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June 2014

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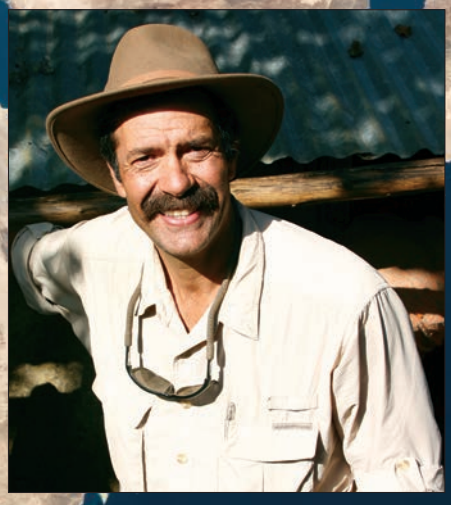

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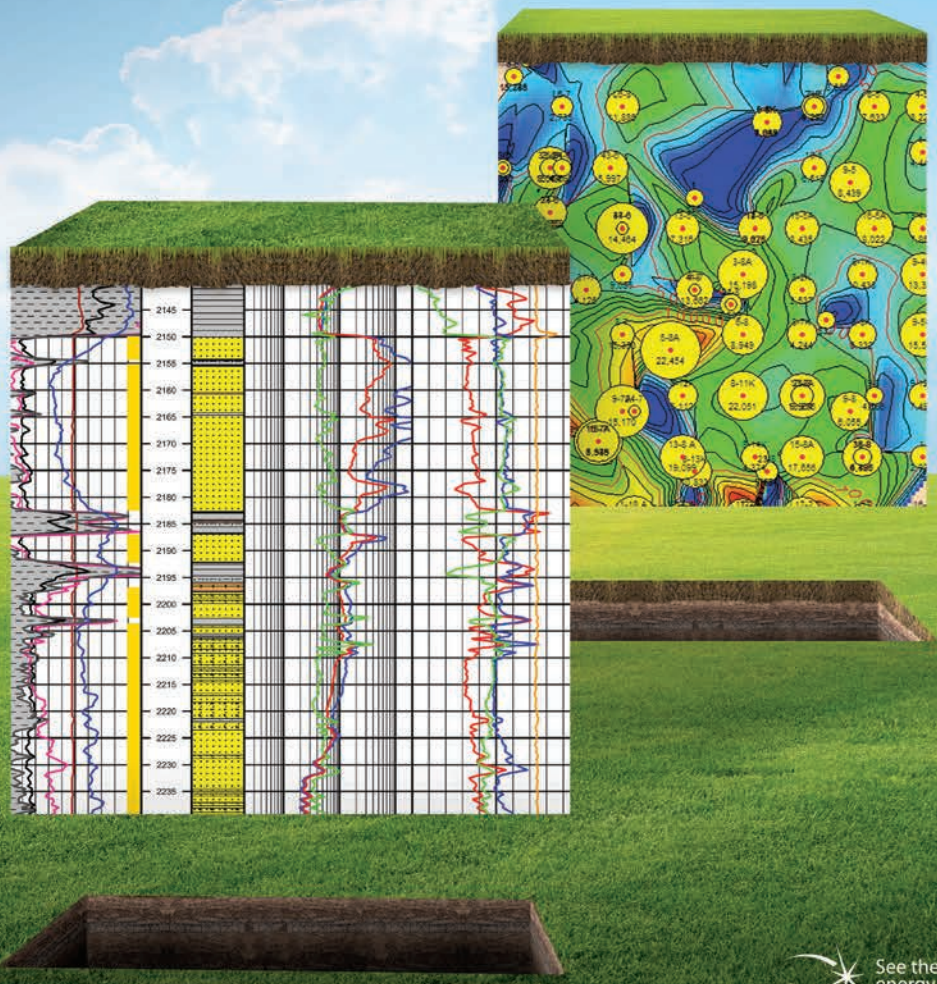

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The Bulletin
Houston Geological Society

Volume 56, Number 10 June 2014

In Every Issue

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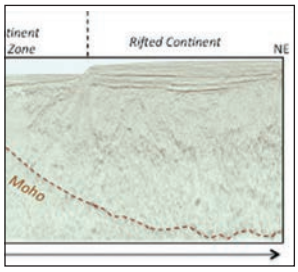

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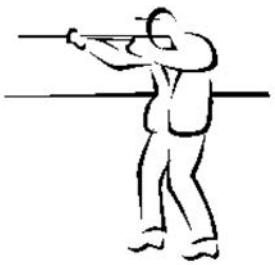

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About the Cover: The Nile River – photograph from the International Space Station of northeastern Africa. The green valley of the Nile River snakes across the arid Egyptian desert northward to the fertile delta at the Mediterranean Sea at the top of the photograph. The Red Sea and the Sinai Peninsula lie to the east. International Space Station Mission 35, astronaut photograph ISS035-E-007148. Photograph date: March 2013.
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Some Closing Thoughts

This, my final column, has been something that I have both been looking forward to and dreading. I have been looking forward to this last column because those mid-month deadlines will be gone. I have been dreading it because my opportunity to communicate with you, the HGS membership, will be ending as will my term in office. I have had thirty opportunities to present my thoughts, views, and opinions as Editor and President. For those of you that have been reading my columns, I know from the occasional comments received that my "three legged stool" of volunteerism, mentoring, and continuous learning has hit home with at least some. My column has also be a place where I have written about the need for change.

I looked at the need for change in HGS to accommodate how our professional and home lives have changed over time. I did not and do not suggest change simply for its own sake. But I remind you that arguing to keep things as they are for the sake of tradition or because that is always how it has been done is often a way to remain in our comfort zone, whether or not it is just or worthy. Change is not easy for most of us, but is something that must occur for organizations such as HGS to continue to thrive into the future. To the small number of you that have been fighting so hard and vocally against change, I respectfully ask that you redirect your energy from fighting change to remolding the organization and consider how the organization may best be served. Remember that in most cases the needs of the many do out-weigh the needs of the few.

This past year's board implemented many changes, which I believe will build a strong foundation for others to build on.

I would like to look back a bit and thank those that have helped and contributed. There is always a danger in this. Someone may be left off the list and take offense. Therefore, let me begin by apologizing to those not specifically mentioned, there are only so many words that I am "allowed."

This past year's board implemented many changes, which I believe will build a strong foundation for others to build on. Most of the changes have been mechanical and are unseen by the membership, but there are others that were very visible. They were all necessary to make us a more business-like organization capable of paying our bills, maintaining our office and permanent staff, and recognizing those individuals that have positively impacted the Society and geology. Through the hard work of a few handfuls of individuals, we have become an organization that is self-sustaining financially rather than an organization waiting for the next cash injection from hosting an AAPG Convention in order to cover our operational costs. This has provided the Board with an increased opportunity to invest in the future, with donations to the Houston Science and Engineering Fair and to both our undergraduate and graduate scholarship programs, as well as AAPG's Imperial Barrel Award program.

This financial freedom has largely come about as a result of the two successful technical conferences — Geomechanics and Mudstones. I cannot thank enough the organizing committees and especially **Frank Walles**. His approach has brought to the Society top-tier technical programs and has made these conferences self-sustaining. Several of those involved will be recognized by the Society (see the awards citations in this month's *Bulletin*).

Our permanent staff of **Sandra Babcock, Troy Fearnow,** and **Jill Kimble** has also been an integral part of this year's success. They worked hard to deal with our membership rosters, identifying a large group of "lost" members and recapturing them. As a result of their actions our membership hovers around 4000. They have also been engaged with the details of each of our events, whether it was a monthly meeting, technical conference, social activity, or AAPG Convention. Special thanks must go to Sandra in her role as office director. She has been my sounding board, cheerleader, and corporate memory.

The Board this year was quite engaged. I would like to list all of their accomplishments, but I can only cite a few. **Mike Erpenbeck** altered the way our finances are presented to the Board. No longer were we simply checking what the balances were of our various accounts but we were looking at trends and projections of income

From The President *continued on page 9*

Michael F. Forlenza, P.G.
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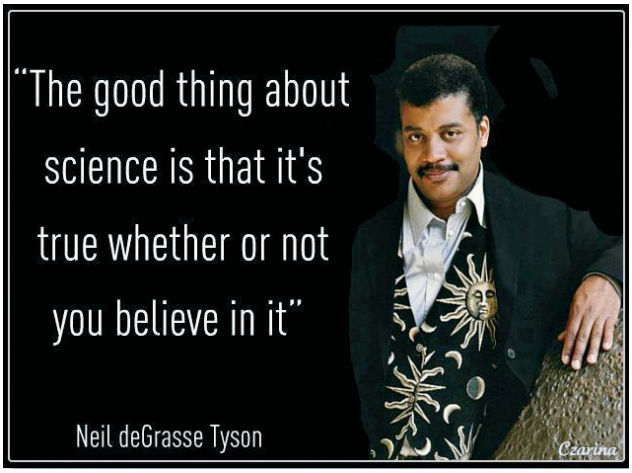
Geologists in Popular Culture

How many of your non-geologist friends actually know what you do as a geologist? Try this at your next weekend neighborhood social gathering. While in a conversation with a non-geologist neighbor, mention that you are glad the week is over because you were having trouble integrating the Plio-Miocene AVO seismic data with the stratigraphic analysis of the onlapping regressive sequence. And, the isopach map was showing distal thinning of the high-permeability turbidite beds. At this point watch as your friend's eyes glaze over as he nods blankly and looks for a way to get out of the conversation. He stammers something about being late for a dentist appointment and beats a hasty retreat.

After telling someone that you are a geologist, they will reply something like: "Oh, that is something to do with rocks." Well, yes, OK. Discussion of the topic generally ends at that point. But one can hardly blame the non-geologist for his vague sense of what a geologist does. The world of earth science is arcane to most people. And there are few prominent geologists communicating with the public through the media about the professional contributions of geoscientists or acting as champions of the science.

Other sciences have their superstars. Cosmologists, astrophysicists, and astronomers have their popular heroes who are known to a wide public audience and appear regularly on television and in the news. These include the late Carl Sagan, Stephen Hawking, and Neil deGrasse Tyson. The affable Dr. Tyson is an astrophysicist, author, radio personality, science communicator, the Frederick P. Rose Director of the Hayden Planetarium, and a research associate in the Department of Astrophysics at the American Museum of Natural History in New York. From 2006 to 2011, he hosted the educational science television show *NOVA ScienceNow* on PBS and has been a frequent guest on *The Daily Show, The Colbert Report*, and *Jeopardy!*. Dr. Tyson is the host of the television series *Cosmos: A Spacetime Odyssey*, a 2014 update to Carl Sagan's *Cosmos: A Personal Voyage*.



Physicists have also had media favorites like Albert Einstein. Chemists, biologists, physicists, and medical researchers get their moment in the spotlight each year during the awarding of the Nobel prizes. Geologists labor in relative obscurity.

Importantly, several contentious issues that appear almost daily in the news are related to the geological sciences. These involve climate change, energy, teaching evolution and creation science, hydraulic fracturing, drought, and, recently, landslides and tsunamis. Yet, there are no prominent geologists providing insight on these matters.

Too often there is no input from trained geoscientists in the discussion of important earth science topics in the public discourse, leaving the media spotlight to untrained politicians and activists. Scott Tinker, a geologist and highly-credentialed energy expert who heads the Bureau of Economic Geology at The University of Texas and is a professor at the Jackson School of Geosciences, is one geoscientist who has made an effort to communicate energy issues to the public through the Switch Energy Project. The project released the documentary film *Switch* in 2012 featuring Dr. Tinker as the narrator. But these contributions have barely registered in the public debate.

So how does the general public perceive geology and geologists? How are this science and these scientists portrayed in the popular culture and media of television, movies, and books?

Common Perception

The most common public perception of a geologist is a guy, or gal, with an inclination toward field clothes (hiking boots, jeans, plaid shirt), who carries a rock hammer in one hand and wears a hand lens around the neck. These rock hounds are rugged, bearded

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From the President continued from page 5

and expenditures. The picture he presented each month allowed us to get ahead of the curve. **Mike Deming** did a look back on meetings and began the process of revamping the cost structure and meeting schedule. **John Dombrowski** finalized our transition to the new website and attempted to herd the group of cats, also known as the Houston delegation of the AAPG House of Delegates. **Bryan Guzman** presented a view of the young professional and as expected it was often very different from those placing a capstone on their career. **Beverly DeJarnett** ensured our involvement with AAPG's technical program through short courses and field trips. The three HGS-sponsored events not only provided learning opportunities but contributed to our bottom line. **Ken Nemeth** was instrumental in our review of the Society's awards. He helped search out the history of the awards and aided in our course correction, making sure that all deserving were recognized. Awards and honors are quite important to an organization such as HGS because they let our volunteers know how much they are appreciated. And, **Mike Forlenza** returned to the Board through appointment to take on the thankless job of Editor. He chased down content, including mine, and assembled a monthly *Bulletin* that we can all be proud of.

And finally, there is one special person to thank, my wife, Terry. She continues to be my sounding board often reminding me that it is not only what you say and write but the tone that is important. She has been and continues to be my editor. This began with my dissertation and continues with these columns. She has always been an advisor helping with many difficult decisions as well as being a calming influence. But most of all she has been patient and forgiving. The time that I spent at meetings, handling society business, or even writing these columns has been hers. Thank you. Thank you. Thank you.

I have typically closed with "...until next month", but there is no next month for me so let me simply say I thank you all for the opportunity that you have given me to serve. But I can assure you that unlike old soldiers, I will not simply fade away. ■

From the Editor continued from page 7

(male only) mavericks, who enjoy many drinks, and are more comfortable outdoors and outside of polite company. Fastidious grooming and social customs are largely uninteresting to these hardy individuals as they are preoccupied with pondering esoteric concepts such as subduction, diagenesis, phase diagrams, illite-smectite alteration, acoustical impedance variations, contourite deposition, and high-temperature pyrolosis.

Most geologists may recognize some of these perceived characteristics in themselves, and the whole package was probably true of many geologists at some point in their development. But where does this perception come from and how accurate is it?

An early portrayal of this type of geologist, familiar to children, was the rambunctious Yukon Cornelius in the 1964 television Christmas classic, the stop-motion animated *Rudolph the Red-Nosed Reindeer*. Y. Cornelius was a rough and capable prospector who could taste precious metals and ores on his rock hammer. He was heavily bearded, wore field boots and clothes, had a confident and optimistic attitude, and even carried a pistol in his belt. He was a pretty cool geologist, but not really an accurate depiction of a modern geologist.

Yukon Cornelius

Television

Television has had very few accurate portrayals of geologists, whether fictional or non-fictional. Doctors, detectives, and lawyers and their professional activities have been portrayed countless times in television series. Even ad men, paper salespersons, and astrophysicists have been portrayed in comedy and drama series. Maybe geologists aren't that interesting.

Randy Marsh

Perhaps the most famous geologist on television is not even a real person. In the 17 seasons of the raunchy and ribald animated television series on Comedy Central, *South Park* has featured a geologist as one of the main characters. Randy Marsh, the father of Stan, is portrayed as a somewhat quirky (OK, a lot quirky) earth scientist with a love of beer. Randy is named after South Park creator Trey Parker's own father, Randy Parker, who was a geologist. In Randy's first appearance in the series, he is monitoring a seismometer in the episode "Volcano." Randy has been portrayed as having this profession for the entire duration of the series. He carries a few pens in one of the two front pockets on his light blue, collared, button-down shirt, and he wears dark gray pants. He has mentioned that he attended college and it has been indicated that he holds a doctorate. **From The Editor** *continued on page 11*

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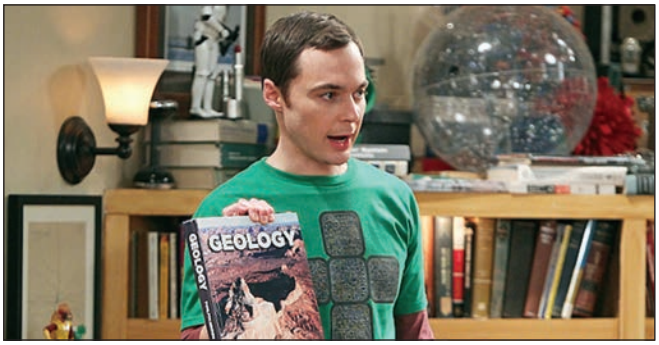

In the hit comedy television series *The Big Bang Theory* on CBS, Dr. Sheldon Cooper, the socially awkward genius theoretical physicist, often disparages the other "softer" sciences. In Episode 1 of Season 5, Dr. Cooper and his physicist colleagues take on the geology department in a spirited paintball contest in the woods. At a critical moment, Dr. Cooper charges into the open and shouts, "Geology isn't a REAL science!" This draws the wrath of the earth scientists who unleash a multi-colored paintball fusillade in retaliation. Filmed in slow motion, the scene is an homage to the Sergeant Elias (Willem Dafoe) death scene from the movie *Platoon*. Later in the series, Dr. Cooper remarks, "Geology is the Kardashians of science." Ouch.

Movies

The movies have not been particularly generous to geologists. While the movie geologist is usually geeky and anti-social, there is a remarkably long list of films with geological plot points and characters. Dr. Catherine A. Riihimaki taught the course Geology 197: Geology in the Movies while at Drew University in 2009. The syllabus for the course indicated that the lectures included screenings of: *The Shawshank Redemption, Spitfire Grill, Dante's Peak, Volcano, Earthquake, Superman, Aftershock: Earthquake in New York, The Core, Journey to the Center of the Earth, Alien Hunter, Evolution, Planet of the Apes, Deep Impact, Armageddon, Jurassic Park, The Abyss, Finding Nemo, Perfect Storm, Twister, Ice Age, Waterworld, The Day after Tomorrow, Vertical Limit, Boa, Red Planet,* and *Mission to Mars.*

Needless to say, most of these portrayals of geology and geologists are rather light on the science. So much so, that even second year geology students are likely to roll their eyes and become exasperated at some of the science gaffes and fabrications.

The Core, a 2003 disaster film with mild box office success, was particularly ambitious in its depiction of pseudo-science. A series of disturbances caused by instability in the Earth's magnetic field lead geologists to learn that the Earth's molten core has stopped rotating. Within a year, the Earth's magnetic field will collapse, leaving the planet vulnerable to solar radiation. The geologists develop a plan to use a nuclear powered vessel, the *Virgil*, with a high frequency-pulse laser to bore into the Earth's core and plant a series of nuclear charges at precise points to restart the core's motion and restore the field. Launched through the Marianas Trench, the *Virgil* accidentally drills through a gigantic empty geode, damaging the lasers when it lands at its base and cracking the geode's structure, causing magma to flow in. The crew repair and restart the laser array in time, but a crewman is killed by a falling crystal shard while returning to the ship. As the *Virgil* continues, it clips a huge diamond that breaches the hull of the last compartment. A crewman sacrifices himself to save the nuclear launch codes before the compartment is crushed by extreme pressure.

When the *Virgil* eventually reaches the molten core, new data reveal a flaw in the plan. The outer layer of the core is less dense than anticipated and the planned explosions cannot generate the needed power. After some calculations, they decide that by splitting their nuclear weapons into the remaining compartments and jettisoning each at specific distances, they can create a "ripple effect," where the power of each bomb will push against the blast of the next, generating the needed energy wave. Meanwhile, on the surface, the public becomes aware of the problems at the Earth's core after super storms start to lash the world, causing a worldwide panic.

Coincidently, the team learns of the top-secret project "DESTINI" (Deep Earth Seismic Trigger INItiative), which was designed as a weapon to propagate earthquakes through the Earth's core. But in its first activation, the weapon unintentionally stopped the core's rotation instead. The government has plans to use it again to attempt a restart of the core if the mission fails.

The triggered explosions successfully restart the core's rotation. The crew uses the heat and pressure from the wavefront to enable the vessel to escape the core. The *Virgil* breaks through the crust underwater, leaving them on the ocean floor without power or communications. The crew uses the remaining power to activate a weak sonar beacon attracting a nearby whale pod. Rescuers are able to trace the whale songs to locate the *Virgil*.

Dante's Peak, a somewhat more plausible geology story, features hunky Pierce Brosnan as Dr. Harry Dalton, a vulcanologist with the United States Geological Survey. Dr. Dalton arrives at the Washington state countryside area, named Dante's Peak after a

From The Editor *continued on page 13*

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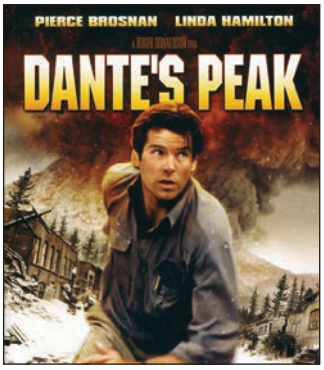
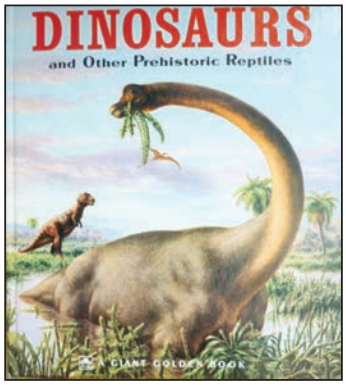
long dormant volcano, which has recently been named the second most desirable place to live in America and discovers that Dante's Peak, may wake up at any moment. Matt Herod, on his geology blog GeoSphere, provides this movie analysis: "There is not a whole lot of actual geology in *Dante's Peak*, but despite that Pierce delivers an excellent performance as the 'whistle-blowing geologist' that no one wants to listen to until it is too late. It is also another great media stereotype of geologists as nerdy, but rugged, people who care more about rocks, water and gases than people."



Another interesting cinematic portrayal of a geologist is found in the caper *Ocean's Thirteen*. To plant a camera in the casino boss's office, Brad Pitt pretends to be a geologist with a warning about a hidden fault line under the building. Mr. Pitt's appearance is a bit of a spoof, an over-exaggeration of how Hollywood thinks that the public thinks that a geologist would look. He, of course, is bespectacled, dressed in a battered field clothes (vest and shorts), and sports a very large leather watch band. He is somewhat unkempt with scraggly facial hair.

Brad Pitt as a geologist

One of the better depictions of a geologist in movies is in the 1986 French language film *Manon des Sources* (*Manon of the Spring*). A geologist arrives in a remote Provencal town to help the residents in dealing with the loss of the flowing spring which provided their water supply. In a brief scene, the geologist goes into a technical talk on the local geology at a town meeting. The discussion goes way over the head of the frustrated populace before he abruptly packs up and leaves without providing any real help.



Paleontologists

Perhaps the most well-known geologists today are the paleontologists. Dinosaurs, and the study of dinosaurs, have entered the mainstream. Kids love dinosaurs. This is a good thing. Children are very serious about the difference between an Apatosaurus and a Brontosaurus. Many children disappoint their grandparents at storybook time when they pick out the *Giant Golden Book of Dinosaurs* to read rather than *Charlotte's Web* or *Treasure Island*.

Two of the most widely-known paleontologists today are Robert Bakker and Jack Horner. Probably no paleontologist alive today has had as much of an impact on popular culture as Robert Bakker. Dr. Bakker was one of the technical advisers for the original *Jurassic Park* movie and the inspiration of a character in one of the sequels (*The Lost World*).

For over two decades, Robert H. Bakker has been the leading proponent of the theory that dinosaurs were warm-blooded, rather than cold-blooded like modern lizards. His ideas were presented in his 1986 book *The Dinosaur Heresies*. Not all scientists are convinced by Dr. Bakker's theories, but he's sparked a vigorous debate about dinosaur metabolism and dinosaur physiology.

To many people, Jack Horner is most famous as the inspiration for Sam Neill's character in *Jurassic Park*. However, Dr. Horner is best known among paleontologists for his discoveries of the extensive nesting grounds of the duck-billed dinosaur Maiasaura ("good mother lizard') which cared for their young. The fossilized eggs and burrows at the nesting grounds gave paleontologists an unusually detailed glimpse of the family life of duck-billed dinosaurs. The author of numerous popular books, Dr. Horner has remained at the forefront of paleontological research. I had the pleasure of meeting Dr. Horner in 1982 while we were both working on coincident field projects studying the Triassic redbeds in Nova Scotia.

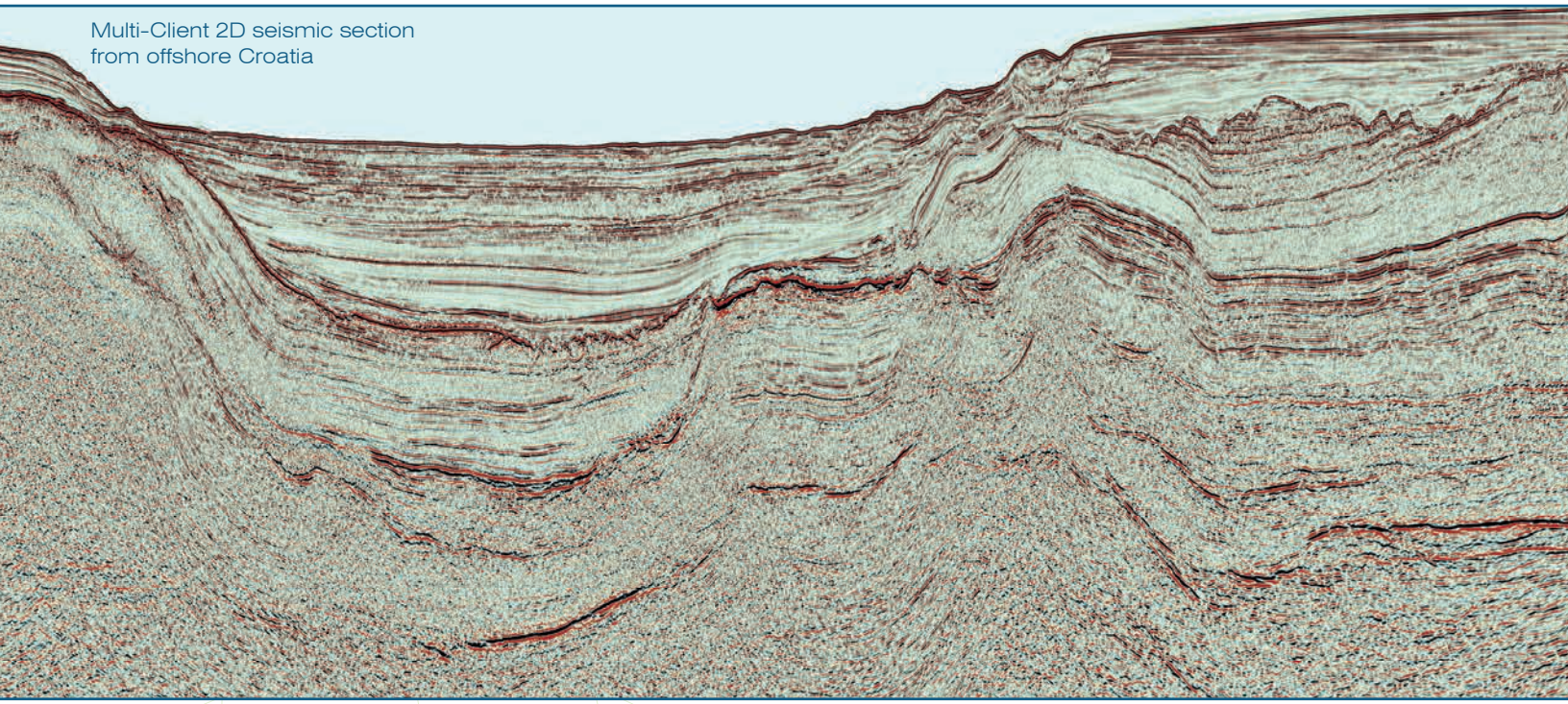
Geologists and Beer

One facet of the public image of geologists is undoubtedly accurate. Geologists are well-known lovers of malted beverages. It has even been postulated that geologists are the only known "alcohol-based life form." On my first day of graduate school at the University of Massachusetts, I was advised by a professor of structural geology and a professor of sedimentary petrography that I should make a point of attending the weekly "Safety Committee Meeting," held on Fridays at 3:30 p.m. Their case for attending a safety committee meeting did not seem that strong, but I went anyway. Well, the only part of the gathering that had anything to do with safety was instructions on how to not

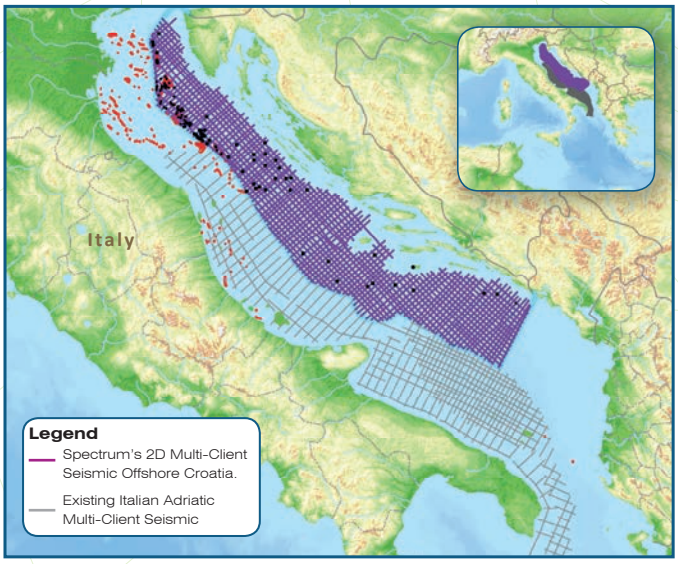
From The Editor *continued on page 15*

Offshore Croatia

A New Oil Province at the Heart of Europe



Multi-Client 2D seismic section
from offshore Croatia



Spectrum has acquired a truly unique Multi-Client seismic survey offshore Croatia. This is the only seismic data available to license in this hugely underexplored region which has now opened its first offshore licensing round.

The survey, acquired under contract to the Ministry of the Economy in Croatia, covers approximately 14,700 kilometers of long offset seismic data with a 5 km x 5 km grid. It extends across most of the Croatian Adriatic Sea and connects with Spectrum's reprocessed seismic data covering the Italian Adriatic Sea.

Final PSTM data has now been delivered and all processed data will be available by the end of April. The Government of Croatia opened its licensing round over the country's offshore continental shelf in Zagreb, Croatia, on the 2nd of April.

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From the Editor continued from page 13

> ***I went into geology because I like being outdoors, and because everybody in geology seemed, well, they all seemed like free spirits or renegades or something. You know, climbing mountains and hiking deserts and stuff.***
>
> ***Kathy B. Steele,* Rocks that Float**

injure one's hand while removing the twist-off beer bottle caps. I was soon introduced to the combination-locked beer refrigerator in the basement rock laboratory. (Hint: the combination was cobalt, phosphorus, chlorine.)

In a 2009 article in *Wired* magazine, Betsy Mason explored the unusually affectionate connection between geologists and beer. For her research, she visited the annual meeting of the American Geophysical Union in San Francisco, the largest gathering of earth scientists in the world. At the meeting, starting at 3:30 p.m. each day, beer flows nonstop for an hour and a half at 10 stations. AGU organizers report that they go through about 175 kegs during the week. At the Thirsty Bear, the brewpub closest to the Moscone Convention Center where the meeting is held every December, the wait staff claims that this is the busiest week of the year. So, what is the nature of this sudsy bond?

The most popular theory, based on Ms. Mason's interviews with the conference attendees, was that the connection has something to do with the amount of time spent outside doing fieldwork. "When it's hot, and you've been hiking all day carrying 50 pounds of rocks, do you want a Merlot?" asked thermochronologist Jim Metcalf of Syracuse University. "No."

Geologists have been known to go to great lengths to chill their beer in the field as well. A cold stream, a glacier or a patch of snow is handy, but many field areas are hot, dry, and dusty. While doing fieldwork in Mongolia, geologist Cari Johnson of the University of Utah and her colleagues cooled their beer with evaporation by wrapping the cans in toilet paper, pouring water on the paper and letting the persistent wind dry the cans.

Another theory is that beer makes for better science, that the consumption of beer allows geoscientists to better conceptualize what cannot be seen. A third theory offered up in various forms was that beer is simply part of the geosciences culture, a tradition that has been handed down from advisor to student for generations. "It's accepted and encouraged to drink beer," said geologist Cindy Martinez of the American Geological Institute. "Other scientists like beer, but it's not necessarily socially acceptable to have your scientific meetings revolve around beer."

"I started getting on to wine and other stuff for a while, but I became an outcast among my geology friends," said geologist Laura Webb of the University of Vermont. "So I had to re-train myself to drink brew." Supporting the culture theory is the observation that earth science departments at academic institutions across the world almost invariably have a weekly get-together of some sort that revolves around beer.

I have a different theory about why geologists and beer go together. The connection seems to be not so much the science, but in the type of person who is drawn to the earth sciences. That type of person, casual, informal, different thinking, and sociable, also has a natural inclination to enjoy the consumption of beer and the open forum to exchange ideas.

Literature

Books are one media format that has been particularly good for geologists. Besides the previously mentioned paleontologists, two writers have risen to prominence in the last 20 or 30 years, writing well-received and best-selling books explaining the geological sciences. They are John McPhee and Simon Winchester. Even though neither man is a geologist by training, they share an admiration and fascination for the Earth, earth processes, and those who study them. Their works are engagingly written and approachable by non-scientists, providing enlightenment about the wonders of our planet's lithosphere. These books are well-researched and have the depth of narrative to interest geologists.

> ***With their four-dimensional minds and their interdisciplinary ultra verbal way, geologists can wiggle out of almost anything.***
>
> ***John McPhee***

John McPhee is widely considered one of the pioneers of creative nonfiction. He is a four-time finalist for the Pulitzer Prize in the category General Nonfiction and won that award on the fourth occasion in 1999. In 2008, he received the George Polk Career Award for his "indelible mark on American journalism during his nearly half-century career." Since 1974, Mr. McPhee has been the Ferris Professor of Journalism at Princeton University.

Starting his writing career at *Time* magazine, Mr. McPhee later began a long association with *The New Yorker* magazine beginning in 1965 that continues to the present. Many of his twenty-nine books include material originally written for *The New Yorker*. His books pertaining to geology include: *Basin and Range* (1981), *In Suspect Terrain* (1983), *Rising from the Plains* (1986), *Assembling California* (1993), and *Annals of the Former World* (1998), for which he won the Pulitzer Prize in 1999.

From The Editor *continued on page17*

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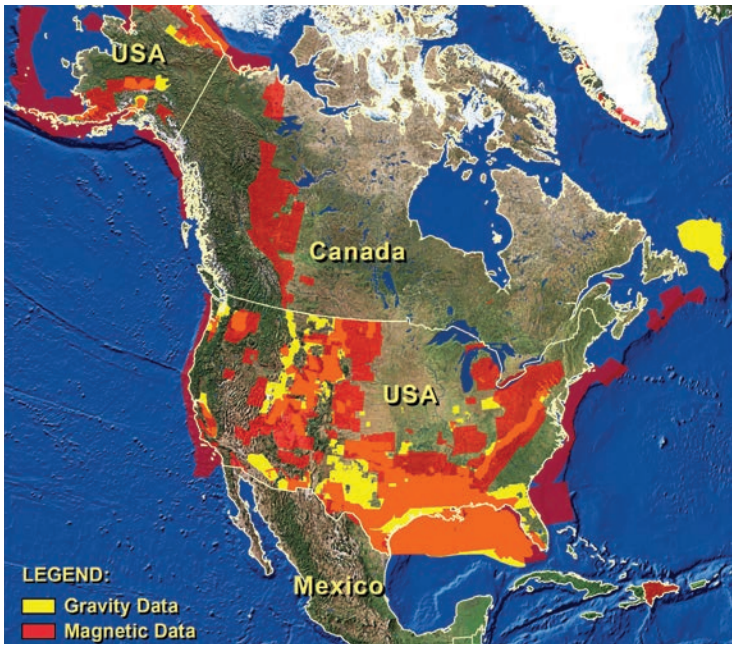
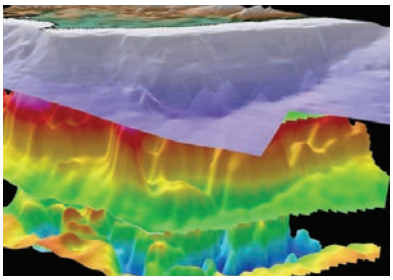
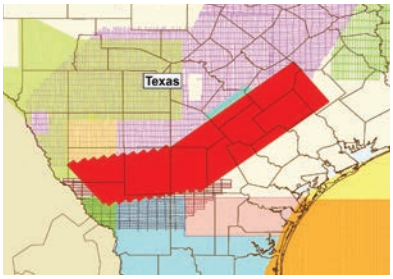
Got Potential?

Potential field multi-client data: North America





Bathymetry and horizons interpreted from magnetic data.



Eagle Ford, Texas aeromagnetic data.

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Contact: Jeff Rowe
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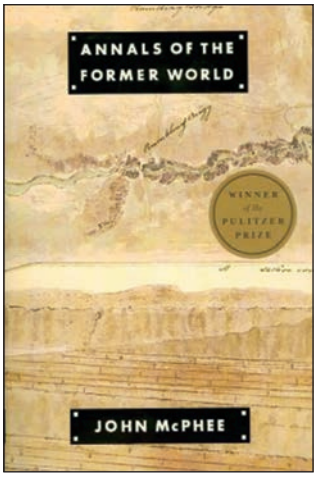
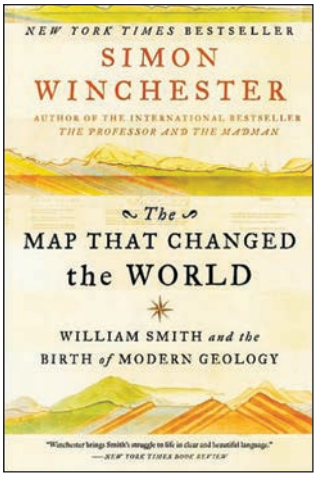
CGG
Passion for Geoscience

From the Editor continued from page 15





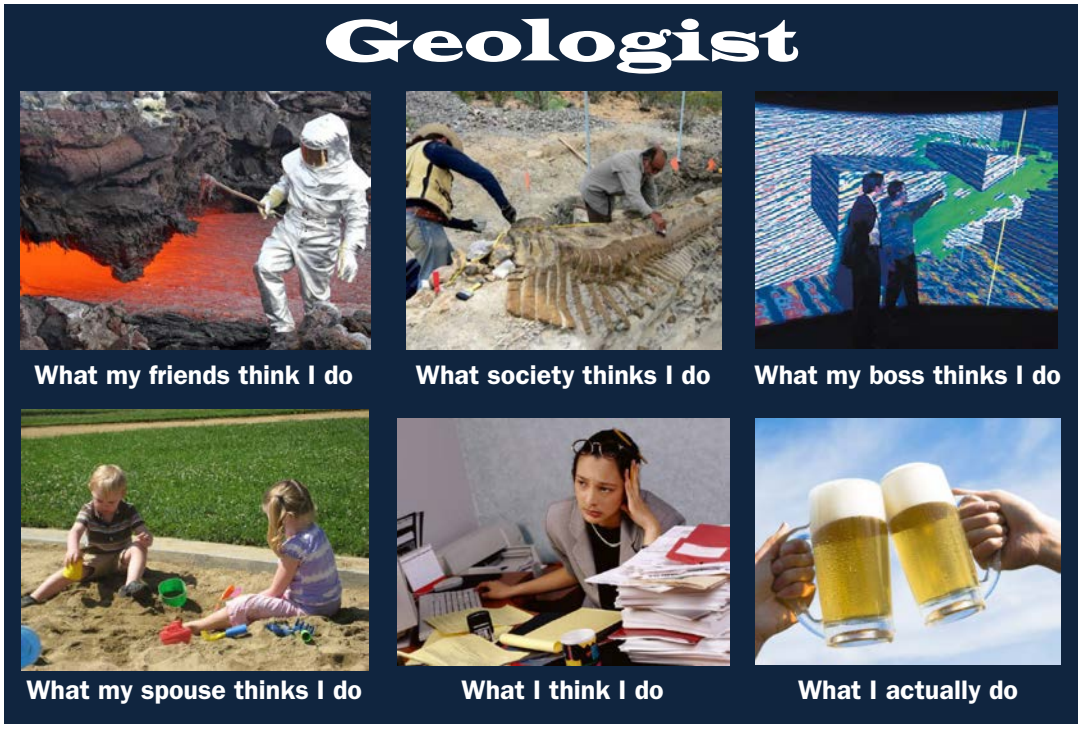
The 696-page compilation, *Annals of the Former World*, is a summary of Mr. McPhee's numerous geological explorations along a cross section of North America following Interstate 80 from New York to California. This opus is his paean to geology and earth scientists. His works are known for their well-crafted prose. "As in any McPhee work, there are gemlike sentences, richly rhythmic paragraphs, nicely burnished synecdoches, metaphors as pungent as wasabi and, behind those felicities, vast amounts of painstaking research," noted David Quammen in his *New York Times* review.

Simon Winchester, Order of the British Empire (OBE), is a British-born author and journalist who resides in the United States. During his career at *The Guardian*, Mr. Winchester covered numerous significant events, including Bloody Sunday and the Watergate scandal. As an author, Winchester has written or contributed to more than a dozen non-fiction books and his articles have appeared in several travel publications, including *Condé Nast Traveler, Smithsonian Magazine*, and *National Geographic*.

Mr. Winchester has written three books on geological subjects. These are *The Map That Changed the World* (2001), *Krakatoa, the Day the Earth Exploded: August 27, 1883* (2003), and *A Crack at the Edge of the World* (2005). *The Map That Changed the World* is the story of William Smith, the orphaned son of an English country blacksmith, who became determined to create the world's first geological map. William Smith's map of the geology of England, Wales, and southern Scotland was published in 1815 and became one of the foundational blocks of modern geology. *Krakatoa* examines the world-changing effects of the catastrophic volcanic eruption off the coast of Java. *The Crack in the Edge of the World* is based on the 1906 San Francisco earthquake that leveled the city symbolic of America's relentless western expansion. This book also provides an informative look at the tectonic forces and tumultuous subterranean world that produce earthquakes.

Summary

This informal survey suggests that the geologist is largely a stranger in popular culture and not well understood by the media. Some laypersons may imagine that the work of geologists is similar to being a pre-schooler. If it is a nice day, everyone goes outside to play and climb on rocks or have a field trip. If the weather is bad, everyone stays inside and does drawings with their colored pencils. Make sure to stay inside the lines! **From The Editor** *continued on page19*



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From the Editor continued from page 17

What can we do about this? We can all make an effort to share what we know about our venerable science with interested people and provide perspective on issues that involve the geosciences. Visiting schools to talk to students about the important contributions geologists make to society is a great way to catch a young person's imagination. It is time for geology and geologists to have their time in the spotlight.

So, the next time you are in a tavern enjoying a frosty beer after a long day at the hadrosaur dig and someone comes in screaming, "Oh, my god, a huge fissure spewing andesitic lava has triggered a lahar that is coming straight for us!," shake the dust off of your field vest, take your boots off the table, grab your rock hammer, and shout, "Stand back, I am geologist, dammit!" ■

The Year That Was and Grateful Acknowledgement

With this issue, my second, non-consecutive term as Editor of the HGS *Bulletin* draws to a Grover Cleveland-esque close. History buffs may chuckle because they know that Grover Cleveland was the only U.S. President to serve two, non-consecutive terms.

A look back sees a largely successful year for the HGS, Houston, and the United States. Oil prices were mostly stable or slightly up and domestic natural gas and crude oil production were up. There were no major hurricanes on the Gulf Coast. The Houston and the HGS hosted another successful AAPG Annual Convention and Exposition. The stock market has returned to record highs.

Into the sunset

For those members that read the *Bulletin*, (I know there are some), hopefully, you found some worthwhile reading in these pages over the last 10 issues. You would have learned about the disconnect between the price of oil and the price of natural gas (September 2013), Thomas Jefferson as a paleontologist (October 2013), forensic geology and paper balloon bombs (November 2013), helium production (December 2013), subsea gas hydrates (January 2014), water sources for hydraulic fracturing (February 2014), the strategic geology of rare earth elements (March 2014), the global phenomena of Snowball Earth (April 2014), drought and conflict in the American West (May 2014), and the portrayal of geologists in popular media (June 2014).

As during my early term at Editor, it has been a great experience and I have learned a lot. I have had the pleasure of meeting many dynamic people who donate their time to make the HGS a great organization. I encourage all members to get involved with some part of the Society even if you just come out to the technical meetings.

My thanks go to the fine HGS editorial board of editor-elect **David Miller**, advisory editors **Ed Marks, Charles Revilla, James Ragsdale,** and **Fang Lin**. Their insightful and timely editorial reviews and comments kept me on the right path often through some tough sledding. Good luck to Mr. Miller as he dons the editor's mantle for 2014 - 2015.

Thanks also to **Lisa Krueger** for her patience, skill, and talent each month assembling the *Bulletin* and producing a great looking publication. **Prime Source Office Solutions** did a fine job as the *Bulletin* printer. Grateful acknowledgement also goes to **Jill Kimble** who handled all the advertising workflow from diverse sources and caught some typo errors before final printing. Thanks to both Jill and **Sandra Babcock** in the HGS office for skillfully managing the financial aspects and administrative chores related to the production and distribution of the *Bulletin*.

Thanks to **Troy Fearnow**, our HGS webmaster, for his efforts in keeping the events calendar informative and updated and for assisting in fixing editorial errors in the electronic PDF versions of the Bulletin posted on the HGS website.

Thanks also to our advertisers for your support throughout the year and thanks to the authors who contributed the materials presented in the *Bulletin*.

Be well, do good work, and stay in touch.

Happy trails,
Michael F. Forlenza, P.G., HGS Editor

Monday, June 2, 2014

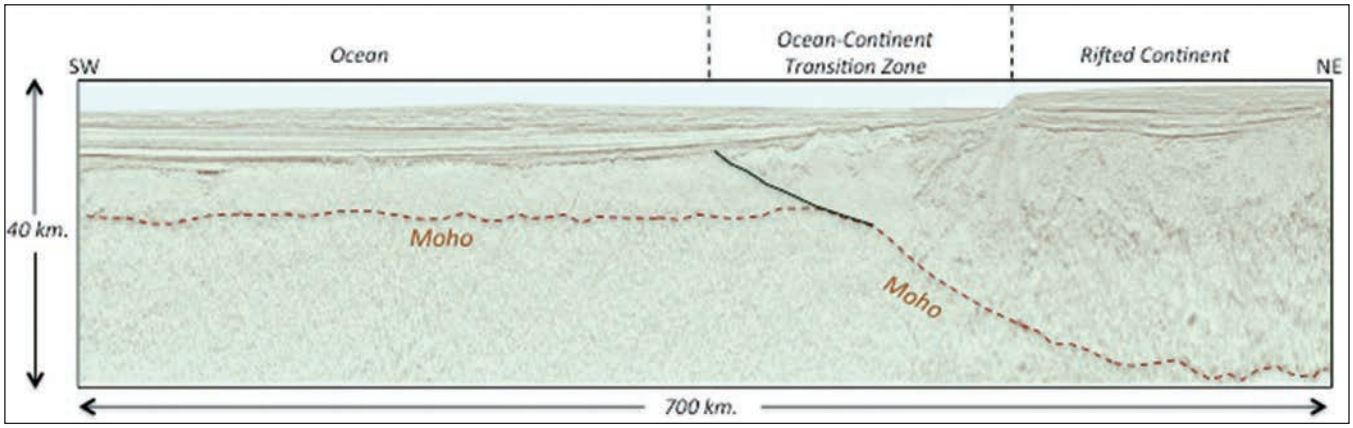
Westchase Hilton • 9999 Westheimer
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: $30 Preregistered members; $35 non-members/walk-ups

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk-ups may pay at the door if extra seats are available.

Rob Pascoe, *Leopard Energy Ltd. (speaker)*
pascoe.rpp@gmail.com
Mark G. Rowan, *Rowan Consulting, Inc.*
Nick Kusznir and Alan Roberts, B*adley Geoscience Ltd.*

Crustal Architecture and Passive-Margin Evolution of the Northern Gulf of Mexico Basin – Applications to Exploration Work-Flows



A revolutionary 2012 seismic reflection survey, *SuperCache*, consisting of 17,000 kilometers (km) of 2D Pre-Stack Depth Migration (PSDM) data was acquired across the United States deep-water Gulf of Mexico (GOM). The acquisition configuration of long-offset, powerful source, and deep-tow of both source and receivers was designed to optimize the imaging of crustal architecture. The source was found to be at least 40% more powerful in the 3-40 Hertz range than prior seismic surveys in the GOM. A 15 km. single contiguous solid streamer, the first known commercial application of such an ultra-long streamer, improved velocity estimation to 15 km.

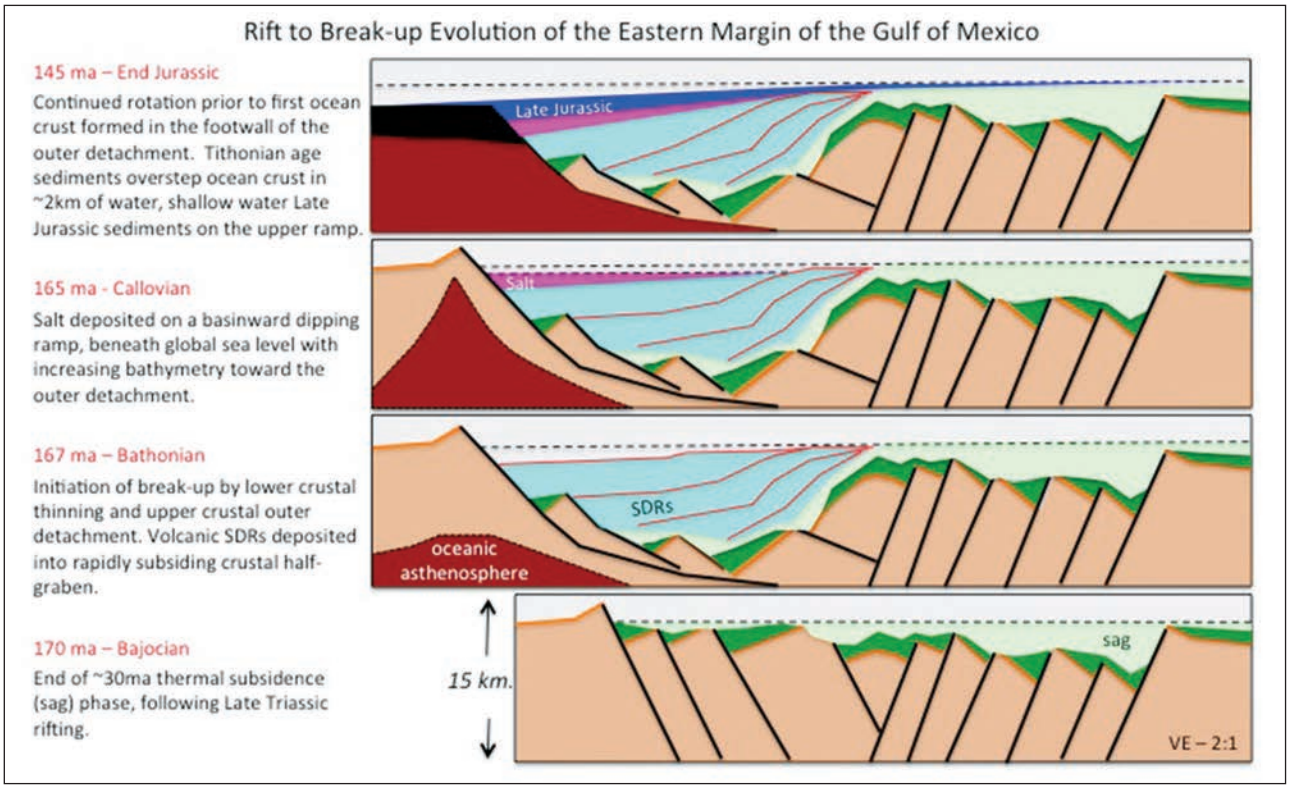
As a result of these parameters, the crustal architecture of the GOM basin has been illuminated to a depth of 40 km. Based on these seismic data, the base of the post-rift, sag, and syn-rift sequences, as well as the Moho, have been mapped around the basin. Geodynamic basin-modeling, including basin-wide 3D gravity inversion and targeted 2D flexural backstripping, has been used to test, corroborate and quantify the kinematic and subsidence implications of the seismic interpretations, further constraining and quantifying the timing and spatial distribution of crustal thinning.

The area of investigation extends from low-extension through highly-attenuated continental crust onto oceanic crust. The ocean-to-continent transition zone exhibits along-strike (~2000 km) variations from anomalously thin, possibly magma-poor crust in the northwestern GOM, to an area of thicker oceanic crust and volcanic seaward-dipping-reflectors (SDRs) in the east. The original depositional extent, thickness, and basinward allochthonous translation of the Middle Jurassic salt can be related to these along-strike changes in continental breakup.

Within the area of probable oceanic crust, mid-ocean spreading valleys and transform faults have been mapped on both the seismic and the gravity data. The orientation of these crustal elements suggests that the separation phase of the basin occurred with a north-northeast to northeast orientation. West to east variations in apparent width and thickness of the oceanic crust suggest that seafloor-spreading was initiated in the western GOM and propagated eastwards towards the pole of rotation. Inferred spreading rates, from analogs with present day global spreading axes, suggest seafloor-spreading occurred within the Late Jurassic.

HGS International Dinner *continued on page 23*

HGS North American Dinner continued from page 21



This crustal architecture has significant implications for exploration work-flows. The effects on constraining uncertainty are likely to be most important in areas of significant continental crustal attenuation, with limited well control. The approach is applicable to constraining the bottom-up heat-flow inputs required in geochemical basin models and predicting the age, paleobathymetry and facies of Late Jurassic sediments. ■

Biographical Sketch

Since 2012, **Rob Pascoe** has been President of Leopard Energy, a Houston-based E&P start-up, one of the *Dynamic Group* of companies. In addition to his responsibilities for Leopard Energy, Mr. Pascoe has worked with the *Dynamic Data Services* team on the interpretation of the *SuperCache* regional 2D seismic data set in the Gulf of Mexico.

Mr. Pascoe spent the first seventeen years of his career with Conoco Inc. based in London, Luanda, Houston, Stavanger, and finally Lafayette, LA in 1998-1999, where he had his first exposure to the Gulf of Mexico. From 1999 to 2011, he worked for BHP Billiton, where he held roles including Chief Geologist, VP Global New Ventures, and VP Western Hemisphere.

Mr. Pascoe's passion is for regional basin analysis as applied to all aspects

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Pre-registration without payment will not be accepted.
Walk-ups may pay at the door if extra seats are available.

Robert Erlich *(speaker)*
rerlich@paexploration.com
Francis Innis
PanAtlantic Exploration Company
Houston, Texas

Exploration for Cretaceous Deep-water Reservoirs in the Circum-Caribbean Region: Historical Review and Expectations for the Future

Historical exploration efforts within the Circum-Caribbean region typically have not targeted Cretaceous reservoirs for a variety of technical and commercial reasons. The principal exceptions to this have been exploration efforts along the north coast of Cuba during the 1950s (sporadic since then), some wells on- and offshore Honduras and Nicaragua during the 1930s to 1970s (three recent wells in the 2000s), and five wells in the Bahamas during the same time period. Renewed interest in Cretaceous reservoirs began in earnest during the mid-late 1980s, mainly as a byproduct of successful exploration in Eastern Venezuela's Furrial Trend, though these discoveries are concentrated principally within Neogene-Paleogene strata.

Exploration for Cretaceous targets has focused almost exclusively on Trinidad since that time, and results have not been overwhelmingly positive; regardless of whether the objectives were located onshore or offshore. Further interest in the Cretaceous has been generated recently by the discovery of commercial accumulations in slope and basin floor fan/channel complexes, most commonly found along the Equatorial Atlantic margins of West Africa and South America (the "Transform Margin Play"). Despite these recent successes, Cretaceous reservoirs and traps continue to yield unpredictable drilling results, especially along the margins of northern South America.

Significant technical risks include reservoir presence and deliverability, hydrocarbon charge access, and trap/seal integrity. Commercial challenges include hydrocarbon type (gas vs. oil), volumes required for commercial development, development costs (hub and spoke versus stand-alone accumulations; number of development wells and FPSOs needed), and decreasing contractor take. A quick review shows that nearly all successful (?) wells in the trend have been drilled from 5 to 40 kilometers down depositional dip from the Cretaceous paleo-shelf margin; although the technical factors mentioned above do not guarantee this "sweet spot" will hold up over the long term. While new discoveries in deep-water Cretaceous reservoirs are possible within the Caribbean-northern South America region, significant technical and commercial risks will continue to impact new exploration drilling. ■

Biographical Sketch

Bob Erlich began his career with Amoco in New Orleans in 1980, working on domestic and Latin American projects as a junior geologist. He moved to Amoco's Houston International office in 1987 as a senior geologist and progressed through positions as a senior field geologist, technical team leader, and as Regional Geologist for northern Latin America and the Caribbean. He joined Burlington Resources in 1999 and was named General Manager for Peru, where he led technical and operational programs that resulted in the discovery of several major oil and gas fields.

He returned to BP in 2006 to head their New Ventures exploration efforts in Latin America and the Caribbean and in 2008, was named Corporate Vice President of Exploration for Petrolifera Petroleum Limited, a Canadian independent with operations in Peru, Colombia, and Argentina. In 2011, he moved to Hess Corporation as a senior advisor to the Senior Vice President of Exploration, and in 2012 he accepted the role of Vice President of Exploration and New Ventures with Pan Atlantic Exploration. During his career, Dr. Erlich has worked assignments in a number of countries, including Trinidad, Peru, Colombia, Venezuela, Argentina, Suriname, Brazil, Costa Rica, Panama, Guatemala, Equatorial Guinea, the United Kingdom, and the People's Republic of China.

Dr. Erlich received his B.S. degree in geology from the University of Miami, his M.S. degree in sedimentology from the University of North Carolina at Chapel Hill, and his PhD in paleoceanography from Vrije Universiteit in Amsterdam, The Netherlands. He has published extensively on the geology of northern Latin America with an emphasis on Cretaceous petroleum systems and is currently focused on the exploration of Cretaceous depositional systems along the Equatorial Atlantic margins.

HGS–PESGB

13th Conference on African E&P

Africa: A World of Opportunities

September 9–10, 2014

The Westin Houston, Memorial City, 945 Gessner Road, Houston, Texas

Call for Papers, Posters, Sponsors and Exhibitors

In twelve years this conference has become established as a leading technical E&P forum on Africa, with attendance that can exceed 400. Participants include operators, service companies, consultants, governments and academia. The two day program of talks, technical posters and vendors' exhibits will be held on September 9-10, 2014 in Houston, Texas.

The conference, which alternates annually between London and Houston, is organized by the Houston Geological Society (HGS) and Petroleum Exploration Society of Great Britain (PESGB). The HGS-PESGB African Conference covers all aspects of African E&P, with particular emphasis on new ideas for plays and prospects, the geology of the continent and its conjugate margins, and application of emerging technologies.

Abstracts (~200 words) should be submitted as soon as possible to the technical committee, Africa2014@hgs.org.

Currently, volunteers are being sought to be proactive Session Chairs and anyone interested should contact the Technical Committee as soon as possible.

Details of sponsorship opportunities and display booths are available from the HGS office. To become a sponsor or inquire about exhibit space, contact sandra@hgs.org

Registration will be available from April 2014 and Early Bird benefits will apply for a few weeks.

Further details will appear in the HGS and PESGB bulletins and on their websites, www.hgs.org and www.pesgb.org.uk.

Conference Committee for 2014

Martin Cassidy (chair), Al Danforth, Ian Poyntz, Donna Davis and Sandra Babcock (HGS)
Ray Bate and Duncan Macgregor (PESGB).

Exhibitor/Sponsor Form

HGS/PESGB Africa Conference Sept. 9th – 10th, 2014 Houston

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Exhibitors: With the purchase of a 10 X 10 space you will get one table, 2 chairs and a waist basket.
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See floor plan to choose your booth space number(s)–

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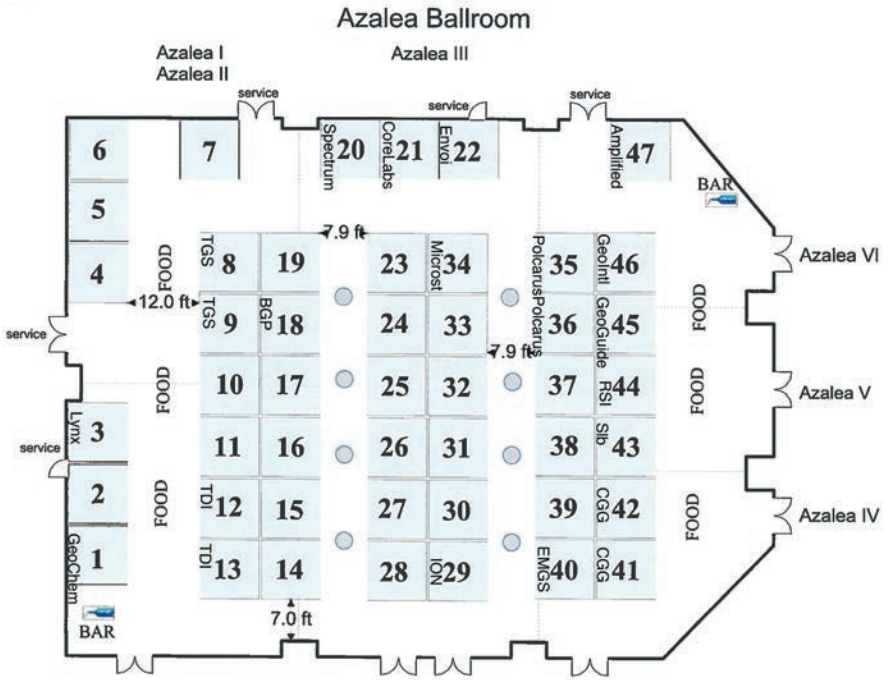

2013-2014 Honorary Life Membership

Honorary Life Membership is bestowed upon persons who have distinguished themselves in the science of geology or have contributed outstanding service to the success and welfare of this organization.

Sandi Barber is being awarded HGS Honorary Life Membership Award in recognition of her many contributions to HGS over the years. Sandi joined the HGS in 1980. Since her initial committee involvement with the Boy Scouts Committee in 1990, Sandi has enriched the Society with her service, innovative leadership, and representation.

Sandi M. Barber

As the first HGS Treasurer (1992-93) to have the support of a Treasurer-elect, Sandi instigated the efforts to move to a digital accounting system, which was instituted the following year by her successor. That was the same year she joined the Finance Committee which she later chaired for three years.

In her term as HGS Vice President (1996-97), she proposed and helped organize the first separate ChairFest event, distinct from HGS Board meetings. This innovative event has grown from an annual opportunity for budget planning and committee introductions each August to include a mid-year ChairFest. Sandi followed her term as Vice President with the three-year obligation of HGS President-Elect, President, and Past President (1997-2000). As President-Elect, she worked with the special 75th Anniversary Guest Night Chair at the Petroleum Club to fulfill HGS President Jeff Lund's vision for that special night in June 1998.

As HGS President during the 1998-99 industry downturn, Sandi encouraged the HGS committees to develop activities, short courses, and continuing education programs that would provide HGS members with assistance in pursuing new jobs. These efforts led to the development of the Career Decision Workshop that continued to be presented into 2001.

Sandi was the first President to present a bound collection of *Bulletins*, the 75th anniversary editions, to the outgoing HGS Editor. She also purchased a similar set for herself. These collections are now a standard parting gift for these two HGS officers. Also, Sandi established the Advisory Committee as a full standing committee. This permitted the Board to address the day-to-day business of the society while permitting the Advisory Committee to "look down the road" at other issues that the HGS should consider (e.g., membership, meeting venues).

Perhaps one of the most important contributions that Sandi made to the HGS that year was establishing the Gerald A. Cooley Award. Her original intention was to honor those HGS members who continued to work in the "grunt" jobs and to serve the HGS. These are jobs that were not especially glamorous or prominent but were important to the HGS's continued success. The award has become the highest honor that HGS can bestow upon a member for service to the Society over their career. She is extremely proud of presenting the first Gerald A. Cooley Award to Jerry Cooley.

Sandi has continued to serve HGS after her terms on the Board were completed. As a member of the Continuing Education Committee (1999 to 2002), she was instrumental in organizing two significant educational events. The first was a one-day overview seminar with four Saturday workshops at North Harris College, presenting an overview of different 3D interpretation software packages. The second was a one-day seminar "Financing the Deal" workshop. Sandi also co-founded the Houston Energy Council (HEC) and chaired the council from 1999 to 2004, representing the HGS on the HEC from the founding to the present. Sandi now chairs the HGS Web Management Committee (2012-present) where she has been instrumental in its reorganization and its oversight of the HGS web site.

Sandi well represents HGS in her "extracurricular" activities. As an AAPG Delegate from 1992 to the present, she served as the Houston AAPG Delegation foreman (1994-95), as the AAPG House of Delegates Secretary (2000-2001), and as chair for several of the House's committees. She has served in two officer positions and as board member for the Geophysical Society of Houston (prior to her service to HGS).

HGS has previously recognized Sandi for her contributions to the Society with its President's Award (1995), and Distinguished Service Award (2001). Honorary Life Membership is something long overdue for someone who has contributed so much to this Society over many years. ■

Ken Nemeth, Robert Pledger, and John Dombrowski

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Northern Appalachian Basin Faults, Fractures andTectonics and Their Effects on the Utica, Geneseo and Marcellus Black Shales	**June 23-27, 2014** New York
Canoeing with Lewis & Clark: A Geologic Excursion along the Missouri River in Montana	**July 14-19, 2014** Montana
Seismic Interpretation in Fold-and-Thrust Belts: Field Trip to the Southern Canadian Rocky Mountain Foreland	**July 20-26, 2014** Alberta, Canada
Sedimentology and Sequence Stratigraphic Response of Paralic Deposits to Changes in Accommodation: Predicting Reservoir Architecture	**September 4-11, 2014** Book Cliffs, Utah
Fractures, Folds and Faults in Thrusted Terrains, Sawtooth Range	**September 8-13, 2014** Montana
Lacustrine Basin Exploration	**September 14-21, 2014** Utah
Complex Carbonate Reservoirs	**September 20-26** Italy
Folding, Thrusting and Syntectonic Sedimentation: Perspectives from Classic Localities of the central Pyrenees	**September 22-26, 2014** Spain

SHORT COURSES

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Fractured Reservoirs: From Geologic Concepts to Reservoir Models (course plus field trip)	**September 22-26, 2014** Casper, WY

www.aapg.org/career/training/

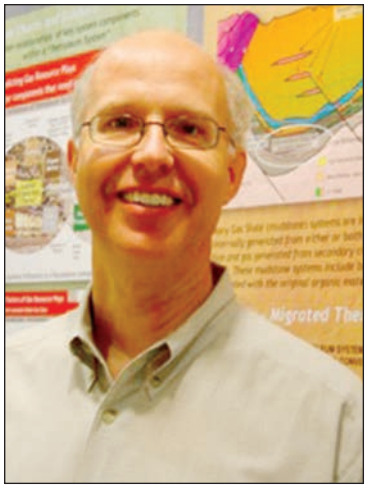
AAPG Education

2013-2014 Honorary Life Membership

Honorary Life Membership is bestowed upon persons who have distinguished themselves in the science of geology or have contributed outstanding service to the success and welfare of this organization.

Frank Walles has been an active member of the HGS for 30 years. Since his early involvement with the establishment of the North Houston Meeting group (now known as Northsiders) in 2002, Frank has enriched the Society with his inventiveness and organizational skills.

In addition to serving as Chair or Co-chair of the Northsiders from 2002 to 2009, he organized the first Applied Geoscience Conference (AGC) in 2006, building upon his participation as a technical presenter within the Society of Petroleum Engineers (SPE) Unconventional Workshops. This AGC has grown into an industry-recognized "must attend" conference that attracts industry, university, and government participants. He continues as Chairman of the AGC to this day.



Frank Walles

Even while ably representing HGS at AAPG as President of the Energy Minerals Division from 2009 to 2011, Frank continued his involvement with the AGC. In 2012 the AGC, through Frank, proposed a second conference. This Geomechanics-themed conference, first held in November 2013, was a surprising success and is now scheduled as an annual event starting in May 2015. Frank oversees a committee of 45 HGS members that represent the technical interests and needs of thirty-eight industry companies. He also recruited an additional thirty plus members to the HGS Geomechanics AGC committee.

Frank works in the oil and gas Industry as an Integrated Reservoir Characterization Specialist of Unconventional and Conventional Petroleum Systems.

Frank well represents the HGS in his extracurricular activities, continuing with session chairing and organizing of national, international, and professional events for many national and local professional society conferences including the AAPG, EMD, SEPM, SPE, SPWLA, SIPES, HGS, Oklahoma Geological Society, University of Oklahoma, and Texas Christian University.

HGS recognized Frank for his contributions to the Society with its Rising Star Award in 2005, President's Award in 2007, and a Distinguished Service Award in 2009. With Honorary Life Membership, Frank has become only the third HGS member to be awarded four of the five HGS primary awards.

The Houston Geological Society awards Frank Walles HGS Honorary Life Membership in recognition of his long-time active participation within the HGS. Frank has been responsible for the development of new committees that have increased member benefits, promoted HGS members participation in the Society's activities and thereby expanded the HGS reach. His efforts have resulted in the recruiting of new members (both young and experienced) and the development of new avenues to promote the sharing of industry, governmental, and academic knowledge with the greater HGS membership. ■

Ken Nemeth

2013-2014 Distinguished Service Award

This award was created to honor members who have rendered long-term valuable service to the Society.

It is with great pleasure that the HGS Board is awarding **Martin Cassidy** with the 2014 Distinguished Service Award. We would truly be hard pressed to find someone with more time and "bandwidth" in service than Martin. He is coming off a stint as HGS President, a role that would have been a fitting capstone to a career of service to HGS and the geological community were it not for his continuing contributions as well.

Martin Cassidy

Martin joined HGS in 1966 and as early as 1968 he held an HGS board position as Treasurer, where, among his other accomplishments, he once wrote out a sizeable check unintentionally from his personal checking account, the amount of which might still be a part of our asset base if his wife Jo had not brought it to his attention. He nevertheless was elected as Society Vice President in 1969, when he served a partial term prior to his Amoco transfer to Libya. After his stints in Libya and Chicago until the early 1980s, Martin resumed HGS volunteer work for a few years before assuming duty stations in England and New Orleans, finally returning to Houston in 1988. For nearly a decade thereafter, he was active in the International Explorationists group, finding speakers and giving his own presentations at the group's functions, acting as group Treasurer, and chairing the Committee in 1999. HGS had a Fund Raising Committee in 2001 and Martin chaired that as well. He was well deserving of the President's Award from HGS that he received at that time.

The years from 2000 to the present saw Martin retiring from Amoco, and accomplishing what most industry geologists only talk about doing: "going back and getting the PhD." While working in his subsequent life in academia/industry, and becoming an industry leader in CO2 supply and disposal research, he found time to continue his HGS and AAPG contributions including starting up the AAPG Publications Pipeline (recently surpassing the 100 ton level of geological books shipped), AAPG House of Delegates for nine years (Foreman in 2007), AAPG Membership Committee, and earning the AAPG Distinguished Service Award in 2010. Martin has been active with the Science and Engineering Fair of Houston, judging over the past couple of years, and, since completing his term as HGS President in 2013, he is currently Chair of the Africa Conference Committee. His many contributions to HGS and AAPG have been most exemplary and HGS is proud to present its 2014 Distinguished Service Award to Martin Cassidy. ■

Mike Erpenbeck

2013-2014 Distinguished Service Award

This award was created to honor members who have rendered long-term valuable service to the Society.

The Houston Geological Society is pleased to present its 2014 Distinguished Service Award to **Steve Earle** for his dedicated service to the Society.

Steve Earle

Steve is currently a senior explorationist at Carrizo Oil & Gas in Houston, Texas. He previously worked at Amoco, ARCO, Vastar, BP, and Sabco.

He graduated from the University of Arizona in 1974 with a B.S. in geophysics. In 1988, he received an MBA from Houston Baptist University.

In 1987 after moving from Tyler-Plano to Houston, Steve joined HGS and has since been actively involved in many areas. He served as Treasurer and Chairman of the North American Explorationists from 2000-2006, Chairman of the Constitution and Bylaws Committee (2008-2009), Chairman (2012-2013) and member (2013-2014) of the HGS Board Nominations Committee and GSH Liaison (2012-2014). Steve has worked with the Field Trip committee (2010) and is the Grand Canyon Field Trip leader (2011, 2012, and the upcoming 2014 trip). Since 2003 he has faithfully served on the AAPG House of Delegates. In addition, he helped with 2011 Guest Night and was a member of the Community Outreach program.

Steve was elected to the HGS Board as Editor-elect (2006-2007), Editor (2007-2008), President-elect (2010-2011) and President (2011-2012).

I had the privilege of serving on the HGS Board with Steve when he was Editor and President-elect. Steve is blessed with the ability to think, write and speak with excellent reasoning and clarity. Although we occasionally disagreed on a discussion/motion, I always looked forward to hearing his arguments to make sure we were not overlooking an important point. I still appreciate his input on HGS matters.

Steve has announced he is retiring from Carrizo O&G and moving to Colorado following the June 2014 HGS Grand Canyon field trip which he will be leading. We will miss having the opportunity to regularly talk with him and share good laughs. ■

John Tubb and Kenneth Nemeth

2013-2014 Distinguished Service Award

This award was created to honor members who have rendered long-term valuable service to the Society.

Dianna Phu has earned the HGS Distinguished Service Award in 2014 for her efforts to "drag" the Society into the digital age. More than anyone else Dianna has been instrumental in keeping HGS internet-literate. Others have jumped onto the band wagon, but to my knowledge, she was and is the leader.

Dianna Phu

Dianna was an early member of the NeoGeos, following that organization's philosophy of remaining separate from the "older" Houston Geological Society (HGS). As Dianna became more in tune with what the two groups wanted to accomplish, she decided to become an HGS member. In addition to becoming an active member in 2004, she chaired the NeoGeos Committee from 2005-2007.

Dianna has continued to serve on HGS committees, as well as continuing her extraordinary work with the Houston Gem and Mineral Society and the Houston Museum of Natural Science. Her other activities and committee service have included serving on the HGS Website Committee (2006-present), the Continuing Education Committee (2006-present), Arrangements Committee (2007-2010), GSH-HGS Geoscience Day Planning Committee (2007-2011), Earth Science Week Committee (volunteer for Family Day at HMNS since 2006), and HGMS Jewelry, Mineral & Fossil Show volunteer for the HGS booth (in 2013).

Most importantly, in the age of social media interaction, Dianna has taken the lead and moved the HGS into LinkedIn, Facebook, and Twitter. In the age of immediacy she has made HGS relevant.. Since 2010 Dianna has strived to keep the media-savvy members aware of what is going on in HGS.

Although Dianna has not served as an HGS officer, much to my surprise, she has run for the office of HGS Secretary several times and is once again a candidate for that office.

Dianna is a member of the GCAGS 2015 Convention Committee where she will be responsible for the media distribution of convention information. Dianna has served as a "substitute" AAPG delegate at AAPG conventions when those charged with that task could not attend the meeting. She is a current AAPG DPA Gulf Coast Councilor (2013-2016), DPA Alternate, and serves as the DPA's Website Committee Chairperson.

Dianna is most proud of the Social Media networking/outreach/marketing aspect of the HGS web site. She began these efforts in 2010. In her own words, this was something that "was needed … to connect our members and potential members with the incredible opportunities [that] the HGS makes available, with the added benefit of also contributing to dialogue with our community, the general public, and other organizations around the globe. Additionally, there is always the hope that it can help us reach out to the young demographics that the Society needs to pull in and get involved." She is responsible for the HGS social media policy and established the official HGS Facebook fan page, LinkedIn group, and Twitter account, as previously pointed out.

I think of even more importance is that we have had a successful return on the HGS investment in our scholarship endeavors as Dianna was awarded a HGS Foundation Undergraduate Scholarship in 1999 while attending the University of Houston. She reports that "the investment in me hasn't gone to waste!"

Dianna has been recognized previously by HGS with its Rising Star (2007) and President's (2011) Awards. I have often observed that HGS awards are given to people whose continued service often lacks the word "continued" after the award is given. At this stage of her professional career, Dianna is one of those exceptional young people who have willingly and unselfishly continued to contribute to HGS.

One thing that I did not know is that Dianna has children. In my mind this makes her even more unique. We have a young member, with a family, who generously contributes to the success of HGS. One little known fact is that Dianna currently owns the neogeos.org domain and has offered to donate it to the Society. She has also created and maintained the NeoGeos message board (back in the days before the mainstream social media platforms took over).

It is an honor to see Dianna recognized for her service. She is truly an leader of the future and well deserving of the HGS Distinguished Service Award. ■ *Ken Nemeth*

2013-2014 Distinguished Service Award

This award was created to honor members who have rendered long-term valuable service to the Society.

Scott Thornton has been an HGS member since 1992. He has been recognized with the HGS President's Award in the past for his first "stint" of service to the International Explorationists in 2001. He served on the committee as a member (1993-1995), Chairman (1998-2000), and Technical Program Chairman (1996-1998). He recruited several members to the committee (Al Danforth, Jim Tucker, and Martin Cassidy) who continued the group's growth and development.

When Al and Martin stepped back from the group due to their duties related the Africa Conference and as an HGS officer, Scott returned to the committee in 2012 to once again serve as its Chairman. When arrangements go "bad" or meetings run long, a Chairman's job may not be as rewarding as when they go right. Guiding a HGS committee can sometimes be a thankless task and once "retired" it is unusual for a person to not only return to the committee, but to return to chair the committee.

Scott Thornton

Scott continues to serve the HGS in other capacities as he is also active on the Africa Conference Organizing Committee and will co-chair a session at the 2014 event.

The Houston Geological Society is happy to recognize Scott's long service to the Society with its Distinguished Service Award.

Ken Nemeth

2013-2014 HGS/HPAC Distinguished Service Award

This award was created to honor members who have rendered long-term valuable service to the Auxiliary.

The HGS/HPAC Distinguished Service Award recognizes members who have rendered long-term valuable service to the Auxiliary and the Society. **Norma Jean Jones** epitomizes this award. She has been president of the HGA and has served on numerous committees to assist the HGS and AAPG, as well as having volunteered at the HGS office for many years. Never one to sit still, she continues to be a leader of first rank and an example to us all. She will serve as HPAC First Vice President for the 2014-15 year, after which she will serve as President of this organization

Norma Jean Jones

Norma Jean began her volunteering work more than 30 years ago. An HGS Bulletin article from late 1989 listed her as one of the chairs for the Hospitality Room at the AAPG Annual National Convention for that year. Indeed, Norma Jean has assisted HGS in its support of AAPG by serving as a hospitality room chair for the last four AAPG conventions held in Houston. In 2002, along with Katherine Bennett, Norma Jean taught us all how to take tasks a step further by convincing Teas Nursery to donate an indoor garden in the hospitality room for the enjoyment of the attendees. Again this year, Co-Chairs Norma Jean and Sally Blackhall put together a wonderful, inviting room for attendees and spouses. It was a place to go visit with friends plus enjoy great snacks and even wine.

Through the years, we have all benefitted from Norma Jean's imagination and initiatives. When she served as President of HGA in 2006, again taking the extra step, she saw to it that HGS' Guest Night at the Museum had dining tables decorated with black oil derricks (made by Tom and Annette Mather) and cowboy hats with bandanas, making a special evening even more special. Never one to settle for status quo, that year she and her Board voted to initiate a study to determine if a merger of the Petroleum Auxiliaries in the Houston Area was a possibility. Winona LaBrant Smith led the evaluation which resulted in the merger of the Engineering, Geological, Geophysical and Landmen Auxiliaries into the Houston Petroleum Auxiliary Council (HPAC) of today.

Norma Jean entered into the petroleum business through Pan American Petroleum Corporation and Standard of Texas as a legal secretary in Corpus Christi. She moved to Houston, where her sister lived, and worked for Gulf Oil Corporation, Powder River Oil Company, and finally Austral Oil. She was working at Austral in 1969 when she married the love of her life, Larry Jones, a well respected petroleum geologist from Nebraska. Together they have nine children (six boys and three girls) and nineteen grandchildren. Norma Jean and Larry are both ordained Elders in the Presbyterian Church (PCUSA) and she serves as a Stephen's Minister at Grace Presbyterian Church. In addition, she continues to work with Larry in his company, Spartan Petroleum. Sometimes they take a little time off for fun at the Westside Tennis Club and Nottingham Forest Club where they are members.

This is one busy lady who knows how to combine family, community, and church. HPAC and HGS have certainly benefited from her time and talents. ■

Edie Bishop

2013-2014 President's Award

This award has been established to honor members whose extraordinary efforts or unique contributions deserve special recognition.

The HGS is proud to present **Jennifer Burton** with the 2014 President's Award, in recognition of her many years of invaluable service on the Educational Outreach Committee. Jennifer has been an active and dedicated member of HGS since 1997 and began serving on HGS committees in 2001 including the Earth Science Week Committee and the Education Outreach Committee. She became the chair of the Earth Science Week Committee in 2002 and served in this role until 2010. She initiated the Educational Outreach Committee in 2012 and continues to serve as its committee chair.

Jennifer Burton

Jennifer served one year on the special educational "Ad Hoc" committee in 2004 that created the K-12 Energy Poster that is still used today for educational outreach activities. She served as HGS Secretary in 2006 and as an HGS Director in 2010-2011.

Jennifer has been instrumental in the creation of the Educational Outreach Committee's annual offering of the Art, Essay, and Multimedia contest that is co-sponsored with the Houston Museum of Natural Science and the Consumer Energy Alliance. The contest has been offered for the past three years and has received enthusiastic support and praise from area teachers. This contest demands a lot of coordination between sponsors, judges, schools, and students. Jennifer has handled it beautifully for three years.

Jennifer is also currently an AAPG Alternate Delegate and has served in this role for three years. She has served as AAPG EMD short-course co-chair at the 2006 Houston convention and on the 2014 AAPG ACE committee as Teacher Program Chair.

Jennifer has previously received the HGS Rising Star Award in 2004 and a President's Award in 2010. ■

Beverly Blakeney DeJarnett and Ken Nemeth

2013-2014 President's Award

This award has been established to honor members whose extraordinary efforts or unique contributions deserve special recognition.

The HGS Board is pleased to award **Donna Davis** the President's Award for 2014, in recognition for all of her work in numerous committees over many years. She has come to be widely known for her reliability and thoroughness in accomplishing the many tasks she has taken on. Working initially on the HGS Bulletin editorial committee, she has since been appreciated for her longtime work, since 1993, on the Continuing Education Committee, where she is still presently active. Over this period, she was instrumental in securing speakers and organizing the content of the Short Courses and symposia while on this committee. Currently, she co-chairs the North American group, and previously she was the group's treasurer for several years. Donna is also actively involved in the African Conference, HGS Website, and International Committees.

Donna Davis

In the past, Donna has assisted in Earth Science Week activities, and she is a longtime volunteer at the Houston Museum of Natural History. Other functions and responsibilities she has taken on include: session monitor at AAPG, Offshore Technology Conference, and Society of Exploration Geophysicists, and registration at the HGS TechnoFest. Receiving numerous compliments for her work, she was also given the President's Award in 2009. Donna is truly a committed volunteer over many areas.

Donna received her B.S. in geology from Ohio State. She entered the oil and gas industry in Houston working as a geologist for Petroleum Information Inc., and currently consults as a geoscientist. In recognizing her commitment to the geologic profession she loves and her ongoing contributions to the HGS, the Society is proud to present Donna Davis with the 2014 President's Award. ■

Mike Erpenbeck

2013-2014 Chairman's Award

This award has been established to honor members whose extraordinary efforts or unique contributions deserve special recognition.

Gretchen Gillis is being awarded the HGS Committee Chair Award in recognition of her very active participation in the technical program committee for the HGS Applied Geoscience Conference (AGC), also known as the "Mudrocks Conference." Although "Chainsaw" Gillis is better known for her editing prowess within American Association of Petroleum Geologists (AAPG), she has also been proactive in her work with the Applied Geoscience Conference Committee. We are truly honored to be able to thank her for her dedicated contributions of her skills for this important Houston Geological Society event.

Gretchen Gillis

Gretchen provided numerous recommendations for improving the technical program and for specific technical program presenters and content. As AAPG Past Editor, she brought important insights to technical contributors within the industry. She also brought significant support from her current and past employers — Aramco Services Company and Schlumberger — which is truly appreciated by the committee. She served as Session Chair in the most recent AGC. Gretchen provided recommendations for representation on the 2013 HGS Geomechanics AGC committee, which resulted in support by the American Rock Mechanics Association (ARMA) for the AGC held in November 2013.

A glutton for committee work, Gretchen volunteers for the AAPG, most recently as Technical Program Chair for the 2014 Annual Conference and Exhibition in Houston. She also serves on program committees for the Offshore Technology Conference (OTC) and the Unconventional Resources Technology Conference (URTeC).

Gretchen began her career as exploration geologist with Maxus Exploration Company and development geologist with Oryx Energy Company. Gretchen next joined Schlumberger as founding coordinator of the Schlumberger Oilfield Glossary. During 13 years at Schlumberger, she served as *Oilfield Review* Editor, Executive Editor – Books, Editorial Manager and Advisory Editor for oilfield marketing communications, and writer of 80 *Years of Innovation*, a book about the history of Schlumberger.

Gretchen joined Aramco Services Company in Houston as geological specialist in 2010. In this role, she participates in the identification, analysis, and implementation of new technology for upstream exploration and production. She also serves as a geology instructor at the Saudi Aramco Upstream Professional Development Center (UPDC). Gretchen enjoys facilitating geological collaboration between Aramco, King Fahd University of Petroleum and Minerals, and Stanford University, which has grown to include an annual field seminar and research conference.

Gretchen earned a BA degree in geology from Bryn Mawr College, Pennsylvania, and an MA degree in geological sciences from the University of Texas at Austin. She is professionally certified by the AAPG Division of Professional Affairs, the Texas Board of Professional Geoscientists, and the American Institute of Professional Geologists. ■

Frank Walles

2013-2014 Chairman's Award

This award has been established to honor members whose extraordinary efforts or unique contributions deserve special recognition.

Bruce Hart is being awarded the HGS Committee Chair Award in recognition of his very active participation in the technical program committee for the HGS Applied Geoscience Conference (AGC), also known as the "Mudrocks Conference." Although Bruce is already well known for his editing prowess within the AAPG and SEG, he has also been a key committee member on the Applied Geoscience Conference Committee and has helped assure an effective geophysical component to the technical program. We are truly honored to present Bruce with this award and thank him for his dedicated contributions of his skills to this important Houston Geological Society event.

Bruce Hart

Bruce has provided important geophysical attribute talk insights and recommendations for improving the technical program as well as specific technical program presenters and content. He also brought significant support from his current and past employers — ConocoPhillips and Statoil — which is truly appreciated by the committee. He has also served as an exemplary Session Chair in three of the AGC conferences.

Bruce has contributed to our AGC committee through his positive and giving attitude, his gracious willing to volunteer for others, including our professional organization, and his collaborative capabilities to support the development of comprehensive and applicable technical programs for our membership.

In addition to his contributions to HGS, Bruce contributes his time and efforts to the greater good of the geoscience community by being a Trustee of the GCSSEPM Foundation and by serving as an Associate Editor for the SEG/AAPG journal Interpretation. He was a member of the organizing committee for the 2014 AAPG Annual Convention and Exhibition in Houston. We have been especially fortunate to have Bruce contributing his talents to our technical programs for the greater HGS membership.

Bruce joined Statoil in April 2013 as a Leading Researcher (stratigraphy) in that company's Shale Oil and Gas research group. Prior to that he worked for ConocoPhillips from 2008-2013 in both the Technology and the Global New Ventures groups. Before joining industry, Bruce held academic and research positions at McGill University, New Mexico Tech, Penn State and the Geological Survey of Canada. He has over 50 publications in peer-reviewed journals, and was the 2009-2010 AAPG-SEG Distinguished Lecturer. Bruce has a Bachelor's degree in geography and geology from McMaster University, a Master's degree in oceanography from the University of Quebec in Rimouski, and a Ph.D. in geology from the University of Western Ontario. ■

Frank Walles

2013-2014 Chairman's Award

This award has been established to honor members whose extraordinary efforts or unique contributions deserve special recognition.

The HGS Board is pleased to present its Committee Chair Award for 2014 to **Bruce Woodhouse**, to recognize his many years of contributions primarily with the Applied Geoscience Conference technical program committee. He has been instrumental in the annual growth in size and increasing prestige of the "Mudrocks Conference" since joining this Committee in its second year of existence.

Bruce Woodhouse

Bruce has been instrumental in securing the venue arrangements and sites as the Conference evolved over its entire history. He handled contractual issues, logistics, and security arrangements at the Woodlands, Greenspoint, and the current Memorial City sites. Over the years of Mudrocks expansion and growth, he helped develop new concepts and conference offerings such as the Q&A session development, AV improvements, on site safety issues, photography, and post-conference activities such as write-ups and designing and developing feedback surveys ensuring future improvement. In the last couple years, Bruce has secured a substantial addition to the Conference: the displaying of actual well cores from the most relevant "shale" formations as an adjunct to the Conference activities. He was able to obtain commitments from donating operator/owners by ensuring the safe logistical handling of the core materials and delivering on the promise of on-site protection by constant monitoring while they were on open display.

Bruce has been active with other HGS committee work as well. He was chair of the Environmental and Engineering Geologists committee in 2005 and 2006 after several years as secretary and treasurer, coordinating arrangements with several meeting venues. He helped with field trip activities such as sinkhole and subsidence trips and the popular road rally events that combined road navigation and field geology identification skills. Over recent years he has helped the Northsiders group in putting on their monthly lunch meetings.

Bruce is also active in other community volunteer activities. He is chair of the Mayor's Office of International Trade and Development (MITDC), which supports trade and economic development of Houston as a renowned international city. He is active in Adopt-A-Highway efforts and volunteers for activities at Offshore Technology Conference.

Bruce has a BS in geology from University of Minnesota Duluth and an MS in geological engineering from South Dakota School of Mines. He has worked in oil and gas and environmental positions since 1979 at Tenneco (Midcon), Environmental Resources Management (ERM), and is currently with Connestogo-Rovers & Associates. The Houston Geological Society is pleased to present this Committee Chair 2014 Award to Bruce Woodhouse. ■

Mike Erpenbeck

2013-2014 Rising Star Award

This award has been established to honor individuals who are relative newcomers to the Houston Geological Society who have made significant and promising contributions to the enhancement and success of the HGS.

The HGS Board is pleased to award **Crystal Alavarces** the HGS Rising Star Award in recognition of her extensive professional participation in the full event and program committee for the annual HGS Applied Geoscience Conference (AGC), also known as the "Mudrocks Conference." We are truly pleased and thank her for her incredible enthusiasm and many years of dedicated contributions of her time and skills for this Houston Geological Society event.

Crystal Alavarces

The HGS appreciates her gracious smile, her personal enthusiasm, her professionalism, and her personal dedication towards serving the HGS membership. Her positive and professional personality helps to support and develop the lively collaboration that occurs within each of the event planning meetings.

With her early participation on the Applied Geoscience Conference committee, Crystal offered her skills to improve the marketing of the event and to help to determine the best media approaches. She progressed to contributing her skills as part of a team for the design of the flyers, brochures, signage, and the full-event technical brochure. Her responsibilities have expanded to now include the development and full completion of the event PowerPoints and delivery and organization of these materials at the event.

She also has provided numerous recommendations for improving the technical program and for specific technical program presenters and content. Crystal has also been instrumental in obtaining significant financial support for the event from her current employer, Weatherford.

She joined Weatherford in Houston as a Geological Associate in 2007 before evolving into her current role as Global Marketing Manager of Laboratories and Surface Logging. In this role, she is responsible for the development and execution of strategic and tactical marketing plans aligned with the business unit strategy.

Crystal has spent the last 14 years in the oil and gas industry, launching her career in International New Ventures with EOG Resources. There, in her primary role as Geoscience Associate she provided technical support, including the extraction, compilation, and overall maintenance of exploration data sets used in interpretation. Her natural progression from the technical side to marketing has allowed Crystal to expand upon her innate creativity and true passion for connecting around the globe.

The Houston Geological Society thanks her for her personal contributions through awarding her the HGS Rising Star Award. HGS members can look forward to benefiting from her continued dedication and ongoing contributions. ■

Frank Walles

2013-2014 Rising Star Award

This award has been established to honor individuals who are relative newcomers to the Houston Geological Society who have made significant and promising contributions to the enhancement and success of the HGS.

The HGS Board is pleased to award **L. Taras Bryndzia** the HGS Rising Star Award in recognition of his extensive professional participation in the full event and technical program committee for the annual HGS Applied Geoscience Conference (AGC), also known as the "Mudrocks Conference." We are truly honored and thank him for his multiple years of dedicated contributions to this well attended Houston Geological Society event.

Taras Bryndzia

The HGS appreciates Taras' enthusiasm, professionalism, and personal dedication towards serving our membership. His lively dedicated professional personality helps to support and develop the extensive collaboration that occurs within each of the event planning meetings.

Within his participation on this committee, Taras offers his significant knowledge and insights of who can best deliver important ideas and advances on reservoir characterization and methods of optimization of hydrocarbon recovery from unconventional reservoirs. This requires current knowledge of who is contributing to this advancement from industry, government, and universities.

Taras has also served multiple years as a session chair of these HGS Applied Geoscience Conferences. He has been instrumental in obtaining key speakers and important core materials from within Shell Oil Company to be shared with the greater HGS community. Taras has been influential in obtaining significant financial support, including graduate student sponsorship, from Shell Oil Company.

Taras originally joined Shell in 1990. He has a BSc (Honors) degree in geology from La Trobe University in Australia and MSc and PhD degrees in geology and geochemistry from the University of Toronto, Canada. He has held professional research positions at the University of Chicago (Senior Research Fellow), Northwestern University (Research Faculty), and at the U.S. EPA where he was a Research Geoscientist at the National Risk Management Research Laboratory.

In his current role, Taras is a Principal Research Geochemist in the Fundamental Rock Properties Characterization team at Shell Technology Center, based in Houston, where he helps to lead a multidisciplinary team of geoscientists conducting research on unconventional gas and liquid-rich shale resources. Taras is also the Subject Matter Expert for Inorganic Geochemistry in Shell.

The Houston Geological Society thanks Taras for his personal contributions through awarding him the HGS Rising Star Award. The HGS membership looks forward to benefiting from his continued enthusiasm and ongoing contributions! ■

Frank Walles

2013-2014 Rising Star Award

This award has been established to honor individuals who are relative newcomers to the Houston Geological Society who have made significant and promising contributions to the enhancement and success of the HGS.

The HGS is proud to award the 2014 Rising Star Award to **Sean Kimiagar** in recognition of his enthusiastic participation in the Society at this early stage of his professional career. Sean joined HGS in 2013. In his short time with the Society, Sean has already become a shining example of the role that HGS is seeking to recognize with its Rising Star Award. In his first year as an active HGS member, Sean stepped forward to serve as Finance Committee Chairman (2013-2014), replacing the past chairman who is now an HGS officer. He answered the call from the Nominations Committee this spring and is standing for the office of Treasurer-Elect. Sean has been very active with the AAPG Young Professionals and, through that connection, has also assisted the HGS with AAPG/SEG Student Expo.

Mike Deming

Sean Kimiagar

HGS Teacher of the Year Winner

This award has been established to honor individuals whose extraordinary efforts or unique contributions are in earth science education.

Energetic and dedicated, **Astra Zeno** goes above and beyond to give her high school girls at the Houston Independent School District (HISD) Young Women's College Preparatory Academy (YWCPA) engaging and exciting lessons each day. Ms. Zeno integrates science, technology, engineering, and mathematics (STEM) as she uses technology to enrich her lessons. Teaching skills that go beyond just STEM curriculum, she shares real-world situations with the girls, in order to build the technical foundation to excel beyond school. In so doing, she plays a key role in the joint efforts between the Independent Petroleum Association of America /Petroleum Equipment Suppliers of America (IPAA/PESA) and Houston Geological Society to highlight geoscience and engineering career opportunities to HISD students. It is for all of these reasons that the HGS is proud to present her with the 2014 Teacher of the Year Award.

Astra Zeno
Young Women's College Preparatory Academy
HISD

Through guest speakers, field trips, and competitions, Ms. Zeno supplements each lesson with interactive activities. She seeks out opportunities and encourages her students to take risks by participating in numerous district and city-wide competitions and challenges. Desiring to enrich the girls' experience with technology, she spends countless afternoon hours preparing the students for robotics competitions. She was also an enthusiastic supporter of the delivery of the HGS "Maps in Schools" program by Jeff Lund and the Geology Career Day. She brings the engineering and geoscience curricula to life while helping each student develop curiosity about how technology influences the way we live on Earth.

The girls learn to depend on her and trust her advice. Ms. Zeno believes in educating each student as a whole by integrating other subject areas into her instruction. She truly gives beyond her scope of duties when it comes to educating young women in pursuing STEM careers and, above all, leads by example.

Ms. Zeno holds MS degrees in education and materials science/engineering, and a BS in chemical engineering. She has worked in industry for Dow Chemical Company and Union Carbide. ■

Beverly Blakeney DeJarnett

2013-2014 Corporate Star Awards

The Houston Geological Society is pleased to present these companies with the Corporate Star Award for 2013–2014 in grateful appreciation for their support and special contributions to our events and programs during the year.

Platinum Level - $25,000 and over

devon

Weatherford®

WALTER OIL & GAS CORPORATION

Gold Level - $10,000 to $24,999

Core Lab
RESERVOIR OPTIMIZATION

Rose & Associates

Schlumberger

Statoil

TALISMAN ENERGY

2013-2014 Corporate Star Awards

The Houston Geological Society is pleased to present these companies with the Corporate Star Award for 2013–2014 in grateful appreciation for their support and special contributions to our events and programs during the year.

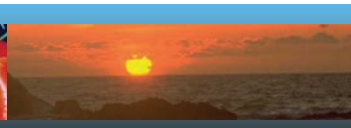
Silver Level – $2,000 to $9,999

Aramco Services
Baker Hughes
BP
Cabot Oil & Gas
Chevron
ConocoPhillips
Ecopetrol
Energy Careers
ExxonMobil
Fairfield Nodal
FEI
Geo Lab Inc.
Geomark
Global Geophysical
Halliburton
HESS
Kestrel IDM
Marathon Oil
Meta Rock Laboratories
Newfield
Nexen
Noble Energy
Oasis
Shell
SIGMA^3
SMEnergy
Thunder Exploration
Tiger Eye Resources
Trican
Ursa Resources Group

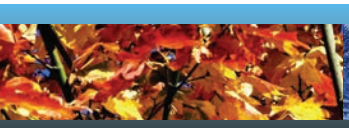
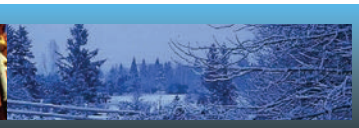
Bronze Level – $500 to $1,999

ALS Empirica
Anadarko
Bennu Oil and Gas
Canadian Discovery
Canamera
CLF
Continental Laboratories
CoreLab
Diversified Well Logging
Energy XXI
INEXS
Intertek
Pearl Oil Energy
PGS
Seismic Exchange
Silver Eagle
Spectrum
SWN
TGS
Toledo Mudlogging
Vitruvian
Weatherford Labs
Wireless Seismic Inc.

June 2014



Sunday	Monday	Tuesday	Wednesday
1	2 **HGS North American Dinner Meeting** *"Crustal Architecture and Passive-Margin Evolution of the Northern Gulf of Mexico Basin – Applications to Exploration Work-Flows," Rob Pascoe* *Page 21*	3 **HGS Board Meeting** *6 p.m.*	4
8	9 **HGS International Dinner Meeting** *"Exploration for Cretaceous Deep-water Reservoirs in the Circum-Caribbean Region: Historical Review and Expectations for the Future," Robert Erlich* *Page 25*	10 **Society of Independent Professional Earth Scientists (SIPES) Annual Meeting** *New Orleans, LA* *June 9-14*	11
15 **HGS Grand Canyon Field Trip**	16	17	18
22	23	24	25
29	30		

GeoEvents

Thursday	Friday	Saturday
5	6 **You can make your reservations NOW online at ww.hgs.org**	7 **HGS Guest Night** *"Journey Down the Nile," Pasquale Scaturro Houston Museum of Natural Science* *Page 51*
12	13	14
19 **SIPES Monthly Luncheon** *"U.S. Shales in Perspective of a World Oil Supply in Transition," Dick Bishop*	20	21
26	27	28 **Annual HGS Skeet Shoot** *Page 72*

Members Pre-registered Prices:

General Dinner Meeting	$30
Nonmembers & walk-ups	$35
Env. & Eng.	$30
Luncheon Meeting	$30
Nonmembers & walk-ups	$35
International Explorationists	$30
North American Explorationists	$30

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.**

June 30 - July 4
30th International Society for Environmental Geochemistry and Health Meeting
Newcastle-upon-Tyne, UK

August 20 - 22
Summer NAPE Expo
Houston, Texas

September 1 - 5
21st General Meeting of the International Mineralogical Association
Gauteng, South Africa

September 9 - 10
13th PESGB / HGS Africa Conference 2014
Westin Houston, TX

September 21 - 27
57th Annual AEG Meeting
Scottsdale, AZ

October 5 - 7, 2014
64th Annual Convention
Gulf Coast Association of Geological Societies and the Gulf Coast Section of SEPM
Lafayette, LA

October 19 - 22
2014 Geological Society of America Annual Meeting
Vancouver, British Columbia, Canada

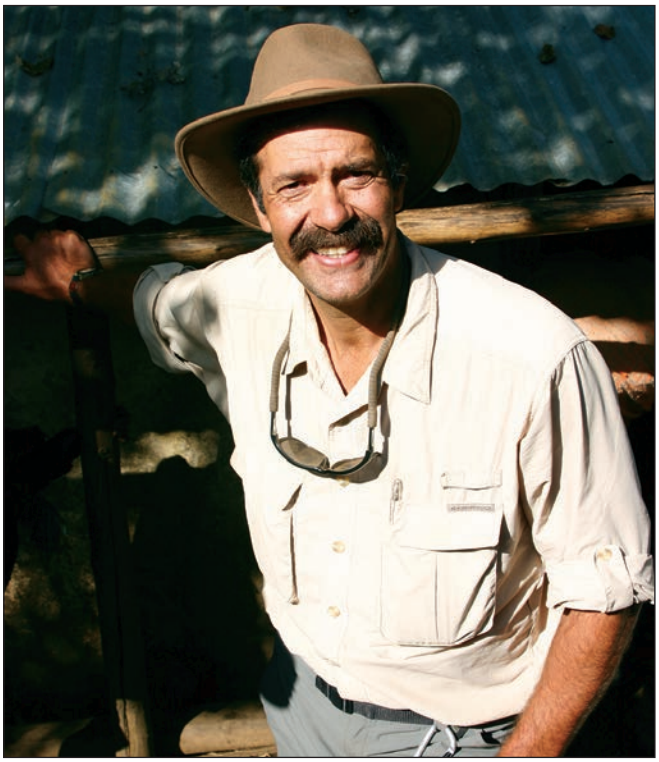
December 15 - 19
AGU Fall Meeting
San Francisco, California

September 19 - 22, 2015
AIPG 2015 National Conference
Anchorage, Alaska

April 2 - 5, 2017
AAPG Annual Convention & Exhibition
Houston, TX

Journey Down the Nile at HGS Guest Night – June 7th

by Dave Reynolds



Pasquale Scaturro

Make your reservation now for the Houston Geological Society (HGS) Guest Night on Saturday, June 7th at the Houston Museum of Natural Science. The HGS is pleased to present Pasquale Scaturro recounting his amazing journey down the Nile River from "Source to Sea."

The Nile has been called the Mount Everest of rivers and the quest to find its source - beginning with the ancient Egyptians - intrigued adventurers through the ages including Alexander the Great and Julius Caesar. This quest led to the intense and deadly 19th century exploration competitions involving Sir Richard Burton, John Speke, Samuel Baker, and of course Henry Morton Stanley and David Livingstone. At least a dozen men died exploring the source of the river in recent years.

Although the White Nile is the longer tributary, the Blue Nile, fed by streams in the highlands of Ethiopia, has by far the greater volume of water, making life possible for millions along its course through Ethiopia, Sudan, and Egypt. Despite modern technology, a complete exploration from the Blue Nile's source to the Mediterranean Sea was not accomplished until 2004 when Pasquale Scaturro and Gordon Brown undertook an ambitious

HGS Guest Night *continued on page 53*

HGS Guest Night continued from page 51

expedition to travel, continuously and unsupported, the length of the river: covering 3,260 miles in 114 days. Film footage from the trip was captured in an IMAX movie – The Mystery of the Nile – that captures fascinating aspects of the river, from Class 6 Rapids, attacks by "shifta" bandits, deep canyons, vast barren landscapes, and numerous cultures living along the Nile.

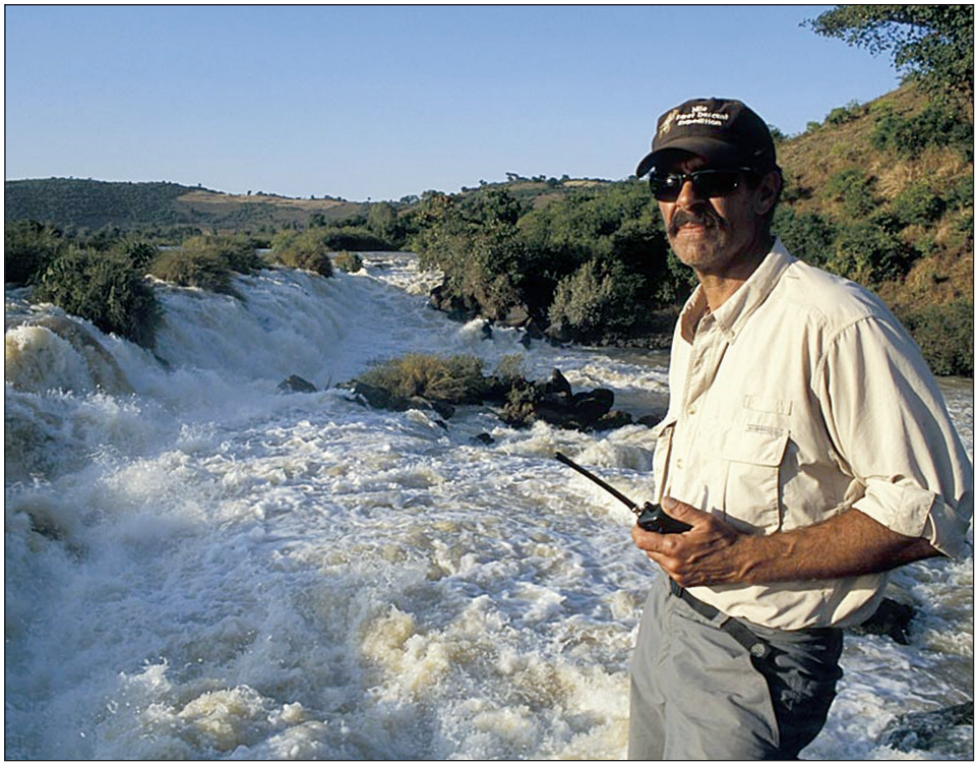
No mere adventurer, Pasquale has climbed Mount Everest three times, leading blind climber Eric Weihenmayer to the summit in 2001. He has led rafting expeditions down the Omo River in Ethiopia and Sudan, the Bio Bio in Chile, as well as expeditions across Arabia, the Middle East, Tanzania, Somalia, and Ethiopia. Pasquale is also a seasoned oil man, having worked with McMorRan Oil, Amoco Production Company, and Hunt Oil. He co-founded Tricon Geophysics, Exploration Specialists, Inc., and Hydrocarb Energy Corp. He is currently exploring an on-shore concession in Africa's Owambo Basin and splits his time between Houston, Denver, and his ranch in Namibia.

Guest Night continues to be a wonderful opportunity for HGS members to bring guests that are not geologists to an evening of entertainment, education, and fun in the beautiful Morian Hall of Paleontology. Please plan to bring your friends to share in some wonderful learning among the beautiful exhibits.

Tickets are only $35 per person for members and guests. The evening's activities begin at 6:30 with buffet dinner and cash bar. We will then move into the theater to recognize our Science and Engineering Fair student award winner and our event sponsors. Then Pasquale Scaturro will share his varied experiences of traveling down the Nile. We will conclude with the IMAX film made during his trip – *Mystery of the Nile.*

We appreciate the faithful sponsors of this event – BHP Billition, TGS, Schlumberger, IHS Kingdom, BP and FairfieldNodal. ■

Down by the falls



Pasquale Scaturro checking the route

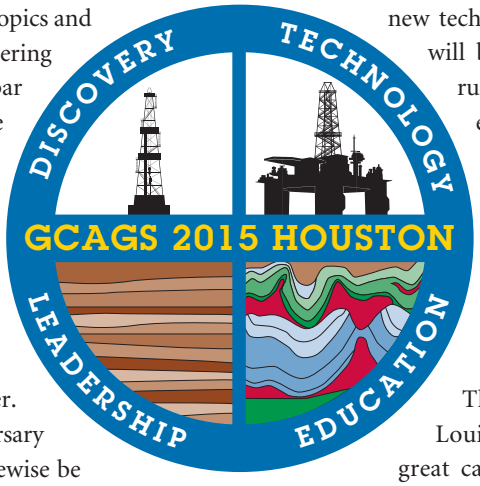
After AAPG ACE What's Next?

by Larry D. Bartell ldbartell@legendsexpl.com

Gulf Coast Association of Geological Societies

Congratulations to Steve Brachman and to the other HGS and Auxiliary volunteers who produced a most successful AAPG convention here in Houston this past April. You've once again showed why Houston is the world energy center with the vast number of technical talks on relevant topics and scores of short courses and field trips furthering the value of attending such meetings. The bar has been risen once again by the great base of innovative volunteer workers here in Houston.

So what's next, you ask? In September 2015, the Gulf Coast Association of Geological Societies (GCAGS), will have their annual convention here in Houston at the George R. Brown convention center. Fittingly, as we celebrated the 50th anniversary back in 2000 here in Houston, we will likewise be celebrating the 65th anniversary of this fine association which has remained true to its purpose, to educate and communicate the geology of the Gulf Coast through the annual conventions, its offerings, and publications. The GCAGS serves as the Gulf Coast section of the AAPG covering 13 local geological societies stretching from Florida to Mexico. And since you are a member of the HGS you're a member of the GCAGS as well.



Briefly, the GCAGS was an idea put in motion as a result of a disagreement with the AAPG by seven individuals representing seven local geological societies at a meeting in Baton Rouge in May 1950. This meeting culminated in the first GCAGS convention in New Orleans in November 1951, representing the seven geological association members at that time. Due to the boom and bust cycles of the oil patch, the number of local member societies has fluctuated and today it stands at its current level of 13 with Mexico being the last to join in 2002.

Our theme for the 2015 meeting is *Discovery, Leadership, Technology and Education*. We chose this in part because Houston is the world leader in exploration activities with the headquarters of many exploration companies and where much of the new technology is developed. Along with this, we will be having the AAPG-SEG Student Expo run concurrently with the convention. These events will draw many young bachelor and master graduates seeking job opportunities within the Gulf Coast and will introduce them to fine societies such as the HGS and the GCAGS and to the benefits of becoming engaged and active within them.

The 2014 convention will be in Lafayette Louisiana October 5-7th offering the always great camaraderie as only South Louisiana can, interesting technolocal presentations, field trips, short courses, and much much more. For more information or to register, visit the website at www.gcags.org.

These meetings don't run by themselves or by paid convention staff, but by the efforts of numerous volunteers of the HGS. So, if you have the desire to participate in such an endeavor, you can do so by contacting me by email at ldbartell@legendsexpl.com. I am the 2015 General Chairman, Linda Sternbach is the technical program chair, Deborah Sacrey as the Non-technical chair, and Charles Sternbach will be the President of the GCAGS. We are seeking cutting-edge papers on topics pertaining to the Gulf Coast. If you have such a paper, we invite you to share it with us or if you know someone who has such a paper, encourage them to present it.

I hope that you want to get involved and participate in this event. See you in Lafayette.

HGS Night at the Museum Entertains AAPG Attendees on April 8th

by Linda and Charles Sternbach

T-Rex at the party

A sell-out crowd of 420 enthusiastic geoscientists and friends filled the Morian Hall of Paleontology at the Houston Museum of Natural Science on April 8th. That evening, the HGS hosted a social event during the AAPG annual convention on the Tuesday night that featured a presentation by renowned paleontologist Dr. Robert T. Bakker, who is also curator of paleontology at the natural science museum. Attendees roamed among the large dinosaur displays of the Paula and Rusty Walter Mesozoic Gallery, enjoyed a buffet dinner, and took photos. This was the first time that attendees to an AAPG annual convention hosted in Houston had the opportunity to see the dinosaur exhibits which were newly created in 2012 under Dr. Bakkers' supervision. About 200 of the 420 people who came to the Museum were from outside the Gulf Coast area, and a large number of attendees saw the paleontology exhibit for the first time. The AAPG convention brought geoscientists to the social event from England, Mexico, Canada, and even New Zealand. Many participants expressed interest in joining both HGS and the HMNS.

Dr Bakker, Tom Fett and Charles Sternbach

Dr. Bakker summarized his presentation as a "geo-narrative of the Hall." Dr. Bakker said, "I talked about how we arranged fossils to tell the story of progressive evolution. I researched our own Texas red beds (in Seymour, Texas) and found that fin-backed fossils surprise us. Their teeth and jaws got better and better bio-mechanically over time. Texas bones prove that all of us Mammalia, the hairy, warm-blooded, milk-producing Class, came from very early land reptiles of the greater Dimetrodon clan." Geoscientists can keep up with Dr. Bakker's research at the Museum "Beyond Bones" blog at https://blog.hmns.org/category/paleontology/.

Many participants were able to meet Dr. Bakker and get his books personally autographed. These included his new *Golden Book of*

HGS Night at the Museum *continued on page 59*

HGS Night at the Museum Entertains AAPG Attendees

continued from page 57

Dinosaurs and his classic 1986 book, *Dinosaur Heresies*, both of which are also available as hardcopy from book sellers.

The evening was made possible by a generous donation by Rusty and Paula Walter, and Walter Oil and Gas. Special thanks are due to Mike Jobe, past HGS board member and employee at Walter Oil and Gas for coordinating funding. In addition, generous support from Exxon Mobil, and Talos Energy, facilitated by John Adamick, further underwrote HGS graduate and undergraduate scholarships.

Many HGS volunteers helped make the HGS Night at the Museum a success. Thanks to Linda and Charles Sternbach who conceived of the event, booked Dr. Bakker, and reserved the date on the HMNS calendar a year and a half ahead of time, with the help of HGS past President Martin Cassidy. Sandy Rushworth, and David Risch assembled a volunteer team to check in guests. Inda Immega recruited the Museum "docents" and trained volunteer experts on museum displays to give presentations to guests. The docents included Neal Immega, Janet Combes, Michael Quintaro, Shirley Smalley, Gretchen Sparks, Richard Spaw, and Diane Vitaska. Dawne Jordan coordinated the bus rental for the event. Lucy Plant and Alex Blaque helped with bus arrival and departure from the George R. Brown Convention Center on the night of April 8th. Thank you to David Temple, associate curator of the Museum, for arranging Dr. Bakker's schedule and travel.

Heather McArdle, a geosciences teacher from Mahopac High School, New York received the 2014 AAPG Teacher of the Year award during a ceremony at the annual convention. After attending the HGS Night at the Museum, she wrote the following letter: "The exhibits and docents were amazing. We found that our time at the AAPG Conference was exceptional. We've decided to return in the future. The HMNS museum is definitely on the list!" ■

Mara and Steve Brachman, Robert Pledger and table

Janet Combes and Jurassic reptile

AAPG Field Trip to Spindletop Museum in Beaumont Revisiting the Texas Oil Discovery of 1901

by Linda Sternbach

Rosemary Laidacker and **Robert Pledger** organized an interesting field trip that took place on Thursday April 9th after the AAPG annual convention held in Houston. Forty-one geoscientists and history buffs traveled by bus to Beaumont, Texas, to see historical relicts from the early pioneer days of the oil industry.

The first stop was the Texas Energy Museum at 600 Main Street in Beaumont just off Interstate I-10. During the drive, the group watched a video about the discovery of oil at Spindletop. The video was created for the 100th anniversary of the famous oil well blowout on January 10, 1901. The Spindletop oil discovery is historically significant because it was the first well in the United States to produce 10,000 barrels of oil per day. The discovery ushered in an era of new wealth and technology and rocketed the state of Texas to national prominence. The Texas Energy Museum has two floors of displays relating to early Texas oil drilling, production, and refining. The group was fascinated by the wall mural of the seismic line over the Spindletop dome. More information is available at www.texasenergymuseum.org.

Spindletop gusher re-enactment at the Gladys City Boomtown Museum at Lamar University in Beaumont, Texas

The group then drove to the Gladys City Boomtown Museum on the campus of Lamar University in Beaumont. The Gladys City website is www.spindletop.org. The Chairman of the Lamar Earth Science Department, Dr. Jim Jordan, talked to the group followed by a presentation by the President of Lamar University, Ken Evans. They discussed the geology education programs and university efforts to support student education.

Field trip leader Rosemary Laidacker introduced a fascinating new historical book about the discovery of Spindletop. The people and time period come to life in the book *Giant Under the Hill* by Judith Walker Linsley, Ellen Walker Rienstra, and Jo Ann Stiles. The book is available at Amazon.com for $20 and through the Texas State Historical Association in Austin (http://www.tshaonline.org/)

"Giant Under the Hill" explains the events leading up to the discovery and raging oil blowout of the "Lucas Gusher." Historical characters include Patillo Higgins, the man who dreamed of finding oil on Big Hill or Spindletop, and Captain Anthony Lucas, who made the drilling of the discovery well possible. The authors talked to the attendees for several hours about the timeline of the oil discovery. As Jo Ann Stiles said, the story includes all possible dramatic literary elements: dreamers, bankers, businessmen, intrigue, love, death, riches, and bankruptcy.

Robert Pledger gave a presentation on the geology and geophysics of the Spindletop dome and the discovery of oil. The original discovery, made in 1901, produced over-pressured oil out of the cap rock at the depth of 1102 feet. In 1926, another pool of oil was discovered by drilling on the flanks of the subsurface salt dome. Pledger's company continues to search for more oil in the Spindletop dome area.

Samples of the gypsum and anhydrite cap rock were displayed in the meeting room. Prior to the oil discovery, the Hill was known to have surface gas seeps which Patillo Higgins set on fire. Geologists knew oil accumulated in anticlines, but did not associate oil with Texas hills and salt domes. Prior to 1901, many geologists dismissed Patillo Higgins attempts to convince investors that Big Hill (Spindletop) had oil. Anthony Lucas believed Higgins but had to invent new drilling technologies (such as the rotary bit) to be able to drill to 1102 feet.

Everybody on the field trip enjoyed a short drive to the site of the Spindletop blowout. Oil wells with rocking pumpers still produce oil from this historical oil field, more than 114 years after the explosive discovery.

The Gladys City Museum has a daily recreation of the Spindletop blowout. The group witnessed a ten minute re-creation of the blowout, where water gushes more than 100 feet into the air over a replica wooden derrick. ■

Vendor Corner Recognition and Thanks

The Houston Geological Society would like to recognize and thank the many vendors who demonstrated their financial support of the HGS by providing "Vendor Corners" for our 2013-2014 evening technical meetings. These are the companies who provided poster session displays of their products, studies, or services. They provided a great focal point for the attendees, during the gathering and social period, prior to the evening dinner meetings. The Vendor Corner fees that they pay are donated 100% to the HGS Scholarship Funds (undergraduate geosciences students).

The HGS would like to thank the following:

C&C Reservoirs – Tarek Ghazi

***Chemostrat** – Milly Wright

FEI – Lucy Plant

Fugro GeoConsulting – Tina McGrew

Geophysical Insights – Hal Green

***Ikon Science** – Julianne O'Brien

Ingrain Inc. – Nora Villarreal

Lynx IS – Gareth Williams

MCG (MultiClient Geophysical) – Kenneth Mohn

MicroSeismic Inc – Mindy Manning

Petrophysical Solutions – Bill Price

PGAL – Grenville Lunn

Saudi Aramco – Sarah Trainer, Tracie Esparza, Meredith Zundel

Weatherford – Crystal Alavarces

**Hosted more than one vendor corner*

Vintage Geology

by Michael F. Forlenza, P.G.

A Tasting of Geologically-Themed Wines

CapRock
Chenin Blanc 2010

Alcohol 11.1%
$17 retail

The Lone Star state is the destination of this installment of our oenological-geological explorations. Many fine wines are being produced out on the High Plains in West Texas in a region known as the caprock. One of these wines is the 2010 Chenin Blanc from CapRock winery.

The Wine

For nearly 25 years, the CapRock winery in Lubbock has produced Texas wines from fruit grown on the High Plains. According to their website, the picturesque grounds at CapRock are home to one of the "most prestigious wineries in Texas rivaling wineries in California, France, or Italy. The winery has been producing award winning Texas wines since 1988 and continues to increase production of fine quality wines."

The 2010 Chenin Blanc is sourced from Texas High Plains fruit from two nearby locations at Krick Hill Vineyards and Bogar Cox Vineyards. The two lots of grapes were fermented in separate tanks at a low temperature of 55°F. When fermentation was complete, 30% of the Krick Hill lot was aged in oak for four months. The two lots were then blended to produce a crisp, fruity, dry wine. The winemaker Michael Vorauer calls this Chenin Blanc, "a refreshingly tart herbaceous wine."

The Chenin Blanc grape is a white wine varietal from the Loire Valley of northwestern France where it is most notably used to make the area's off-dry Vouvray wines with floral characteristics. The French ampelographer Pierre Galet theorized that Chenin Blanc originated in the Anjou wine region in France sometime in the 9th century and from there traveled to Touraine by at least the 15th century. In 1999, DNA profiling conducted by researchers in Austria suggested that Chenin Blanc may be a parent of the Sauvignon Blanc grape.

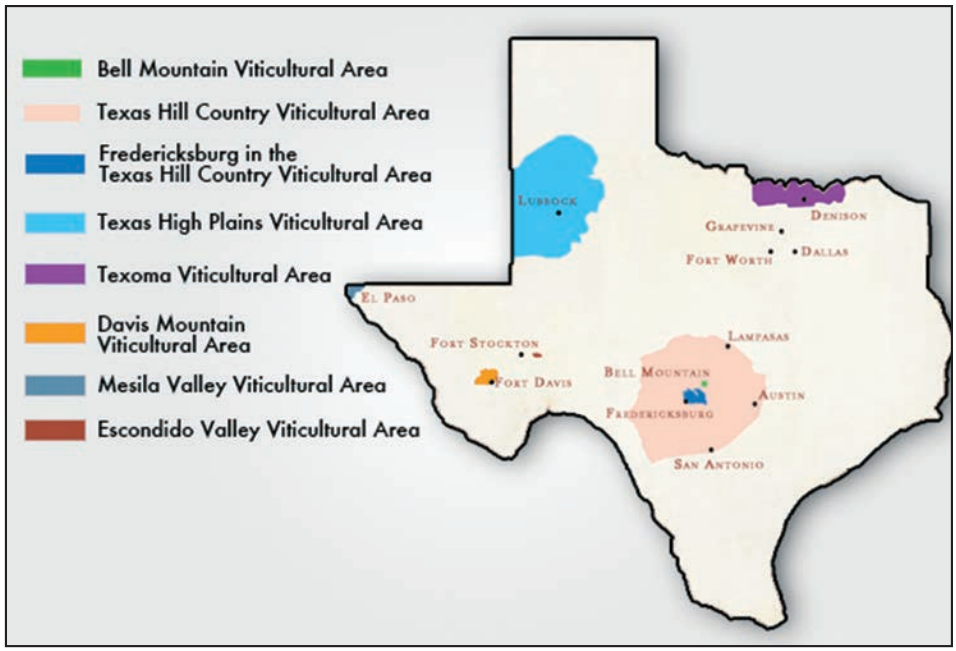
In cool regions, such as the Loire Valley, Chenin Blanc juice is sweet but high in acid and it is often used to make sparkling wines or even sweet dessert wines. The Chenin Blanc grapevine buds early in the growing season and the fruit ripens late. This makes the vines well suited to a warmer climate where the vines can take advantage of the long growing season to develop fruit with a mature complex flavor profile. The grape provides a fairly neutral palate that allows for the wine to reflect the terroir, show vintage variations, and yield to the expression of the winemaker's treatment.

The grape's versatility and ability to reflect terroir causes it to lead, what wine expert Jancis Robinson describes, a "double life." In the Loire Valley of France, it is prized as a premium quality wine grape able to produce world class wines, while in many New World wine regions Chenin Blanc is used as a "workhorse varietal," contributing acidity to bulk white blends and showing more neutral flavors rather than terroir. Throughout all of its manifestations, Chenin Blanc's characteristic acidity is found almost universally in all wine regions.

Texas has a long history of winemaking. Spanish missionaries planted the region's first vineyards near present-day El Paso in 1662. By the late 1700s, vintners were flourishing among the widespread missions in the San Antonio area. German and Italian immigrants later brought their wine-making traditions to the picturesque limestone bluffs of the Texas Hill Country in the 19th century. The state's oldest bonded winery, Val Verde, was established near the Texas/Mexico border in Del Rio in 1883.

Texas' contribution to winemaking reaches far beyond the state's borders. An article by Rebecca Chastnet de Gery describes the important role that Texan Thomas Volney Munson played in the development of the modern wine industry. T.V. Munson was

a horticulturist from Illinois who settled in Dennison, Texas. He extensively researched native grape cultivars and developed sturdy hybrids with Old World grapes. It was T.V. Munson whose research came to the rescue of France's ailing vines during Europe's devastating phylloxera epidemic in the 1880s. By transplanting his disease resistant rootstock to Europe the epidemic was stemmed, saving the industry. For his outstanding contribution, T. V. Munson was rewarded France's prestigious Chevalier du Merit Agricole of the French Legion of Honor in 1888, and his work remains among the most important in viticulture history.



American viticultural areas in Texas

Throughout the 1900s, wine poured out from many Texas wineries, but the Volstead Act (1919-1933) stopped the flow and the industry did not recover for many decades. Val Verde winery survived through the Prohibition era by producing sacramental wine. In the late 1970s, a few enterprising Texans again turned their attention to wine making. Today the state boasts eight federally-designated wine-producing regions called American Viticultural Areas or AVAs. These include Bell Mountain AVA, Texas Hill Country AVA, Fredericksburg in the Texas Hill Country AVA, Texas High Plains AVA, Texoma AVA, Davis Mountain AVA, Mesilla Valley AVA, and Escondido Valley AVA. Many Texas wineries are also operating outside of AVAs, including several in the Houston area.

The Region

The Texas High Plains AVA, officially recognized in 1993, is the second largest designated AVA in Texas, comprising roughly 8 million acres, mostly south of the Panhandle. Lubbock is located near the center of the Texas High Plains AVA. The eastern border of the AVA follows the 3,000-foot elevation contour line along the geographic feature called the Caprock Escarpment. The Caprock Escarpment is the steep transitional zone separating the High Plains from the lower elevation rolling plains to the east. Elevations within the AVA gradually rise from 3,000 feet on the east to about 4,100 feet to the northwest. Grapes have been produced in this region since the mid-1970s and growers here have become major grape suppliers to wineries throughout the state.

The climate of the High Plains provides an environment of long, hot, dry summer days, allowing the grapes to mature and ripen to proper sugar levels. The cool evenings, due the elevation and low humidity, help to set the grape's acid levels. The semi-arid

Vintage Geology *continued on page 66*

Caprock Escarpment, Garza County, Texas

Vintage Geology continued from page 65

Gypsum layers in the caprock have been exposed by erosion in a wash in Caprock Canyons State Park Texas (Wikimedia commons)

climate aids in the control and prevention of many fungal diseases typical of grape vines. However, because of the dry climate, most vineyards are irrigated with groundwater from the underlying Ogallala Aquifer. Without this resource, viticulture would be almost impossible to practice successfully in the region.

Commonly acknowledged to produce the finest wine grapes in Texas, the High Plains AVA has more than 3,700 planted acres of vineyards. A wide range of grape varietals are planted in the High Plains AVA including traditional favorites like Cabernet Sauvignon, Cabernet Franc, Chenin Blanc, Gewurztraminer, Grenache, Merlot, Malbec, Pinot Noir, Chardonnay, and Riesling as well as popular newcomers like Dolcetto, Montepulciano, Primitivo, Sangiovese, Tempranillo, and Viognier.

The Geology

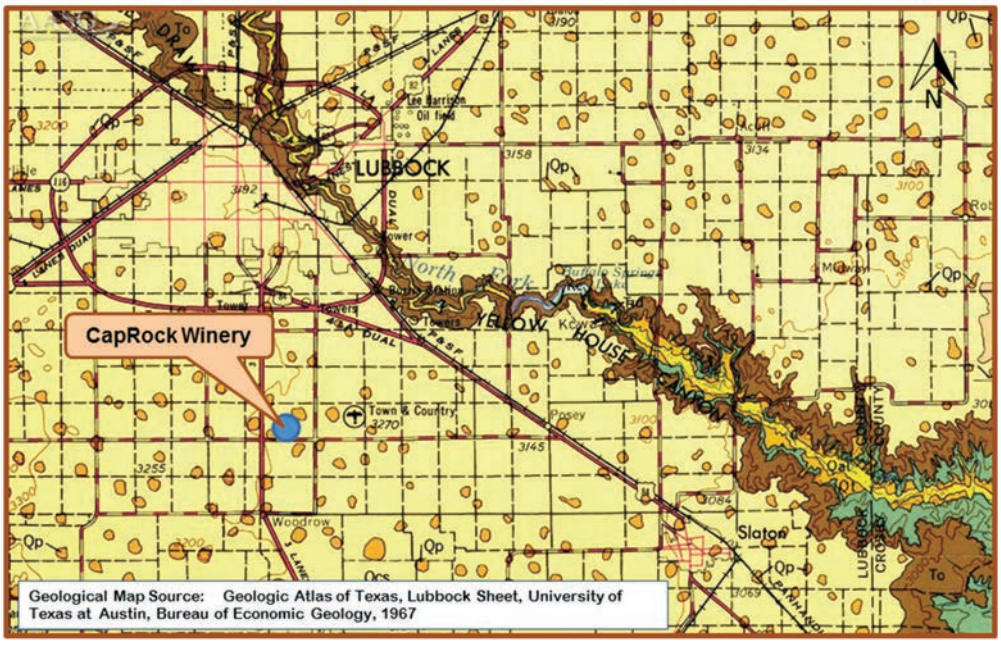
Along the Gulf Coast, geologists may associate the term "caprock" with the thick layer of limestone-anhydrate found over salt domes. In West Texas and parts of New Mexico, caprock refers to the region west of the Caprock Escarpment. The Escarpment is the regionally prominent geological feature where the hardpan soils of the High Plains have been eroded exposing the underlying softer materials.

The Escarpment stands many hundreds of feet above the rolling North Central Plains to the east. The escarpment lies at the eastern border of the semi-arid Llano Estacado (Spanish: "Staked Plain"). Historians differ on the origin of this name. Some say it came from the fact that the explorer Coronado's expedition party used stakes to mark its route across the trackless sea of grass so that it would be guided on its return trip. Others think that the estacado refers to the palisaded appearance of the caprock in many places, especially the west-facing escarpment in New Mexico.

In Texas, the escarpment runs for some 200 miles south-southwestward from the northeast corner of the Texas Panhandle and is a prominent feature in Borden, Briscoe, Crosby, Dickens, Floyd, and Motley counties, where it rises in places as high as 1,000 feet above the plains. Along the western edge of the Llano Estacado, the portion of the escarpment that stretches from Caprock to Maljamar, New Mexico is called the Mescalero Escarpment or Mescalero Ridge.

The caprock is a hardpan formed of caliche (calcium carbonate) and gypsum deposits precipitated from percolating water. The indurated soils form a nearly featureless plain that resists erosion. Rivers and streams have cut into the caprock in places creating arroyos and canyons and exposing the underlying layers. These incisions include Yellow House Canyon near Lubbock and one of the largest, Palo Duro Canyon, southeast of Amarillo.

According to the paper titled "Terroir of the Texas High Plains," delivered by Edward W. Hellman, et al., at the 105th Annual



Geological map of Caprock Winery area

meeting of the Geological Society of America in 2009,vineyards in this region are planted primarily on three similar soil series which occur widely across the Llano Estacado. The soils are very deep and well drained with moderate permeability. The soils are formed on Pleistocene-aged sediments which can be sandy (Patricia and Brownfield soil series) or loamy (Amarillo soil series). Distinctive soils are also formed on eolian sediments of the Pleistocene Blackwater Draw Formation. These soils are well-suited for grape production with low to moderate fertility and good drainage, yet adequate with water-holding capacity to prevent wilt.

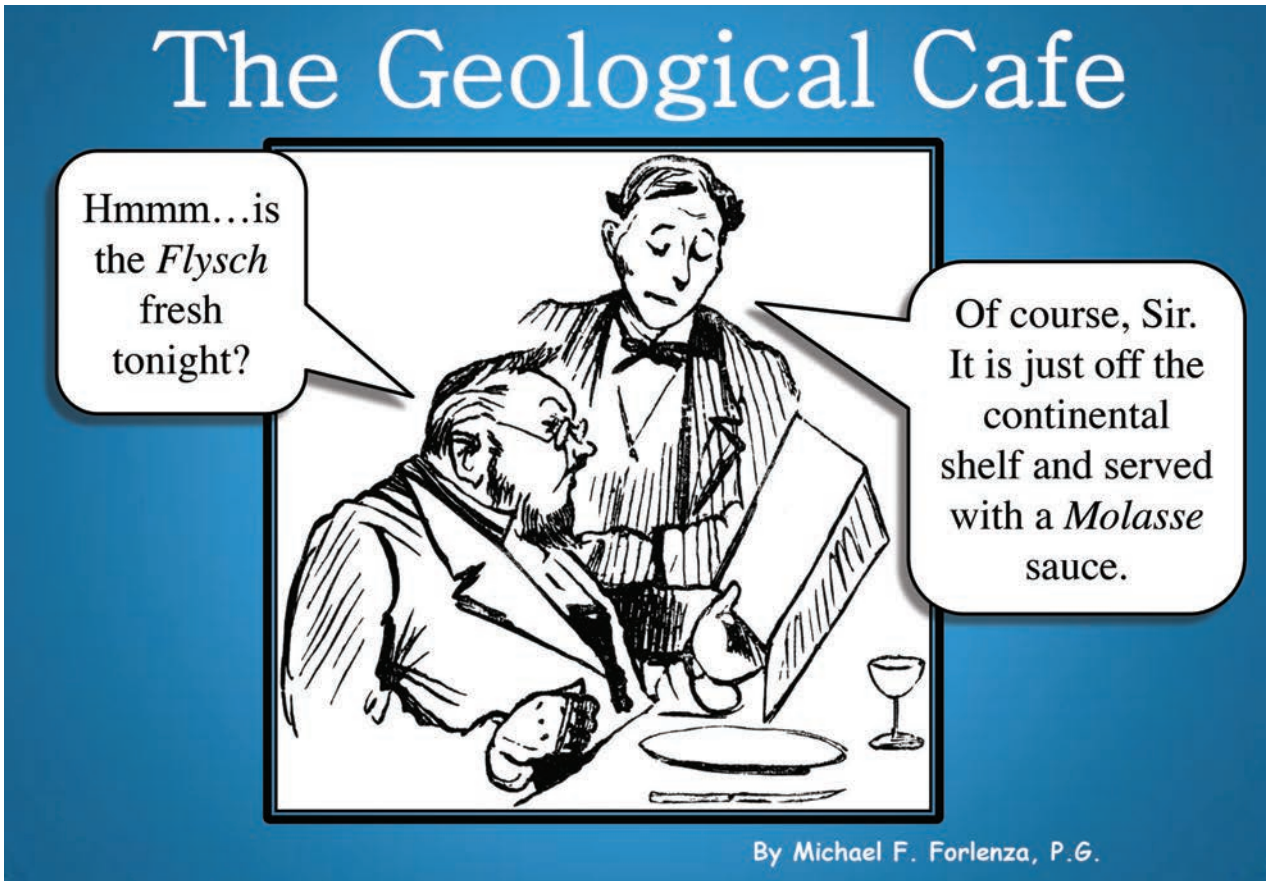
Tasting Notes

The climate where the grapes are grown will largely dictate whether a Chenin Blanc is predominately sweet or dry. The vineyard's soil type will generally influence the overall style and flavor profile of the wine. Heavy clay based soils, paired with a cooler climate, are favorable to the development of weighty, botrytized dessert wines that need time to age and mature. Well-drained soils with less organic material, predominately sandy soils, tend to produce lighter styles of wine that mature more quickly. Chenin Blanc planted in silex soils, flint and sand-based soils typical of the Loire Valley and formed from a mixture of clay, limestone and silica, will produce wines with distinctive minerally notes, while soils in limestone terrains will encourage the development of a sharp acidity. In Vouvray, the soils are predominately argilo-calcaire or calcareous clay, which produces rounded wines with both acidity and weight. In areas where the bedrock consists of metamorphic rocks such as schist, Chenin Blanc grapes will generally ripen earlier than in areas with predominately clay based soils.

The CapRock 2010 Chenin Blanc is light and bright with tropical fruit flavors and balanced acidity. The body is light with a low to moderate alcohol content. This profile is typical of a New World Chenin Blanc and directly reflects the well-drained sandy soil of the caprock and the heat of the growing season on the Llano Estacado in West Texas.

Our tasting panel of geologists and non-geologists enjoyed the light drinkability and the vibrant fruit flavors including kiwi, pear, pineapple, melon, and guava. One called it a "dry crisp wine with soft overtones of French oak," and "flinty, dusty." Another noted the "strong upfront balance, complimented with overtones of citrus." Still another panelist called the flavor profile "linear."

This wine can be enjoyed as an aperitif or served with spicy chicken or fish dishes. Either way, the dry dusty winds, powerful sun, and calcareous hardpan on the High Plains yield a pleasant summertime sipper. ■



A Look Back in Time

By Ken Nemeth, HGS President-Elect

As I continue to look at old issues of the HGS *Bulletin* and published directories, I thought that this look back would spend a bit more time on old HGS Directories. I will take a walk through directories from these years 1956, 1958, and 1962.

The 1956 directory was the first picture directory put out by HGS. When looking at the company listings and titles, one can see that many members had titles like President, Vice President, Chief Geologist, Manager of Exploration, Paleontologist, Assistant Geologist-in-Charge, Assistant to the Vice President, Staff Geologist Foreign Department, Zone Geophysicist, Division Geophysical Interpretation Supervisor, and a whole lot more. Also of interest, in 1956 Rice was an Institute and Texas A&M was a college.

There are forty pages with company names in the 1956 directory. If someone is up to the challenge of matching names from that directory to the company names in the most recent Name Change Directory compiled by Paul Babcock, I will provide him/her with dinner at the next HGS General Dinner meeting if you give me the list. You can borrow the 1956 directory from the HGS office. Do you remember Baroid, Continental Oil Company, General Crude Oil Company, Lane Wells Company, The Ohio Oil Company, or Pan American Production Company to cite a few?

Take a look at the telephone numbers from 1956! No area codes were listed, letter introductions were used, for example CA 29814. This is time when rotary dial telephones were the standard. Area codes were introduced in 1947 by a small company named AT&T for the US and Canada. Texas had four area codes then, twenty-six now (http://en.wikipedia.org/wiki/List_of_Texas_area_codes). New Mexico has two today, Houston has four. Take a look at the website http://www.area-codes.com/area-code-history.asp for some history on how the numbers were determined.

Another interesting "read" in the directories is the abbreviated history of HGS. The HGS formed in 1923 to host the 9th annual AAPG convention, "…it was deemed necessary to have a formal organization, and, thus, the H. G. S. was chartered on August 8, 1923…" There were 73 charter members. (The AAPG must have doubled up on conventions or there is a print error in the history because 1917 + 9 = 1926 and the convention was held in 1924.)

Did you know that the first three national AAPG conventions held in Houston had the same General Chair? These conventions took place in 1924, 1933, and 1941, a period that covered eighteen years when counting planning. Alexander Deussen (Honorary Life Member, 1941) was the General Chair for those three conventions. Mr. Deussen received the Sydney Powers medal from AAPG in 1948. The next annual AAPG convention in Houston was in 1953 although a regional convention took place in Houston in 1948. The AAPG's centennial convention will return to Houston in 2017. Mark your calendar.

The Society's first organized field trip took place in 1930.

Nineteen-forty was the first year that college student assistance was made by HGS. Two students from Texas A&M received the first grants from the student award plan.

In 1943, the Society stopped its weekly meetings; something about a war making it difficult to get speakers. HGS had stopped meeting in July and August in 1938. Weekly meetings would have meant at least 40 meetings each year in 1943. We have from 42 to 46 meetings per year now.

The HGS logo was created in 1949 when Walter J. Osterhoudt was named the winner of the design contest. The 1956 directory shows that Mr. Osterhoudt was a consulting geophysicist and geologist living in Durango, Colorado. His office number was 1471 (area code 303); try dialing that today.

The Women's Auxiliary was formed in 1950.

HGS was a charter member of the Gulf Coast Association of Geological Societies (GCAGS) in 1951.

In 1954, the HGS started a student loan program, lending deserving students up to $500 with no interest. The fourth, but first for Houston, annual GCAGS convention was held in Houston. The same year, membership in the Society topped 1100, making it the largest local geological organization in the world.

There were five Honorary Life members listed in the 1956 directory; three of them have their pictures in the directory, the other two were "Non-resident" members who did not supply a picture. All were still active in the society.

The 1956 directory listed 13 HGS committees, including the Special Train to AAPG Convention chaired, ironically, by Carleton D. Speed.

Jumping to the 1958 directory, we see that there are now seven Honorary Life Members, John R. Suman and Clarence L. Moody were added to the list. The dates on the Honorary Life Members plaque displayed in the HGS office will be updated to reflect this. The history shows that a Finance Committee was formed in 1956

A Look Back in Time *continued on page 71*

Remembrance

Summary of a Memorial by Michael D. Campbell, P.G., P.H., Houston, Texas
Should you hear of a fellow HGS member's or contributor's passing, please send information to the Editor-Elect at davidwayne.miller55@gmail.com.

William H. Tonking, Ph.D.

William Harry Tonking passed away peacefully on Monday, March 3, 2014, at the age of 86. He was a professional geologist of extraordinary scope and impact over the past 60 years. I was encouraged to write his professional memorial because I worked for and with Bill on various mineral exploration and mining projects from the late 1970s until his death. I will try to chronicle his professional activities, accomplishments, and awards, and I hope I will do justice to his memory.

Bill received his bachelor's degree and then his Ph.D. degree in geology from Princeton University in 1952 and conducted post-doctoral work in geology at Northwestern University and Colorado School of Mines. After completion, he served as a field geologist with Kennecott Corporation in the Rocky Mountains and then worked for a few years as an exploration geologist with subsidiaries of the Standard Oil Company of California, La Habra, California and Houston, Texas. From 1955 to 1962, he served as Senior Research Geologist with subsidiaries of Chevron and then as Senior Geologist for Bear Creek Mining Company based in Denver and Albuquerque, NM.

In 1962, Bill was recruited by Brown & Root (subsidiary of Halliburton Company) in Houston, Texas, as Deputy Manager of the famous Project Mohole. He later was appointed Technical Director of that Project. He assembled a Mohole staff of about 150 experienced professionals and served as a principal witness at Congressional hearings concerning the multi-billion dollar Mohole Project. In 1965, Bill was selected to serve as Chairman of the Deep Drilling Technology Section of the International Upper Mantle Project Symposium held in Ottawa, Canada. The next year he was awarded the Silver Metal from the Royal Society of Arts in London for his work on the Mohole Project.

He left Brown & Root in 1979 to assume the position of Senior Manager of Geology and Mining and Corporate Chief Geologist and later was appointed Executive Vice President of Keplinger and Associates, Inc., international energy consultants, in Houston. He initiated and directed the oil and gas, alternate energy, mineral exploration and environmental evaluation group, both domestically and overseas.

In 1981, he took another step up the corporate ladder by joining General Crude Oil, Inc. (and GCO Minerals), a subsidiary of International Paper Company, as Executive Vice President and Director. In the later 1980s, he became an international consultant in mineral resources and also served as President and Chief Executive Officer of Texas Star Resources Corporation from 1991 to 1994.

Over the ensuing years, he played a significant role as the Senior Mining Consultant for I2M Associates, LLC, international environmental and mining consultants, in Houston and Seattle, and served in a variety of advisory and support functions, including property evaluations, reserve estimates, and associated activities.

Bill's list of honors and awards reflect the respect he had earned. He was made a Fellow, Royal Society of Arts, London, England in 1966; was made a Fellow of the Geological Society of America in 1976; he Chaired the Alternate Energy Session at American Association of Petroleum Geologists Annual Meeting, San Antonio, Texas, in 1984; and was made a Shlemon Mentor in Applied Geoscience, GSA South-Central Section Meeting, Texas A&M University in 2004. He was a long-term member of the Society of Mining, Minerals, and Exploration (SME), and other societies and associations including the Houston Geological Society.

He was admired and respected by his friends, and whether in negotiations or over a martini, Bill was a man of many capabilities, a man of honor, and a man of accomplishment. People listened to what Bill had to say, and he was bankable. In the mining business, there is no greater compliment.

Bill's influence will remain as a memorial in each of us who knew him along the way. Bill Tonking was truly one of the last outstanding men of his generation of professional geologists.

Note for a complete memorial, see: http://www.i2massociates.com/Downloads/TonkingMemorial2014.pdf

A Look Back in Time continued from page 69

and "…studied the many problems of the organization." By 1956, the HGS had provided loans totaling $1500 to 11 students since the loan program started. The funding of $136.36 per student sure bought more college in 1957 than it does in 2014!

This was the year that the second picture directory was published. There were 20 committees and Mr. Speed was still chairing the Transportation and Special Train Committee.

Jumping to 1962, because it was the year another picture directory was published, one sees five more years of history. In 1957, the Society membership was 1500 and HGS established its first office "… and secured a telephone book listing."

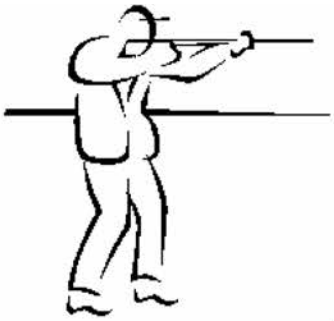
In 1958, the *HGS Newsletter* became the *Bulletin* under Editor Shirley L. Mason (Honorary Life Member 1960). The *Bulletin* reported that "A dedicated Personnel Placement Committee under Glenn C. Tague placed fifty members in new positions despite industry retrenchment." Also of note in the *Bulletin*, "Significant changes were subsequently adopted [HGS Constitution and By-Laws], particularly in Article V of the By-Laws. (At that time, Article V covered amendments to the By-Laws.)

In 1960, the Society began planning for the 1963 AAPG convention. Organizers today are already working on the AAPG Centennial Convention in 2017! By 1962, the HGS had 24 committees. Our friend Mr. Speed was now in charge of the Transportation Committee. HGS must have given up on special trains. Article V of the By-Laws now addresses standing committees. Article VI applied to amendments.

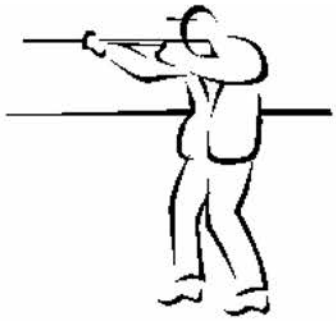
There are "only" twenty-five pages of company names in the 1962 directory. However, the directory was printed on 8.5" x 11" pages, while the 1956 directory was on 6" x 9" pages. Baroid was now a division of the National Lead Company while the other companies mentioned from 1956 were still "around" in the oil patch. Telephone numbers were still shown in the directory with two letters and no area codes. By this time, there were six telephone area codes in Texas. A fifth was added in 1953 and the sixth in 1962.

The 1962 directory lists 12 Honorary Life Members. Unfortunately, it dropped Alexander Deussen (1941) and Elias H. Sellards (1945) from the list and did not show Ben C. Belt (1960). The Honorary Life Member list had grown from seven in 1958 to eleven by April 1960 (April 1960 HGS *Bulletin*) to fifteen in May (May 1960 HGS Bulletin). The next Honorary Life Membership Award with a documented date is 1968 (June 1968 HGS *Bulletin*). Up to this point there is still no record of when Alfred Bentz received his recognition. Who is Mr. Bentz? According to the memorial in Volume 49 (pp 464-466) of the AAPG *Bulletin*, Alfred Bentz (http://archives.datapages.com/data/bull_memorials/049/049004/pdfs/464.pdf) was a world-renowned German geologist recognized as an oil expert. He was a long-time AAPG member (31 years at the time of his sudden death in 1964). HGS could bestow Honorary Life Membership upon its members as well as anyone who had made significant contributions to geology. Mr. Bentz's place on the HGS Honorary Life Membership rolls might suggest that he received this honor between 1945 and 1951 (most likely sometime after WWII). My search of HGS records (online *Bulletin*s from 1958 to 1970 and the 1956, 1958, and 1962 HGS directories) did not turn up a reference to Mr. Bentz. I will buy a meeting ticket to a HGS monthly meeting of your choice if you can document when Alfred Bentz was awarded his Honorary Life Membership.

That's all for now, I have to save something for another look back in time. ■



Annual
HGS SKEET SHOOT



Saturday, June 28, 2014
Greater Houston Gun Club
6702 McHard Road, Missouri City

This tournament is a 50 target event. Shells are provided, however **you must bring eye and ear protection**. Greater Houston Gun Club and National Skeet Shooting Association safety rules will be in effect. Trophy winning shooters will be determined by the Lewis class system. Door prizes will be awarded by blind drawing after the conclusion of shooting. All competitors are automatically entered into the door prize drawing, but you must be present at the time of the drawing to win. BBQ lunch will be provided from 11:30 until 1:30. Refreshments will be available throughout the day.

IMPORTANT!!

WE ARE LIMITED TO 160 SHOOTERS IN FOUR ROTATIONS. ENTRY FEE IS $80 PER SHOOTER FOR REGISTRATIONS RECEIVED BY FRIDAY, JUNE 20. AFTER JUNE 20, REGISTRATION WILL BE STRICTLY ON A "SPACE AVAILABLE" BASIS AND THE ENTRY FEE WILL BE $95 PER SHOOTER. REGISTER EARLY!!

For more information, contact: Tom McCarroll at (713) 419-9414 or tom_mccarroll@yahoo.com.

For directions to the club, visit www.greaterhoustongunclub.com.

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ONLINE REGISTRATION INFORMATION AT: http://www.hgs.org/eventskeetshoot

If you prefer to pay by credit card, please call the HGS office, (713) 463-9476.

If you prefer to pay by check, mail this form with a check made out to HGS to:

Tom McCarroll, 2668 HWY 36S #329, Brenham, TX 77833

Name: _____ Company: _____

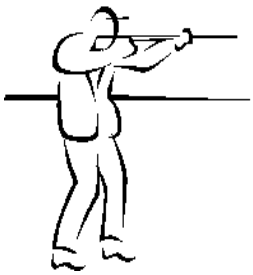
Email: _____ Phone: _____

Preferred time: (circle one) 9:00 10:00 11:00 12:00 Ammo: (circle one) 12 gauge 20 gauge

Registration Fee: $ _____ + Sponsor Contribution: $ _____ = Total: $_____

If you wish to register as a squad, please return forms for all squad members together.

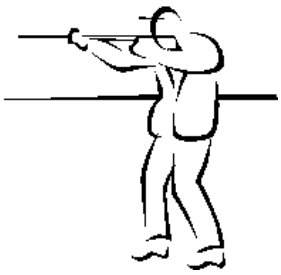
ALL SHOOTERS WILL BE REQUIRED TO SIGN A DISCLAIMER OF RESPONSIBILTY BEFORE THEY WILL BE ALLOWED TO SHOOT!



ANNUAL HGS SKEET SHOOT

Saturday, June 28, 2014

Greater Houston Gun Club
6702 McHard Road, Missouri City



SPONSORSHIP APPLICATION

Ammo Sponsor - $750.00
- Paid squad of 5 Shooters
- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

Cigar Sponsor - SOLD
- Paid squad of 5 Shooters
- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

Flurry Sponsor - $750.00
- Paid squad of 5 Shooters
- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

Field Sponsor - $750.00
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- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

Beverage Sponsor - $750.00
- Paid squad of 5 Shooters
- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

Cap Sponsor - $1000
- Sponsor Logo on Event Caps
- Paid squad of 5 Shooters
- Signage at the Club During Event
- Recognition at Awards
- Logo on HGS Website

To sponsor, please indicate your sponsorship level _____ with payment (payable to HGS) to:

HGS - 14811 St. Mary's Lane, Ste. #250 - Houston, Texas 77079 - Attn: Sandra

Or you can email your sponsorship form to sandra@hgs.org

Name _____ Phone _____ Amt. Enclosed_____

Company _____ Email _____

Billing Address _____

Credit Card # _____ Exp. Date _____ Sec. Code# _____

Approved by_____ Date_____

If you would like HGS to invoice your sponsorship please complete the section below:

Invoicing Address _____

Accounting Contact Name _____ Contact Email Address _____

Special Billing Codes _____

Approved by_____ Date _____

Please email your company logo to sandra@hgs.org. Note: Company logos (300+ dpi) must be received no later than May 1, 2014.

If there are any questions, please contact Tom McCarroll—713-419-9414 or tom_mccarroll@yahoo.com.

To register online, please go to http://www.hgs.org/eventskeetshoot

Directory of Oil Company Name Changes

24th Edition (April 2014)

New Edition

A new 24th edition, of the HGS publication, "Directory of Oil Company Name Changes," is now available through the Bureau of Economic Geology. This publication is a cross-referenced list of domestic oil and gas, exploration and production companies that have sold major assets or have changed their names due to a merger, acquisition or reorganization. The purpose of this directory is to provide an oil company road map that may assist geologists in tracking down logs, samples, test information, cores, paleo, drilling reports, production histories and other well data that may be obscured by these numerous name changes.

The cost of the directory is $20.00 and it can be obtained from the BEG.
The contact information is as follows:
Bureau of Economic Geology
University of Texas in Austin
Attn: Publication Sales
University Station, Box X
Austin, Texas 78713-8924
Phone: (888) 839-4365 • www.beg.utexas.edu

Government Update

*by **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 Monthly Review (March 2014)

Carbon Capture and Storage Debate Heats Up

On March 12, 2014 the House Science, Space, and Technology Committee's Energy and Environment Subcommittees held a joint hearing to discuss the viability of carbon capture and storage (CCS) techniques used to reduce CO2 emissions from power plants. Newly built coal and gas plants will be required to integrate CCS technologies in order to adhere to Environmental Protection Agency's (EPA) proposed rule on emissions reduction.

Opponents of CCS implementation argued that it has not been successfully demonstrated on a commercial level. CCS projects currently in commercial use are not on the large power plant scale. Large-scale power plants that both capture and store carbon are still in the demonstration phase, although two projects, including Royal Dutch Shell PLC's Peterhead Power Station, are under construction.

Proponents of CCS implementation argued that EPA is required under the Clean Air Act (CAA) to promote best available control technologies (BACT) such as CCS. EPA is only obligated to demonstrate technical viability, they said. Because polluters have no motivation to develop CCS, it is impossible for EPA to demonstrate commercial viability.

In January, 2014 Representative Ed Whitfield (R-KY) introduced the Electricity Security and Affordability Act, (H.R. 3826), which aims to repeal the EPA proposed rule. The bill passed the House and awaits a decision in the Senate.

Administration and Ways and Means Committee Chair Propose Energy Incentive Cuts

March saw new developments from the Administration and lawmakers on energy financing under the American tax code.

The Presidential Budget Request for fiscal year (FY) 2015, released on March 4, aims to repeal over $4 billion per year in oil, gas, and fossil fuel producing industry subsidies, while perpetuating renewable energy tax credits. The budget would repeal intangible drilling costs and tertiary injectants subsidies for oil and gas companies, increase the geological and geophysical amortization period from two to seven years, provide $2.3 billion for renewable energy sources and nuclear defense under the Department of Energy (DOE), and provide a revenue neutral corporate tax rate of 28 percent.

Alternatively, House Committee on Ways and Means Chairman Dave Camp (R-MI) released his draft of the Tax Reform Act of 2014 in the last days of February. Representative Camp's bill calls for repeal of the exception for spudding and like-kind exchanges subsidies and for oil and gas companies. The spudding exception currently allows a tax shelter for expenses associated with wells that have been newly drilled, or spudded, within 90 days of the close of the tax year. Companies can defer gains on like-kind exchanges, or exchanges of similar property, when reporting their tax status. Legislation would also repeal subsidies for nuclear and renewable power, including those that fund planned reactors in Georgia and South Carolina, and proposes a 25 percent flat corporate tax rate.

Both the Administration and Representative Camp called for the repeal of percentage depletion, domestic manufacturing, passive loss, marginal well, and recovery credit tax deductions for oil and gas companies. Both proposals, subject to congressional approval, would also include permanent tax credits for scientific research and development (R&D).

EPA issues final rule on sulfur in gasoline

On March 3, 2014 the Environmental Protection Agency (EPA) issued a final Tier 3 rule reducing average levels of sulfur emissions from motor vehicle gasoline consumption from 30 parts per million (ppm) to 10 ppm by 2017. Tier 3 is a new rule notification category that allows the most time, usually year(s), for the public and/or business to adequately adjust to the rule. According to EPA Administrator Gina McCarthy, the new rule will directly benefit public health by decreasing air pollutants coming out of 2017 model vehicles and beyond.

Critics of the rule consider air quality improvements negligible because of the extra energy needed to further refine the crude oil. To remove sulfur, refiners must hydrotreat gasoline, which, according to the American Petroleum Institute, could increase prices at the pump.

The House Science, Space, and Technology Committee held a hearing March 12, 2014 which included discussion on EPA justification of the Tier 3 rule. **Government Update** *continued on page 76*

Government Update continued from page 75

U.S. Joins Extractive Industries Transparency Program
On March 19, 2014 the Extractive Industries Transparency Initiative (EITI) accepted the U.S. as a Candidate country to their global transparency standard for improving governance of natural resources. President Obama submitted the application in 2011 in conjunction with the Open Government Partnership.

EITI standards require oil, gas and mining companies to disclose taxes and other payments to federal governments in order to promote the benefits of natural resource extraction to all citizens of a country. Governments then in turn submit an annual report to EITI. EITI's governing body, the Multi-Stakeholder Group (MSG), consists of sovereign governments, energy and mining companies, investors, and civil society and partner organizations.

The U.S. Department of Interior (DOI) will oversee U.S. implementation of the standards as stated in the approved United States EITI (USEITI) application. DOI will include data on oil, gas, coal, non-fuel minerals (aggregate), geothermal, solar, and wind commodities in their report. As a Candidate country, the U.S. must publish its first EITI report in 18 months and validate it in two-and-a-half years.

President Obama Talks Energy Exports with EU
On March 26, 2014 President Obama met with European Council President Herman Van Rompuy and European Commission President José Manuel Barroso at the EU-U.S. Summit in Brussels to discuss the Transatlantic Trade and Investment Partnership (T-TIP) and Europe's economic security with regard to recent events in Ukraine. As the legislative body of the European Union (EU), the Commission proposes action to EU decision makers in the Council.

Europe relies heavily on Russian gas for its energy needs, and if established, the T-TIP free-trade agreement between the U.S. and EU countries could reduce Europe's dependence on Russia. In his speech, President Obama noted that the U.S. can export liquefied natural gas (LNG) only to countries with which the U.S. shares a free-trade agreement. Signing the T-TIP would open European markets for U.S. LNG.

According to President Van Rompuy, the EU does not recognize Russia's recent annexation of the Crimean peninsula, an important corridor for Russian gas delivery to Europe. In seizing this region, Russia has the potential to control more of the oil and gas transport infrastructure. According to the EU, this puts European countries' economic security in jeopardy. For this reason, the U.S. and EU aim to provide Europe with energy diversity and greater security. The Presidents' joint statement included a commitment by the U.S. and EU to continue progress in forming T-TIP.

President Obama's attempt to fast track T-TIP, an action which bars the amendment process, could be stymied by Congress.

USGS Attributes Oklahoma Earthquakes to Induced Seismicity
On March 7, 2014 the American Geophysical Union (AGU) *Journal of Geophysical Research* published a U.S. Geological Survey (USGS) sponsored study on the relationship between a November 2011 magnitude-5.0 earthquake and successive aftershocks along the Wilzetta fault in Oklahoma, including a magnitude-5.7 earthquake, the largest ever recorded in the state.

The study builds on a 2013 report published in Geology that links the magnitude-5.0 foreshock to fluid injection associated with oil and gas drilling. The recent USGS study concludes the magnitude-5.7 earthquake is the largest induced seismic event on record.

Low-magnitude earthquake frequency has increased in gas drilling states since 2010 and is considered to be linked to wastewater injection associated with oil and gas drilling.

The results of the study were announced on a USGS blog in January, before official publication by AGU.

Congress Passes Bill to Abolish BW-12 Provisions

This month (March 2014) the Homeowner Flood Insurance Affordability Act of 2014 (H.R. 3370) passed the U.S. House of Representatives 306-91 and the Senate 72-22. H.R. 3370 abolishes certain provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12).

Insurance rates increased under BW-12 in an effort to more accurately reflect risk in flood prone areas. Reassessment was based on Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) updates to flood hazard mapping. FEMA's area specific Flood Insurance Rate Maps (FIRMs) synthesize coastal and fluvial hydrologic analyses with precipitation data and topographic surveys across the U.S.

H.R. 3370 requires a Technical Mapping Advisory Council to review and report to Congress upon implementation of a flood mapping program.

Proponents of the bill argue that BW-12 rate increases would adversely impact too many individuals living in newly designated flood prone areas. H.R. 3370 restores subsidized flood insurance rates for grandfathered properties enrolled in the NFIP and offsets revenue losses from BW-12 provisions by adding an annual surcharge to all flood insurance policyholders.

A FEMA estimate of insurance rate increases under BW-12 is available at: http://www.fema.gov/media-library-data/20130726-1912-25045-9380/bw12_qa_04_2013.pdf.

House Discusses Earthquake Science on 50th Anniversary of the Great Alaska Earthquake

On March 27, 2014 the House Natural Resources Committee's Energy and Mineral Resources Subcommittee held an oversight hearing titled "Advances in Earthquake Science: 50th Anniversary of the Great Alaskan Quake."

The witnesses, representing the U.S. Geological Survey (USGS), the Seismological Society of America (SSA), and academia, spoke of the importance of investing in early warning systems and reauthorizing the National Earthquake Hazards Reduction Program (NEHRP). They explained that although great advances have occurred in seismology since the Alaskan earthquake, including the maturation of the theory of plate tectonics and the implementation of earthquake-resilient building standards, scientists have a lot to learn about earthquakes and how to predict them. University of Washington Professor Dr. John Vidale pointed out that "we don't understand subduction zone earthquakes very well," as evidenced by the 2011 Tohoku earthquake in Japan that occurred in an area that scientists thought was not at risk for such an event.

When asked why other countries like Japan and Mexico have invested in early warning systems and the U.S. has not, USGS Senior Science Advisor for Earthquake and Geologic Hazards Dr. William Leith explained that those investments often occur in the wake of large, damaging earthquakes. He continued, saying "there seems to need to be a national political will in order to make the investment" in early warning systems and other technologies.

Representatives Rush Holt (D-NJ) and Peter DeFazio (D-OR) expressed their concern about human-induced seismic events, specifically earthquakes caused by the injection of wastewater produced from oil and gas extraction activities. When asked what information would help USGS better study these events, Dr. Leith responded that scientists need specific data on the exact times that injections occurred, as well as the volume and pressure of the injections. Currently, oil and gas companies need only provide monthly volume totals and average pressure reports at the end of each year.

Senator Blunt Introduces REE bill

Senator Roy Blunt (R-MO) recently introduced the National Rare Earth Cooperative Act of 2014 (S. 2006), which was referred to the Senate Committee on Energy and Natural Resources. S. 2006 focuses specifically on creating a cooperative of groups involved in the domestic value chain of refined heavy rare earth elements (REE) products, including suppliers, miners and refiners of heavy REEs, and consumers. The Thorium-Bearing Rare Earth Refinery Cooperative would be charged with the task of financing the separation of the radioactive element thorium and other by-products from heavy REE's present in the phosphate mineral monazite.

According to Senator Blunt, S. 2006 aims to reduce U.S. dependency on the Chinese REE monopoly and provide a critical heavy REE resource base for national defense and desirable commercial and industrial applications through up-front cost sharing.

Thorium is more abundant than uranium but not as cost effective in producing energy, and is therefore used for nuclear power purposes to a limited extent. S. 2006 aims to diversify U.S. nuclear energy capabilities by increasing domestic thorium production.

Federal agencies such as the Department of Defense (DoD) and United States Geological Survey would sit on the Cooperative's Initial Board of Directors and steer the generally private venture in the national interest. The DoD would maintain a 10 percent equity in the Cooperative. ■

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 CD 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 .ai (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 .tif, .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 DVD.

Advertising

The *Bulletin* is printed digitally using InDesign. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email jill@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.**

Random Inside (Black & White)					Page 2 (B&W)	Inside Front Cover (Full Color)	Inside Back Cover (Full Color)	Outside Back Cover (Full Color)	Calendar Back (Full Color)	Calendar Page (Full Color)
No. of Issues	Random* Eighth	Random* Quarter	Random* Half	Random* Full	Full	Full	Full	Half	Full	Quarter
10	$823	$1,387	$2,488	$4,734	$5,680	$7,830	$7,560	$6,858	$6,750	$2,700
9	$823	$1,387	$2,488	$4,734	$5,680					
8	$750	$1,260	$2,242	$4,307	$5,169					
7	$665	$1,123	$2,014	$3,834	$4,600					
6	$590	$990	$1,782	$3,392	$4,069					$1,890
5	$497	$837	$1,503	$2,860	$3,432	$4,698	$4,536	$4,104		
4	$405	$683	$1,223	$2,326	$2,792					
3	$327	$550	$990	$1,886	$2,262					$1,080
2	$232	$392	$704	$1,339	$1,607					
1	$146	$246	$443	$842	$1,010	$1,404	$1,296	$1,080		$810

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($30 for each additional name on same card)

Website Advertising Opportunities

HGS has multiple website advertising opportunities for your company! We've expanded our offerings to include a 275 x 800 pixel, rotating banner ad on the front page of the website. We have kept the popular Event Calendar and Geo-Job Postings advertisement locations!

	Home page Banner	Home Page (200 x 400 pixels)	Event Calendar (200 x 400 pixels)	Geo-Jobs (120 x 90 pixels)	Website Business Card (Members Only)	Personal Resumes (Members Only)
One year	$3,000.00	$2,800.00	$2,500.00	$1,400.00	Free	Free
6 months	$2,000.00	$1,800.00	$1,500.00	$750.00	Free	Free
3 months	$1,500.00	$1,300.00	$1,000.00	$450.00	Free	Free
Monthly	$ 700.00	$500.00	$ 400.00	$200.00	Free	Free

We still offer Geo-Jobs - where your company can post job openings for 14 days at $50.00 or 30 days at $100.00.

For more information regarding website advertising visit HGS.org or email jill@hgs.org.

Application to Become a Member of the Houston Geological Society

Qualifications for Active Membership

1) Have a degree in geology or an allied geoscience from an accredited college or university; or
2) Have a degree in science or engineering from an accredited college or university and have been engaged in the professional study or practice of earth science for at least five (5) years.

Qualifications for Associate Membership (including students)

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.

Apply online at www.hgs.org and click on Join HGS

Annual Dues Expire Each June 30. (Late renewals – $5 re-instatement fee)
Annual dues are $24.00; emeritus members pay $12.00; students are free.

Mail this application and payment to:
Houston Geological Society
14811 St. Mary's Lane, Suite 250 • Houston, TX 77079-2916
Telephone: 713-463-9476 Fax: 281-679-5504

Payment method:

☐ Check, ☐ VISA, ☐ MasterCard, ☐ American Express, ☐ Discover

Card # _____

Expiration Date: _____ Card I.D. _____

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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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Address: _____

_____

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Email: _____

Job Title: _____

Company: _____

Company Address: _____

_____

Work Phone: _____ *Fax Number:* _____

Circle Preferred Mailing Address: Home Office

Professional Affiliations: _____

❑ AAPG member No.: _____

Professional Interest:

❑ Environmental Geology
❑ International E&P
❑ North American E&P (other than Gulf Coast)
❑ Gulf Coast E&P (onshore & offshore)

School _____

Degree _____ *Major* _____ *Year* _____

_____

School _____

Degree _____ *Major* _____ *Year* _____

Earth Science Work Experience _____

_____

_____

_____

Applicant's Signature _____ *Date* _____

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

Name: _____

Signature _____ *Date* _____

Membership Chairman _____ *HGS Secretary* _____

revised 8/6/10

Houston Petroleum Auxiliary Council News

Edie Bishop, *HGS Liaison* 713-467-8706 or ewbishop@bishorb.com

Guest writer Barbara Peck, HPAC president

As president, I am pleased to be invited to be the guest writer for the June issue of the HGS Bulletin. HPAC (Houston Petroleum Auxiliary Council) will soon complete its sixth year of operating as a combination of the Landmen, Geophysical, Geological, and Engineering auxiliaries. The mission statement "to promote and foster social relationship among its members and to assist the Engineering, Geological, Geophysical, and Land Societies in their various requests" has been carried out enthusiastically. I have been honored to be president of HPAC this year.

Sally Blackhall, First Vice President, scheduled four meetings to meet the divergent interests of the membership: September, interview of Neil Bush by Deborah Duncan at the Hess Club; December, a beautiful and delicious pre-Christmas lunch at Lakeside Country Club; February, members and guests enjoyed a Valentine-themed Game Day at Braeburn Country Club. The May 20th style show by "Bags 'n More" at the Houston Racquet Club culminated our year of outstanding programs.

In addition to the programs, there are several interest groups that provide added pleasure and personal enrichment during the year: the *Book Club*, ably led by **Phyllis Carter** and **Anita Weiner**; *Exploring Houston* expertly planned and led by **Martha Lou Broussard** and **Linnie Edwards**; *Cinco Mas Bridge Group*, contact **Audrey Tompkins**, and *Petroleum Club Bridge Group*, contact **Daisy Wood**. These activities are the icing on the cake of HPAC membership.

My heartfelt thanks and gratitude go to the HPAC officers, board members, hostesses, and committees. It would be difficult to find a more talented and dedicated group of individuals. **Sally Blackhall**, First Vice President, **Nancy Giffhorn**, Second Vice President, Secretary **Sheri McQuinn**, Treasurer **Georgeann Massell**, Editor **Sandra Pezzetta**, and Parliamentarian **Mickey Murrell** have each fulfilled their duties with enthusiasm and energy.

Liaisons **Sheri McQuinn** HAPL, **Edie Bishop** HGS, **Donna Parrish** GSH, and **Phyllis Carter** SPE kept the professional organizations for which we are an auxiliary informed of HPAC happenings. Courtesy Co-chairs **Mary Harle** and **Nan Pye** were wonderful hostesses and efficiently kept us informed of events going on in the lives of members. Notification Chair **Dianna Gittelman** mailed our invitations and newsletters willingly and efficiently, and Yearbook Chair and Chief Photographer **Wanda Shaw** produced a beautiful yearbook and also photographs of our activities. Technology chairs **Mickey Murrell** and **Wanda Shaw** updated our web site frequently.

This year's hostesses were outstanding: September Chairs **Shirley Gordon** and **Sally Blackhall**, December Chair **Sheri McQuinn**, February Chairs **Daisy Wood** and **Norma Roady**, and May Chair **Sara Nan Grubb**. Also many thanks to the committees who assisted with the luncheons: September **Dianna Gittelman, Judy Johnson, Norma Jean Jones, Maxine Hillman, Jeannette Hamman**, and **Louise Andrews**; December **Nancy Lefler, Janet Steinmetz, Kathi Hilterman, Beverlay Smolenski**, and **Helen Thomas**; February **Linnie Edwards, Suzanne Howell, Lois Matuszak, Millie Tonn,** and **Cherry Yvette**; May **Donna Parrish**, **Millie Tonn, Mickey Murrell**, and **Ruby Wagner**. What wonderful meetings these ladies provided for HPAC members and guests!

The nominating committee chaired by **Mickey Murrell** met recently to select a slate of officers for 2014-15. The committee members in addition to Mickey were **Kathi Hilterman, Nancy Frye, Shirley Gordon**, and **Barbara Peck**. The nominees for HPAC officers for 2014-2015 are: President **Sally Blackhall**, First Vice President **Norma Jean Jones**, Second Vice President **Susan Bell**, Secretary **Vicky Pickering**, Treasurer **Kathi Hilterman**, Editor **Millie Tonn**, and Parliamentarian **Barbara Peck**. The election took place at the May 20 meeting.

I appreciate the opportunity to let readers of the HGS *Bulletin* know what has taken place in HPAC this year and hope that if any readers know of a spouse who would like to join HPAC please ask them to contact me, **Barbara Peck**, at 713-252-1033. ■

You are invited to become a member of

HPAC

2013–2014 dues are $20.00 Mail dues payment along with the completed information

to **Nancy Giffhorn** • 16107 Hidden Lakes Drive • Kingwood, Texas 77345

YEARBOOK INFORMATION

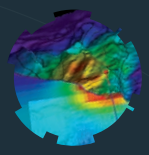
Last Name	First Name	Name Tag
Spouse Name	Company	
Street Address	City State	Zip
Email Address	Home Fax	
Home Phone	Cell Phone (Optional)	Home Email Address

Please choose a committee assignment if you are interested.

☐ Fall Event ☐ Yearbook ☐ Bridge ☐ Membership

☐ Christmas Event ☐ Spring Event ☐ Notification ☐ Book Club

☐ Exploring Houston ☐ Courtesy



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