sea to swamps and lakes, in basins around the world. As Senior Hydrocarbon Systems Consultant, his primary focus is to keep the "geo" in geochemistry—integrating field work, subsurface investigation, and laboratory analyses. He works closely with exploration affiliates in evaluating their hydrocarbon systems, teaches field schools in sequence stratigraphy, sedimentology, and field safety, and conducts field work for research and exploration.

Kevin has written more than 85 scientific contributions on the stratigraphy and sedimentology of mudstones and hydrocarbon source rocks. He was co-recipient of the AAPG Jules Braunstein Memorial Award for best poster session paper in 1995 for work on coal sequence stratigraphy and the AAPG award for best international paper in 1998 for his work on lacustrine systems.

He has served as AAPG Distinguished Lecturer (1999-2000), Petroleum Exploration Society of Australia Distinguished Lecturer (2001), URC Outstanding Instructor (1994-1998, 2003-2006), and AAPG Distinguished Instructor (2007-2009). He was elected a Fellow of the Geological Society of America (2004), as well as Fellow of the Geological Society (London), The Explorers Club, and the Royal Geographical Society.

Vendor Corner Recognition and Thanks

The Houston Geological Society would like to recognize and thank its many vendors who demonstrated their financial support of the HGS by providing "Vendor Corners" for our 2008-2009 evening technical meetings. These are the folks who present poster session displays of their company's products, studies or services. They provided a great focal point during the social hour for the attendees to the meeting. The cost to the companies participating is not cheap and the fees that they pay are donated 100% to the HGS Scholarship Fund (undergraduate) and the HGS Student Membership Initiative.

The HGS would like to thank the following:

AOA Geophysics
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Geochemical Solutions International (GSI)
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ROC Oil
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***Seismic Micro-Technology (SMT)**

**Hosted more than one vendor corner*

If you would like to host a Vendor Corner during the upcoming 2009-2010 HGS year, please contact Paul Babcock at (832) 242 9650 or paul.babcock@nfrenergy.com

The Houston Geological Society Continuing Education Committee Presents

De-Risking Exploration and Production with the Controlled Source Electro-Magnetic Method [CSEM]

Agenda:

Introduction & Theory	30 mins by OHM/RSI
Acquisition Methods	30 mins by EMGS
Processing and Inversion	30 mins by EMGS
Modeling and Interpretation	30 mins by OHM/RSI
CSEM and MT[Magneto Telluric] Case study	1 hour by WesternGeco
Lunch	
CSEM case study and live demonstration	1 hour by EMGS
CSEM case study and possible demonstration	1 hour by OHM/RSI
Question and Answer session	30 mins by all

Registration Fee Includes Lunch, Refreshments, Notes and PDH Certificate.

Presenters:

Marcus Ganz of WesternGeco

Richard Cooper of OHM/RSI

Lucy Macgregor of OHM/RSI

Dave Ridyard of EMGS

Register Now! Registration deadline is Sunday 6-Sep-09 9:00 PM

Date: Tuesday, September 8, 2009

Time: 8:30am – 5:30pm

Location: Western Geco

Q Auditorium • 10001 Richmond Avenue • Houston TX 77042

Pricing

	Before 3-Sep-09	Before 6-Sep-09	After 6-Sep-09
Member:	$85.00	$100.00	$100.00
Non-Member:	$110.00	$120.00	$120.00
Student Member:	$15.00	$20.00	$25.00
Student Non-Member:	$15.00	$20.00	$25.00

Please make your reservations on-line through the Houston Geological Society website at www.hgs.org

For more information about this event, contact HGS Office • 713-463-9476 • office @hgs.org
Event coordinator Thom Tucker • 281-413-0133 • century@flash.net.

Tuesday, September 15, 2009

Crowne Plaza Hotel - Greenspoint (former Sofitel)
425 North Sam Houston Pkwy E

Social 11:15 AM, Luncheon 11:30 AM

Cost: $31 pre-registered members; $35 for non-members & walk-ups; Emeritus/Life/Honorary: $14; Students: FREE

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

HGS Northsiders Luncheon Meeting

Bill Sercome

Deep Water Gulf of Mexico High Gamma-Ray Shales and Their Implications for Flooding Surfaces, Source Rocks, and Extinctions

High gamma-ray 'hot' Eocene shales were encountered in southern deepwater Gulf of Mexico wells. The two prominent shales were in the age range of 40 and 50 Ma. The shales were originally deposited in basin floor settings that palinspastically restore to water depths of greater than 20,000' sub-sea total vertical depth. The occurrence of 'hot' shales deposited at such water depths forces the questioning of the association of such 'hot' shales and maximum flooding surfaces. The influence from eustatic sea level changes in very deep water would be minimal. The deep water 'hot' shales alternatively suggest very high global temperature excursions which created extensive algal blooms and anoxic oceanic conditions. The high temperatures would cause the related cascade effects of hydrate melting, global anoxic flooding events, global alginate source rock occurrences, atmospheric compositional change, marine and terrestrial stress/extinctions, and faunal lagerstattens. The age of these shales correlates with lagerstatten death assemblages in the Green River shales, the Messel fossil beds of Germany, and Whale Valley in Egypt. The vertebrate death assemblages contain multiple species. The articulated and unscavenged skeletal remains indicate post-death predation was non-existent due to lethal atmospheric temperatures that most likely suppressed predators and scavengers. The large number of specimens also suggests a rapid onset of thermal change. The Whale Valley lagerstatten includes a red bed containing crabs that are found in a hibernation position after mass simultaneous burrowing, which suggests a rapid transition from healthy faunal community to mass death. Periods of high temperatures punctuated by brief episodes of extreme heat would explain the association of marine deep water 'hot' organic shales and terrestrial death assemblages. ■

The articulated and unscavenged skeletal remains indicate post-death predation was non-existent due to lethal atmospheric temperatures that most likely suppressed predators and scavengers.

Biographical Sketch

Bill Sercombe, geologist, has worked out of Calgary, Denver, Tulsa, Houston, Islamabad, Cairo, and Kuwait on exploration, development, and petrophysics projects with Amoco and BP. He has published over 50 articles and papers on a variety of geologic topics. Areas of experience include the Alberta thrust belt, American Rockies, Himalayas, Alaska, Carpathians, Alps, Gulf of Suez, Arabian Gulf Basin, deep water GOM, and the Michigan Basin. Areas of interest include regional to subsurface mapping scale structural analyses, paleontology, carbonates, and the petroleum sciences.

Monday, September 21, 2009

Joint HGS International and North American Dinner Meeting

Westchase Hilton • 9999 Westheimer
Social Hour 5:30-6:30 p.m. • Dinner 6:30-7:30 p.m.
Cost: $28 pre-registered members; $35 for non-members & walk-ups; Emeritus/Life/Honorary: $14; Students: FREE

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

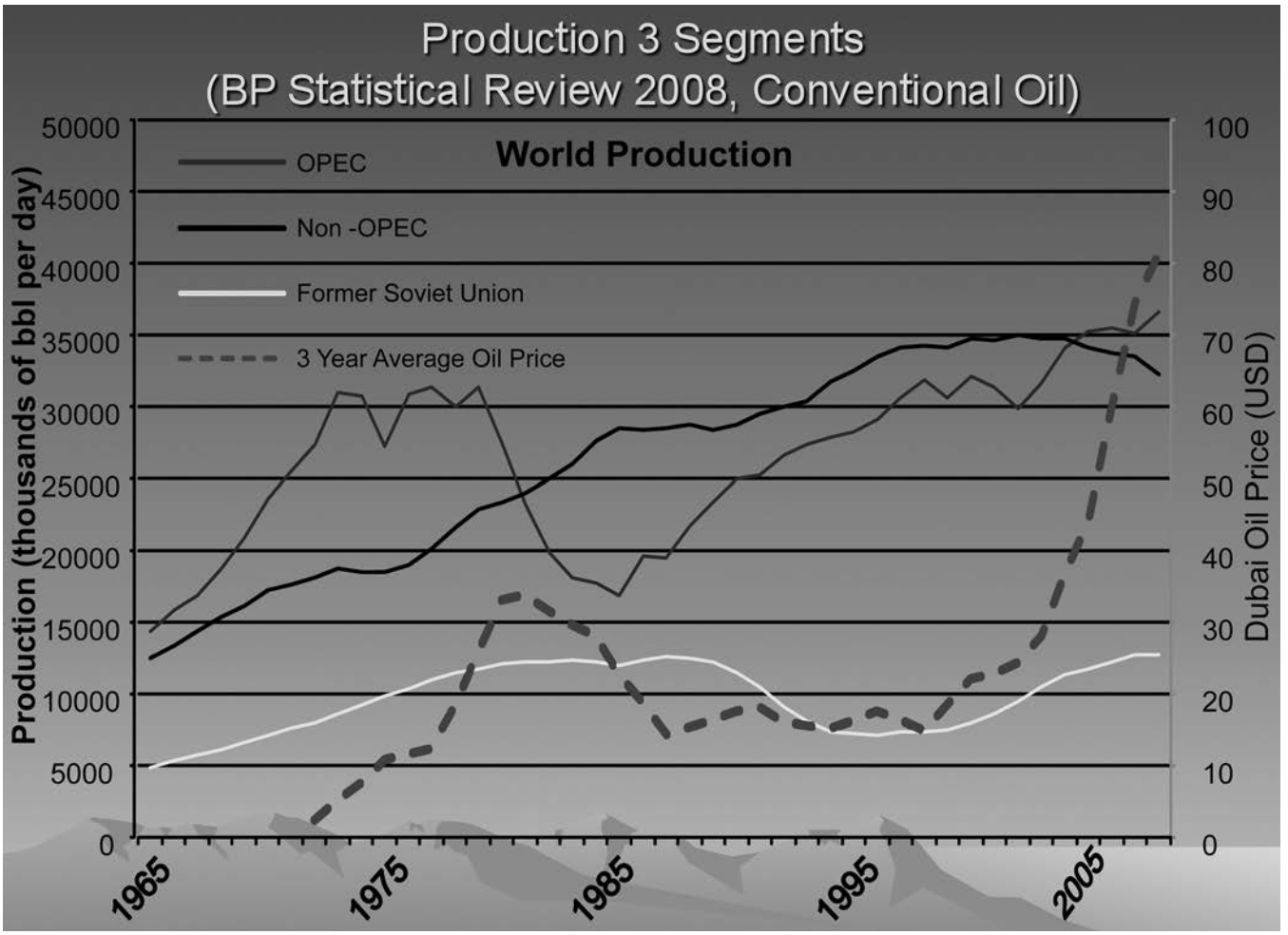
Ray Leonard
Vice President Exploration
Kuwait Energy Company

World Oil Reserves, Future Production Levels and Pricing
What challenges lie ahead for the USA?

A prediction of future world petroleum production levels and pricing is only partially dependent on the size of reserves, as political factors will play just as important a role. A key shift in the dynamics of production and pricing has seen Russia move from an open and rapidly increasing producer to a largely state-controlled industry struggling to maintain the current production level.

A number of trends clearly demonstrate that the current situation of comparatively low world oil prices is a temporary phenomenon. The USA in particular faces significant challenges in adjusting to the next coming price rise. Specific steps will need to be taken given the current concerns about the economy, national security, and greenhouse gasses.

Joint HGS International and North American Dinner *continued on page 25*



Joint HGS International and North American Dinner *continued from page 23*

In the long term (i.e. following the current disruption) a moderate rise in production by the Organization of the Petroleum Exporting Countries will be offset by a decrease in production in the rest of the world, with the former Soviet Union countries' production remaining steady. The production from ultra deep-water fields will allow "peak oil" to instead be "plateau" in the coming decade, followed by a sharp fall. The supply side crisis of 2005-2008 was due to the peak reached in the rest of the world in 2003, combined with a cessation of significant production growth in Russia after 2004 during a period of rapid demand increase. The world was nearing peak oil, which resulted in high prices and associated political and economic disruptions. ■

The production from ultra deep-water fields will allow "peak oil" to instead be "plateau" in the coming decade, followed by a sharp fall.

Biographical Sketch

Ray Leonard was born in New York. He received a Bachelor of Science in geology from the University of Arizona and a Master of Arts in geology from the University of Texas at Austin. His 19-year career with Amoco was entirely associated with international projects, with assignments in the western hemisphere and across Eurasia.

Mr. Leonard left Amoco in 1998. Since then he had senior management positions with First International Oil Company in Almaty, Kazakhstan; YUKOS in Moscow, Russia; and Hungarian oil and gas company MOL before joining Kuwait Energy Company as Vice President–Eurasia and Exploration in December 2006. He now resides in Kuwait City.

Wednesday, September 30, 2009

Petroleum Club • 800 Bell (downtown)
Social 11:15 AM, Luncheon 11:30 AM

Cost: $30 pre-registered members; $35 for non-members & walk-ups; Emeritus/Life/Honorary: $15; Students: FREE

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HGS General
Luncheon Meeting

Jeff A. Spencer
*Black Pool Energy and the Petroleum History Institute**

From Brine Wells to Giant Oil Fields:
The United States Petroleum Industry of the Nineteenth Century

August 27, 2009 marked the 150th anniversary of the Drake Well in Titusville, Pennsylvania, the "first successful commercial oil well in the United States". Although "who was first" claims exist from several states, the importance of the Drake Well is the rapid development and financial investment that occurred in the petroleum industry soon after this discovery. The Drake Well also led to other "firsts". Approximately eight miles from the Drake Well, the first great flowing well in the United States was completed in September 1861. The Empire Well on the Funk Farm initially flowed 3,000 barrels of oil per day. Perhaps the first giant oil field in the United States was discovered in 1871 at Bradford (EUR 700 MMBO), straddling the Pennsylvania-New York state line.

For many years oil had been collected from seeps, hand-dug pits, and brine wells. Over fifty years before the drilling of the famous 1859 Drake Well, the Ruffner brothers operated a salt works near an eastern tributary of the Ohio River in what is now West Virginia. Some of the byproduct oil was collected, though most of the oil was diverted into the Kanawha River giving the river its nickname, "Old Greasy." Eight years later, oil was discovered, produced, and marketed from wells dug in southeastern Ohio. In 1814, Silas Thorla and Robert McKee operated a salt works in what is now Ohio's Noble County. They drilled for salt brine using the spring-pole drilling method and a hollow sycamore log as surface casing. The associated oil was initially considered a nuisance, but was later collected, bottled, and sold as a medicine for rheumatism, sprains, and bruises. In 1860, one of the first oil fields in Ohio was discovered approximately ten miles southeast of the Thorla-McKee Well. The discovery of the Macksburg oil field helped ignite an oil boom in southeastern Ohio. Hundreds of wooden derricks sprang up and refineries were built along the Ohio River.

Oil was discovered in northwestern Ohio near the city of Lima in 1885, a year after natural gas was discovered near the town of Findlay. The discovery of the giant Lima-Indiana oil field (EUR 500 MMBO) set off the "oil boom of northwest Ohio", a period of land speculation and rapid oil field development that lasted over 20 years. As the field was extended to the south, the nation's first "over water" wells were drilled in Grand Lake St. Marys, then the largest man-made lake in the world. John D. Rockefeller's Standard Oil of Cleveland, soon to monopolize the oil refining industry, built storage tanks, pipelines, and a refinery near Lima. The Lima-Indiana field propelled Ohio into the leading oil-producing state from 1895-1903.

Some of the byproduct oil was collected, though most of the oil was diverted into the Kanawha River giving the river its nickname, "Old Greasy."

As production from these early fields declined, oilmen spread out throughout the United States searching for oil. The great 1901 oil gushers of Spindletop, Texas and Jennings, Louisiana ushered in the United States petroleum industry of the twentieth century. ■

**The mission of the PETROLEUM HISTORY INSTITUTE is to pursue the history, heritage and development of the modern oil industry from its 1859 inception in Oil Creek Valley, Pennsylvania, to its early roots in other regions in North America and the subsequent spread throughout the world to its current global status (www.petroleumhistory.org).*

Biographical Sketch

Jeff Spencer is a geologist/partner with Black Pool Energy, LP in Houston, Texas. He received a BS in Geology from the University of Cincinnati and a MS in Earth Sciences from the University of New Orleans. Prior to joining Black Pool, he was employed by Samson (2005), Osprey Petroleum (2000-2005), Unocal (1998-2000), and Amoco (1981-1998). Jeff has spent most of his career exploring the Gulf Coast onshore and Gulf of Mexico shelf. He has authored or co-authored several papers on oil field history, with emphasis on the pictorial history of early oil fields and famous oil and gas wells. He is co-author of the book, Ohio Oil and Gas and a collector of oil field-related postcards and postal covers. Jeff is an AAPG certified petroleum geologist and a member of HGS, SIPES, NOGS, and OGS (Ohio Geological Society). He currently serves as first vice-president of the Petroleum History Institute.

Channels: Size Matters

Dr. Franz L Kessler, *Curtin University Miri, Sarawak*

In channelized sandstone deposits it is often challenging to establish a realistic estimation of reservoir connectivity, which is a highly important parameter governing oil recovery. This paper describes NW Borneo shallow-marine sandstone deposits. These were formed on a shallow shelf characterized by strong long-shore currents, tidal action and a large quantity of freshwater outflow.

Field studies focus on the Miocene Belait Group (Malaysian Borneo) - a good reservoir in several oil fields. The objective is to establish parameters for assigning connectivity to individual channel bodies and amalgamated channel complexes by measuring width, thickness, plus the amount of observed reservoir amalgamation. In the Belait, the width/thickness ratio of channel bodies is commonly 10: 1. Channels with a ratio of 5:1 are often products of seamless amalgamation. While doing the field measurements it became apparent that large channel bodies interconnect with smaller channels far more often, than smaller channel bodies link-up with other small channels. This is inferred to be a result of mainly three facts:

Channels: Size Matters *continued on page 31*

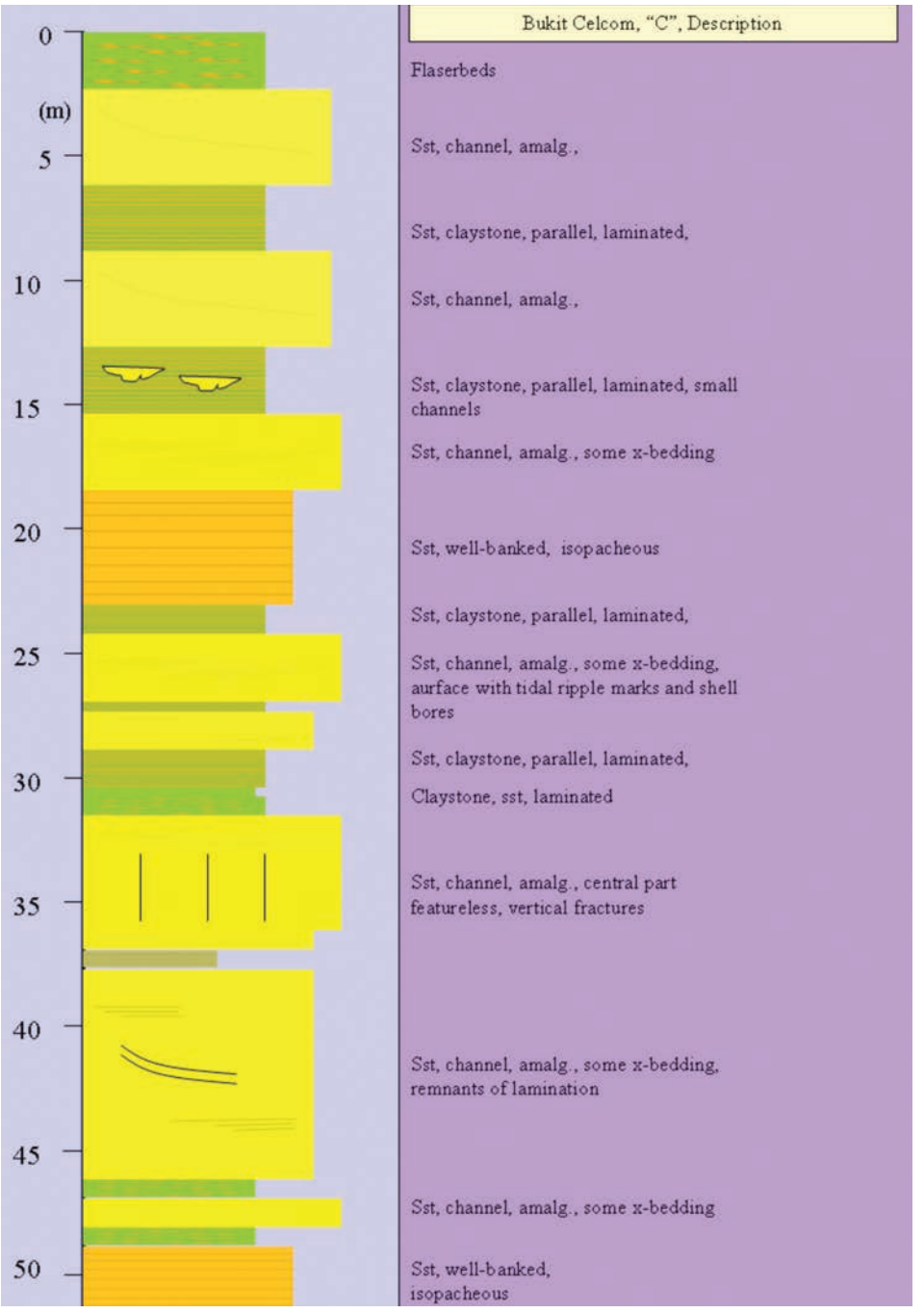


Figure 1. A typical Belait outcrop, near Marudi, Sarawak, Malaysia.

Channels: Size Matters

continued from page 29

1. Large sandy channel bodies, being more voluminous, intersect larger areas of rock, compared with smaller channels;

2. Large sandy channel bodies (often ribbons or shoestring sands) occur in facies that are simply more sand-prone and populated with many smaller channels. Some tidal mudflats contain only a little sand, located in a few small shoestring channels that tend to be isolated; and

3. An envelope of high quartz sand content levees can inter-link pockets of channel core facies – significant sandy levees being absent in clay-dominated facies belts such as mangrove swamps.

In order to quantify the amount of sand connectivity at a sub-seismic scale, one may try to 'gross-up' visible channels with invisible sub-seismic pay.

A typical Belait sequence is exposed near Marudi (Figure 1).

From Facies Model to STOOIP and GIIP

To the chagrin of any oilfield geologist or explorer, seismic data do not contain as much high frequency and hence resolution, as these data may contain if optimally processed. Sandy channels below a thickness of some 10 m usually are not imaged, or not fully imaged, because the high-end of the seismic frequency spectrum has not been preserved.

In order to quantify the amount of sand connectivity at a sub-seismic scale, one may try to 'gross-up' visible channels with invisible sub-seismic pay. Given one can count the amount of amalgamation interfaces, one may upscale or downscale them to a theoretical outcrop surface of 100 m width and 25 m height. One can then derive a number of channel interconnections for each channel body. Assuming that this also holds in the orthogonal direction, one can estimate the interfaces in an area of 100 m x 100 m and of 25 m thickness (= 16 voxel @ 25 x 25 x 25 m cubes). Since big channels are more rare than small channels, it means that big channels will interconnect with a moderate number of medium-size channels and a large number of small channels either directly or through blankets of hi-Qz-content-levees (facies B, Figure 2).

A barely visible (on seismic) shoestring channel body of 80 x 8 meters would equate, in the outcrop example, to a pay rock volume = 80 x 8 x 120 m = 76800 cubic meters (allowing for some sinuosity). This equates to almost five voxel cubes of 25 m.

This pay rock volume however, if connected to some 25 smaller sub-seismic channels, will yield = 25 x (20 x 2.5 x 120 m) + big channel = 226800 cubic meters = almost 15 voxel cubes of 25 meters.

Therefore the total (directly or indirectly) connected sand pay

Channels: Size Matters continued on page 33

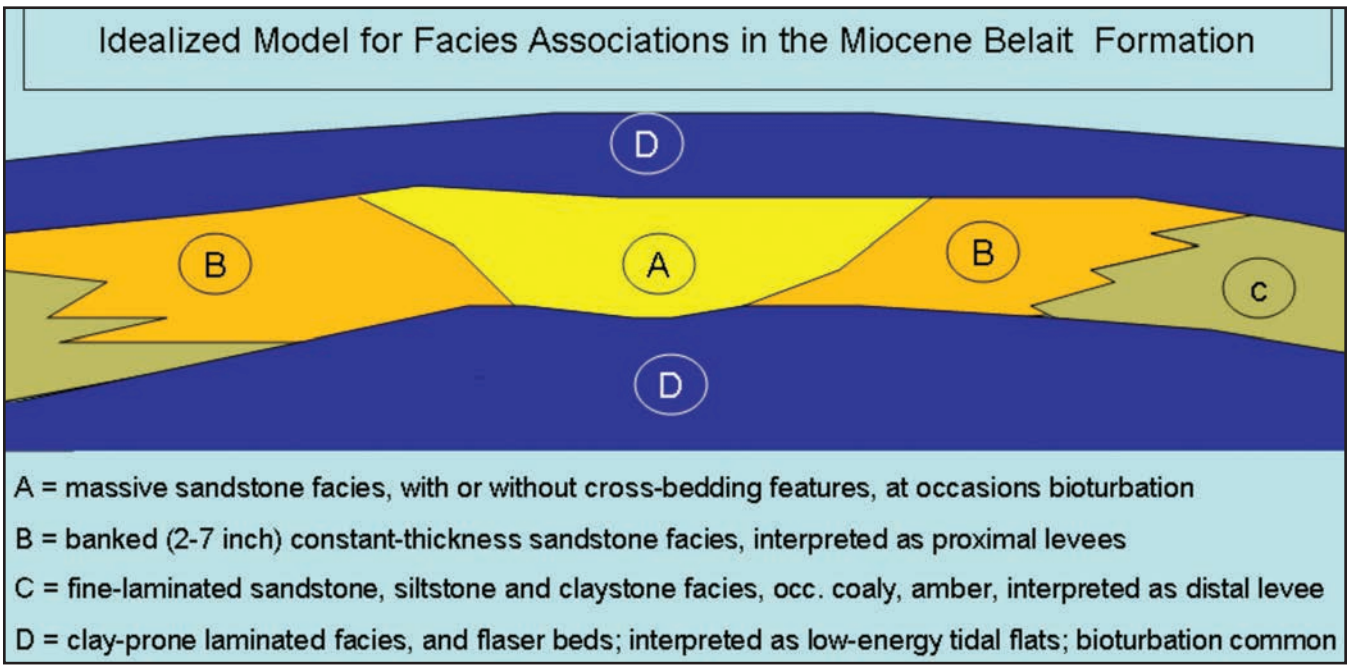


Figure 2. Facies model for a Belait shoestring sand.

Channels: Size Matters

continued from page 31

volume could be three times as large as the 'visible' channel rock volumes would suggest on seismic. The context of several Belait sub-seismic channel bodies and their measured and upscaled connectivity estimates is illustrated in a matrix of field observations (Figure 3). Using this line of thought an existing seismic-derived static model (such as PETREL) can easily be upscaled to incorporate invisible connected pay sands. In this example (Figure 3) it would simply mean to increase the number of reservoir voxels by three.

In conclusion, large sandy channels bodies have a far higher probability to be connected with populations of smaller channels. Small channel bodies are more likely to be either isolated or poorly connected, and might be entirely discounted in both static and dynamic flow models. Simple statistical relationships between bigger (seismically visible) channels and smaller amalgamated channels can be used to predict the amount of 'invisible' connected pay.

Biographical Sketch

After 24 years of petroleum exploration and development with Shell, Franz is lecturing Petroleum Geology, Applied Geophysics and Reservoir Engineering in Curtin University, Miri, Sarawak. Author's address: Dr. Franz L Kessler, PHD in Sedimentology. Curtin University, Miri, Sarawak 98009, CDT 250.

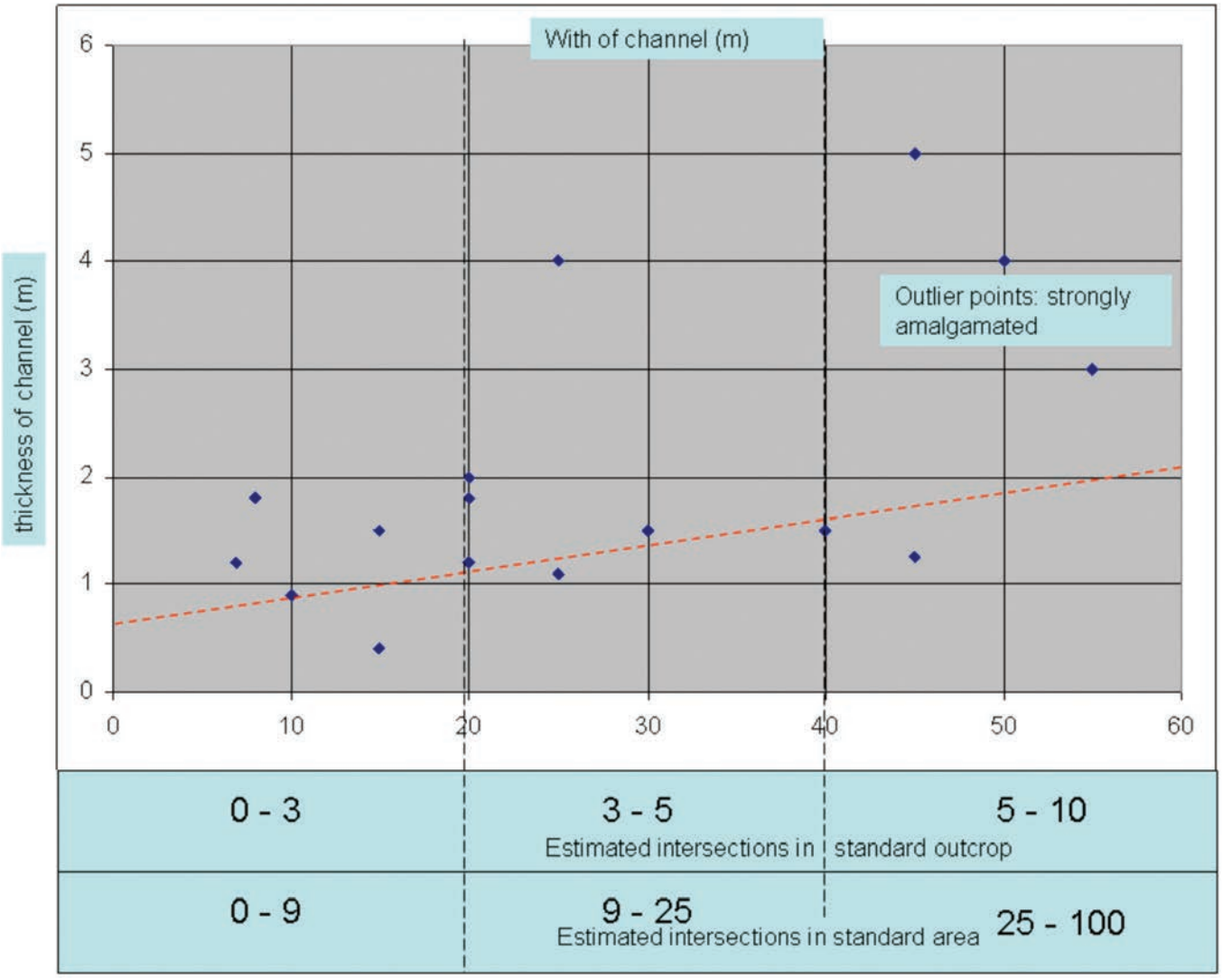


Figure 3. Matrix of field observations, model upscaling from X-Z to X-Y-Z

Houston Geological Society Guest Night 2009

In Search of the First Americans: Recent Discoveries and the Role of Geology in the Pursuit of the Past

"Man could not stay there forever. He was bound to spread to new regions, partly because of his innate migratory tendency and partly because of Nature's stern urgency."

— Huntington Ellsworth, American geologist, climatologist, explorer and geographer who researched the intertwining relationship of climate change on human culture and civilization from: The Red Man's Continent: A Chronicle of Aboriginal America *(1919)*

The story of human migrations has always been a "thought provoker". Who were the first Americans? Where did they come from and in what manner did they arrive on the North American continent? What is the current understanding as to when they arrived in North America?

Of particular interest to HGS members is how geologists have assisted in unraveling the array of threads of Man's past.

The timing of human migration into North America was the topic of this year's Houston Geological Society Guest Night on Saturday evening, April 4, 2009. It was addressed in a fascinating presentation by Texas A&M's resident geoarchaeologist and Professor of Anthropology and Geography, Dr. Michael R. Waters.

This years' Guest Night was hosted by HGS President Kara Bennett and Guest Night Chairman Bill Osten. Co-chairpeople Bonnie Milne-Andrews and Dave Reynolds assisted with the organization of the event with the gracious help of volunteers Cecelia Baum, Chuck Caughey, Janet Combes, Mike and Kelley Deming, Tarek Ghazi, Chris Holien and Susie Reynolds.

A crowd of 394 attended the event, which was held in the Grand Ballroom of the Houston Downtown Aquarium. Guest Night attendees were greeted by the unusual sight of a SCUBA diver immersed in a vertical tank holding a welcome HGS sign. Guests enjoyed a great dinner, special desserts, and drawings for "geologically-themed" door prizes in the hour before the presentation by Dr. Waters.

The Guest Night attendees learned of exciting new findings that are rocking long-held, conventional wisdom regarding the migration of man into North American from Eurasia and the spread of the early Clovis cultures. The inseparable nature of the applications of geology, radiometric dating, and archaeological investigations was a focus of his talk.

Dr. Waters, an eminent North American researcher, is the holder of the Endowed Chair for the Studies of First Americans at Texas

A&M University. In addition to his professorial duties, he serves as the Director for the Studies of First Americans and Executive Director of the North Star Archaeological Research Program. His research focuses on geoarchaeology and early human migration to the Americas. He is the author of many papers and several books, most notably Principles of Geoarchaeology.

Dr. Waters, who received his PHD in geology from the University of Arizona, has worked on a variety of integrated projects in the United States, Russia, Mexico, Yemen, and Jamaica. His current investigations at the Buttermilk Creek site in Texas have yielded a full spectrum of Clovis and potentially older cultural materials.

HGS Guest Night 2009 *continued on page 36*

HGS Guest Night 2009 continued from page 35

Dr. Waters is well known for his research on late Quaternary alluvial stratigraphic sequences in the American Southwest and their significance in understanding the effects of changing landscapes on prehistoric agriculturalists, and issues of archaeological preservation. He is a Fellow of the Geological Society of America and was awarded the Kirk Bryan Award of the Geological Society of America in 2003 and the Rip Rapp Archaeological Geology Award of the Geological Society of America in 2004.

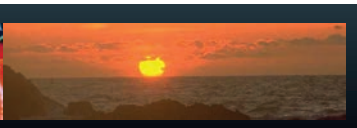
The evening's talk underscored the role geologists have played in understanding the migration of man and the peopling of the Americas. Geologists Kirk Bryan of Harvard University and Ernst Antevs and Jesse D. Figgins of the Denver Museum were significant contributors towards the discovery and documentation of Early Man in North America. The 1934 Clovis discovery at Blackwater Draw in New Mexico documented Folsom and Clovis cultures using geologic climatic data and suggested occupations dating to 13,000 years before the present (YBP). By mapping the distribution of the distinctive Clovis tools, workers in the 20th century were able to develop the "Clovis First Model" to describe the migration into the Americas originating from Northeast Asia through the crossing by way of the ice free Bering Strait around 11,500 14C YBP (or 13,600 calendar YBP).

Dr. Waters' research focuses on the question, "Does the Clovis First Model still work?" He addressed critical evidence suggesting an "age paradox" between the age of cultures documented in North America and South America. The data pointing to an age paradox suggest that both North and South America were occupied at the time of Clovis. The question emerges as to how were the

HGS Guest Night 2009 *continued on page 41*

September 2009

Sunday	Monday	Tuesday	Wednesday
	Members Pre-registered Prices: General Dinner Meeting . . . . . .$28 Nonmembers walk-ups. . . . . $35 Env. & Eng. . . . . .$25 Luncheon Meeting . . . . . .$30 Nonmembers walk-ups. . . . . $35 International Explorationists . . . . .$28 North American Expl. . . . . .$28 Emerging Technology $25	1	2
6	7	8 **HGS Continuing Ed Course** ***De-Risking with CSEM*** *Western Geco - Q Auditorium, Houston*	9 **The 8th PESCB/HGS Conference on African E&P** ***Africa: New Concepts for the Oldest Continent*** *QE II Conference Centre, London*
13	14 **HGS General Dinner Meeting** *"The Devil in the Details: What Controls Vertical and Lateral Variation of Hydrocarbon Source and Shale-Gas Reservoir Potential at Millimeter to Kilometer Scales?" Kevin M. Bohacs, ExxonMobil Upstream Research Company Westchase Hilton* Page 17	15 **HGS Northsiders Luncheon Meeting** *"Deep Water Gulf of Mexico High Gamma-Ray Shales and Their Implications for Flooding Surfaces, Source Rocks, and Extinctions" Bill Sercome Crowne Plaza Hotel* Page 21	16
20	21 **Joint HGS International and North American Explorationists Dinner Meeting** *"World Oil Reserves, Future Production Levels and Pricing –What Challenges Lie Ahead for the USA?" Ray Leonard Vice President Exploration, Kuwait Energy Company, Westchase Hilton* Page 23	22 **HGS Environmental and Engineering Dinner Meeting** *Black Lab Pub, Churchill Room*	23
27	28	29	30 **HGS General Luncheon Meeting** *"From Brine Wells to Giant Oil Fields: The United Staes Petroleum Industry of the Nineteenth Century" Jeff A. Spencer, Black Pool Energy and the Petroleum History Institute, Petroleum Club* Page 26

GeoEvents

Thursday	Friday	Saturday
3	4	5
10	11	12
17	18	19
24	25	26

Reservations:
The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476. **Reservations for HGS meetings must be made or cancelled by the date shown on the HGS Website calendar, normally that is 24 hours before hand or on the last business day before the event.** If you make your reservation on the Website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, check with the Webmaster@hgs.org. Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. **No shows will be billed.**

NOW you can make your reservations on-line at www.hgs.org

Upcoming GeoEvents

Monday October 5th
NA Group Dinner

Monday October 12th
General Dinner

Monday October 19ST
Joint International and North American Explorationists Group Dinner

Tuesday October 20th
Environmental & Engineering Dinner

Tuesday October 20th
Northsiders Luncheon

Wednesday October 28th
General Luncheon

Monday November 9th
General Dinner

Monday November 16th
International Group Dinner

Tuesday November 17th
Environmental & Engineering Dinner

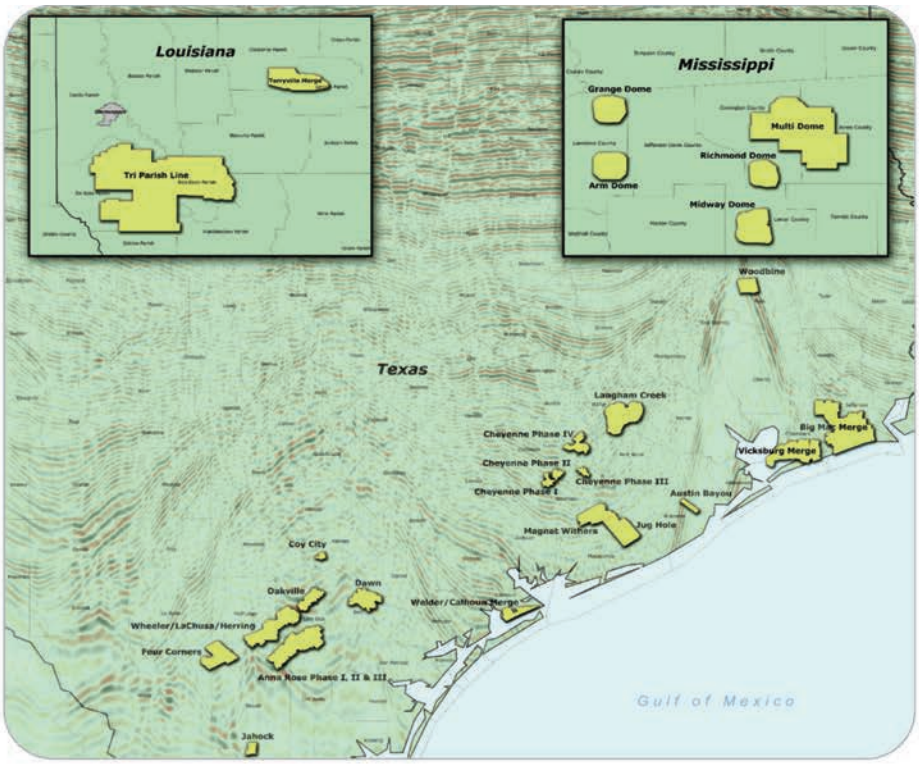
Tuesday November 17th
Northsiders Luncheon

Wednesday November 18th
General Luncheon

Monday December 14th
General Dinner

Tuesday December 15th
Environmental & Engineering Dinner

Tuesday December 15th
Northsiders Luncheon



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HGS Guest Night 2009 continued from page 36

first Americans able to so quickly migrate southward to the southern tip of South America?

Drawing upon the evidence unearthed at two new archaeological sites in central Texas (Buttermilk Creek and Gault) and the interplay of genetics, Siberian archaeology, dating of climatically induced migration corridors, and South American early man sites, Dr. Waters proposed an exciting new model for the peopling of the Americas. A rich array of cultural and physical evidence has led Dr. Waters and his team to suggest that the first Americans came from northeast Asia much earlier than previously thought, leading to an early occupation by at least 16,000 YBP. The Clovis First Model (13,000 YBP), although central to our previous understanding of human migration, has been supplanted by significantly pre-13,000 YBP cultures documented in sites at Manis, Washington; Paisley Cave, Oregon; Meadowcroft Rockshelter, Pennsylvania; and the Buttermilk Creek and Gault sites of Texas. Possible older sites (18,000 -22,000 calendar YBP) have since been discovered at NE La Sena and Lovewell, Kansas and Cactus Hill, Virginia.

Dr. Waters' findings are new and exciting advancements in our understanding of prehistory.

The HGS thanked and awarded plaques to Guest Night sponsors including BHP Billiton, TGS Nopec, SMT, and Fairfield, all of whom contributed financial support to the event. Without their continuing and gracious sponsorship, the yearly HGS Guest Night would not be possible. ■

Grand Canyon Geology Field Trip 2009: Whitewater and Tall Tales

Linda Sternbach, Charles Sternbach, Dave Lazor
Photos by Linda Sternbach and Kirk Cushing

The HGS 2009 Grand Canyon Geology field trip in June turned out to be another exciting trip down the mighty Colorado River! It was a "magic carpet ride into deep time," according one participant. The annual trip was once again organized by Dave Lazor, retired oil and gas geologist now living in Carbonado, Washington. Dave started arranging HGS field trips to the Grand Canyon in 1994 while he was living in Houston. This year's trip involved 28 participants and including both geologists and non-geologists from Houston, Oregon, and Washington. The trip started in Las Vegas, Nevada, and traveled by bus to Marble Canyon, Arizona before setting out on the river at mile zero at Lee's Ferry.

Figure 1. Grand Canyon trip leader, Dave Lazor

Our field trip ended pleasantly eight days later at mile 188 after descending nearly 1500 feet in elevation down 50 rapids. At the end, the participants rode helicopters out of the wilderness, and took planes back to civilization.

Access to the Grand Canyon is highly monitored and restricted by the Park Service. Approximately 21,000 people are allowed to sign up for accredited raft trips down the Colorado each year. Some people, including people on our trip, wait for years to get a space on one of the permitted raft trips. Dave Lazor has been putting together geology raft trips for the HGS since 1994, making sure our society members can experience life on the river. For people interested in the next trip, please get your name on the waiting list by emailing Dave Lazor or Steve Earle (see the end of this article).

Dave Lazor loves the Grand Canyon and spoke to this year's trip members about the history and geology of the area during the eight day trip. He wore two T-shirts, one with a map (Figure 1) and another with a stratigraphic column so he could point to features while hiking.

Dave has a PhD in geology from the University of Indiana, and has been, among many things, a university assistant professor during his career. He worked as a geologist with Texaco, Cities Service, Valero, and Beaumont Energy. He then did extensive oil and gas consulting along the Gulf Coast.

After picking up participants at the Las Vegas airport, we drove to Zion National Park for a quick stop, then to Marble Canyon (Figure 2). The next morning we boarded the rafts for the first time at Lee's Ferry, mile zero, south of Lake Powell.

Our annual field trip is guided by Hatch River Expeditions, a company started by river pioneer Bus Hatch in 1934 and still managed by the third generation of the Hatch family. The HGS field trip takes two large pontoon rafts to float the river with stops each day to view the rocks and scenery. Hatch's three guides provided expert raft maneuvering, led hikes, and prepared incredible cooked hot and cold meals during the trip.

Figure 2: Map of the Grand Canyon National Park (Grand Canyon Park web site).

The field trip participants on this year's Grand Canyon trip included both geoscientists and non-geologist friends and family members (Figure 3). HGS members on this year's trip included: John Jordan (Anadarko), Dawne Jordan (BP), Tom Mather (retired), Dennis

Grand Canyon Geology Field Trip 2009 *continued on page 45*

Grand Canyon Geology Field Trip continued from page 43

Figure 3. Grand Canyon geology field trip of HGS members, friends, and family (2009).

Ferstler (Alpine Resources), Scott Silver (Blackdog Exploration), Calvin Silver (U of H grad student), Linda and Charles Sternbach (Star Creek Energy), Steve Earle (Carrizo Oil and Gas), and Randy Schott (B&S Exploration). Some of the non-geologists included the Ferstler family (Dave, DJ, Tommy and Matt), Randy's brother Gordon Schott, and Tom Mather's brother in law, Tom Spaulding. The group was joined by Marv Rueck and Jay Brack, friends of Dave from Oregon and Washington State and others.

This field trip is a real adventure involving white water rapids and daily hikes into remote canyon country (Figure 4). Each day brings the opportunity to encounter wildlife including big horn sheep, mule deer, beaver, and iguanas (while keeping an eye out to avoid scorpions). We camped out on tarps or in tents with sleeping bags, completely out of contact with phones and news for 8 days, eating the provisions brought on the rafts with no

Grand Canyon Geology Field Trip 2009 continued on page 47

Grand Canyon Geology Field Trip continued from page 45

stops for supplies or fuel. This is a strenuous trip with physically challenging uphill hikes! Lucky for our group, the weather stayed cool at 70-80 degrees for a few days, but ended up over 100 degrees in the final days of late June.

Immersion in Grand Canyon history

Figure 4, Grand Canyon fun and challenges.

Figure 5. Photo by Kirk Cushing.

Figure 6. North Canyon, steep climbs, 1000 year old Indian sites, native plants and Paleozoic fossils. Photo by Kirk Cushing.

Dave Lazor made some great recommendations for pre-trip reading about the history of Grand Canyon exploration and geology. One book every participant should bring is *Belknap's Waterproof Grand Canyon River Guide* by Buzz Belknap (Westwater Books), which condenses the exploration of the Colorado, the geologic history, the flora, and the fauna into one booklet of 114 pages.

Our trip had a copy of Edward Dolnick's *Down the Great Unknown: John Wesley Powell's 1869 Journey of Discovery and Tragedy through the Grand Canyon* (2002), which was read out loud during the camp nights (Figure 5). This book tells the day-by-day story of Powell's difficult journey of ten months using wooden boats and limited supplies, trying to make the first white man's documentation of the path of the Colorado River. John Wesley Powell (1834-1802) was a professor of geology, a Union Civil War veteran, and a key founder of the USGS and the Illinois

Figure 7. Precambrian to Permian-aged limestones, sandstones and shales, and waterfalls at Vasey's Paradise (mile 32).

State Geological Survey. Powell's diary from his Grand Canyon trips is online on the USGS website at http://www.nps.gov/history/history/.

Powell wrote on August 13, 1869, "We are now ready to start our way down the Great Unknown. We have but a month's rations remaining. We have an unknown distance yet to run, an unknown river to explore. With some eagerness and some anxiety and some misgiving we enter the canyon below and are carried along by the swift water."

Figure 8. Blacktail Canyon exposure of Vishnu schist and Cambrian sandstone.

Highlights of the Grand Canyon Geo-Tour.

The Grand Canyon's walls are composed of Late Precambrian to Permian shales, sandstones and limestones (Figures 6 and 7). The interesting part of the geology is when the trip passes the outcrops of the older Paleozoic, where the Cambrian and Precambrian are exposed down near river level in the central part of the canyon. Because the present day surface has been rising relative to sea level for 6 million years, the Colorado River has been cutting down the canyon walls like a knife through butter since the end of the Miocene. This incision reveals ancient Cambrian and Precambrian stratigraphy that can't be observed outside the canyon.

One of the field trip highlights is the exposure of a "Great Unconformity" where the Cambrian Tapeats Sandstone rests on the tightly-folded, metamorphic, 1.7 billion year old Vishnu

Grand Canyon Geology Field Trip 2009 *continued on page 49*

Grand Canyon Geology Field Trip *continued from page 47*

Figure 9: Paleozoic fossils in some of the Grand Canyon formations, a marine nautiloid from the Mississippian Redwall Limestone.

Schist. Our trip spent an hour at Blacktail Canyon (river mile 120) to investigate this legendary outcrop (Figure 8). A lecture was given by Dave Lazor as he sat on the famous unconformity, estimated to represent a 900 million year gap of time.

Lazor pointed out Paleozoic marine fossils during daily canyon hikes (Figure 9, Mississippian nautiloid). He led field trip participants to fossil reptile tracks and ancient sediment flow structures in the Shinumo Quartzite. The cliffside Nankoweap Indian storage site is where early Americans stored dried grain and seeds 1,000 years ago.

Water Fun in the Little Colorado River

The Grand Canyon participants had a lot of fun in the water, especially in the relatively warm waters of the Little Colorado River, which feeds into the cold 46-degree water of the main Colorado River at mile 61. The field trip members floated down some small rapids in their lifejackets (Figure 10).

Grand Canyon Geology Field Trip 2009 *continued on page 51*

Figure 10 : The light blue, warm waters of the Little Colorado River at mile 61. Photo by Kirk Cushing.

Grand Canyon Geology Field Trip continued from page 49

Figure 11. Phantom Ranch at mile 88.

The field trip visited Phantom Ranch at mile 88 on the fourth day of the raft trip. This ranch is populated by hikers who walk down from the rim of the Grand Canyon and by people arriving via boat or raft on the Colorado River. A group photo of the two rafts on the HGS trip after 4 days in the wild was taken when we arrived at Phantom Ranch (Figure 11). Here one can send out postcards and get a chance to make a quick telephone call.

The biggest and wildest rapids were near the end of day 7 at Lava Falls, mile 179. This last rafting day takes field trip members into a dark area of the canyon where 1-million-year old lava flowed into the gorge and formed a natural dam across the river, flooding the canyon. A residual basalt lava tower called Vulcan's Anvil marks the entry into white water. This lava feature was noted by Powell in 1869. The rapid water at Lava Falls is caused by a series of 15 foot drops in elevation complicated by underwater boulders of basalt. Only skillful guides can maneuver rafts and boats through the rapids, but our guides had successfully run the rapids over 100 times and made this seem easy. The character of the white water is partly determined by the amount of water discharged from the Lake Powell reservoir. On our trip it was a normal water flow up to 15,000 cu ft per second, according to Hatch Expeditions (Figure 12).

Figure 12 The Grand Canyon field trip team surfs through white water at one of many rapids on the trip at Lava Falls. Photo by Kirk Cushing.

On day 8, the group returned to "Rim World" (as it is known by the guides). Helicopters picked up the field trip party at a helipad down the river from Lava Falls at mile 188 (Figure 13). We arrived a few minutes later at Bar 10 Ranch, where we had a chance to take our first hot shower in a week before hopping a 30-seat airplane that flew us back to Las Vegas or Marble Falls.

For people who want to sign up for the next HGS Grand Canyon field trip, plans are being made for a trip to take place in mid-June, 2010. Please contact Steve Earle at steve.hgseditor@gmail.com and Dave Lazor jdlazoroilngas@aol.com and be prepared to put down a $300 deposit per person to hold spaces on the upcoming trip.

The HGS thanks Dave Lazor for all the work he put into organizing the 2009 and prior Grand Canyon Field Trips and for bringing us all back happy and safe. Thanks to trip participant Kirk Cushing for letting us include some of his photographs. ■

Reading References:

1. *Grand Canyon River Guide*, by Buzz Belknap, also called *Belknap's Waterproof Grand Canyon River Guide* all new edition, at www.westwaterbooks.com, also at Amazon.com.
2. *Down the Great Unknown: John Wesley Powell's 1869 Journey of Discovery and Tragedy through the Grand Canyon*, by Edward Dolnick, 2002. Harper Perennial books (paperback and hardcover) available at Amazon.com.
3. *Grand Canyon Geology*, 2003, by Stanley S. Beus and Michael Morales (paperback), Oxford University Press, 432 pages.
4. *The Exploration of the Colorado River and its Canyons by John Wesley Powell*, 1875, available online at at google books and at http://www.nps.gov/history/history/online_books/geology/publications/inf/powell/sec4.htm

Figure 13 Helicopter ride out after Lava Falls marks the end of the 2009 Grand Canyon Raft trip.

26th Annual Skeet Shoot

Last year's $140/bbl oil is just a fond memory, but just shy of that showed up for the HGS 26th Annual Skeet Shoot at the Greater Houston Gun Club in Missouri City. Last year's attendance was 164. The gun club manager Kevin Dougherty and his staff had the fields and grounds in top shape, and made sure the registration and scoring went off without a hitch. The weather cooperated, with no rain to speak of and some cloud cover to break the worst of the heat. The targets were perfect, the barbecue was excellent, the beer was cold, and nothing got shot that didn't need shooting — can't ask for much more than that!

A real bright spot, and one that I hope will continue to grow, was the number of lady shooters participating — over ten percent this year. There were trophy belt buckles for the Ladies' Class Champ and Runnerup, which we plan to continue in the future. Come on out and shoot, ladies, it's a lot of fun!

Robin Anderson

Gail Sisco

This year's winning shooters taking home beautiful trophy belt buckles were:

Ladies Class Runnerup: Robin Anderson
Ladies Class Champ: Gail Sisco

Class "C" Runnerup: Yoli Bazen-Rojas
Class "C" Champ: Dave Buddrus

Class "B" Runnerup: Tim Keifer
Class "B" Champ: Bruce Wright

Class "A" Runnerup: Bruce Dawson
Class "A" Champ: John Batson

Class "AA" Runnerup: Brent Balcer
Class "AA" Champ: John Walker

Dietrich Landis

The High Over All (HOA) Champion was Dietrich Landis, and the **runner-up** was Tom McCarroll with identical 49's.
Two-man Flurry: Tim McGinty/Ken Dickerman

At the end of the day we raffled off 30 gift cards from Academy Sporting Goods ranging in value from $50 to $250.

Huge thanks are due to our generous sponsors: Halliburton, for the BBQ lunch, Drake Directional Drilling for sponsoring the Two-Man Flurry, and ATP Oil and Gas and INEXS sponsored the caps. Beverage Sponsors were APEX Oil and Gas, Cross Creek Energy. LLC, and Merrick Mainster of FaultSeal, Ltd. Merrick personally selected the keg beer which was greatly appreciated on a hot afternoon once the guns were in the racks. CLF Resources, Mariner Energy, Sanchez Oil & Gas and Alan Warwick sponsored the ammunition. Ameritex Minerals, Paul Hosick, Southwestern Energy, Houston Energy, Inc. and the law firm of Gray, Burch and Haddad made generous cash donations and Schlumberger donated gift cards to be raffled off.

Thanks again to all the participants for making this year's Skeet Shoot a safe and fun event, and to our sponsors for supporting HGS and the event in a year when things are, well, only "less bad" in our current economy!

Thank You to our Generous Sponsors

Halliburton	**Drake Directional Drilling**
ATP Oil and Gas	**INEXS**
APEX Oil and Gas	**Cross Creek Energy. LLC**
FaultSeal, Ltd.	**CLF Resources**
Mariner Energy	**Sanchez Oil & Gas**
Alan Warwick	**Ameritex Minerals**
Paul Hosick	**Southwestern Energy**
Houston Energy, Inc.	**Gray, Burch and Haddad**

GEOSCIENCE DAY 2009
Registration and Sponsorship Form

Registration Fee: $90.00 per attendee.
Event date: Thursday, September 24, 2009
(Registraton is limited to 100 participants)
Please complete a form for each attendee.

Attendee Name:

First: _____ Last: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Cell: _____ Email: _____

Company: _____

Years of Experience in Industry: _____ Job Title/Function: _____

T-Shirt Size: ❍ XL ❍ L ❍ M ❍S

Sponsorship Fee:

Sponsorship Company: _____

Contact Name: _____

Contact Address: _____

Contact Telephone: _____

Contact Email: _____

Platinum	$2000.00	❒
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Silver	$1000.00	❒
Bronze	$500.00	❒

Hurry! Seating Is Limited To The First 100 Registrants!

Individual Event Registration Fee _____
Sponsorship Fee _____
TOTAL _____

Pay by check or credit card: ❍ AMEX ❍ VISA ❍ MC

Credit Card Number: _____ Expiration Date: _____

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Make Checks Payable to:
The Geophysical Society of Houston
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Mail To:
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Science and Engineering Fair of Houston, 2009

The Houston Geological Society continues its support of the Science and Engineering Fair of Houston and is proud to inform its membership of the 2009 winners of the three HGS Divisions and the two HGS internships at the Science Museum.

Ruchit Nagar
HGS Senior Division-10th grade
Title: Toxicity and Remediation of Arsenic in Water
School: The Kinkaid School

Rowanne Conway
HGS 9th Grade Division
Title: Optimizing Radon De-multiple Effectiveness
School: The Academy of Science and Technology

Evgenia Vasilyeva
HGS Junior Division: 7th grade
Title: Media Applications for Water Situation
School: Westbrook Intermediate School

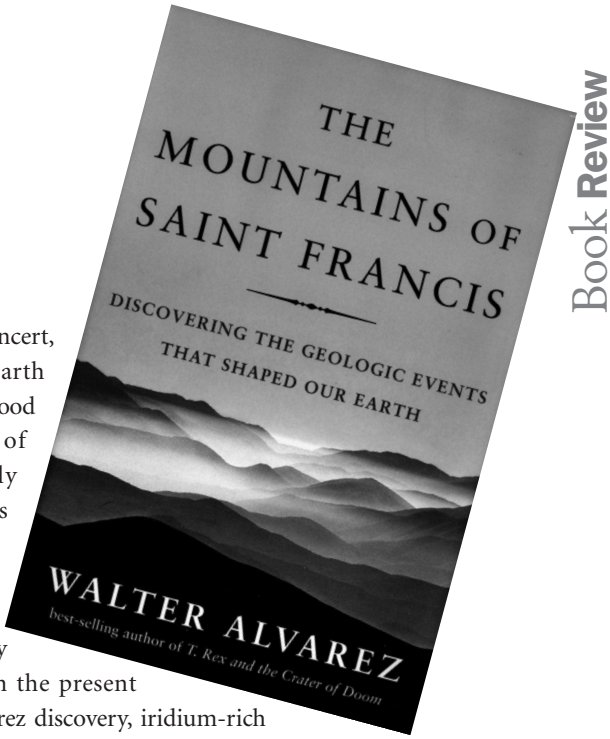
Brian Stutzman
HGS Intern-11th grade
Title: Wave Energy Extraction 2
School: Magnolia West High School

Daniel Rockey (unable to attend)
HGS Intern-10th grade
Title: Substrata Savings - Analysis of Sub-Surface Thermal Cooling
Capabilities
School: Friendswood High School

The Society also wishes to thank its volunteers. Claudia Ludwig organized the HGS portion of the Science Fair this year. Allen Mathis, John Tubb, Nancy Englehardt Moore, and Janet Combes spent time with the students at their tables. Janet Combs was the "student shepherd". Mike Deming had the awards prepared and delivered. President Kara Bennett and Vice President Art Berman were also in attendance representing HGS. ■

Book Review *by* George O. Chandlee

Alvarez, W., 2009, *The Mountains of Saint Francis: Discovering the Geologic Events that Shaped Our Earth.* W.W. Norton and Company, 304 pp., $25.95



Historical records and ecclesiastical texts suggest that Saint Francis of Assisi was born in Umbria, Italy in 1181 or 1182. He founded the Franciscan religious order that is dedicated to ascetism, humility, and the renunciation of worldly possessions. In parallel form with Franciscan orthodoxy, *The Mountains of Saint Francis: Discovering the Geologic Events that Shaped Our Earth*, by Walter Alvarez, adopts an unpretentious tone to a journey through geologic time in the Umbria-Marche Apennine Mountains, "the backbone of the Italian Peninsula between Florence and Rome". Because of their geographical closeness to the home of Saint Francis, Alvarez prefers to call them the Mountains of Saint Francis.

The regional geology of the Apennines has been the inspiration for geological insight for more than 300 years. Nicolaus Steno first developed the notion of an earth with a long history in the 1660s while walking in the Tuscan hills. While observing the rocks, their layering, and their distinctive character in vertical sequences, he conceptualized an earth of immense age. These observations led to Steno's formulation of the law of superposition, effectively codifying for the first time the fact that rock layers represent both time and history. Thus the "backbone of Italy" became the foundation for geology as a science.

Reading the past recorded in rocks is an arcane skill and not in the intellectual toolkit of most people.

Alvarez writes in the first person narrative, which offers a personal link that immediately interests the reader. To read this book as such enhances its impact as an account of the history, culture, and geology of the Italian Apennines. Drawing upon evidence for the ultimate cause of the catastrophic end-Cretaceous extinction event, the formation of the Apennines, and evaporate deposits beneath the Mediterranean, Alvarez demonstrates that gradualism and uniformitarianism (longstanding concepts in the geological canon) do not account for all recorded geological events.

Uniformitarianism is the principle asserting that natural processes observed to be operating in the present are the same as those that operated in the past. Although adopted as a cardinal keystone for much of the history of geoscience, recent interpretations of well-known geologic events have reduced this role. In particular, an example of catastrophism is the Alvarez discovery of the meteorite impact that defines the Cretaceous-Tertiary boundary. Gradualism is the conjoined twin of uniformitarianism. It alleges that profound geological change is the cumulative product of slow but continuous processes. Applied in concert, present-day earth can be understood as the result of incrementally slow changes resulting from forces working, and currently observable, in the present day. The Alvarez discovery, iridium-rich sedimentary deposits in a road cut near Gubbio, convincingly confirmed that an asteroid or comet plowed into the earth 65 million years ago, reconfiguring the earth's ecology and extinguishing a substantial percentage of life. The iridium, an element rare on earth, is testimony to an extraterrestrial source.

The book is divided into four parts, and includes an epilogue and prologue. There is an extensive set of notes, a glossary, and suggestions for further reading. Included are several charts and photographs illustrating key topics. Technical language is used throughout the book, but in a manner that does not thwart understanding.

Part I is entitled "Assisi." It is the shortest part of the book and recounts the visit of Alvarez to the Apennines and the Basilica of Saint Francis during the winter several decades ago. Much of this part is devoted to the history of the limestone used to build the basilica called the Scaglia limestone.

Part II is entitled "Rome" and describes the recent historical past of Rome, the seven hills of volcanic origin, and presents an interesting "stratigraphic" diagram of Roman cultural history (see inset). Evidence of volcanic activity is the presence of different kinds of volcanic tuff deposited at the site of present-day Rome. In a detailed discussion, Alvarez illustrates the route of the Paleotiber River by tracing river gravel, lake, and volcanic deposits. The course of the river abruptly changed when a volcanic eruption diverted the Paleotiber to the route of the present day. This is one of the examples of a relatively instantaneous event presented in the book.

Book Review *continued on page 59*

Book Review continued from page 57

Part III is entitled "Siena and Gubbio" and it explores the question of determining the ages of rocks and events recorded in the rocks. An abbot named Ambrogio Soldani in the Siena monastery of the Camaldolese order developed the science of micropaleontology. For more than forty years during the nineteenth century, Soldani collected, examined, and cataloged foraminiferal fossils from the sands and clays around Siena, and pioneered the science of dating rocks based on faunal succession.

Part IV is entitled "The Apennines" and Alvarez devotes the most pages to this part. As Alvarez describes, the Apennines represent the bending, breaking, and driving of rocks over one another from west to east. The Apennines include a number of large and small folds (anticlines) represented by erosional remnants trending southwest to northeast. Giovanni Merla first assembled the synthesis of Apennine geology by demonstrating that seven anticlinal ridges lie side by each in Tuscany, Umbria, and Marche. A colliding continent pushed sedimentary rocks sideways along a thrust fault. In the Apennines, the anticlinal ridges become younger as they progress from southwest to northeast. Alvarez concludes that the "concept of a range of folded mountains forming, fold by fold, above an array of propagating thrust faults is just what is needed to understand the Apennines".

In Part IV, Alvarez describes the evidence for the Messinian Salinity Crisis, an event during which the Mediterranean Sea effectively dried up. Evaporation of the sea occurred because the Strait of Gibraltar closed. The closing of the Strait precluded the exchange of water between the Mediterranean and the Atlantic oceans. This resulted in a lowering of the Mediterranean Sea level by as much as 2.5 miles below present day, allowing canyons to be cut by rivers such as the Nile and the deposition of evaporate deposits. Details of the "deep desiccation" hypothesis are presented in the book. Thus, geologic events as recorded in the Apennine rocks are dramatic and short-lived as compared with geologic time.

As Alvarez adroitly notes, writing about earth history is "tricky because reading the past recorded in rocks is an arcane skill" and "not in the intellectual toolkit of most people." Understanding earth history is problematic because the immense lengths of time and the arduously slow rates of change require a non-intuitive acceptance of their reality. There is little of the polemic in this book but the concepts are factual and well presented. In presenting the facts, sealing the gap between conscious acknowledgement and understanding of these facts is left to the reader. Because of the scope of the book, and its overall arching theme of the dramatic forces that shape the earth, the gap is diminished: so, the uninitiated layman gains a broad appreciation of earth history and the seasoned geoscientist acquires a renewed perspective. ■

New Officers
HGS Board of Directors for 2009-2010

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President-elect John Tubb

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Treasurer Matt Boyd

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Secretary Amy Sullivan

Editor Gordon Shields

Editor-Elect Barry Katz

Directors Walter Light (year 2)

Ianthe Sarrazin (year 2)

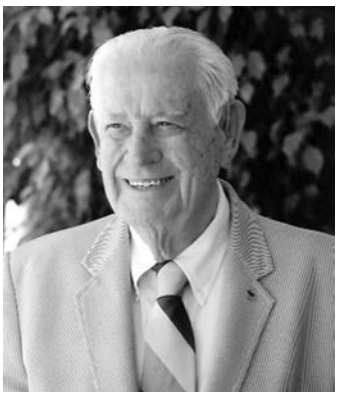
Robert Pledger (year 1)

Tarek Ghazi (year 1)

Remembrances

Jack Overton Colle

Jack Overton Colle, 93, a past President and honorary lifetime member of the Houston Geological Society, died June 5, 2009.



My father was born in Pascagoula, Mississippi on March 24, 1916 to Captain William Jacob and Laura Beauchamp Colle. He graduated from Pascagoula High School in 1933 and was awarded an out-of-state scholarship to Louisiana State University.

While at Louisiana State University, Dad participated in intramural sports, including playing on the 2nd Battalion Championship football team in 1933. He was a member of the Delta Epsilon Fraternity serving as a house manager 1937-1938. He was active with the Geological-Mining Society serving as president in 1937 and he became a student member of the American Association of Petroleum Geologist in 1937. During his college years he worked in the LSU bookstore and washed mud samples for the Louisiana State Geological Survey. Dad participated in R.O.T.C. for one year and wanted to enroll in advanced R.O.T.C. but was because he was missing his right index finger. Fred E. Smith, a graduate student at LSU, encouraged Jack to study geology. He graduated in 1938 with a B.S. degree in geology. Dad cherished the lifelong friendships made at LSU.

After graduation Dad came to Houston, Texas to begin his career with Standolind Oil and Gas as a sample washer. Soon he was employed by the late Hershal Ferguson as a consulting geologist and paleontologist. He joined the Houston Geological Society in 1938. Dad participated in the first carefully planned HGS field trip through East Texas on to Natchitoches, Louisiana. In 1940 he married his college sweetheart, Olga Treigle.,

His career was interrupted by World War II. In June of 1942 he volunteered in the U.S. Army Air Corp (his missing finger went unnoticed). He went to Cadet School in Colorado becoming a photographic cadet. Dad was commissioned as a 2nd Lieutenant in November, 1942. He was an intelligence officer in the 91st Recon Wing in the Southwest Pacific with stints in Australia, New Guinea and on the islands of Leyte, Mindoro, Luzon and Okinawa. Dad participated in the mapping of the South Pacific and the interpretation of tactical air reconnaissance photographs, including those of Japan before and after the bombing which ended World War II. He returned to the States in 1945 and was honorably discharged with the rank of Major in February, 1946 being awarded the New Guinea, Bismark, Archipelago, Philippine and Luzon Campaign metals. He received the Asiatic Pacific Campaign medal with four bronze stars, the Philippine Liberation Ribbon with a bronze star and the American Campaign victory medal World War II.

He resumed his career with Hershal Ferguson in 1946 and then three years later Dad opened his own doors as Jack Colle and Associates, becoming a highly respected consulting geologist and paleontologist (micropaleontology). He spent many a day, night and holiday on well sites washing the mud and examining the microscopic fossils. Dad loved picking bugs as they call it in his field. His professional career started in Houston and expanded into East Texas, Louisiana, Mississippi and the Gulf of Mexico. This firm served the Petroleum industry by examining more than 5,600 samples during a 45-year history. These came from wells located in the Gulf of Mexico, onshore and offshore Texas and Louisiana, Mexico, Nicaragua, Trinidad, Haiti, The Dominican Republic and Barbados. In 1960 Dad formed Lynbrook Oil Company to explore, operate and produce oil and gas, with drilling in Colorado and Polk counties, Texas. He completed several very successful oil and gas wells.

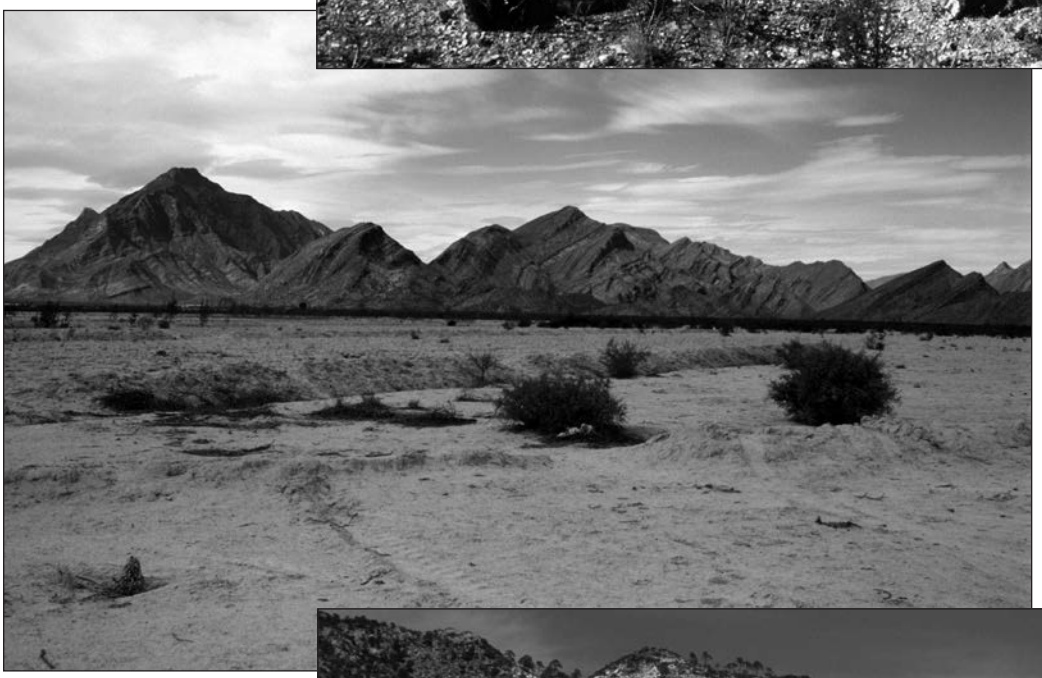
Dad actively participated in many organizations within his field. During the period from 1948 to1950 he served on the Houston Geological Society Membership, Nomenclature and the Entertainment Committees. In 1951 he was elected Secretary and served on the Executive Committee. He served as chairman of the Nomenclature Committee in 1952 and also on the Publicity Committee. Dad was Vice-President and was elected President of HGS in 1954. He initiated evening meetings on a monthly basis. Thanks to the generosity of many service companies, a "happy hour" preceded these meetings. The HGS meetings were such a big success as overall attendance increased.

Remembrance *continued on page 62*

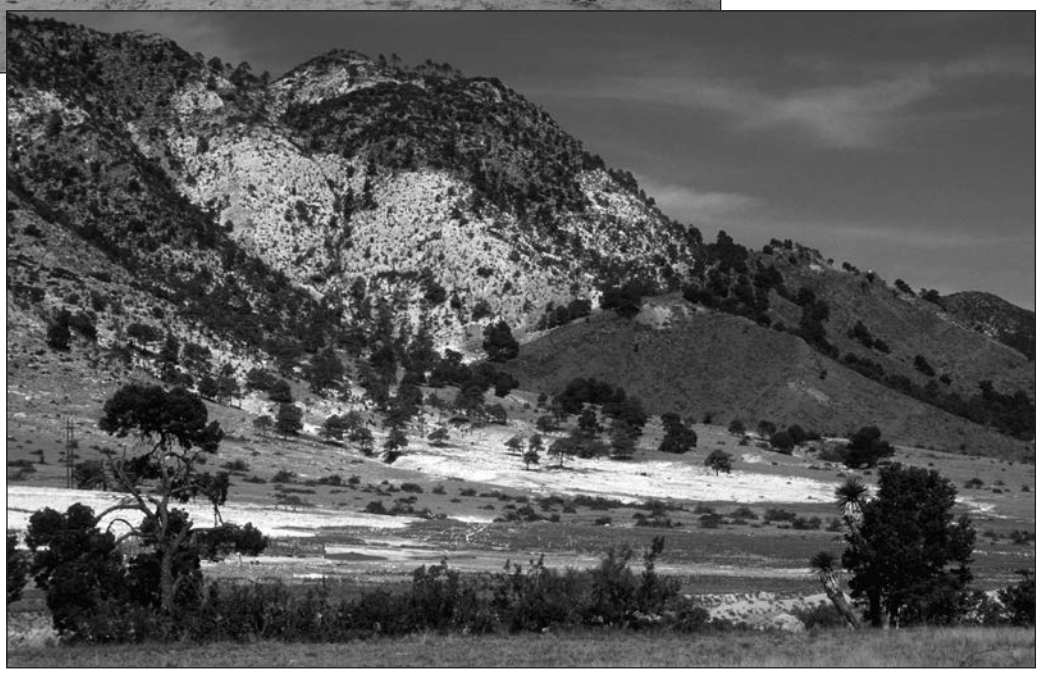
Mesozoic Geology and Desert Landscape

Photographs by Dr. Claudio Bartolini. These were taken during his doctoral field work in central Mexico´s desert.

(Right) Beautiful outcrops of Mesozoic deformed strata in the southern part of Coahuila State, central Mexico desert.



(Left) Magnificent outcrops along the Sierra Madre Oriental fold and thrust belt in Nuevo Leon, Mexico. Early-Middle Jurassic redbeds are overlain by Callovian evaporites (white outcrop), which in turn are overlain by early Oxfordian marine carbonates (dark gray rocks) of Zuloaga Formation. Dips are against the hill. These sequences record the rift, transitional, and drift stages in the opening of the Gulf of Mexico.



(Right) Mesozoic outcrops in northern Zacatecas State, central Mexico desert. The foothills expose Early Mesozoic gneisses and schists overlain by volcanic-sedimentary successions of the Nazas volcanic arc, which are in turn unconformably overlain by Oxfordian marine limestones of Zuolaga Formation (dark gray, cliff-forming rocks).

Remembrances continued from page 60

The society reached 1,100 members during the year and became the largest local geological group in the world. During Dad's presidency, the HGS hosted the Gulf Coast Association of Geological Societies Convention, which was a huge success. In 1955 Dad served on the Executive Committee. He served two separate terms as HGS representative to the American Association of Petroleum Geologist and was chairman one year. He was chairman of the Awards Committee. In 1959-60 he served on the Advisory Committee for the Museum of Natural History. Dad was a charter member of the Terra Club, which was formed by HGS members. He was a life member of HGS.

In 1939 he became an active member of the American Association of Petroleum Geologists serving as the Gulf Coast editor for two years. He also served on the Best Paper Awards Committee at the AAPG conventions in Houston and in Calgary. He was on the Professional Standards Committee in 1964-65. Dad later became an emeritus member.

He served as Vice-President of the Gulf Coast Section of the Society of Economic Paleontologists and Mineralogist in 1957 and was elected President of the section in 1958 and became an honorary life member. Dad was one of the founders and a member of the original Board of Directors of the Society of Independent Earth Scientists and becoming an honorary life member.

He was Secretary-Treasurer of the State Section of American Institute of Professional Geologist and served as President in 1976-77. He was a member of the National Advisory Committee 1976-77 and was chairman of the Nominating Committee in 1977-78.

Dad's publications include the geological note in the AAPG on the Clodine Field in Fort Bend County, Texas. He was co-author of "Sedimentary Volumes of Gulf Coast Sediments."

Dad always attributed his lifelong success to Louisiana State University remaining active in the LSU Alumni since graduation. He was one of the original founders of the Houston Alumni Chapter. He and his late wife Olga Treigle Colle, also an LSU alumni, were the first fund raising chairpersons in the Houston area. In 1969 he was elected to a three year term as Alumni Representative to the LSU Athletic Council and was awarded for outstanding service by Athletic Director Corbett. The same year he was also presented the Alumni Service Award and was honored for support of the Leadership Legion and Annual Alumni Fund. Dad joined the LSU Foundation where he served as a director and President, receiving the President's award. He was an early member of Campanile Charities, a fund-raising organization to establish professorships in Marine Law, Geology and Engineering at LSU. He also worked with Alumni Association to raise funds for the Center of Engineering and Business Administration. He was a member of the Tiger Athletic Foundation and loved to attend as many home games as possible, being a season ticket holder. When he couldn't attend his ear was glued to the radio or he watched the games on TV. In 1996, Dad was inducted into the LSU Alumni Hall of Distinction. The Ole War Skule inducted Dad into the Hall of Honor.

Many called upon Dad to help them, or a family member, or a friend to locate employment. He would set out to complete this task and became known for his one-man employment services. He loved to entertain family, friends from LSU, those in his industry, and those he met along the way. Dad never met a stranger who he didn't befriend. His social and professional niche in Houston was clinched as he became a charter member of the Petroleum Club where he served a three-year term as Director and Vice-President for one year. He was also a life-member of the Houston Club.

Dad enjoyed hunting duck, dove, and quail. Hunting with family and friends was a very memorable time for him.

On March 31, 2009, Dad closed his doors to Lynbrook Oil Company. After 60 years he finally retired.

Most of all, Dad attributed his life and success to our Lord and Memorial Lutheran Church, serving as an Elder for several years. His family gives our sincere thanks to Pastor Murray, Pastor Day and all the church members for their thoughts and prayers during Dad's struggle with Non Hodgkins Lymphoma. We also thank Compassionate Care Hospice for their care and support of Dad and his family during his last 2 weeks.

Dad not only had a passion for his college and business, he was a loving husband, father and friend. He survived by his wife, Grace Chambers Colle, who he married May, 1995 after the passing of his first wife Olga Treigle Colle in 1991, his son and wife Albert D. and Pamela Colle of Pascagoula, MS, a daughter Laura A. Colle (me) and her husband David R. Petry of Houston, TX, a grandson and wife Jacob R. and Bonnie J. Colle, 2 great grandchildren Kasee R. Hoppe and Kaleb B. Colle of Foley, AL, his sister Kathleen Colle Pickett of Pascagoula, MS, a number of cousins, nieces, nephews and his stepsons and their families, Craig and Tamarra Chambers, Jeff Chambers and Dan and Donna Chambers and his step grandchildren, Nichole Moore, Brooks Chambers and Lauren Chambers. ■

Government Update

Henry M. Wise, P.G. *and* ***Arlin Howles, P.G.***

If you'd like the most up-to-date Texas rules, regulations, and governmental meeting information we direct you to the HGS website to review The Wise Report. *This report, which comes out as needed, but not more often than once a week, offers the most up-to-date information that may be of interest to Texas geologists.*

AGI Government Affairs Monthly Review (May 2009)

National Climate Service Program Proposed

A National Climate Service, housed within the National Oceanic and Atmospheric Administration (NOAA), is proposed to be the primary portal for climate information. The climate service would supply usable climate data to federal agencies, state and local governments, researchers, and private citizens. Under this bill, NOAA would improve the coverage and resolution of its climate data and modeling to provide the best monitoring capabilities. The bill also mandates an advisory board to give input on how to best serve the users. Some argue that creating a separate office within NOAA will just duplicate the work of the National Weather Service, while others predict this will be the most user-friendly way to integrate local, national, and international data to meet the growing demand for climate services.

The "National Climate Service Act of 2009" (H.R. 2407) was proposed by the House Science and Technology Chairman Bart Gordon (D-TN) and was unanimously approved by the Energy and Environment Subcommittee on May 13, 2009. Now H.R. 2407 awaits full committee approval and is anticipated to be marked-up the first week of June. The committee is trying to keep pace with the Waxman-Markey climate and energy legislation (H.R. 2454), which also proposes a National Climate Service. The Waxman-Markey bill was approved by the House Energy and Natural Resources Committee before the Memorial Day recess and now awaits a vote by the full House.

The full text of H.R. 2407 is available from Thomas: http://thomas.loc.gov/cgi-bin/bdquery/z?d111:HR2407:/
The full text of H.R. 2454 is available from Thomas: http://thomas.loc.gov/cgi-bin/bdquery/z?d111:h.r.02454:

Weather Mitigation Research Bill Approved

On May 20, 2009, the Senate Commerce, Science and Transportation Committee approved the Weather Mitigation Research and Development Policy Authorization Act of 2009 (S. 601). The bill, sponsored by Senator Kay Bailey Hutchison (R-TX) would establish a weather mitigation research program within the National Science Foundation (NSF), establish a working group composed of representatives from state and academic institutions and establish a weather mitigation grant program to fund research at state agencies, academic institutions and non-profit organizations. The bill would authorize $25 million per year over five years for these programs.

The bill is based on recommendations of a 2003 National Academies report entitled "Critical Issues in Weather Modification Research". The report is available at: http://www.nap.edu/catalog.php?record_id=10829
The full text of the bill is available from Thomas at: http://thomas.loc.gov/cgi-bin/bdquery/z?d111:s.00601

House and Senate Introduce Ocean Energy Legislation

At the very end of April, the House and Senate introduced legislation that will promote ocean energy research. The aim is to bring ocean energy technology up to par with other clean energy sources like wind, solar, geothermal, and biomass. The Marine Renewable Energy Promotion Act of 2009 (H.R. 2148 and S. 923) was introduced in the House by Jay Inslee (D-WA) with companion legislation introduced by Senator Lisa Murkowski (R-AK).

The legislation would authorize up to $250 million a year for ocean research, something that the Obama Administration is also promoting. The legislation increases research and development work at the Department of Energy to improve the reliability, efficiency, and cost of marine devices. The funding will also go towards new technologies and integration into the national grid. Marine renewable energy is defined as energy generated by ocean thermal energy conversion, or water motion in oceans, estuaries, rivers, lakes, man-made channels and tidal areas. The Electric Power Research Institute estimates that the U.S. oceans could generate 6.5 percent of the nation's electricity if ocean energy is funded at the same levels as other forms of renewable energy.

The full text of H.R. 2148 is available from Thomas: http://www.thomas.gov/cgi-bin/bdquery/z?d111:H.R.2148:
The full text of S. 923 is available from Thomas: http://www.thomas.gov/cgi-bin/bdquery/z?d111:S.923:

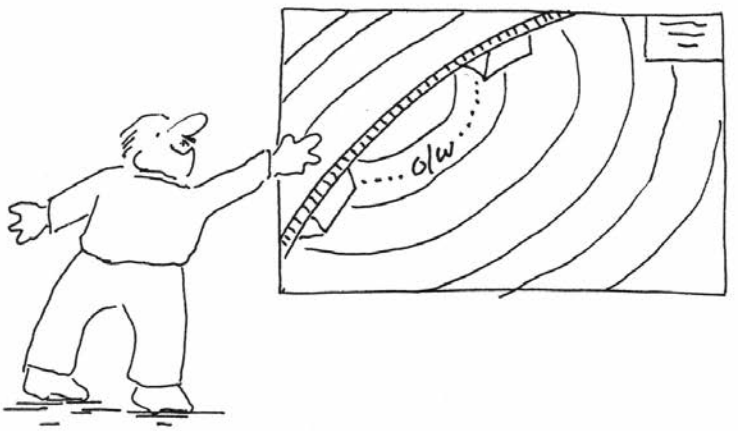
Arizona Passes Religious Liberties Bill

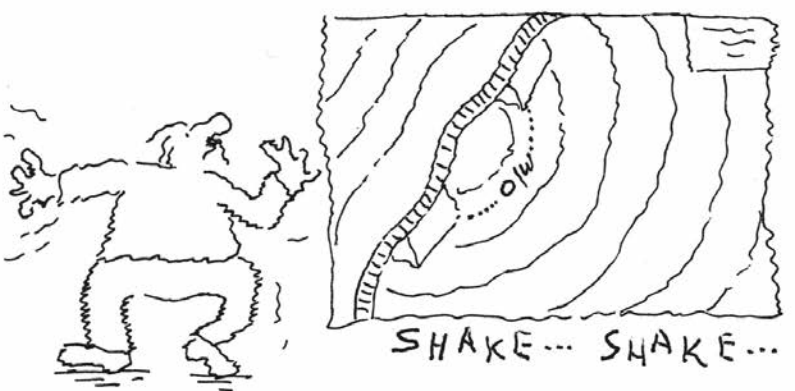
On May 6, 2009 the Arizona House of Representatives passed a bill designed to protect students from discrimination based on religious beliefs or expressions, in the teaching of earth science and biology classes at public schools. The bill states, "if an assignment requires a student's viewpoint to be expressed in coursework, artwork or other written or oral assignments, a public education institution shall not penalize or reward a student on the basis of religious content or a religious viewpoint. In such an assignment, a student's academic work that expresses a religious viewpoint shall be evaluated based on ordinary academic standards of substance and relevance to the course curriculum or

Government Update *continued on page 65*

On the Crude Side

by Ghulam Sarwar





How the San Andreas prospect trippled in size.

© SARWAR

Government Update continued from page 63

requirements of the coursework or assignment." The bill passed with the influence of the conservative non-profit organization Center for Arizona Policy. The bill has now moved on to the Arizona Senate for consideration.

AGI Government Affairs Monthly Review (June 2009)

Administration Issues a Mountaintop Mining Memorandum

The Obama administration issued a memorandum on June 11, 2009 calling for an end to streamlined mountaintop coal mining permits and increased protection of waterways. The memorandum does not prohibit mountaintop mining. It aims to improve oversight, modify the "nationwide permits" to protect waterways in Appalachia, and curb the most environmentally damaging techniques through a collaborative effort by the Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE) and Department of the Interior.

This follows an announcement in March 2009 that the EPA would begin reviewing pending permits from the USACE. A week later the U.S. District Court in West Virginia found the USACE erroneously allowed companies to dump mining waste into rivers and streams. The USACE permits were issued under a "nationwide permit" allowed for projects believed to have little environmental impact. The court ruled, though, that the USACE did not conduct proper environmental impact assessments. In May the EPA concluded that of the 48 permits it reviewed, 42 are allowed to proceed and 6 are put on hold.

On June 22, 2009, in a separate case, the Supreme Court ruled that mine waste site permitting rights are given to the USACE, not the EPA, under the Clean Water Act. This case involved an Alaskan gold mine dumping tailings into a nearby lake, and it is unclear how this will affect the mountaintop coal mining debate.

Republicans Introduce Oil Shale Development Bill

On June 1, 2009, the Ranking Member of the House Natural Resources Committee Subcommittee on Energy and Mineral Resources Doug Lamborn (R-CO) introduced a bill to expand the development of oil shale. The bill is called the PIONEER Act (The Protecting Investment in Oil shale the Next Generation of Environment, Energy, and Resource Security). Natural Resources and Energy Committee Ranking Member Doc Hastings (R-WA), a co-sponsor of the bill, stated that developing oil shale is not only a way to relieve the United States' dependence on foreign oil but will also boost the economy and create new American jobs.

The PIONEER Act would reinstate the Research, Development & Demonstration (RD&D) leasing that Secretary of the Interior Ken Salazar removed in February. In January, the former administration had proposed a second round of RD&D leasing, by which federally owned land is leased to private companies for oil shale production. Under the PIONEER Act, the Secretary of the Interior would be allowed to temporarily reduce royalties, fees, rentals, bonus or other payments for these leases. Lamborn believes that oil shale development cannot be accomplished without the incentives for private companies to engage in oil shale production. The bill would also establish the guidelines published by the Bureau of Land Management (BLM) as rules for the investment and development of commercial oil shale production on federally owned lands. While the technology needed for commercial extraction of the oil shale is several years away, the BLM regulation will provide for the development of technologies to efficiently extract the oil in an environmentally safe way.

The full text of the PIONEER Act (H.R. 2540) can be found on Thomas at: http://thomas.loc.gov/cgi-bin/bdquery/z?d111:h.r.2540:

Oil Spill Recovery Bill Introduced in House

Representative Lynn Woolsey (D-CA) introduced The Federal Oil Spill Research Program Act of 2009 (H.R. 2693) on June 3, 2009 to amend the Oil Recovery Act of 1990. She introduced this bill in light of the low percentage of recovery in oil spills and the need for better technology in clean up efforts. The bill would coordinate federal research and development of oil spill prevention, detection, recovery, and mitigation. H.R. 2963 would expand the direction of the oil spill recovery program set by the Oil Recovery Act of 1990 to cover emerging challenges and make the interagency structure more efficient. In addition, the bill would provide grants to universities and research centers to develop new technologies to prevent, combat, and clean up oil spills.

The Subcommittee on Energy and Environment of the House Science and Technology Committee held a hearing on the legislation and oil spill prevention and clean ups. There was consensus from witnesses and members that more needed to be done to increase the amount that is recovered in spills. Subcommittee Chairman Brian Baird (D-WA) recognized the need for more research and development to increase the level of mitigation when oil spills occur. The bill was forwarded to the full committee on June 16, 2009.

The full text of H.R. 2693 can be found on Thomas at: http://www.thomas.gov/cgi-bin/bdquery/z?d111:h.r.02693:

House Introduces Deep Seabed Mineral Resources Bill

On June 11, 2009, Delegate Faleomavaega (D-American Samoa) introduced a deep seabed mineral resources bill (H.R. 2834). The

Government Update continued on page 67

Houston Chapter of the Society of Independent Professional Earth Scientists Presents:

"Applications of New Geophysical and Petrophysical Technology for the Independent"

SIPES Continuing Education Seminar

Friday, September 18th, 2009

This full-day seminar will focus on the **application** of affordable new geophysical and petrophysical technology for geologists, geophysicists and engineers employed in the oil and gas business. Twelve experts from majors, independents, consultants and service companies will present "how-to" talks on the newest technologies in the oil business. Learn about it on the 18th. Use it to find oil and gas on the 19th.

New techniques in GOM Exploration	John Sherwood	*Anglo-Suisse*
Core analysis of Gas Shales	John Dacy	*Core Lab*
Geophysical and Petrophysical Integration	Roger Young	*eSeis*
Pre-stack Depth Migration	Jim Allen	*Allen-Hoffman Expl.*
Advanced Geophysical Workflows	Steve Tobias	*South Bay Exploration*
Reservoir Properties from Seismic Data	Hans Sheline	*VeriNova*
High Resolution Seismic Imaging	Norman Neidell	*Consultant*
Pitfalls of Amateur Petrophysics	Robert Leiber	*BP*
High Resolution Logging Tools	Rick Richardson	*OGEC*
Delivering Informed Decision for Shale Gas Investments	Jesse Cryer	*Schlumberger*
Petrophysical Evaluation of the Haynesville Shale	Dan Buller	*Halliburton*
Formation Evaluation through Casing	Dale May	*Schlumberger*

The seminar will be held at the Marathon Oil Conference Center, 10th Floor, 5555 San Felipe (at Yorktown). Registration includes a CD of the Proceedings, Luncheon and Refreshments. Seminar hours are 8:00 am to 5:00 pm. Attendance can count toward professional development hours required for licensed Texas Professional Geoscientists. Membership in SIPES not required.

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Registration by August 20:	$155 SIPES Members	$200 Nonmembers
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Registration Form: SIPES Houston Chapter 2009 Continuing Education Seminar

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5535 Memorial Drive, Suite F654
Houston, TX 77007

Questions: 713-651-1639 bkspee@aol.com

Program updates: http://www.sipes-houston.org/

Government Update continued from page 65

bill would direct the National Oceanic and Atmospheric Administration (NOAA) to "conduct a technological capability assessment, survey and economic feasibility study regarding recovery of minerals, other than oil and natural gas, from the shallow and deep seabed of the United States" and submit a report on their findings within two years of enactment. The seabed is defined as the areas within 200 miles of territorial seas. The bill does not authorize any specific appropriations for this work. The measure puts NOAA in charge of the survey but calls for NOAA to consult with other appropriate Federal agencies.

The full text of H.R. 2834 can be found on Thomas at: http://www.thomas.gov/cgi-bin/bdquery/z?d111:h.r.2834:

Coal Reserves Overestimated According to USGS Study

In 2007 the Energy Information Administration (EIA) predicted a 240-year supply of U.S. coal reserves, based on their estimate of nearly 500 billion tons of recoverable U.S. coal reserves. However, a new study released by the U.S. Geological Survey found that only 6 percent of the coal in the nation's largest coalfield is economically recoverable, even if current market prices were to increase. The study, started in 2004 to better understand the immense Gillette coalfield in the Powder Basin of Wyoming, reveals that the U.S. only has a 120-year supply. This discrepancy prompted the EIA to release a statement saying they will reassess their estimates using the new USGS data.

Full report available from the USGS: http://pubs.usgs.gov/of/2008/1202/

USGS Arctic Oil and Gas Assessment Published in Science

The U.S. Geological Survey (USGS) recently completed a geologically based assessment of the Arctic, titled the Circum-Arctic Resource Appraisal (CARA), to determine the potential for oil and gas resources stored in the area north of the Arctic Circle. The Arctic continental shelves provide a unique location, under 500 m of water, for these resources, which could be utilized given concern over future energy supplies. The CARA only considered areas with recoverable hydrocarbon volumes larger than 50 million barrels of oil or 300 billion cubic feet of gas, excluding smaller accumulations and nonconventional resources like oil shales and gas hydrates. The assessment also used mapping and assessing units (AUs) based on the sedimentary makeup of the Arctic.

The average assessment found the Arctic contains double the original estimate. The study concluded that undiscovered oil in the Arctic may account for almost four percent of the world's remaining conventionally recoverable oil resources. In addition, they concluded that the Arctic may hold three times as much undiscovered gas as oil. The report was included in the May 29, 2009 issue of *Science* Magazine.

Change Research Program Releases New Report

A new report released on June 16, 2009, Global Climate Change Impacts in the United States, documents the impacts of climate change on various regions and sectors in the U.S. and discusses actions society can take, or is already taking, in response. The key findings are that human-induced emissions are the primary cause of the changes. Agriculture will be challenged, threats to human health will increase, and the changes are projected to intensify impacts already affecting energy, water, ecosystems, coastlines, transportation, and society in general.

The report is a product of the U.S. Global Change Research Program (USGCRP), a 13- member interagency government program established by Congress in 1990 to help understand, assess, predict, and respond to global change. The congressional mandate stated that the USGCRP must release a global change impact assessment every four years and an annual report to Congress. The first national assessment was released in 2000, followed by a series of 21 Synthesis and Assessment Products.

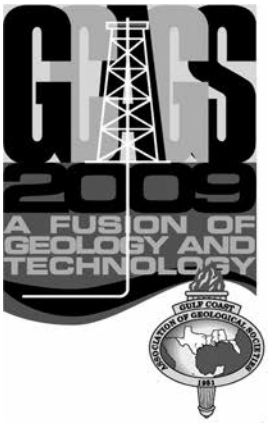
This newest report is a comprehensive look at climate change impacts, drawing from the past USGCRP assessments, the Intergovernmental Panel on Climate Change, and other research. The report clearly and simplistically shows dramatic changes taking place and how they will affect people and industry. It shows widespread changes that are happening now, making the point that global change is a current concern for everyone. There are examples of adaption measures taken by various communities in order to give the audience ideas of ways to mitigate the negative impacts. The report does not make policy recommendations. Instead it emphasizes the importance and consequence of choices made today on the severity of the changes in the future as a method of informing decision-making.

The full report, factsheets, and summaries are available for download from the USGCRP website: http://globalchange.gov/publications/reports/scientific-assessments/us-impacts

Earthtrek Encourages Public Participation In Science

The Geological Society of America (GSA) and other national and international partners have developed EarthTrek, a new tool that will allow concerned citizens to contribute data to scientists around the world. Scientists will set protocols for various environmental projects that benefit from community involvement in data gathering. Participants log their data online

Government Update continued on page 69



The 59th Annual Convention of the
Gulf Coast Association of Geological Societies
and the Gulf Coast Section of SEPM
September 27-29, 2009
www.gcags2009.com

The Annual Convention of The GCAGS is fast approaching. Please make your plans to attend this outstanding event.

We will be presenting an unequaled scientific program along with social events which will keep all who come to Shreveport busy and glad they came.

There will be 79 oral presentations and 12 poster sessions. The session titles are as follows:

Sunday, September 27, 2009

Symposium on the Haynesville Shale and other Shale Plays

Monday, September 28, 2009

The Wilcox-Outcrop to the Abyss
Visualization, Geochemistry, and Interpretation of Geologic Systems
Structure and Lithostratigraphy: Old Fields and New Plays
Gulf Coast Sedimentation and Coastal Subsidence
Stratigraphy, Correlation and Sedimentary Processes

Tuesday, September 29, 2009

Water Resources and Environmental Geology
Seismic Applications and Salt Tectonics in the Gulf Coast
Geology and Education- A Natural
The Geology and Evaluation of Shale Resource Plays

The Schedule of fees for the convention is as follows:

Pre-Convention Registration	$150
Pre-Convention Registration Includes Shale Symposium	$200
On-Site Registration Does not include Shale Symposium	$200
On-Site Haynesville Shale Symposium	$100
Academia	$ 75
Student	$ 25
Spouse/Guest	$ 50
Icebreaker Only	$ 50
All-Convention Luncheon	$ 40
Hard Copy of *Transactions*	$ 50

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Government Update continued from page 67

and can monitor the progress of their project. In addition, they can be rewarded with certificates and other incentives. EarthTrek aims to raise scientific literacy by involving communities in science and to provide experiences for kids to encourage them to pursue science as a career path. EarthTrek enrollment is open now, and the first science projects will begin on July 1, 2009. Learn more at http://www.goearthtrek.com/.

Gender Discrepancies in Faculty Examined by NAS Study

After a study of 6 science, engineering, and mathematics disciplines, the National Academies of Sciences (NAS) concluded that women are still underrepresented in the applicant pool but are hired at rates equal to or higher than those of men. The new study, Gender Differences at Critical Transitions in the Careers of Science, Engineering and Mathematics Faculty, collected original survey data from biology, chemistry, physics, mathematics, civil engineering, and electrical engineering. A total of 417 departments responded from the top 89 large research institutions. The data were collected from 2004-2005, providing a snapshot over a short period rather than tracking longer trends.

In 1999, a study of women faculty at MIT raised awareness of the disparity between the genders and led to a series of congressional hearings in 2002. The hearings, convened by Senator Ron Wyden (D-OR), led to the congressional mandate for a NAS study of the issue. The study concludes that there is a smaller female applicant pool, so work needs to be done to mentor tenure track female faculty. However, once women apply for faculty positions or come up for tenure review, they are at least as likely as their male counterparts to receive the position. Women also receive equal access to resources, having similar lab space and time commitments to teaching, research, and service.

The full report is available from the NAS website: http://www.nap.edu/catalog.php?record_id=12062

New Appointment to TBPG

Charles S. Knobloch was appointed to the Texas Board of Professional Geoscientists ("TBPG"). The TBPG is a government regulatory agency that protects public safety, health and welfare by ensuring that only qualified individuals carry out the public practice of geoscience. Mr. Knobloch was nominated by Governor Rick Perry and confirmed by the Texas Senate on May 8, 2009. Mr. Knobloch took his oath of office on May 28, 2009. Mr. Knobloch is partner at Arnold & Knobloch, LLP. Mr. Knobloch has over 22 years of Fortune 50 corporate and technical experience with Conoco. His work in the oil industry spans twenty-nine years, including a total of six years in South East Asia. He holds the DuPont Award for Engineering Excellence related to his work in imaging technology. Mr. Knobloch is also a Texas Professional Geoscientist (Geophysics). Mr. Knobloch is a law graduate of the University of Houston (Simon Frank Scholar), holds a diploma in International Law (Russia) from the University of San Diego, and studied European law in Spain through the College of William and Mary. He has a geophysics degree (with honors) from Michigan Technological University and is currently a member of the Industrial Advisory Board for their College of Engineering. Mr. Knobloch has also served on a sustainability subcommittee and is on an energy committee. He is also a member of their Academy of Distinguished Alumni and founding recipient of their Faculty Citation (for advancements in computing technologies in geophysics).

Proposed American Clean Energy & Security Act

The Proposed American Clean Energy & Security Act of 2009 (ACESA, HB 2454) is currently under consideration by the US Congress to address greenhouse gas mitigation. This federal legislation will have significant future impact not only for the nation but especially for Texas. The ACESA, at more than 900 pages, includes direct subsidies for clean energy development including renewable energy standards with new incentives for carbon capture and sequestration (CCS) as well as promoting energy efficiency in hopes of controlling global warming. To implement CSS, a new regulatory program would create emissions allowance (caps on carbon dioxide (CO2) emissions which can be bought, sold or traded with no restrictions), disposition of allowances, and consumer and industry protections and adaption provisions. The initial CO2 emissions cap is predicted to total close to 6000 million metric tons in 2018 which then be reduced yearly to an estimated 1000 million metric tons in 2050.

In recognition of the potential future economic impact to the state of Texas, the Texas Comptroller of Public Accounts (CPA) requested the Bureau of Economic Geology's (BEG) Center for Energy Economics (CEE) to evaluate the proposed legislation. The CPA asked CEE to predict the impact to future revenues. ■

Full Color Ads Now Available!

HGS *Bulletin* Instructions to Authors

All materials are due by the 15th of the month, 6 weeks before issue publication. Abstracts should be 500 words or less; extended abstracts up to 1000 words; articles can be any length but brevity is preferred as we have a physical page limit within our current publishing contract. All submissions are subject to editorial review and revision.

Text should be submitted by email as an attached text or Word file or on a clearly labeled diskette in Word format with a hardcopy printout to the Editor.

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator, Canvas or CorelDraw. Files should be saved and submitted in .eps (Adobe Illustrator) format. Send them as separate attachments via email or CD if they are larger than 1 MEG each, accompanied by figure captions that include the file name of the desired image. DO NOT EMBED them into your text document; they must be sent as separate files from the text. DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution) as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

Photographs may be digital or hard copy. Hard copies must be printed on glossy paper with the author's name, photo or figure number and caption on the back. Digital files must be submitted in .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 1 MB) or on CD or zip disk.

Advertising

The *Bulletin* is printed digitally using QuarkXPress. We no longer use negatives or camera-ready advertising material. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email to ads@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

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6	$590	$990	$1,782	$3,392	$4,069					$1,890
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4	$405	$683	$1,223	$2,326	$2,792					
3	$327	$550	$990	$1,886	$2,262					$1,080
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1) Be involved in the application of the earth or allied sciences.
2) Be a full-time student enrolled in geology or in the related sciences.

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To the Executive Board: I hereby apply for ❑ Active or ❑ Associate membership in the Houston Geological Society and pledge to abide by its Constitution and Bylaws. ❑ Check here if a full-time student.

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_____

Applicant's Signature _____ *Date* _____

Endorsement by HGS member (not required if active AAPG member)

Name: _____

Signature _____ *Date* _____

Membership Chairman _____ *HGS Secretary* _____

rev.08/11/2008

Houston Petroleum Auxiliary Council News

Winona LaBrant Smith, HGS Liaison

The embryonic Houston Petroleum Auxiliary Council (HPAC) began to function just one year ago under the leadership of Phyllis Carter. The first year was exhilarating and so much was accomplished! The year ended with an upbeat luncheon, fashion show and annual business meeting. Approximately 135 members and guests attended. Now we are turning a page and beginning our second year with Millie Tonn, President, and Edie Bishop, First Vice President/ Social Chairman. Work is now in progress on events that have been planned.

The HPAC CALENDAR for 2009-2010 is:

Friday, September 18, 2009, Luncheon with Sylvia Thompson presenting "Reminiscences" at Braeburn Country Club

Friday, December 4, 2009, Luncheon with the King's Men Chorus at Lakeside Country Club

Monday, February 15, 2010, Game Day/Luncheon to be held at Junior League Tea Room

Thursday, May 20, 2010, Luncheon/Style Show and Installation of Officers at The Courtyard on St. James

No member will want to miss a single event.

Lois Matuszak, President of GeoWives, reported they will hold their first meeting for 2009-2010 in October. Four meetings will follow: November, January, March and April. These events will take place during the months that HPAC doesn't have a function. Please encourage your spouses to visit and join HPAC where they will have the opportunity to meet other wives whose husbands have occupations such as geologists, geophysicists, engineers and landmen. There are stimulating programs, delicious lunches and promotion of fellowship.

For your convenience, a HPAC membership form is included below. If you have any questions, please contact Winona LaBrant Smith at 713-952-2007. ■

You are invited to become a member of

HPAC

2009–2010 dues are $20.00

Mail dues payment along with the completed yearbook information to Carol Gafford, 13323 Misty Hills Drive, Cypress, TX 77429

YEARBOOK INFORMATION

Last Name	First Name	Name Tag
Spouse Name	Name Tag	HGS Member's Company
Home Phone	Business Phone	Business Fax
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Email Address	Home Fax	

Please choose a committee assignment if you are interested.

☐ Fall Event	☐ Yearbook	☐ SOS	☐ Membership
☐ Christmas Event	☐ Spring Event	☐ Notification	☐ Game Day
	☐ May Luncheon	☐ Courtesy	

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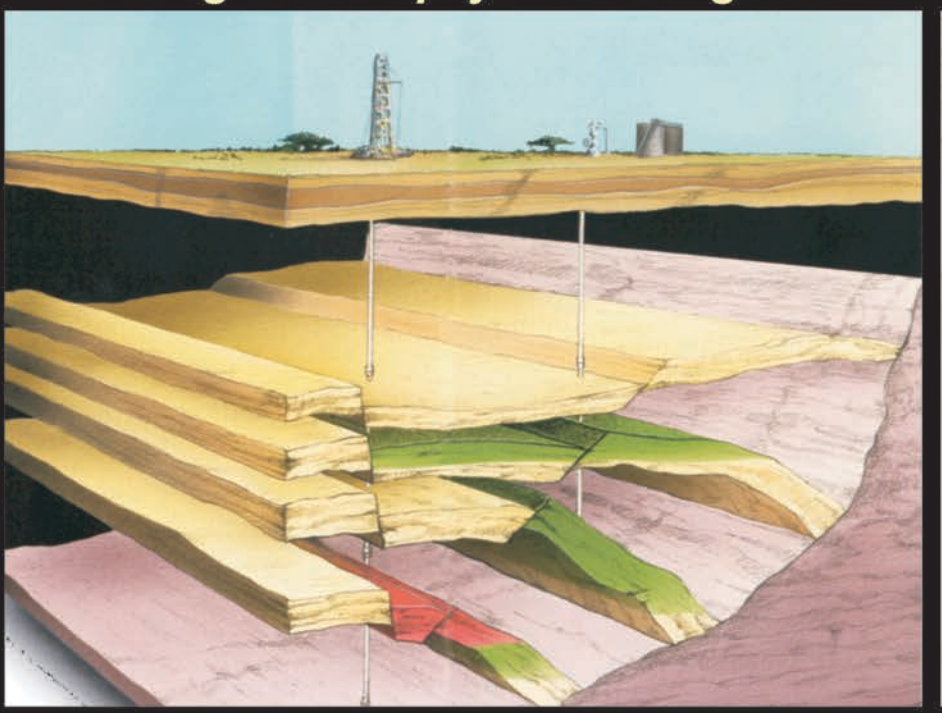

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