HGS Bulletin
Houston Geological Society
Volume 47 Number 10
June 2005

HGS Guest Night - Saturday, June 11, 2005

Houston Museum of Natural Science 6:30p.m.–10:30p.m.

Lessons from Sumatra: Reducing Earthquake and Tsunami Risk Worldwide

Dr. David Applegate, USGS senior science advisor

The Bulletin
Houston Geological Society

Volume 47, Number 10 June 2005

In Every Issue

about the cover: National Oceanographic and Atmospheric Administration (NOAA) DART (Deep Ocean Assessment and Reporting of Tsunamis) Pacific Ocean detection array. DART buoy locations taken from a map shown on the NOAA Website: http://www.pmel.noaa.gov/tsunami/Dart/dart_pb1.html .
Digital elevation model by Arthur E. Berman.

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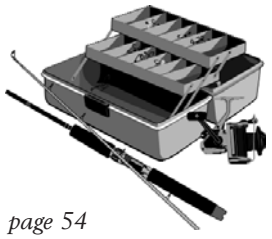

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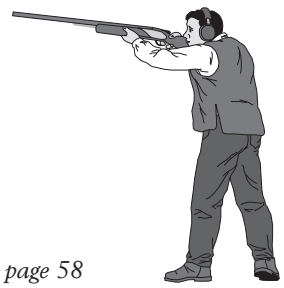

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The 2004 HGS/GSH Membership Directory Will Be in Electronic Format Only.

Be sure to read the President's Letter on page 5 and Webnotes on page 75 in this issue of the *Bulletin* for important information about the 2005 Membership Directory.

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President's Letter

by Steve Levine

Looking Back at the Year— Well Done Members, Well Done

As my tenure as HGS President comes to an end, I have two words to describe the HGS volunteer membership—WELL DONE. We can take pride in our accomplishments this year and the continuance of a fine professional "community" now having completed its 82nd year. Somehow there arises a bevy of hard-working people that bring enormous contributions to the society, whether they are committee members that step forth to lead at a critical moment or last-minute article contributors to the *Bulletin* to fill needed pages. We are thankful to have our "usual suspects" of regular and reliable volunteers who form the bedrock of the organization and fortunately are reinforced by new workers and leaders.

Well done is better than well said.
Benjamin Franklin

The HGS accomplishments for the 2004-2005 year are numerous

The HGS *Bulletin* has also undergone a significant transformation this year to continue to provide you with a quality magazine. The annual cost for the 10 annual issues including the layout labor, printing and mailing approaches $150,000 to $160,000. Advertisers have kindly provided a large portion of the revenue to offset these costs and for this we are most grateful. However, expenses will exceed advertising revenue in 2005 and we will have to tap HGS reserve funds. Editor Art Berman has provided an exceptionally high-quality *Bulletin* this year; my view is that it is the best the HGS has ever generated. To reduce the *Bulletin* size to fit into our budget, extended articles and photos were placed on the HGS Website. This enabled us to reduce printing and mailing costs and to upgrade our Website for our members.

The work of the Houston Geological Society is not only to fulfill the objectives written in the HGS by-laws but to grow the organization and to encourage participation. It is a perpetual dilemma between strict adherence to HGS traditional methods and progressive change. The HGS must encompass both each year to remain vibrant for both established and new members.

One example of progressive change is the HGS directory. The cost to print and mail the book to all HGS members has skyrocketed to a whopping $30,000. Mail costs have soared, paper and printing costs have escalated and, upon completion, the printed directory is practically out of date as members' phone numbers and e-mail addresses change so rapidly. Advertisers provide only a quarter of the costs of such a directory. In response to these costs the HGS executive board has created a plan that will allow members to download the directory on-line to a CD or to print it. Members without computers will be able to call the HGS office and request a directory to be printed that can be retrieved at a nearby print shop such as FedExKinkos. The downloadable directory is now available.

We made a few new additions to modify things this year. We instituted a "Volunteer of the Month" in the *Bulletin* and on the Web to recognize the fine efforts by the membership.

Social events such as the "Rockets Night Out" and "Astros Night" were added. A "Ballet Night" will be held June 9. The First Annual Scholarship Benefit Party "Scholarship Rock Dance" was held to generate funds and to provide awareness of the two scholarship programs. A community service project "Project Respect" was organized with several dozen volunteers participating. An added bonus of this event was the addition of participants from our sister society, the National Association of Black Geologists and Geophysicists.

The HGS accomplishments for the 2004-2005 year are numerous but I have created an abbreviated list to make us more aware of what a great organization we are.

President's Letter *continued on page 7*

President's Letter

continued from page 5

Professional Growth and Assistance

- **Free public seminar** (September) – HGS members coordinated the seminar "Flooding in the Houston Metropolitan Area, Past, Present & Future" for the Engineering Council of Houston. Local city and state government agencies presented, and the *Houston Chronicle* attended.
- **Continuing education programs** (Dec.–May) – Five seminars developed as a mini-series titled "Petroleum Reserves – Avoiding Write-downs". A DVD was prepared of the mini-series 1 and 2 by HGS volunteers. The DVD will be available for sale at the Calgary AAPG Convention.
- **HGS Geojob bank** – Completed 9 years as a free website geoscience job search resource, having posted over 2650 jobs.
- **HGS Technical talks** – Over 35 luncheon and dinner talks were held in 2004–2005, and we observed a steady increase in attendees through the year.

Public Outreach

- **Technofest** (July) – 40 booths of hardware/software geoscience vendors on hand for our members and guests.
- **Houston Gem, Mineral and Fossil Show** (September) – Over 3000 students, teachers, scouts and parents stopped by the first-ever HGS booth at this annual event in Humble.
- **Earth Science Week** (October) – Many HGS volunteers assisted with teaching children and adults at the Houston Museum of Natural Science (HMNS) and throughout schools citywide. Two successful field trips were held to the Blue Lagoon Rock Quarry and Landmark Visualization Center.
- **University of Houston Digital Geologic Library** (October) – HGS donated $1750 to match the AAPG contribution to support the library provided for students and HGS/AAPG members alike.
- **HMNS "Dino Days"** (November) – HGS assisted in the funding of this event with a $3500 donation to enable the world-renown vertebrate paleontologist Dr. Robert Bakker to attend as the keynote speaker.
- **Community Service "Project Respect"** (April) – 27 volunteers from the HGS and the National Association of Black Geologists and Geophysicists provided mowing, trimming and tree removal at the 177-year-old Evergreen Negro Cemetery located in the 5th ward of east Houston. Future work includes a GPS survey and geophysical (GPR) and magnetometer surveys for unmarked grave identification for purposes of recognizition of the site by the Texas Historical Commission.

Scholarship Support

- **First Annual Scholarship Benefit Dance** (February) – Fundraiser attendees contributed $3500 in silent auction donations toward the HGS Foundation and Calvert Memorial Scholarship funds.
- **Calvert Memorial Scholarship dedication** (October) – 4 university geoscience graduate students reviewed by the Calvert committee were awarded $3000 each.
- **HGS Foundation undergraduate scholarship dedication** (February) – 7 university geoscience undergraduate students reviewed by the Foundation committee were awarded $1500 each.
- **HGS University Scholarship dedication** (March) – 7 geoscience students chosen by regional universities were awarded $750 each from the HGS general operating fund.
- **HMNS summer internships** (June) – HGS will provide funds for HMNS summer internships for two Houston Science Fair exhibitor winners at Guest Night (June 11).
- **HGS Undergraduate Foundation and Calvert Memorial Scholarship Funds** – The two 501-3(c) tax exempt scholarship funds have raised $14,000 this year. The AAPG-GCAGS will match up to $20,000 in donations ($10,000 each to the HGS Foundation and Calvert Memorial). Please support these two programs to maximize the matching $20,000 target by October!

———

This marks the end of my tenure as President and the completion of four years of participation on the HGS Executive Board. I have been fortunate to serve with wonderful board members who have given so much of themselves in terms of time and effort toward the society. I am particularly proud of the fine contributions of the 2004–2005 HGS Executive Board. These outstanding members include Dave Rensink, Kara Bennett, Ken Nemeth, Victor Schmidt, Art Berman, Jim Granath, Paul Britt, Marsha Bourque, Andrea Reynolds, Elizabeth Fisher and Bill Dupre.

Energy and persistence conquer all things.

Benjamin Franklin

Dave Rensink will begin service as the 83rd HGS President on July 1, 2005. He brings an enormous wealth of experience and leadership, including service as Treasurer and three years on the Executive Board. In attendance for practically every HGS event this year, Dave is most familiar with the duties of the office. You can expect great things from his leadership next year.

Thank you for the opportunity to serve as your president. It has been a privilege. ■

Prime Source Office Solutions was inadvertently omitted from the contributors of the Scholarship Benefit Party held on February 5. Please accept our apologies. Prime Source has provided the HGS with an exceptional quality HGS *Bulletin* each month since becoming our printer in 2002.

HGS *Bulletin* Advertising

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

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HGS Website Advertising Rates

The HGS Website is seen by many people each day. In recent months, we averaged about 47,000 visitors per month. You have a variety of options for advertising your company, your job openings, or your services on the Website. There are two sizes of ads on the home page, a 165x55 pixel logo along the right-hand border and a new 460x55 Banner ad across the top.

We also offer a Banner ad across the top of our monthly Newsletters sent to registered users of the Website. Job postings are free to any registered user of the Website, but they must be geoscience jobs of interest to our members. Current HGS members may post their resumes at no charge. If you have a product or service available at no charge, you can post it in the Business Directory at no charge. Geo-related Business Cards and job openings may be posted directly by any registered user and members may post their own resumes. They will be activated as soon as practical.

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• For a limited period, the HGS is offering a combined Bulletin *and Website Business Card ad. The cost for one year will be the cost of the* Bulletin *Business Card plus $25.00 for a total of $150. Additional names in the* Bulletin *card cost $25 each. The Website business card is a fixed price and in color, plus you have space for additional information and a link to your business website. You can also include your logo or an actual scan of your business card. This offer is good until June 30th, 2005, after which time the combination price will increase to $165.00.*

Editor's Letter

by ***Arthur E. Berman***
editor@hgs.org

Ideas Are Like Stars: The Current Oil Boom

Many years ago, Robert Weimer asked my stratigraphy class to explain what we observed shortly after arriving at an outcrop along the Colorado Front Range. Several people offered interpretations of possible depositional environments and sedimentary facies relationships as we stood by our vehicles.

Weimer responded, "I asked for observations, not interpretations. How can you interpret the geology when you haven't gotten close enough to the outcrop to describe it?"

That incident didn't make an immediate impression on me but it produced an echo in my mind. I have recalled it and Weimer's comment so many times that now it has become part of my approach and response to many situations in life.

In May, I wrote about the period of high oil prices from 1973 to 1986 (Berman, 2005). I discovered that many of my recollections and impressions of that period were, at best, incomplete and parochial. My intention for this, my last "From the Editor" letter, was to carry the story to the present, draw some conclusions and perhaps make some predictions about the current high price cycle we are experiencing in the oil industry.

As I researched the topic, I discovered an analogy to Bob Weimer's complaint on the outcrop years ago: people are making and publishing high-level interpretations without first getting close enough to the data to observe and describe what is there. Analysts, pundits and other industry experts focus on three ruling theories to explain high oil prices and the current environment in the oil business: peak oil production, failure to discover new reserves and unanticipated demand from China and India.

I am not implying that these factors are incorrect or without basis. I am suggesting that a simple story is being told to explain factors that are, in the case of the present high oil price cycle, much more basic and fundamental. Please join me as we move away from the vehicles, walk up to the outcrop and describe what we see. Maybe after that we can move on to interpretations.

Worldwide refinery capacity is a more immediate limitation to satisfying growing world demand for petroleum than adding new reserves... Demand now exceeds refining capacity by 2.5 million barrels per day.

Peak Oil Production: The World is Running Out of Oil

The first theme or ruling theory I encountered while reading for this and last month's "From the Editor" letter is the notion that peak world oil production is imminent or has already occurred. According to its advocates, peak oil production leads irrevocably either to the demise of civilization as we know it or, at the very least, to radical adjustments in lifestyle for industrialized countries that are dependent on oil.

Many call peak oil production "Hubbert's Peak" referring to predictions made in 1956 by M. King Hubbert. Hubbert correctly predicted that United States oil production would peak in 1970. His other predictions about peak U.S. gas production and world oil production were incorrect.

The discovery of the Prudhoe Bay Field in 1967 complicated Hubbert's prediction about U.S. peak production and nearly discredited his predictive method. Prudhoe Bay began production in 1977 and by 1985 daily U.S. production had climbed to 96% of its 1970 peak (Figure 1).

Hubbert's method involved questionable assumptions: production rise and fall would be symmetrical and log-normal and reserves would remain static. Hubbert assumed that peak production would occur when exactly half of proved reserves were depleted. The problem, of course, is that proved reserves must remain static in order to predict the midpoint of depletion. Prudhoe Bay was simply not in the model (Figure 2). Neither were Kuparuk River or Point Thompson in the Alaskan Arctic. Likewise, other important discoveries in the Wyoming-Utah Overthrust Belt and the Deepwater Gulf of Mexico were understandably not anticipated when Hubbert performed his calculations.

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Extrapolation always leads to errors because it fails to recognize the ingenuity of people and technology to find new reserves and to produce more supply than estimated from existing fields. It is difficult to imagine that today's proponents of peak oil methods can rule out significant new reserves yet to be discovered in regions far more likely to contain large fields than the United States.

Remaining conventional, proven world petroleum reserves are estimated to be 2130.5 billion barrels equivalent (Figure 3). Depletion is estimated to be 807-822 billion barrels (Bentley and Smith, 2003) Using the Hubbert method, peak global production has not yet been reached. Proponents of imminent peak production argue that Middle Eastern reserve estimates are exaggerated, and perhaps they are, but we must use the data that we have. Present world consumption is about 30 billion barrels per year (Energy Information Administration). This suggests that peak world production will be reached in less than 8 years (other reliable sources, notably the United States Geological Survey, do not anticipate peak global production until 2030).

So what? If someone has recommendations about what should be done about the impending peak in global oil production, I would like to hear them. History is full of predictions that, more often than not, don't occur. What ever happened to the famous prediction of the Y2K disaster in which all the world's computers would stop working when the calendar changed from 1999 to 2000? Billions of dollars were spent preparing for this event and yet nothing happened.

Petroleum is abundant and will be an economically important commodity for a long time. What is certain is that the cost of petroleum will increase as it becomes scarcer. Peak oil thinking does not account for systemic changes in oil consumption as prices increase or for new reserve additions through exploration or field growth. It does not consider advances in technology either in exploration or production, or in consumption efficiency.

The peak production model does not include unconventional petroleum reserves. Tar sands currently being produced in Venezuela and Canada alone contain proven reserves at least equal to all pre-depletion conventional sources. Other unconventional hydrocarbon sources such as shale oil, and gas hydrates have present economic or technological limitations but will probably become feasible resources as oil becomes more expensive.

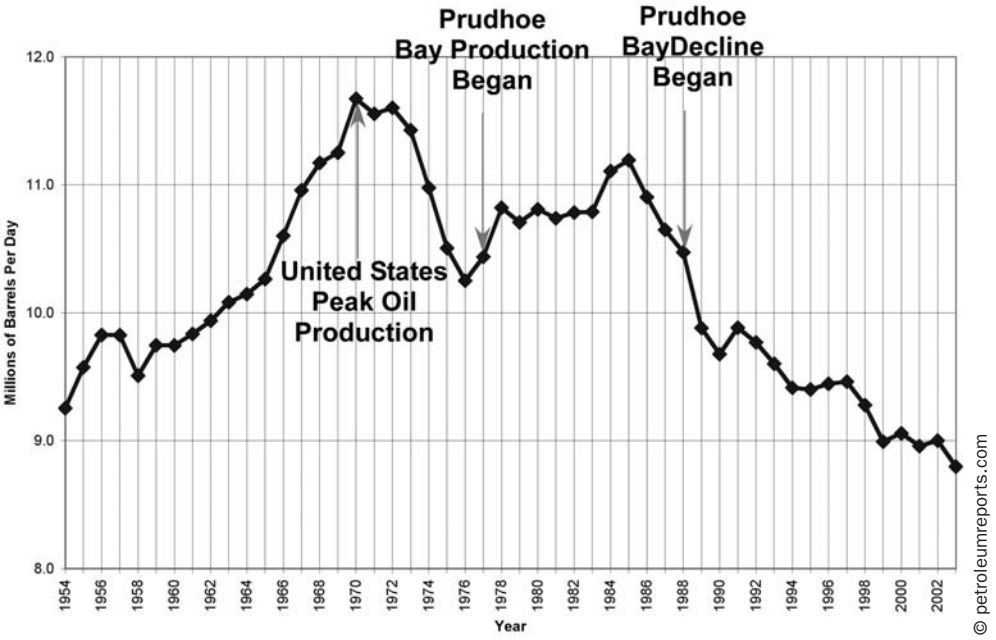

Figure 1. United States average annual oil production, 1954–2003. Source: Energy Information Administration, http://www.eia.doe.gov

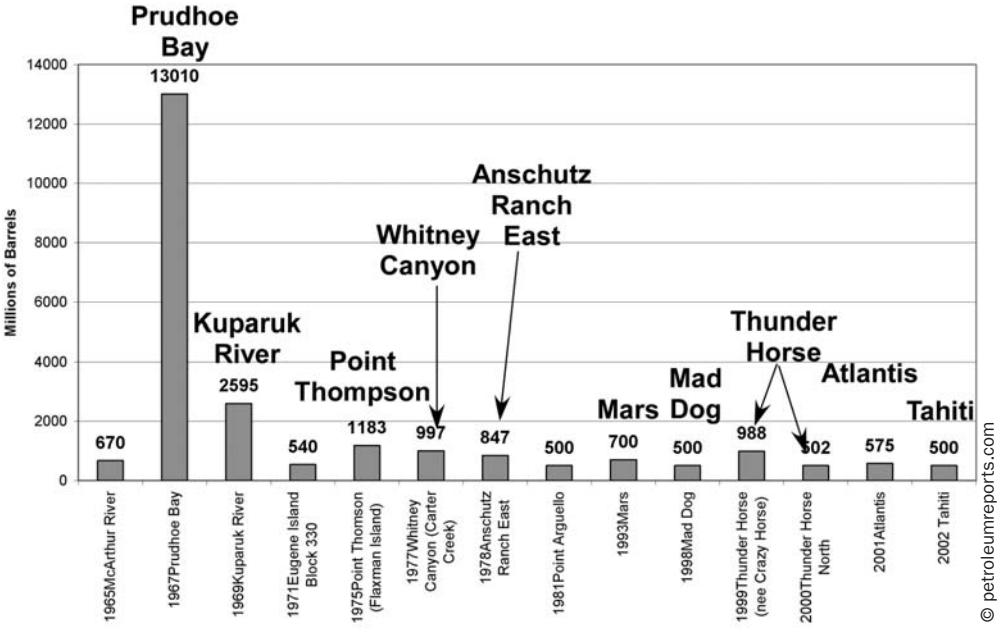

Figure 2. United States giant field discoveries, 1965-2003. Source: Horn (2004).

Coal-bed methane technology is presently commercial but provides little relief for the need for refined petroleum products for transportation. I understand and respect the position of those who warn about the implications of peak oil production, but data does not suggest that the world is facing a permanent energy crisis. Nor does it seem particularly useful to know when peak production will occur. Peak oil production is like having a birthday. You know it's coming, it arrives, you are officially one year older, you have a party and you carry on.

New Reserves Are Not Being Found

The second ruling theory I recognize states that exploration and production companies have not invested enough money in exploration over the past 20 years. The result is that insufficient new reserves have been discovered to meet demand. I admit that I would like to blame the world energy deficit on a few dozen major oil companies but data does not strongly support that position. The fact is that considerable new oil reserves have been found since the oil shocks of the 1970s and 1980s, though discoveries account for only about one-third of current annual global demand.

Figure 4 shows giant field discoveries since 1965 and significant reserve additions since 1986. South Pars was discovered in Iran in 1993 and has reserves of over 80 billion barrels. In 1999, Niban (Saudi Arabia), Azadegan (Iran) and Tabnak (Iran) were discovered with cumulative reserves of 31 billion barrels. In 2000, Ghazal (Saudi Arabia), Jansz (Australia), Sulige (China) and Kashagan (Kazakhstan) were discovered with cumulative reserves also of 31 billion barrels. Angola Block 15 was discovered in 2003 and has over 3.2 billion barrels of reserves, as does Roncador discovered in 1996 in Brazil. The distribution of giant field discoveries shown in Figure 4 has the familiar pattern of decline. What is not obvious in the chart is that many of the world's most attractive exploration regions are closed to foreign or private investment.

Most of the world's drilling activity is confined to regions where investment is feasible. Places such as Saudi Arabia, Iran, Mexico and Kuwait are effectively closed to private investment in petroleum. Other countries, such as Russia, are technically open but present substantial obstacles to foreign investment. This explains why most wells are drilled in North America (Figure 5), the most mature drilling province in the world, and a region unlikely to contribute giant discoveries compared with, for instance, the Middle East or Russia. (It is important to note that drilling data is not available for the Former Soviet Union or for the Russian Federation.)

Two-thirds of discoveries made between 1999 and 2003 were made by privately held companies that hold less than 20% of the world's oil reserves. National oil companies have the remaining 80% of world reserves but invest little and have questionably effective exploration and production practices of in spite of their tremendous available petroleum resources. The five largest international corporations (BP, ExxonMobil, Shell, Total and ChevronTexaco) control slightly less than 5% of world oil reserves but were responsible for 20% of reserves discovered in new fields during the last five years (Appert, 2005).

Perhaps the best example of ineffective exploration practice by a national oil company is Mexico. Figure 6 shows world reserves by region with Mexico shown separately. That country has effectively written down or depleted 75% of its reserves since 1999 when it had nearly 50 billion barrels, compared with only 15 billion barrels remaining in 2005 (Figure 7). Mexico has not had a giant discovery since 1977 when Cantarell and its satellites were found except for Sihil, which is a deeper pool within the Cantarell complex. Until this month, Mexico was claiming over 50 billion barrels of probable reserves in the as yet undrilled deepwater region of the Mexican portion of the Gulf of Mexico. Since then, that number was cut in half.

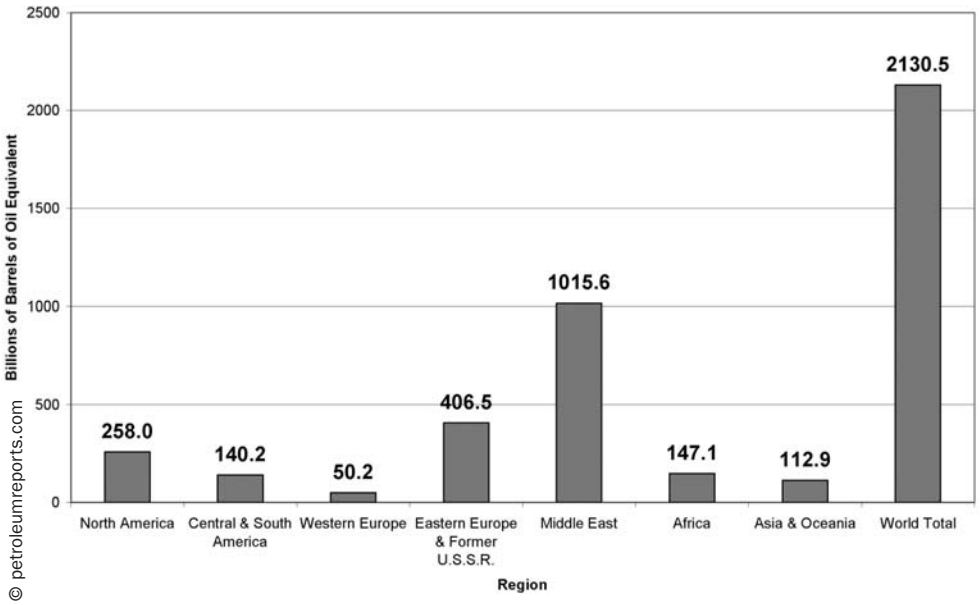

Figure 3. Estimated remaining proven world oil reserves. Source: Horn (2004).

Figure 8 shows the dilemma of oil-rich regions that are off-limits for private investment and drilling. The

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former Soviet Union has a field size distribution that suggests no pattern of decline. Kashagan (Kazakhstan), Shah Deniz (Azerbaijan), Leningrad (Russia) and Shtokman (Russia) have all been discovered since 1988 and contain about 5 to 10 billion barrels of proved reserves each. (Kashagan, Shah Deniz and Kamennomysskoy account for the "FSU/E.Europe" reserve increase since 2002 in Figure 6.) The probablility of discovering significant new reserves in Russia using private capital and technology is very promising but is currently not possible.

A similar situation exists in the Middle East, where underexplored or underdeveloped countries such as Iran and Saudi Arabia currently do not allow foreign investment. As in Russia, field size distribution suggests high probability of finding significant new reserves in giant fields (Figure 9; page 14). Many of the discoveries of the past decade were previously cited in this section. Iran has added over 18 billion barrels of new reserves since 1995 in fields that range from 1.0 to 6.4 billion barrels. Saudi Arabia has discovered 3.5 billion barrels since 1999.

South America is an example of how opening to outside investment can result in important reserve additions. When Brazil allowed foreign investment beginning in 1998, a string of discoveries immediately followed including RJS-539, Mexilhao, Jubarte, Cachalote, Baleia Franca, ESS-130 and Golfinho, in addition to development of previous discoveries such as Roncador, Marlim, Albacora and Barracuda (Figure 10). A similar situation occurred in Bolivia with notable discoveries at Margarita, Sabalo and Itau, in Peru with development of the Camisea field complex, in Venezuela with Corocoro, Carito and Furrial-Muspan, and in Colombia with Cusiana. The large increase in South American reserves shown in Figure 6 is due mostly to Marlim Sul, Camisea, Carito and Furrial-Muspan (Venezuela).

West Africa has also been an important success for private investment, albeit with difficult fiscal terms in some countries such as Nigeria. Nevertheless, the Bonga-Bonga Southwest, Agbami and Akpo discoveries in Nigeria have resulted in reserve additions of nearly 4.6 billion barrels since 1996 (Figure 11). Angola has added over 6.8 billion barrels with discoveries at Girassol, Dalia, Gindungo and Block 15. Elsewhere in Africa, foreign investment in Algeria has resulted in over 3 billion barrels in new discoveries at Ourhoud and

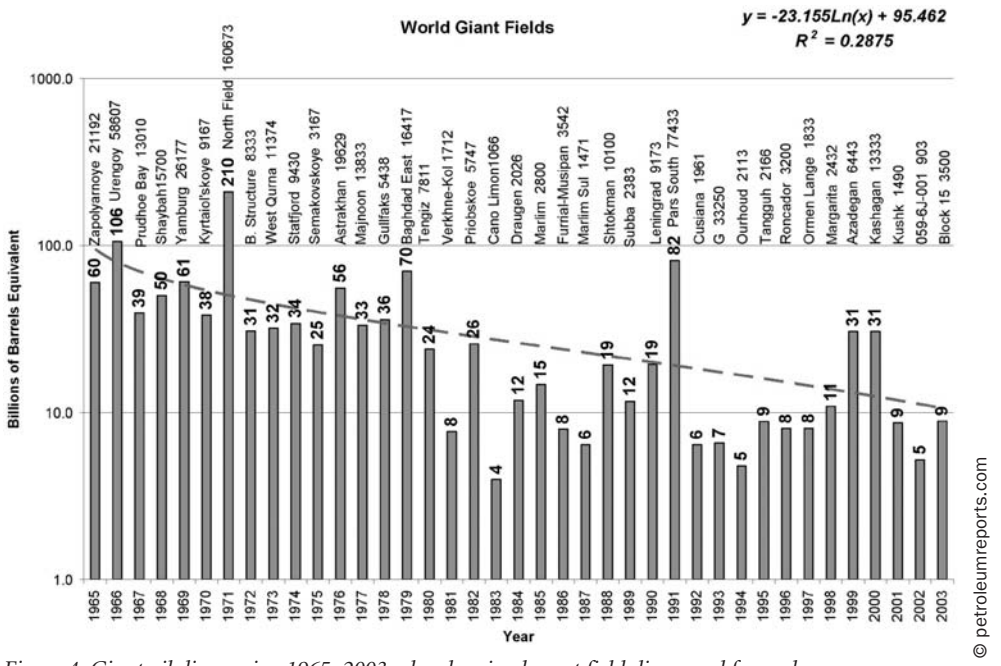

Figure 4. Giant oil discoveries. 1965–2003, also showing largest field discovered for each year. Source: Horn (2004).

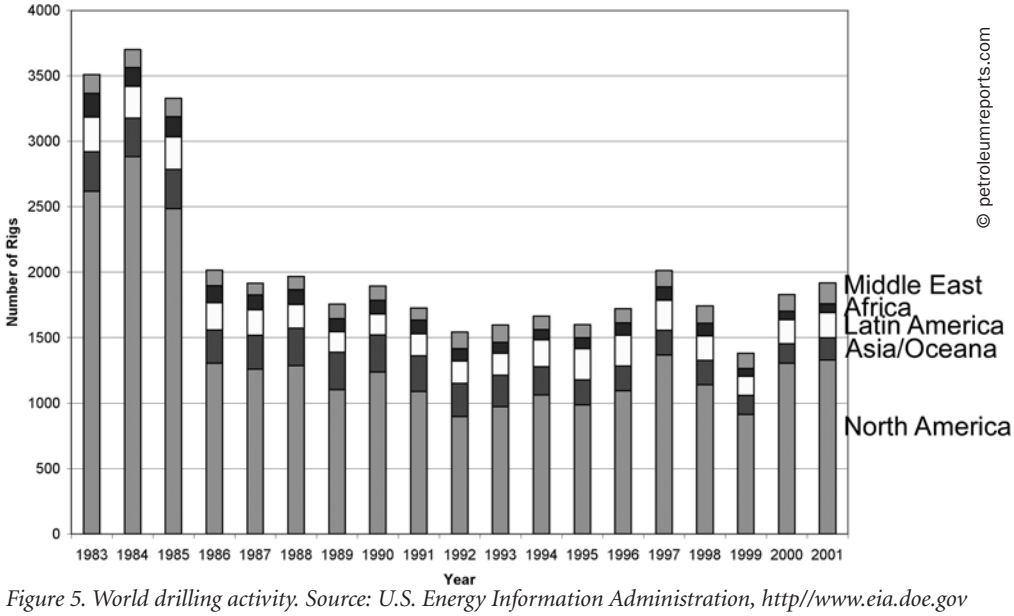

Figure 5. World drilling activity. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

Hassi Berkine Sud in the mid-1990s. African reserve increases shown in Figure 6 reflect discoveries in Nigeria, Angola and Algeria.

Oil Demand from China and India

A third and nearly universally accepted ruling theory among oil business commentators is that petroleum demand by China and India was unanticipated and is largely responsible for current high oil prices. I will say from the outset that I think this is a poor explanation for high oil prices and reflects ignorance of what has been occurring in Asia and the world since the early 1970s (Berman, 2005).

The president of Institut Francais du Petrol (IFP) wrote earlier this year, "In the last 18 months, there has been strong growth in oil demand that nobody anticipated. This was mainly due to acceleration in Chinese demand" (Appert, 2005).

What he refers to is reflected in the change of slope in the China demand curve in Figure 12 (page 17). What is unclear is why this was unanticipated considering the steady, long-term demand growth in China since at least 1984.

"The big news was the sharp increase in Asia/Pacific oil consumption (including China and India) which grew at a rate of 6.8 percent," writes Ronald Cooke (2005). Where is the noticeable growth from India? While demand doubled between 1987 and 1999, demand growth in the last 5 years has been stagnant (Figure 12, page 17).

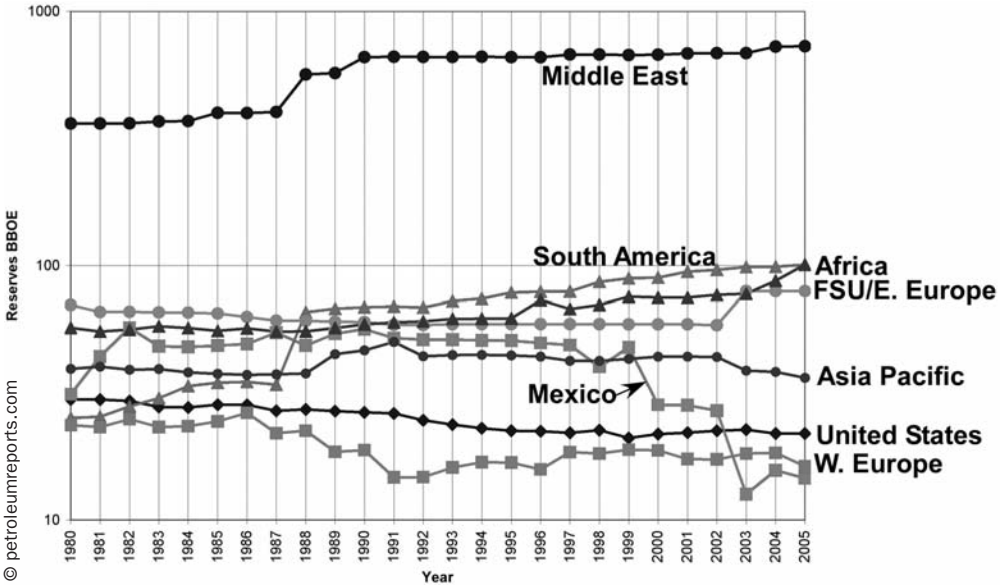

Figure 6. World proved oil reserves by region, 1980–2005. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

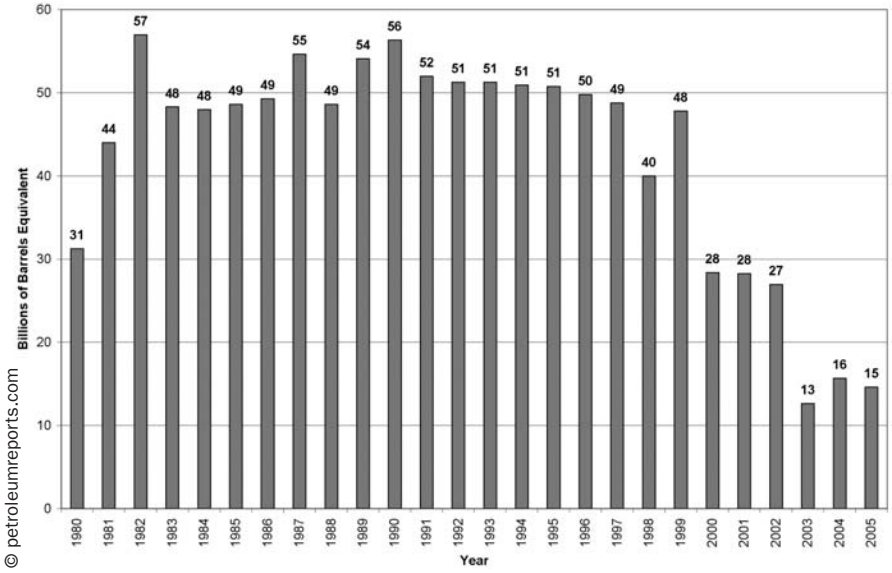

Figure 7. Mexico proved oil reserves, 1980–2005. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

There seems to be some mystique about the capacity of the Asia-Pacific region to influence oil prices. I mentioned in my May "From the Editor" letter (Berman, 2005) that a similar widely held misconception blames the 1997 worldwide oil price drop on Asia-Pacific economic recession. While the recession was real, oil demand in that region continued to rise. As I explained in the May *Bulletin*, the real cause for the 1997 price drop was resumption of Iraqi production with the United Nations oil for food program.

What about demand growth from the entire rest of the world, not just China? I made a point in my May letter that it was precisely this demand growth, that was strong before the first oil shock in 1973, which allowed the supply interruptions of the 1970s to affect the world as much as they did. Figure 13 (page 17) is a modified version of a figure I presented last month. It shows that world demand has increased 70% since 1983, from 58.78 to 84.30 million barrels a day in 2005 (Morrison, 2005).

I don't want to minimize the importance of demand growth from China because it is significant. I merely point out that it should not

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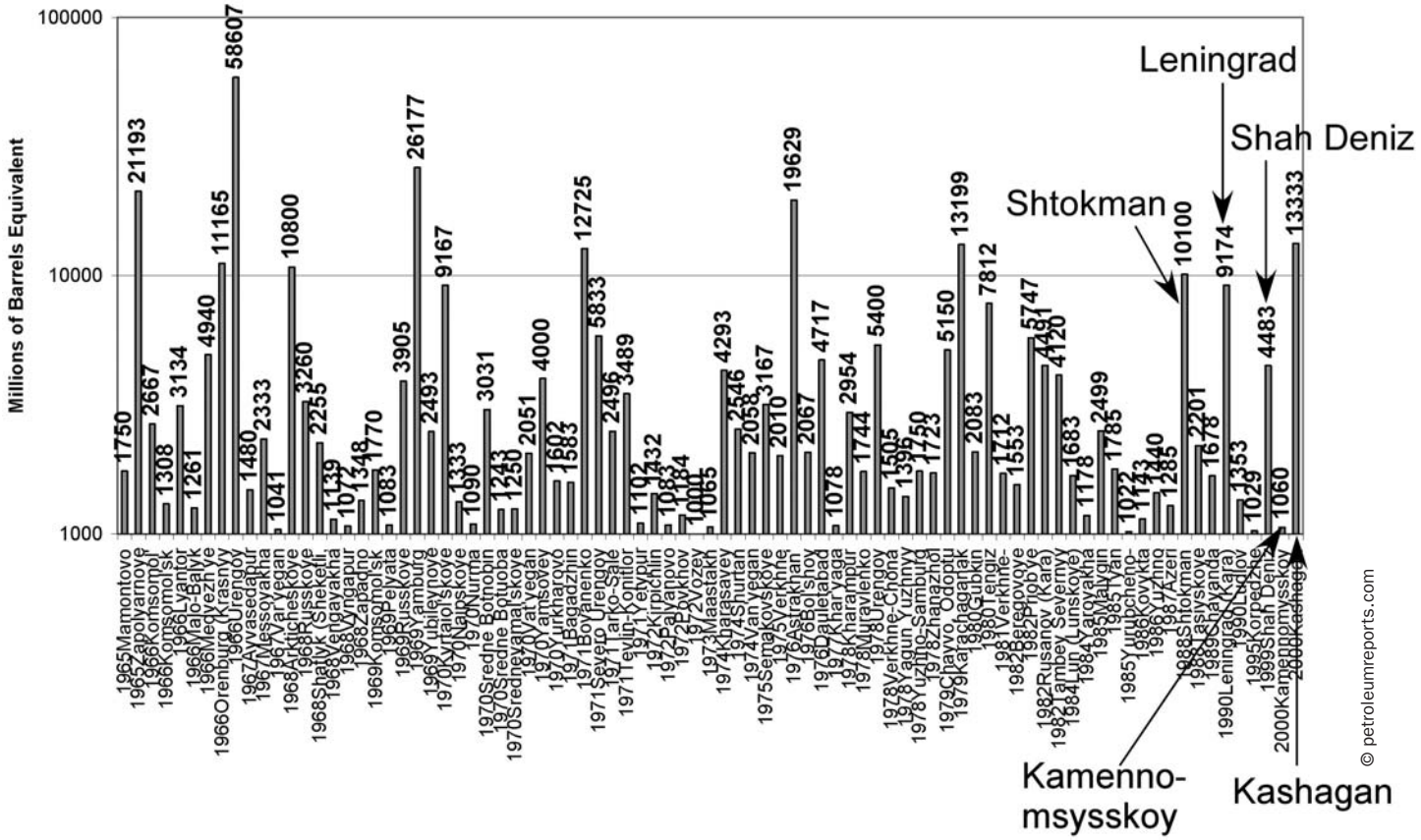

Figure 8. Former Soviet Union giant discoveries, 1965–2003. Source: Horn (2004).

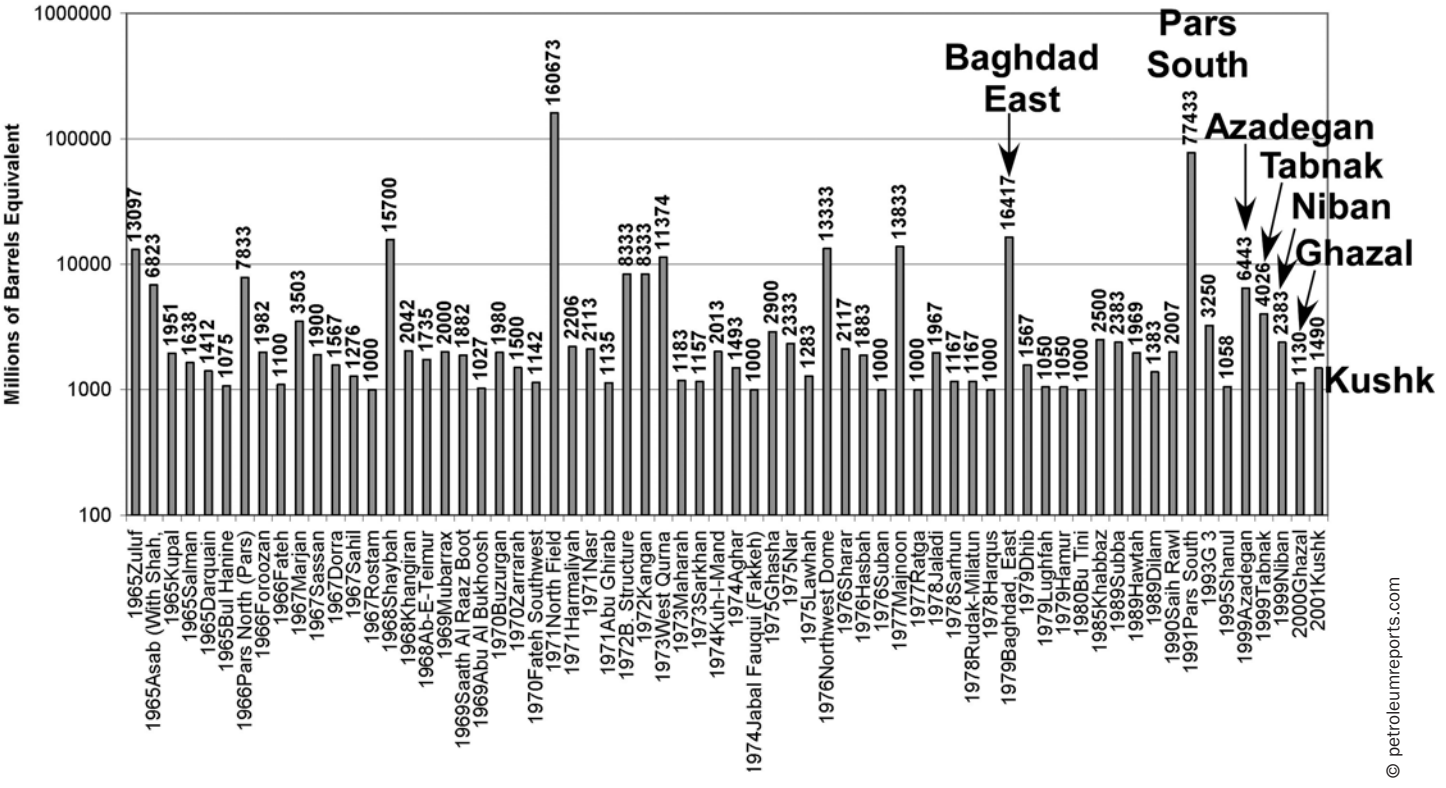

Figure 9. Middle East giant discoveries, 1965–2003. Source: Horn (2004).

surprise anyone and that India has not been a factor in world demand for several years, though this could change. More importantly, we must consider demand from all sources.

Refinery Capacity

Worldwide refinery capacity is a more immediate limitation to satisfying growing world demand for petroleum than adding new reserves. The refining industry struggled with excess capacity and low profit margins since the early 1970s (Figure 14; page 18). Many refineries were closed and few new plants were built due to strict environmental regulations and local opposition to such projects. The last new plant built in the United States was in 1976 and the number of U.S. refineries has decreased from 325 in 1981 to 149 today (Herrick, 2005).

Since 2000, North American capacity for refining crude oil has remained flat while demand for refined products, mostly gasoline and jet fuel, has grown. Demand now exceeds refining capacity by 2.5 million barrels per day (Morrison, 2005, and Figure 14). The combination of limited capacity and rising demand keeps inventories low. Over the last 10 years, average gasoline inventory in North America has fallen from 30 to about 23 days (Appert, 2005). In the Asia Pacific region, the sharp acceleration of Chinese demand has created an even greater disequilibrium with respect to refining capacity.

President Bush urged Saudi Arabia's Prince Abdullah to increase oil production in a meeting April 25, 2005. Abdullah pointed out the near-term futility of such action given the refining situation just described. The problem of refining capacity is further exacerbated by the fact that most of Saudi Arabia's excess oil producing capacity comes from heavy, high sulfur oil. Heavier crude oil cannot be processed in many refineries and costs more to refine, although its purchase price is lower than light, sweet crude oil.

"The domestic refining situation is starting to attract political attention. President Bush, in his second major speech on energy in a week (April 28, 2005), addressed the bottleneck in the refining industry yesterday and suggested that military bases that had been shut down could be used as sites to build refineries," writes The New York Times (Mouawad, 2005).

Many blame OPEC for current high oil prices, but Jeffrey Currie, managing director of global investment research at Goldman Sachs, says that the refining problem is outside OPEC's control. Some OPEC members, such as Iran, Iraq and Nigeria, as well as other important non-OPEC producers such as Mexico, have to import petroleum products because they lack sufficient domestic refining capacity. Currie expects refinery capacity growth to lag behind oil demand for the rest of the present decade due to obstacles and restrictions to plant construction in western nations and the construction time for such projects (Morrison,

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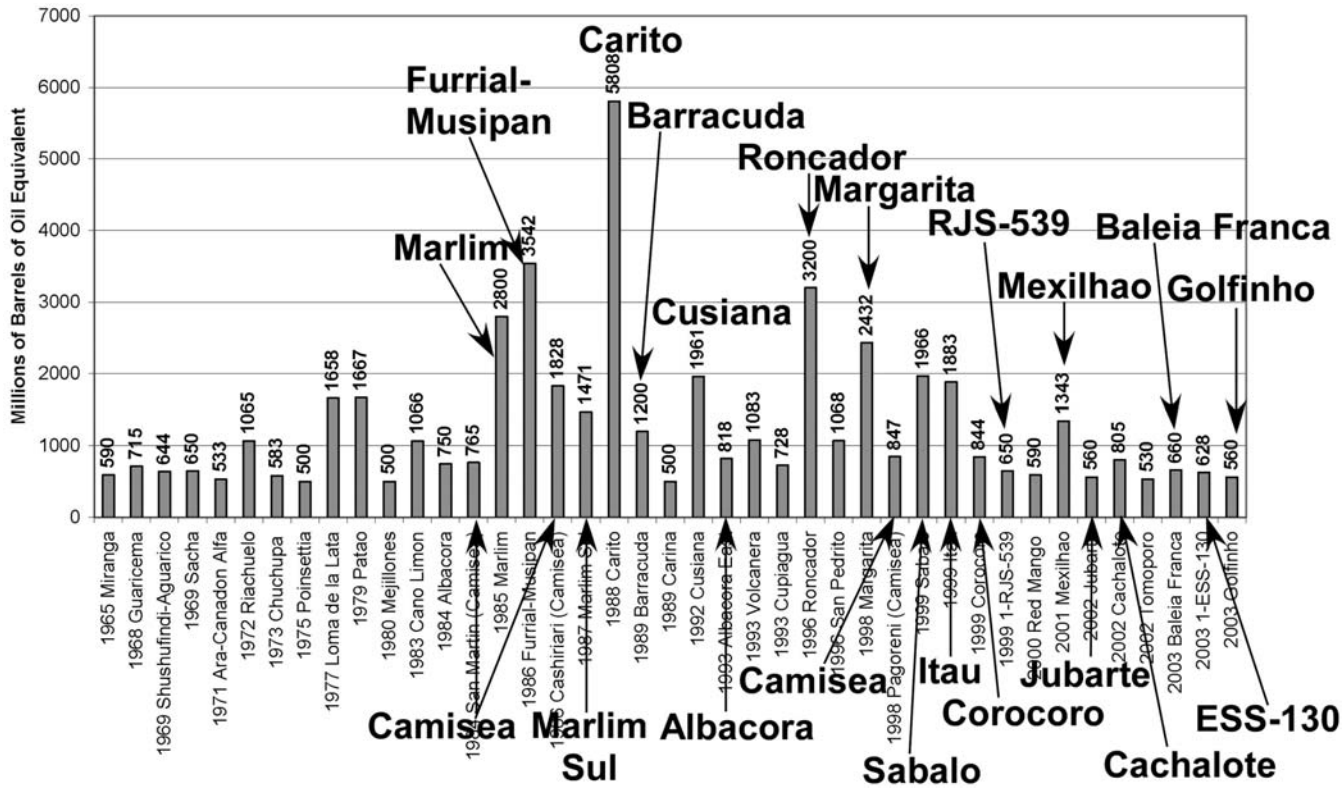

Figure 10. South America giant discoveries, 1965–2003. Source: Horn (2004).

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2005). Most new refineries will be built in Asia, particularly China, but no new plants are planned for the U.S. and western Europe, where none has been built for three decades.

Ideas Are Like Stars

There are many ideas about the current oil price environment that I call ruling theories. All reflect some version of the truth but none satisfactorily describes or explains the context of the current situation. Some, when calibrated with data, are not even accurate, much less useful. None of these ideas permits a clear path forward to resolving the problem.

What was fundamentally different today from yesterday about supply and demand? Nothing.

These ideas are like stars. They are beautiful to contemplate. Our ancestors saw patterns in stars that reminded them of people or creatures in myths. They gave them names and tried to predict the future by understanding the relationships among the constellations. We now know that the patterns and grouping of stars in their constellations have nothing to do with what is going on in the universe. The patterns of constellations only reflect how the stars appear from Earth. These ideas tell us more about the people who conceived them than about the reality of stars in the universe.

This is what I think Weimer meant years ago.

Today the price of oil fell $3 per barrel to $52. What was fundamentally different today from yesterday about supply and demand? Nothing. The government reported that U.S. petroleum inventories increased somewhat, rising 5.4 million barrels in the week that ended April 22 to 324.4 million barrels, the highest level since May 2002 (Mouawad, 2005). UCLA scientists announced they had achieved very small-scale controllable nuclear fusion. President Bush met with Saudi Arabia's Prince Abdullah and announced that he will lead the United States to greater energy independence. That, of course, is a lie but I forgive him because every president, candidate for president and secretary of energy for at least the past 30 years has said the same thing.

On April 1 of this year the price of a barrel of oil was over $58. Three weeks earlier, it was $46 and on the 3rd of January, it was $42 per barrel (Figure 15, page 18). Fear and insecurity are driving the price of oil. People are afraid that our interconnected world is a more uncertain and dangerous place than we thought it was when we entered the global economy during the last decade (it wasn't a choice anyway). The booming United States

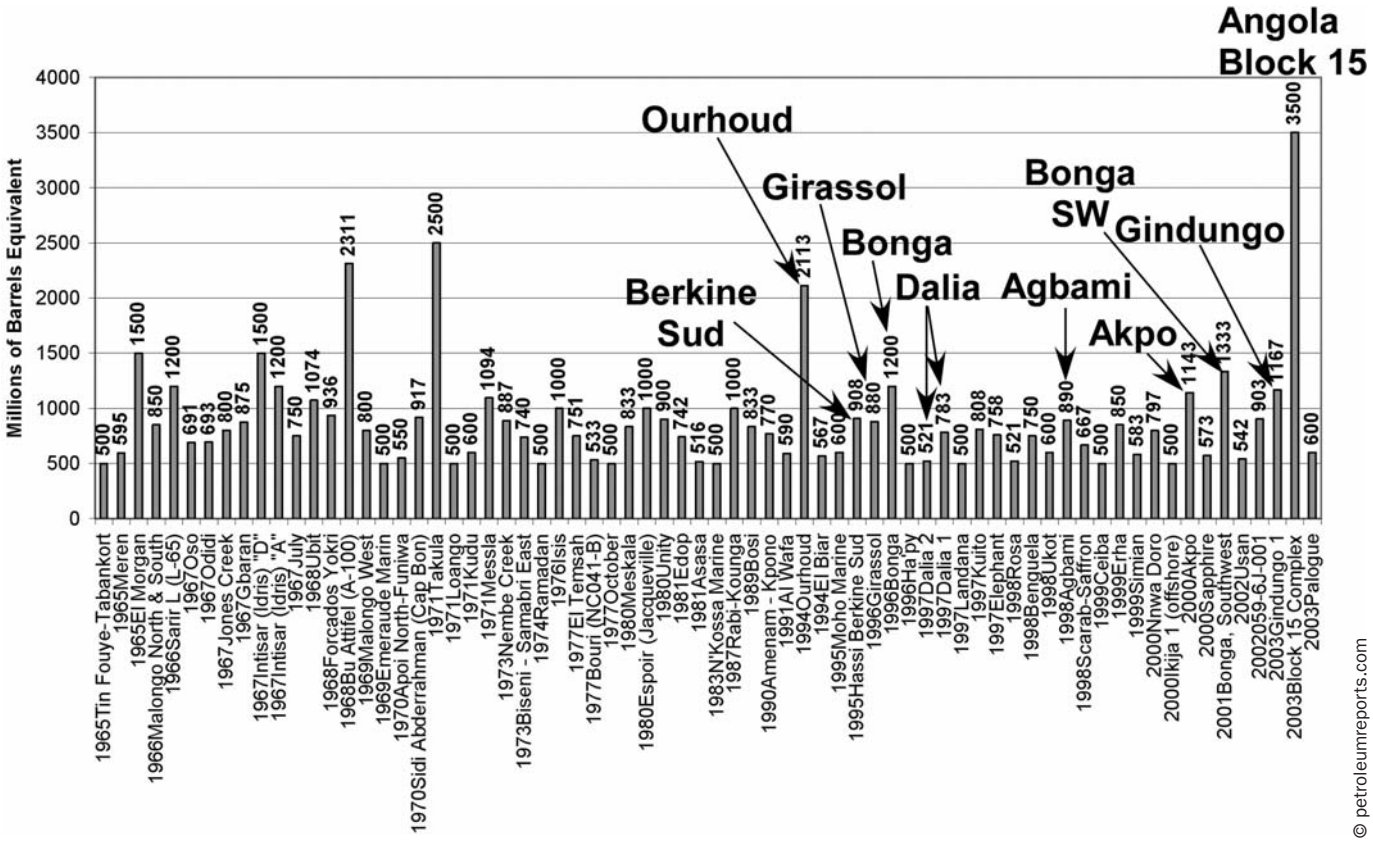

Figure 11. Africa giant discoveries, 1965–2003. Source: Horn (2004).

stock market and dot-com phenomenon of the late 1990s seemed to prove that we were on the correct path. Corporations promised and seemed for a while to deliver perpetual growth despite the fact that this contradicts all laws of nature.

Americans have been simultaneously intoxicated with and terrified of technology for much of our nation's history. The experience of the Second World War made us doubt the path of technology for the first time. World War II was our first real exposure to the possibility of failure. The horrors of Nazi and nuclear holocaust jolted us. The cold war and the McCarthy era, the assassinations of our heroes in the 1960s, and the folly of Vietnam made us doubt ourselves. Just when things seemed to be getting better in the 1990s, we experienced the terrorist attacks in 2001 on New York and Washington, D.C. Our new enemy is invisible and exploits the very Western technology he claims is ruining his civilization to threaten the very foundation of ours.

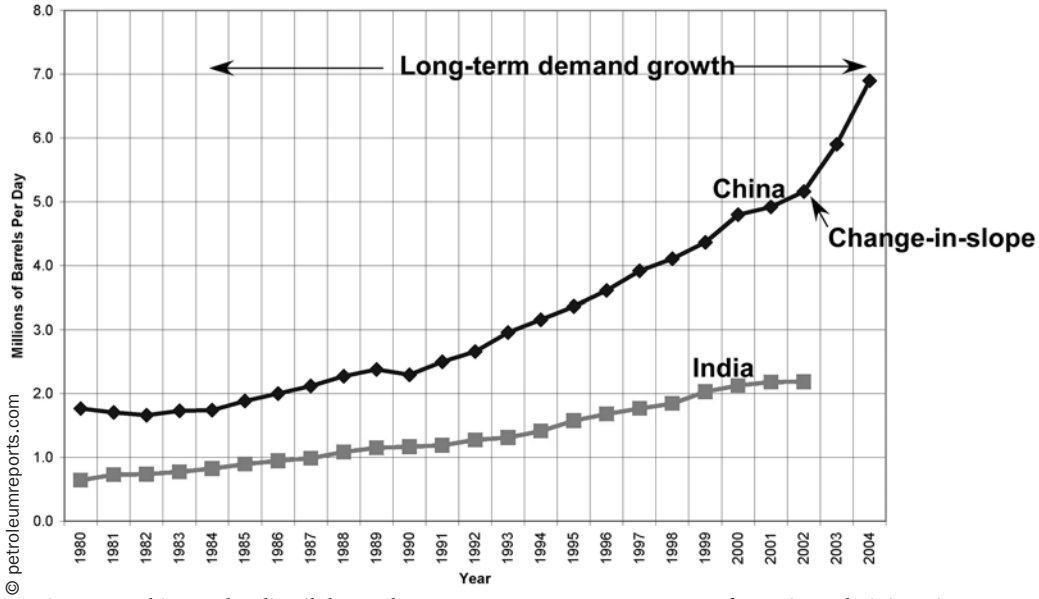

Figure 12. China and India oil demand, 1960–2004. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

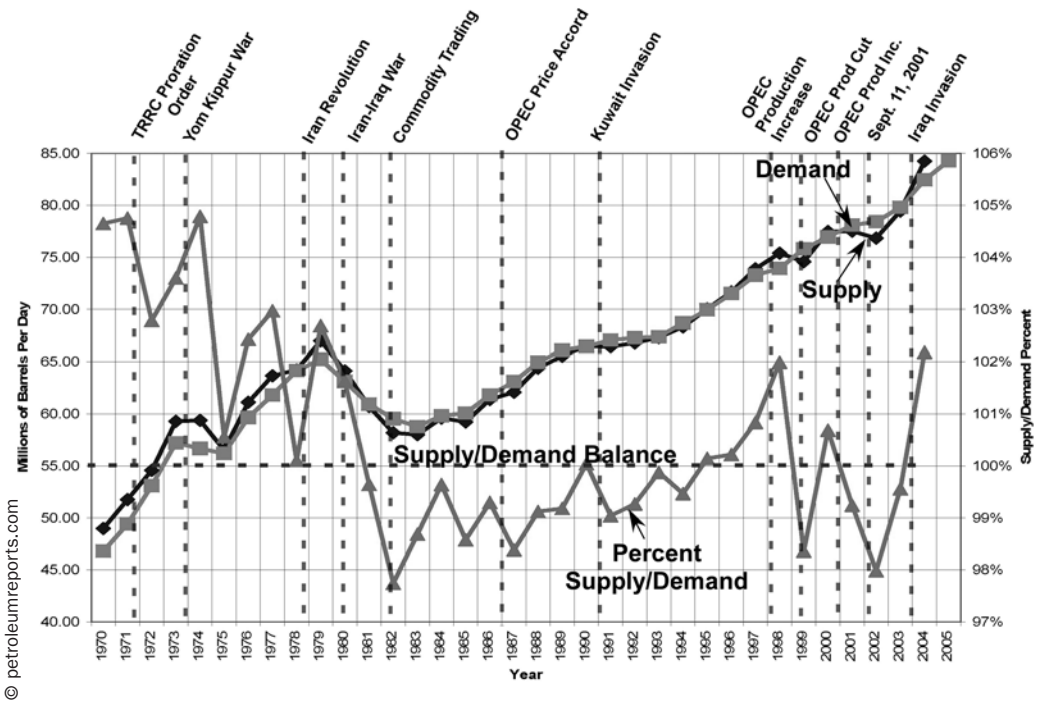

Figure 13. World oil supply and demand. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

The 2001 attacks also ushered in the present cycle of high oil prices that began, to pick a date, about November 15, 2001, when a barrel of oil cost $17.45 (Figure 16). It has been, as the chart shows, a jagged path but the price of oil has steadily risen since then.

Typically it takes a traumatic experience to trigger change and psychological growth in adults. September 11, 2001 was a trauma for our country and most of the world. We are afraid but we now have our eyes wide open. The world was a frightening place before the 2001 attacks. It is far more so now.

Global changes in oil supply and demand have been occurring for at least 30 years. In the months after September 2001 we collectively became more conscious that events outside of our country and our control affect our lives and needs in profound and unpredictable ways.

There has always been a high level of ignorance about the energy sector. This allows politicians and pundits to tell the public things that are often confusing, misleading or incorrect about the supply of oil and what it means to us.

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At a recent lecture in Houston, Michael Economides, a petroleum expert who teaches at the University of Houston, challenged the audience. "If you ask both of your neighbors where electricity comes from and either one of them tells you it comes from burning something, I will buy you dinner anywhere in Houston. I mean it!" he said. "Most people think electricity comes from a wall socket!"

Experts and analysts provide simple explanations for the current energy situation. Some of them are prophets of doom and some are misinformed. A recent article in Rolling Stone Magazine, for example, warns of a permanent energy crisis. The author writes about peak oil production: "The United States passed its own oil peak—about 11 million barrels a day—in 1970, and since then production has dropped steadily. In 2004 it ran just above 5 million barrels a day" (Kunstler, 2005).

In fact, U.S. production in 2004 was 8.7 million barrels per day (Figure 17) and the United States was passed in 2003 only by Saudi Arabia as the world's largest producer of petroleum!

I have summarized the key arguments that experts use to explain current oil prices: approaching peak global oil production, failure to discover significant new reserves and growing demand by the developing world, China and India in particular. I have added to this that refining capacity is a key factor that may be more of a choke point in the short-term than either peak production or lack of new reserves.

The reality is that world demand has been growing since before the oil shocks of the 1970s as developing nations emerged economically and begin to approach the demand levels of more advanced countries. Public companies are not able to operate in much of the world. A disproportionate amount of drilling and investment resources are, therefore, spent in regions with low potential for reserve growth, notably in North America. I don't think the data strongly supports irresponsible strategies and practices by oil companies as the leading cause of dwindling field discovery sizes. The size of recent discoveries is a consequence of continuing to operate in maturing provinces.

Few national oil companies have demonstrated exploration and production effectiveness. This is a problem for an economically interconnected world that requires new petroleum reserves. Market pressures may open more of the world to private investment if internal forces do not beforehand. I would like to see the United States use its considerable influence with countries such

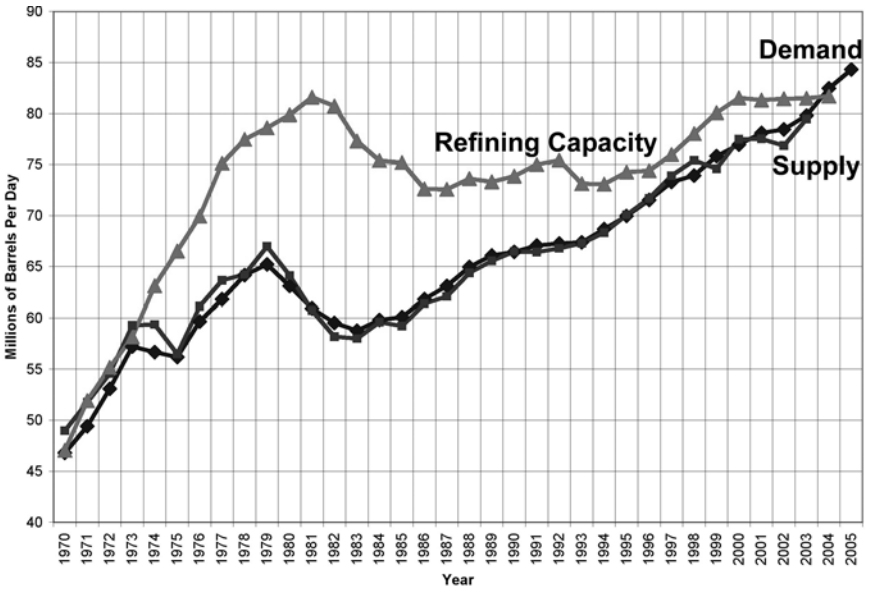

Figure 14. World refinery capacity, oil supply and demand. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

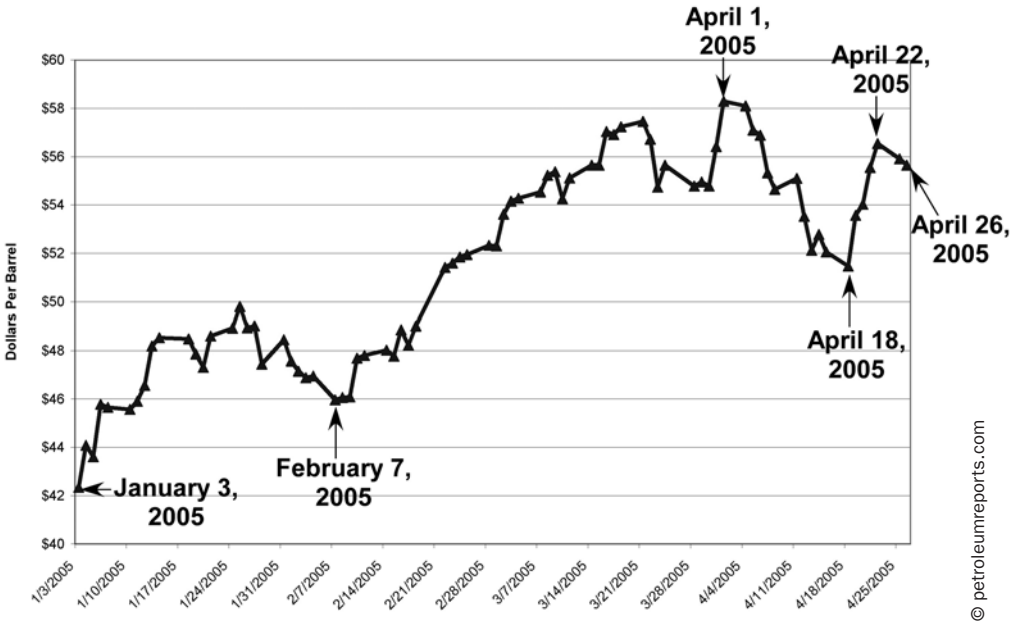

Figure 15. Cushing Oklahoma future contract oil price, January–April 2005. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

as Mexico and Saudi Arabia to open those regions to private investment. I am encouraged to hear President Bush talking this week about the need to address U.S. refining capacity.

I do not think we are entering a permanent energy crisis nor do I accept the commonly held view that the United States is an extravagantly wasteful country when it comes to energy. We have great demand for petroleum and create substantial wealth for the world as a result. How, for instance, could China have developed economically without U.S. investment and trade? I agree with Michael Economides that the United States is perhaps the most efficient country on Earth in its use of energy: we just use a lot.

Development of alternative energy sources to eventually replace crude oil is critically important. It must, however, be understood that there is no viable alternative source of energy for transportation in the foreseeable future (Economides, 2004). Approximately 52% of all crude oil is used for gasoline and jet fuel (Figure 18, page 20). It is interesting to note that nearly half as much refined petroleum ends up as some form of heating or fuel oil: I wonder what possibilities there are for diesel-like technologies to use the 4.6 million barrels of these refined products for transportation or to simply crack it to make more transportation fuel? The technology and cost to provide energy to the transportation sector through other means lies in the future.

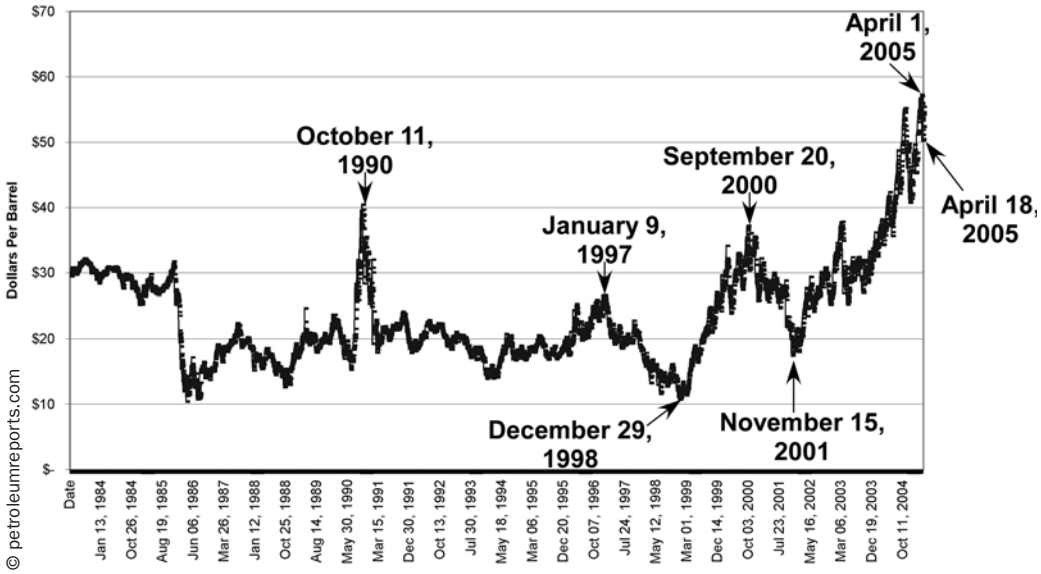

Figure 16. Cushing Oklahoma future contract oil price, March 1983–April 2005. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

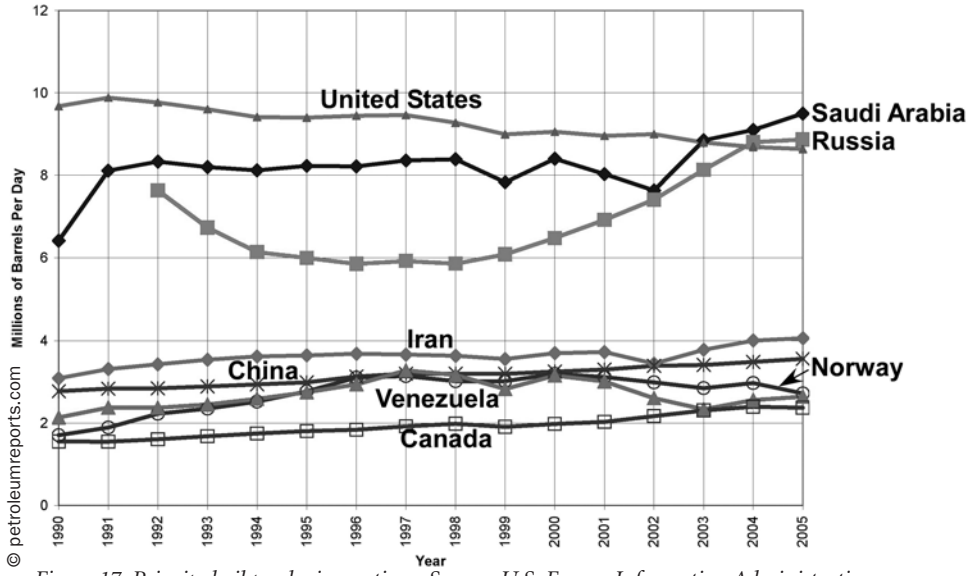

Figure 17. Principal oil producing nations. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

Hydrogen fuel cells are, likewise, an important technology that must be pursued. It will, however, require a tremendous amount of hydrocarbon power to produce free hydrogen. Hydrogen not only is a less efficient fuel source than petroleum on a unit or molar basis, but the volume of water vapor produced in the process has not yet been addressed.

It seems for the present, at least, that the world economy can tolerate high oil prices. I worry more about supply disruption than I do about peak oil production. Supply interruptions will produce incalculable dislocations in the world economy. All of the world powers are positioning themselves to claim as much of the remaining petroleum resource as they can.

"In other words, we are on the cusp of a new kind of war—between those who have enough energy and those who do not but are increasingly willing to go out and get it. While nations have always competed for oil, it seems more and more likely that the race for a piece of the last big reserves of oil and natural gas will be the dominant geopolitical theme of the 21st century" (Roberts, 2005).

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Japan and China are competing for petroleum from Siberia. The United States, Europe, China and Russia are struggling for dominance in the oil-rich Caspian region. The United States is using military and diplomatic influence to stabilize and gain control of oil supplies in the Middle East and Africa while China is building dams and roads there in hope of getting concessions on future petroleum resources. China is making overtures even to Saudi Arabia despite the long-term relationship and agreement between the United States and the Kingdom of Saud. I hardly need to mention that political instability compounded by the threat of terrorism in Saudi Arabia and the rest of the Middle East is a serious issue for oil supply continuity.

At the same time, China's monetary policies cause concerns that the Chinese economy could experience the same type of recessionary setbacks that other Asian Pacific nations saw in 1997. China's economic growth is, in large part, due to government lending for investment in fixed assets, such as plants, properties and infrastructure. China's banks make loans without much attention to risk and without expectation of return. They are, in effect, a state subsidy and, at present, 40% to 50% of Chinese government-backed loans are nonperforming (Perin, 2005).

"Investment accounted for 42% of China's GDP (Gross Domestic Product) in 2003, and perhaps a still greater share last year. No economy can sustain such a colossal rate of capital accumulation. At some point, China's investment must run into rapidly diminishing returns. Are two cement factories twice as good as one?" ("A reheated economy," 2005).

China's debt accounts for about 18% of its GDP. Inflation and rising interest rates could signal problems for China's ability to service its debt. Already, periodic announcements of slowing in China's economy or demand for oil sent world financial markets into panic. In an atmosphere driven by fear and insecurity, a recession in China could send the price of oil down to $30 per barrel for a while. Some economists fear this could happen later in 2005 (Perrin, 2005).

Venezuela is another concern in the world oil scenario. Populist president Hugo Chávez intends to sell Citgo, a U.S. refining and gasoline marketing division of the Venezuelan national oil company PDVSA's (Petroleos de Venezuela, S.A.). The Chávez government has already restructured PDVSA and permanently eliminated over 20,000 professional positions in that company. Many doubt whether Venezuelan oil production has yet returned or will ever return to pre-strike levels resulting from political disruptions in 2003.

Vladimir Putin's campaign against Yukos and tax claims against BP raise serious doubts about investment risk in Russia. Despite Libya's reentry into the global mainstream in 2004, Gadhafi is an unpredictable and capricious dictator who, along with Chávez and Putin, contributes to instability in world oil markets.

Despite uncertainty and risk, I believe that we have entered an exciting and promising time in the energy and technology sector. Demand for energy and petroleum in particular is high and will increase. Industry consolidation has diminished the technical workforce and it will be several years before young people who have entered the industry are ready to lead. I think the near-term will be an era of unprecedented opportunity for inventive scientists who are unafraid to use technology, and especially computer technology, in new ways.

Robert Weimer created an echo in my mind years ago when he challenged me not to make interpretations before I had observed and described something. As Editor of the Houston Geological Society *Bulletin*, I have written about many ideas, opinions and interpretations over the past year at some risk, perhaps, though most response from readers has been appreciative.

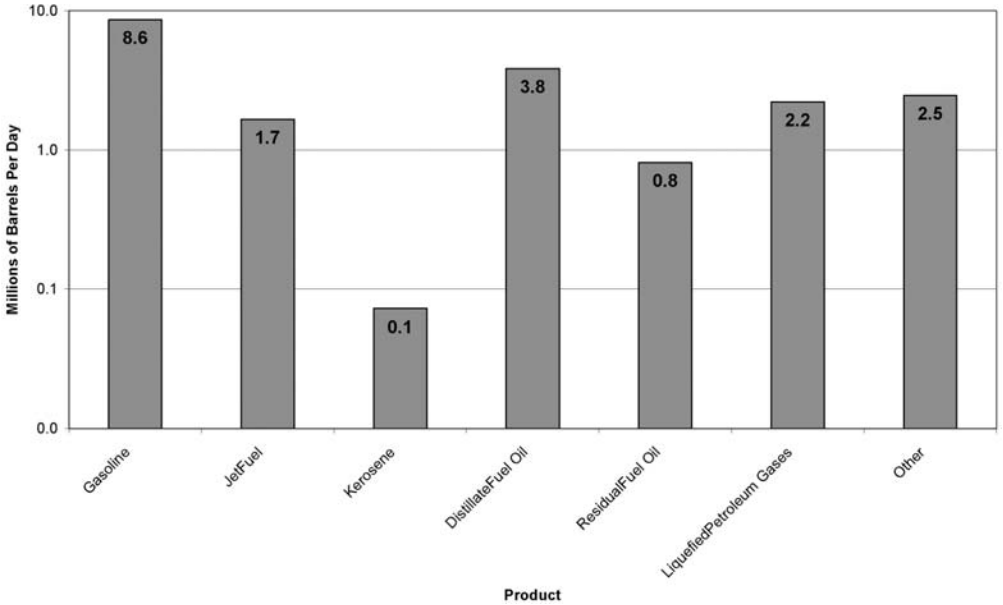

Figure 18. United States refined product use. Source: U.S. Energy Information Administration, http//www.eia.doe.gov

Some people say the job of *Bulletin* Editor is the worst in the HGS. I understand what they mean and, at times, I know my wife has agreed with that opinion. Being Editor, however, has been an exhilarating and profoundly expanding experience for me. Thank you for that. And thank you, Bob Weimer, for being in my head as I have written all these words.

Ideas are like stars. Some ideas are poor reflections of reality. Others cause us to imagine new possibilities. All are versions of the truth.

"They fall from the sky, they run round your head. They litter your sleep as they beckon. They'd teach you to fly without wires or thread. They promise if only you'd let them" (Carpenter, 1996). ■

Many thanks to Mike Horn for providing the giant field data used in this article and to Jim Lewis for his insight and suggestions.

Special thanks to Elsa Kapitan-White, Lisa Krueger, Jim Ragsdale and Charles Revilla for their remarkable contributions to Volume 47 of The Houston Geological Society *Bulletin*.

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2005–2006 Houston Geological Society Executive Board of Directors

Newly elected officers

Steven Brachman – President elect
Linda Sternbach – Vice President
Susan Black – Secretary
Cheryl Desforges – Treasurer-elect
Jim Doyle – Director
Erik Mason – Director
William "Bill" Rizer – Editor-elect

Returning officers

Dave Rensink – President
Paul Britt – Editor
Ken Nemeth – Treasurer
Elizabeth Fisher – Director
Bill Dupre – Director

Letters to the Editor

Following is a letter to the Bulletin *Editor from Billy Forney following efforts to obtain the 2004 Geologic Time Scale wallchart cited in an article that appeared in the April 2005 Bulletin written by Ian Davison.* —Editor

Many thanks to each of you who helped me search for the new Geologic Time Scale 2004 wallchart.

To each of you, I wanted to follow up with my findings, for whatever they are worth.

The article entitled "New Geologic Time Scale 2004" printed in the Houston Geological Society *Bulletin* magazine Volume 47 Number 8 April 2005 (http://www.hgs.org/en/art/?318) mentions that "wall charts of the new timescale can be purchased at the Commission for the Geological Map of the World website address: http://ccgm.free.fr/index_gb.html." This website for CGMW does not offer the same wall chart as identified in the April *Bulletin*. The chart offered at http://ccgm.free.fr/index_gb.html is a different version, and not the identical Geologic Time Scale 2004 wallchart pictured in the magazine.

The publisher of the new book entitled "A Geologic Time Scale 2004" is Cambridge University Press. They indicate that the only way to purchase the wallchart is to purchase the book, either in paperback form ($70) or hardback form ($140). The chart is actually a "pull-out poster" according to Cambridge U. Press and is not sold separately.

You may do with this email and the information herein what you want. I figured I would let you know that the HGS article is not accurate.

Thank you for your time.
Billy Forney III
McCombs Energy, L.L.C.

Billy,
I'm both sorry and disturbed that the information I was given about the Time Scale was misleading. Based on my e-mail communication with Ian Davison and the technically credible content of the article he provided, I had no reason to suspect that the information provided was incorrect.

I appreciate that you have pointed this out and I apologize for any difficulty you encountered based on the HGS Bulletin.

All the best,
Art

The following, in italics, are excepts from a letter from J. Chris Pratsch, published earlier, with responses by Alan Morgan.

(Pratsch) Dear Mr. Berman.
I'd like to congratulate you to your article in the February 2005 HGS Bulletin "The Sumatra Earthquake of 2004: Forty Years of Ignoring Plate Tectonics". The article brings a welcome fresh wind to the Society Bulletin and is well placed because our society is not a Houston Petroleum-Geological Society that many assume, but a Geological Society; and so we can and should discuss general/alternate non-petroleum geology as well. I am a petroleum geologist but just love to see more from other fields.

The only thing is that it appears highly questionable to what degree plate tectonics or their acceptance have anything to do with this earthquake and its horrible effect on people; at least it appears that we do not yet have the right answers here. Why is this earthquake just on a dot along a multi-1,000 mile zone within a basically identical geological framework? It would seem that a point-like event occurred, like the uplift of a magmatically-driven body of rocks (not necessarily tectonically driven magmatics, as your model requires). This would be in line with volcanic-magmatic events elsewhere in onshore Sumatra through the Tertiary.

(Morgan) Here is your answer as to why the seismic data appears to be a point event. Seismic recording stations depend on wave data and time of recording to determine the distance from the station to the event. Three stations are required to triangulate an actual position of origin, as a single station cannot tell which direction the wave came from. The reason the event is recorded as a point lies within the method of determining the epicenter and the definition of epicenter. Seismic waves travel through the ground at velocities tied to the rocks they travel through. If an event takes place over a 1000km area, the method to determine the distance still will only use the p-wave and s-wave. The event had to start somewhere, which was the rupture event recorded as the event epicenter. A simple experiment will illustrate this:

Take a cardboard box containing moderately heavy contents inside and place it on a rough concrete surface. Using one hand, apply force to one side of the box to the point that it barely moves. You will notice that the box started moving at a single point, not along the entire box. Empty the box, turn it over and examine the scratches on its bottom side. You will notice that you will be able to identify the friction point where the box first started to move. This is analogous to the Sumatra event. You cannot claim that the box only moved at the single point.

(Pratsch) And, subduction-related melting of basic crust can hardly ever lead to magmatism of granite, as you explain for Krakatau acidics. Therefore, we may need another explanation for the magmatism in Sumatra and elsewhere.

(Morgan) Rejecting the plate tectonic model leaves you at a disadvantage for the answer to this. Oceanic (basaltic) plates subduct along continental (granitic) plates. The Indonesian island arc is composed of continental material. The crust subducting beneath this island arc is oceanic. Friction along this subduction path along with heat flow migration pathways allows for melting of BOTH materials along their interface. Mixing of basaltic and granitic magmas can and does often occur. The surface expulsion of these

magmas does not always reflect the entire contents of the original melt, as the laws of physics like to keep more dense material (melted basalt) beneath lighter material (melted granite).

(Pratsch) As one result of these thoughts one can hardly see "articulation of the plate tectonic model "would "prepare…. citizens for the inevitability of an event like this…..". Plate tectonics or not, people know tsunamis for hundreds of years, and the guilt of Indian Ocean-surrounding countries (for not having tsunami warning system in place) lies more in their lack of acceptance of available technology that can be applied for sufficient tsunami warnings; it is not that they know nothing about plate tectonics (may be it would even be better for them if they don't) and therefore presumably have not organized a tsunami warning system.

This brings me to another point - are plate tectonics really valid today? Is this a theory that is proven or useful? I doubt that it is. In no case known to me are there unique one-sided data or facts that prove the plate tectonic theory as real, thus as useful: We only can detect relative movements of plates, which leave always questions unanswered: It may not be subduction of the oceanic plate but obduction of the continental plate that is the basic mechanism (why else are there mantle domes and their final collapse as main tectonic events causing such regional features as Alboran Sea/Rif/Subbetics, Hungarian Plains/Carpathians, Black Sea, northern Gulf of Mexico/Ouachitas, Michigan Basin...?) It would be quite educating for all if one could get together a conference or other way of an objective discussion of pros and contras of plate tectonic theory as seen today.

(Morgan) You offer obduction as an alternate to subduction. One cannot exist without the other, much like the hanging wall and foot wall of a thrust. As to relative motion, is there any one stable place on Earth to reference? Let me know if you find one.

(Pratsch) Points of doubt come from such items as:

- *both correlation of "linear" magnetic in oceans and position of magnetism in oceanic rocks,*
- *interpretation of marine magnetic fields in terms not of linear anomalies but of depth to magnetic basement, just like done every day on land. The origin of marine magnetic anomalies is as nebulous today as it actually always has been. With this the theory seems to be built on rather weak soil.* (Morgan)(magnetic basement is defined as the rock body with a defined magnetic source… Depth to magnetic basement is determined by measuring a curve over an area where there is a measured change in the magnetic field. The interpreter assumes that this curve is the result of a boundary with high susceptibility rocks on one side (basement) and low susceptibility rocks (sediments) on the other side. Change resulting from reversals would not give you an accurate depth.
- *(Pratsch) modern data on paleo-magnetism,* (Morgan) As opposed to ancient data?
- *(Pratsch) absolute age of oceanic "basement",* (Morgan) Since new oceanic "basement" is contilually forming, there is no "absolute" age for the whole oceanic basement. There are radiometric ages published for rocks along the mid-atlantic ridge (which are younger than the Jurassic).
- *(Prasch) absolute plate movements in mobile contact zones ("ring of fire") (subduction of oceanic plates, or obduction of continental blocks),* (Morgan) http://members.tripod.com/NZphoto/volcano/atectonic3.htm
- *(Prasch)modern paleo-geographic, paleo-botanic, paleo-zoologic data.*

(Pratsch)A modern bathymetric map of the North Atlantic correcting the false impressions given by the over-generalizing Ewing-Tharp map of the past is promised now for years. A synthesis of marine magnetics in the Southern Atlantic was published by the Canadian Geophysical Society; it practically killed plate tectonic symmetry of anomalies and probably because of this was never mentioned again to my knowledge. Areal interpretations of marine magnetic fields offshore Alaska and offshore Greenland years ago showed the presence not of linear magnetic anomalies in oceans as had been published, but showed the presence of numerous positive and negative elongate anomalies of magnetic basement just like we see everywhere on land.

(Morgan) Much like the physics of seismology, an understanding of the Earth's magnetic field is needed to understand why polar or near polar regions are less well defined through paleomagnetics than regions along the magnetic equator. If a rock cooled below the Curie temperature in 1800 on the northern-most island in Canada, the residual magnetic field recorded in that rock would have pointed south. If that rock cooled today or ten years from now, its residual field would point north. Such erratic changes and extreme variation in polar areas would result in a noisy recording for any mass of rock that might take 2 to 3 thousand years to completely cool below the Curie temperature. Less variation is found along the magnetic equator, therefore explaining the better quality paleomagnetic record.

(Pratsch) And what about the numerous dredges of Jurassic and Paleozoic fossils from the North Atlantic ridge system, the latter by British scientists, never published, but definitely not consisting of ice rafts or tanker ballast, as "explained" and published in serious scientific magazines?

(Morgan) What size fossils are we talking about? Microscopic fossils? If you find Cretaceous microfossils on a river beach, does that make the sand there a Cretaceous sand? Deep ocean currents are just now being mapped out, and a microfossil or assemblage from a foram ooze could get transported thousands of miles along such currents. There is most likely a significant reason this article remains unpublished.

(Pratsch) And what about a possible connection of Somalia Late Jurassic dinosaurs with their US relatives NOT via the North Atlantic (assumed closed in plate tectonic theories), but through the Far East regardless of an open or closed North Atlantic? Here we probably must await even more revealing new paleontological finds in China and Mongolia.

Letters to the Editor *continued on page 27*

Paris In The Fall!

There is still time to make plans to attend the AAPG International Meeting in Paris in September, and participate in one of these exciting short courses....

DEEP-WATER SANDS, INTEGRATED STRATIGRAPHIC ANALYSIS - A WORKSHOP USING MULTIPLE DATA SETS
Date: September 10-11, 2005
Tuition: $900 (increases to $1000 after 7/29/05), includes course notes and refreshments
Instructor: John M. Armentrout, Cascade Stratigraphics, Clackamas, Oregon

Who Should Attend
The workshop is organized for geologists and geophysicists with an introductory knowledge of stratigraphy and sedimentation, and for geoscientists and reservoir engineers involved in deep-water exploration and development.

QUANTIFICATION OF RISK
Dates: September 10-11, 2005
Tuition: $950 (increases to $1050 after 7/29/05), includes course notes and refreshments
Instructors: Gary Citron and Jim MacKay, Rose and Associates, Houston, Texas

Who Should Attend
The organization of the course follows the characteristic chain of considerations that attends most prospects, especially those attributes of prospect ranking and portfolio impact. It is designed for geoscientists and engineers involved with exploration, exploitation, and development projects.

PORE PRESSURE PREDICTION IN PRACTICE
Date: September 15-16, 2005
Tuition: $925 (increases to $1025 after 7/29/05), includes course notes and refreshments
Instructors: Richard Swarbrick and Martin Traugott, Univ. of Durham, UK

Who Should Attend
Geologists, geophysicists, engineers, petrophysicists, and drillers, who are involved in overpressure, including deep water plays. Tools will be discussed that can help with the exploration of deep water plays, one of the principal areas of undrilled prospects.

EFFECTIVELY DEVELOPMENT AND IMPLEMENTING INTERNATIONAL ENERGY PROJECTS IN TODAYíS ENVIRONMENT
(Jointly offered by AAPG and DEG)
Date: September 15, 2005
Tuition: $750 (increases to $850 after 7/29/05), includes course notes and refreshments
Instructor: Thomas OíConnor, Consultant, Camano Island, Washington

Who Should Attend
Senior technical and general managers of oil and gas companies who are interested in expanding their operations outside of their familiar domestic areas of operations, into the rest of the world. Particular reference to those countries in the developing world will be discussed. In similar fashion, senior managers of National Oil Companies (NOC) who are interested in attracting Foreign Direct Investment into their countries as a means of more rapidly and efficiently developing their national petroleum resource base should also attend.

For further information, please contact the AAPG Education Department
Phone: 918-560-2650; Fax: 918-560-2678; e-mail: educate@aapg.org
Or log on to www.aapg.org/education/index.cfm

Letters to the Editor continued from page 25

(Morgan) Not all relationships between different continents are as well understood as that of South America and Africa. With each collision of continental plates, some data is lost. What existed between India and Asia before the collision there? Name one structural geologist who can clearly define the extent of the pre-existing basins of northern India.

(Pratsch) Such a discussion probably would open the eyes of many that still hang on to the un-scientific discussions held at the beginning of this theory in the 1960s and 1970s. And I doubt that such a pro/contra plate tectonics discussion will ever take place as too many may have to re-write their textbooks and publications. We have to wait for another generation of geoscientists that then could throw off the inherited theories and generate their own.

Thanks again for your article, it still opens up the world of general geology. Too bad that it needs the terrible earthquake of December 26, 2004 to shake some of responsible people and governments up.

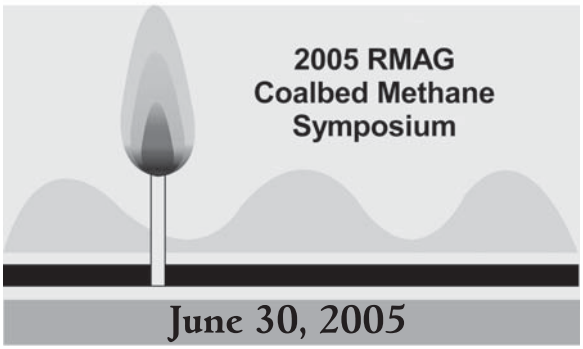
(Morgan) An understanding of plate tectonics is not a requirement for a petroleum geologist. Major petroleum discoveries generally lie in areas far isolated from plate movements. Plate tectonics and the timing of oceanic crust formation is essential for determining a petroleum generation window. Do you have Jurassic source kerogens in the Caribbean? No, because the sediments deposited there are mostly younger than Cretaceous. Is it essential to understand plate tectonics to find petroleum? No. Is it helpful? Yes.

Alan Morgan
Geologist, GIS Specialist
Fugro Robertson Inc.
Amorgan@fugro.com

Letter to the Editor

During the recent (4-11-05) HGS dinner presentation, J. Blickwede/UNOCAL in an excellent presentation showed some data that will profoundly influence our understanding of the Gulf of Mexico basin development: On a seismic section across the general Trident deepwater area, primary Jurassic salt was shown to pinch out from NW to SE into the present abyssal basin. A similar section has been published in AAPG from the deepwater Mississippi Delta area, and Industry may have more. If indeed Jurassic salt has pinched out against the area of the present abyssal depth portion of the Gulf Basin, all attempts to use present absence of salt here as proving a breakup and drift-apart of a once continuous salt basin would be wrong. Rather, a Jurassic topographic high may have prevented salt deposition in the present basin center. This present basin center then more likely was a structural uplift, caused by a thermal mantle dome. And, when we extend this thought further back, metamorphism and South-to-North nappe tectonics in the Texas-Oklahoma Marathon/Ouachita belts can be seen as result of mantle dome events that began in late Pennsylvanian time. Collapse of such a dome led to deposition of thick Permian marine and continental sediments in northern Louisiana, finally to the Triassic/Jurassic and younger Gulf Coast Basin. In this context a recent article in the *AAPG Bulletin* of February 2005 by D.E. Bird et al is quite interesting: It requires acceptance of a Jurassic mantle dome for Gulf Coast Basin development, a major step forward from past theoretical plate tectonic models.

J. Chris Pratsch
Geologist
jcp@hal-pc.org



Thursday, June 16, 2005

Petroleum Club • 800 Bell (downtown)
Social 11:30 a.m., Lunch 11:45 a.m.

Cost: $30 for members and affiliates pre-registered by 12 noon Tuesday 14th June (No-shows will be billed.). $35 for non-members, guests, and walk-ups.

Make reservations by telephone (713-651-1639), Fax (713-951-9659), Web-site (www.sipes-houston.org), or e-mail (bkspee@aol.com) to B. K. Starbuck-Buongiorno by 12 noon Tuesday before the meeting.

SIPES
Luncheon Meeting

by ***Dr. Christine Ehlig-Economides***
University of Houston

The Role of Oil and Gas in the Future of Transportation

Essentially the only fuel used for transportation is oil, and the amount of oil imported from foreign sources is currently more than 80% of the amount of oil consumed in transportation in the US. While the established trend of growth in jobs in the US is about 3 million per year, over the last 3 decades disruptions in oil supply have interrupted this trend and account for perhaps as many as 45 million jobs that were not created. Continued dependence on geopolitically unreliable supplies of transportation energy is unacceptable. The problem is aggravated by the accelerated demand from Asian countries, especially China and India.

Already substitutes are emerging. Hybrid vehicles can reduce by a half the oil consumed per mile in cities. Lighter vehicles made from composite materials instead of steel can reduce oil consumption even more. Compressed natural gas could be an alternative to oil without significant change to the internal combustion engine. There is talk of a hydrogen economy. What about biofuels instead of oil? Can transportation be electrified? What will be the impact on oil demand if transportation needs are satisfied by a mix of fuels instead of only oil? What will be the implications for hydrocarbons if global climate change is convincingly linked to CO2 emissions?

This talk explores these questions and how they may impact the demand for oil and gas in the future. ■

Biographical Sketch

Dr. Christine Ehlig-Economides is internationally recognized for expertise in reservoir engineering, pressure transient analysis, integrated reservoir characterization, complex well design, and production enhancement. She holds the Albert B. Stevens Endowed Chair in the Department of Petroleum Engineering at Texas A&M University. She is currently working to introduce degree programs in Energy Engineering at Texas A&M University. She has also recently become director of the Center for Energy, Environment, and Transportation Innovation (CEETI) in the Crisman Institute.

She was graduated with a BA degree from Rice University (1971, Math-Science), an MS degree from the University of Kansas (1977, Chemical Engineering), and a PhD degree from Stanford University (1979, Petroleum Engineering).

During a three year professorship at the University of Alaska she introduced the B.S. and M.S. degree programs in Petroleum Engineering and served as head of that department. She then joined Flopetrol Johnston Schlumberger in Melun, France and after serving in various positions for 20 years returned to academia as a full professor of Chemical Engineering at the University of Houston, where she has served as Director of the Petroleum Engineering Program as an Adjunct Professor since January 2000. She has since been appointed to the Albert B. Stevens Endowed Chair in Petroleum Engineering at Texas A&M University. Dr. Ehlig-Economides has received numerous awards from the Society of Petroleum Engineers and was elected to the National Academy of Engineering in 2003. She has published more than 50 papers, has authored 2 patents, and has lectured or consulted in more than 30 countries.

Her professional service includes: Executive Editor of the Society of Petroleum Engineers Formation Evaluation journal 1995-96; SPE Distinguished Lecture 1997-98; and numerous posts as chairman or member of SPE committees and task forces. She is currently participating in the SPE Long Range Planning and co-chairing a steering committee for a Middle East Colloquium in Petroleum Engineering Education.

The 2004 HGS/GSH Membership Directory Will Be in Electronic Format Only.

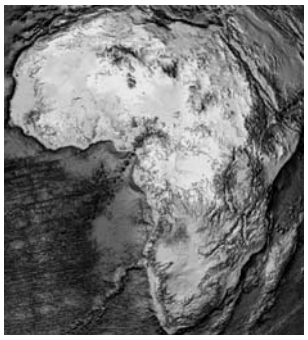
Be sure to read the President's Letter on page 5 and Webnotes on page 75 in this issue of the *Bulletin* for important information about the 2005 Membership Directory.

ANNOUNCEMENT AND CALL FOR PAPERS

The 4th HGS/PESGB International Conference on African E&P

Path to Discovery

Marriott Houston Westchase • 2900 Briarpark Drive, Houston



7–8 September 2005

PRELIMINARY PROGRAM

There has been an excellent response to the Call for Papers, with the promise of more to come. Based on initial submissions received, the two-day program will include about 24 talks along with poster presentations and exhibits from sponsoring companies. The conference covers all aspects of African E&P, with particular emphasis on new ideas for exploration, the geology of the continent, application of emerging technologies and case histories of discoveries. The programme is likely to include the items below, subject in some cases to partner approval. A full preliminary program will be published at the HGS website. Please contact al.danforth@att.net to discuss any further submissions or sponsorship.

Register on-line before June 30 for substantial "Early-Bird" discount. The Marriott will also offer substantial discount for hotel rooms as the conference Headquarters Hotel.

Details of the program, registration and hotel rooms will be maintained at the HGS website www.HGS.org in the Event Calendar for 7-8 September 2005.

TOPICS

WEST AFRICA:

Oil Exploitation in the Outer Continental Shelf: The Final Frontier?

New constraints on timing of opening of the South Atlantic

Insights into rifting processes, Aptian Salt Basin

Break-up and uplift along an oblique margin - Rio Muni to Cameroon - implications for deepwater potential

Ultradeepwater frontiers - prospectivity of abyssal plain

South-Western Africa - oil And gas potential

Deepwater source rocks-accumulation and efficiencies

NORTH AFRICA:

Deepwater turbidite prospectivity offshore Libya

Algeria: reservoir characterisation

Petroleum systems of the Saharan margin offshore basin

Tectonostratigraphy of the Sirt Basin, Libya: setting and unresolved problems

Understanding the enigmatic, structural, sedimentological and diagenetic history of a Cambrian Oilfield Algeria

The Gulf of Suez: A history of a prolific rift basin and its remaining potential, BP

EAST and CENTRAL AFRICA:

Rifting rifts—contemplating heterogeneity in source rock development and thermal history e.g. Lake Albert exploration

Tracking the Central African Rift subsystem in East Africa (Sudan, Ethiopia, Kenya)

Plate Tectonics and Paleogeology of Eastern Africa and Western Indian Ocean

New insights into the Morondava Basin and Mozambique Channel, offshore Madagascar

Tectonic Evolution of the Doba and Doseo basins, Chad: Controls on trap formation and depositional setting of the Three Fields Area, Chad, ExxonMobil

Committee:

Houston: Al Danforth, Steve Henry, Ian Poyntz and Gabor Tari

London: Ray Bate, Duncan MacGregor, Mike Lakin and Val Clure

2004–2005 Houston Geological Society Awards

by ***Steve Levine,*** *HGS President 2004-2005*

2004–2005 Gerald A. Cooley Award

The Gerald A. Cooley Award is given to members who have continued to serve the Society well above and beyond the call of duty over many years. It is the highest recognition given by the HGS.

Gerald A. Cooley Award

Dan Smith

The Gerald A. Cooley Award honors the memory of the man we knew, loved and remember as the personification of dedication, service and leadership continuing long after official office terms expire. It recognizes true dedication to the profession of petroleum geology in general, and to the Houston Geological Society in particular. No one I know would disagree that Dan L. Smith is a profoundly deserving recipient of the Cooley Award.

I have known Dan since he welcomed me to my first Houston Delegates meeting many decades ago, through our current simultaneous service on the AAPG Advisory Council. He has been a friend, a mentor and an inspiring leader to me and countless other geologists, and he continues doing so actively every day!

Dan received his bachelor's degree in geology from the University of Texas at Austin in 1958 and immediately began his career as a petroleum geologist with Pan American Petroleum (now BP). In 1967 he joined independent oil company Roberts and Whitson Petroleum as exploration manager.

Continuing his entrepreneurial bent he became part owner, executive vice president and exploration manager of Texoil Co., until 1992 when he joined Texas Meridian (now Meridian Resource Corp). He retired from Meridian in 1999 as vice president of new ventures. More recently, Dan brought his prospect generating expertise and business skills to Sandalwood Oil and Gas where his prospects are a key factor in Sandalwood's notably successful drilling program.

Dan's business career has always been paralleled by his contributions to the profession of petroleum geology. Joining AAPG in 1959, he has held many offices including President of the Association in 2002-2003. He is a Certified Petroleum Geologist and an AAPG Foundation Trustee Associate.

Dan has been active in the AAPG House of Delegates (HOD) for nearly 20 years serving as a delegate and foreman of the Houston delegation. He was elected chairman of the HOD in 1997-98. He has served as chair of the Constitution and By Laws Committee, Nominations Committee, Special Resolution Committee on International and Domestic Representation and as a member of the HOD Procedures Committee. Dan's extensive HOD service was recognized in 2000 when he received the first Distinguished Service Award made by the body.

AAPG Standing Committees have benefited from Dan's leadership. His contributions include service on the Committee on Conventions, Committee on Committees and the Visiting Geologist Committee. He chaired the Summit on Sections Meeting in 1997.

The Department of Professional Affairs (DPA) of AAPG has been an arena of great interest to Dan. He served as DPA vice chair for the 1995 annual meeting as well as being DPA program chair and receiving the Best Paper Award.

Most of us in HGS see Dan's service more directly through the Houston Geological Society, **Dan Smith** *continued on page 57*

2004–2005 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.

Honorary Life Membership Award

Paul Britt

Honorary Life Membership has on occasion been granted to individuals whose contributions to the Houston Geological Society have spanned decades and who have subsequently, and understandably, assumed a lower profile. The HGS honors Paul W. Britt for demonstrating a deep and sustained commitment to serving the Society and whose contributions continue to grow steadily in scale and value.

Paul learned the exploration and production business from the ground up. Following completion of his Bachelor of Science degree in 1977 from Eastern Michigan University, Paul went directly to the oil patch, employed for a year by Exploration Logging as a mud logger. He then joined Michigan-Wisconsin Pipeline Company, where he conducted volumetric mapping of gas reserves for the Pipeline Division. In 1980, he accepted a position as Staff Geologist for Union Texas, where he engaged in both exploration and development assignments, including management roles, in the Gulf of Mexico and onshore, from South Texas through the Gulf Coast into East Texas and Arkansas. This work entailed all geological aspects of operations, development mapping and drilling, and prospecting. He honed his skills further as Staff Geologist working development and acquisition in the Central and Western Gulf of Mexico for Elf Aquitaine from 1987 until 1992. At that point, he set out on his own , founding Texplore, where as president, he has focused on exploration and production, principally in the Texas Gulf Coast and East Texas basins. He has served in consulting capacities in Texas and Louisiana, onshore and offshore, and in West Texas, the Mid-Continent, and Rockies basins, and in Russia. In his current enterprise, Paul makes full use of his comprehensive exploration skills, including seismic and subsurface interpretation with current workstation technology, and he has in the past three years directed the drilling of over 60 wells in his association with Phoenix Energy's drilling fund.

Paul joined HGS in 1980, and his early roles on behalf of the Society involved planning and coordinating field trips. For five years, from 1991 through 1995, Paul was "Mr. Field Trip" for the HGS. He accepted the position of Field Trip Coordinator, first for the 1991 GCAGS Convention, next for the 1992 GSA Convention, and eventually for the 1995 Annual AAPG Meeting. Concurrently, Paul coordinated countless field trips, outside the domain of the conventions, as Chairman of the HGS Field Trip Committee from 1990 to 1994.

Paul accepted the nomination for 1994–1995 Treasurer-Elect and won the election, serving that term and the 1995–1996 term as Treasurer. His service in this capacity proved most timely, as he brought strong computer skills to the job in the critical years when HGS was making its transition to the computer age — a time when such skills were a rare commodity. He generously offered these skills on a more widespread basis for HGS as 1996–1997 Chairman of the Computer Applications Committee, among other things playing a key role in adapting HGS office systems for the computer. He also chaired the HGS Finance Committee during the 1996–1997 term where he managed to solidify computerization of the HGS Budget from committee input through final Budget. Paul's contributions in these areas, though not widely heralded, may stand as among the most valuable in the evolution of the Society.

Paul served the 1997–1999 term as an HGS Director, where he further enhanced his perspective on the Society and provided sound counsel borne of his experience in so many areas. He served as Chairman of the HGS Advisory Committee in 2000–2001, and in 2001–2002 as Vice President, both jobs being pivotal for the continued vitality of the Society. He is completing a term as Editor-Elect and will assume the post of HGS *Bulletin* Editor for 2005–2006, one more way **Paul Britt** *continued on page 57*

2004–2005 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.

Honorary Life Membership Award

Deborah Sacrey

If "Energy" is not Deborah Sacrey's middle name, it should be.

Consider just the things that Deborah, who will receive an Honorary Life Membership in HGS in June, has going on right now:
Co-Vice-Chairman of the 2006 AAPG convention in Houston
President-elect of AAPG's Division of Professional Affairs
HGS Office Committee Chairman
An elected member of Houston's delegation to the AAPG House of Delegates, in which she has served since 1997

The only reason she is not doing something big right now in the Society of Professional Earth Scientists, I suppose, is that there is nothing left for her to do: she has already been national president of that organization!

Deborah Sacrey has spent her life in the oil patch. She was born in Oklahoma City and was raised in Tulsa. Her paternal grandfather was a petroleum landman and an uncle was a petroleum engineer. She picked up a geology degree at the University of Oklahoma, went to work for Gulf Oil Corp. in 1976, and has been running hard in the oil industry ever since.

I first met Deborah in the early 1990's at an HGS Executive Committee meeting when she was Chairman of the Public Relations Committee. She was full of ideas and not at all reticent about expressing them—characteristics that she definitely carries with her today.

Deborah moved to Houston in 1988 from Dallas, where she had been active in local geological society affairs. She quickly became very active in HGS, where she became known as a "go-to" person who would quickly and thoroughly accomplish any task She has served in various "official" positions in our Society (including Treasurer in 1997-1998), but some of her most valuable contributions have come through work on ad hoc committees such as the one that selected a new office location for the Society in a hurry in 1996. The Society has already given her its President's and Distinguished Service awards.

In addition to her work in HGS, Deborah has served her profession by extensive labors for AAPG, GCAGS and SIPES. AAPG has given her its Meritorious Service and Distinguished Service awards. She has worked on half a dozen committees, chairing some, was Co-Vice-Chairman of the 2002 national convention in Houston and Co-Chairman of APPEX in 2003. She has been very active in the House of Delegates, having been Secretary/Editor and chairman of several committees. She had been secretary and vice-president of DPA before being elected president last year.

While doing all these pro bono tasks, Deborah has had to make a living. She went through some of the reverses that many of us suffered during the 1980s, but came out of them as a very successful independent geoscientist and explorer. She bought a seismic interpretation workstation in 1996 and ended up working for the vendor, testing software, assisting in marketing, and teaching courses.

For a number of years she has helped to teach a course entitled, "How to Be an Independent" at AAPG and SIPES conventions and for other organizations.

She was a joint author of a publication for the Oklahoma Geological Survey entitled Two- and Three-Dimensional Seismic Methods: Effective Application Can Improve Your Bottom Line, and was one of the editors of an AAPG-DPA publication, Heritage of the Petroleum Geologist.

HGS Awards *continued on page 43* **Deborah Sacrey** *continued on page 57*

HGS Getting Ready to Host Texas-sized Convention!
AAPG Annual Convention Set for Houston April 9–12, 2006

*By **Charles A. Sternbach,** AAPG convention general chairman*

The annual 2006 AAPG convention will arrive only 10 months from now to downtown Houston at the George R. Brown Convention Center. Following the 2005 Calgary Convention in June, AAPG organizers are anticipating high attendance when the annual convention returns to home turf. Event and technical program planning for 2006 has been under way for more than a year. Planning will soon shift into high gear, and HGS members will once again be at the forefront as organizers and participants. Technical papers need to be submitted by mid-October, 2005, and now is a good time to start getting ideas.

Much new since 2002 Convention

Four years ago, in 2002, HGS hosted the AAPG Annual Convention. The 2002 AAPG convention in Houston set a 21-year attendance record (7800 participants). Houston—a city renowned for technology, a rich petroleum history, a "can-do" attitude, and a global outlook—has more to offer now than ever. Houston's downtown has undergone serious revitalization. Downtown has new restaurants, an Aquarium and entertainment complex, as well as professional baseball at Minute Maid Park. A new world-class hotel, the Hilton Americas, conveniently adjoins the George R. Brown Convention center. Outside of downtown, there is a new BEG Core facility in NW Houston.

The Houston Convention committee is fortunate to have a strong and vital volunteer base of HGS members, seasoned veterans from previous AAPG conventions, leaders from HGS and leaders of the oil and gas profession. Among more than 35 talented convention leaders are: Deborah Sacrey (Auburn Energy) and Dan Tearpock (Subsurface Consultants Associates), general vice co-chairs; Bob Merrill (Samson), technical program coordinator; and Gonz Enciso (Spinnaker), sponsorship chair.

"Perfecting the Search" is the 2006 Convention theme

The AAPG Convention committee is creating a program to make our theme of "Perfecting the Search" come alive. Technical sessions will focus on how we learn from success and failure to become better geoscientists and explorers. An additional theme is: "Delivering on Promises," in recognition that exploration is not only a science but also a business. AAPG Convention business forums will provide leadership and vision, while examining promises we make to investors, to our profession, to an energy-hungry world and to each other.

Technical Program themes include:

- Successful business strategies
- Learning from exploration and exploitation successes, failures and mistakes
- Giant fields of the world, their implications and what they have to teach us
- Perfecting the search for unconventional plays and technology
- Integrating geology, geophysics and engineering to deliver success
- Reservoir characterization and modeling
- Stratigraphy and petroleum systems
- Structure and tectonics
- Play openers and where they are leading us
- Delivering resources and environmental quality for a sustainable future

In addition to sessions on discoveries, case studies and techniques, program highlights include:

- AAPG Divisions and SEPM are planning Luncheons with top speakers.
- For the first time at an AAPG meeting, CEOs will address the financial community in an all-day forum called "Energizing the World in the 21st Century."
- Industry leaders will speak in the timely forum "Reserves Estimations: Case Histories."
- Global leaders from the Middle East, Far East, Russia, South America, Africa and elsewhere will share perspectives in the forum "Perfecting Relationships with National Oil Companies, Business Partners, Customers and Communities."
- SEPM technical forums are on sequence stratigraphy and deep-water sedimentation.

Field trips will bring back favorites such as the Hockley Salt Dome, with new destinations as well. Short courses will be practical and effective. There will be a Giant Fields Sample and Rock Core conference.

Because this Convention will be held at the height of the wildflower season, it wouldn't be complete without a Spouse event to Brenham to taste ice cream and visit rose gardens and all the amenities in the area. Trips to spas and tours through sports facilities will also be offered as "get out of the hotel" temptations!

Also, attendees can spend an evening watching white tigers and tiger sharks at the Aquarium, which will be one of the highlights

of the Convention. This brand-new venue in the downtown area has incredible fish tanks, animals and even a "midway" for those adventurous enough to ride the rides! We are expecting to have a sell-out crowd."

What can you do?

- Submit a paper—watch for the Call for Papers in the July *Explorer* (or visit www.AAPG.org)
- Chair or co-chair a session—contact Bob Merrill (rmerrill@samson.com)
- Judge a session—contact George Klein (gdkgeo@earthlink.net) for oral presentations or Pat Gordon (springhillenergy@hotmail.com) for poster sessions.
- Sponsor or help raise sponsorship—contact Gonz Enciso (genciso@spinexp.com)
- Offer to help or give advice relating to your area of interest—contact Charles Sternbach (carbodude@pdq.net), Deborah Sacrey)auburn@concentric.net) or Dan Tearpock (djtearpock@scacompanies.com).
- Attend and benefit from the convention—plan now, tell a friend, and reserve the dates! ■

HGS Guest Night - Saturday, June 11, 2005

Houston Museum of Natural Science 6:30p.m.–10:30p.m.

Lessons from Sumatra: Reducing Earthquake and Tsunami Risk Worldwide

Dr. David Applegate,
USGS senior science advisor

USGS
science for a changing world
Earthquake Hazards Program

After this outstanding presentation,
stay in your seat and see the IMAX show
"Forces of Nature" free!

The Guest Night program includes a buffet dinner and social hour.
Use the HGS webpage to pay by credit card, or fax / mail this form to the HGS office.
Payment must be in advance for this sell-out event.

Adults: $30 each, HGS members: please write your member number

Name: _____ Member # _____

Name: _____

Name: _____

Students (grades 1-college) $25 each

Name: _____

Name: _____

Total amount: _____

Send check and form to: HGS Office, Guest Night 2005, 10575 Katy Freeway, Suite 290, Houston, Texas 77024
or fax this form with credit card number to 713-463-9160

Credit Card number and type: _____

_____ Expir. Date: _____

Name on Credit Card: _____

Daytime Phone number of Card Holder: _____

Billing Address for Card: _____

City, State and Zip: _____

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Evergreen Cemetery Clean-up – April 2

*By **Steve Levine***

The bright sunshine made for a splendid day on Saturday, April 2 as 23 HGS volunteers spent the morning supporting the community. HGS members were united with volunteers from ConocoPhillips, Houston Wheatley High School and the National Association of Black Geologists and Geophysicists to make the Evergreen Negro Cemetery teeming with workers. Volunteers grabbed lawnmowers, weed-eaters, rakes and hoes in a coordinated effort to beautify the site. In a four-hour time span the cemetery was transformed to a presentable state with weeds cleared around the headstones, grass trimmed and large dead trees cut and removed. HGS member Walter Light even used his four-wheel drive vehicle to pull down one of the larger trees.

The cemetery dates back to before the Civil War and served as a resting place for black slaves and freedmen. Originally on the site of a cotton plantation, only a quarter of the cemetery remains today from the original grounds that once encompassed 20 acres. Construction on I-10 likely removed a part of the cemetery. It is located 2 miles east of downtown Houston in the 5th Ward area near Wheatley High School. LaVaughn Mosely and Dr. Woody Jones are leaders of a coalition called "Project Respect," formed to restore the cemetery and to prepare the site to be designateda historic landmark with the Texas Historical Commission. Once a weed-infested lot with barely a headstone visible, it now is periodically maintained by various volunteer organizations and Wheatley High School senior class students.

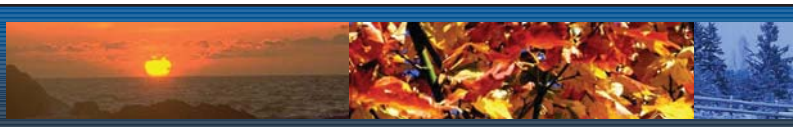
In the near term, HGS members will assist in the installation of a wooden fence around the perimeter of the cemetery and through the courtesy of the geoarcheological firm HRA Gray and Pape will conduct a total GPS survey of the site. Future plans are to perform geophysical surveys with ground penetrating-radar and magnetometers to identify unmarked graves and ideally earn Texas Historical Commission site recognition. ■

Evergreen Cemetery Clean-up *continued on page 38*

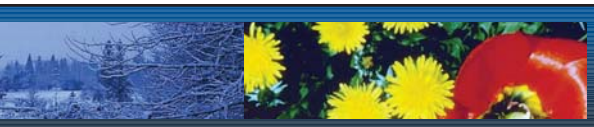
Evergreen Cemetery Clean-up

continued from page 37

June 2005



Sunday	Monday	Tuesday	Wednesday
	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.**	1	
5	6	7 HGS Executive Board Meeting	8
12	13	14	15
19 AAPG Annual Meeting Calgary	20	21	22
26	27	28	29



GeoEvents

Thursday	Friday	Saturday
2	3 **NOW you can make your reservations on-line at www.hgs.org**	4
9 **HGS Night at the Houston Ballet** See page 68	10	11 **HGS Guest Night Houston Museum of Natural Science** by David Applegate *Lessons from Sumatra: Reducing Earhquake and Tsunami Risk Worldwid* **6:30 p.m.** See page 46
16 **SIPES Luncheon Meeting** by Dr. Christine Ehlig-Economides *"The Role of Oil and Gas in the Future of Transportation"* See page 29	17	18 **HGS Annual Skeet Shoot** Greater Houston Gun Club **9:00 a.m.** See page 44
23	24	25 **GSH/HGS Saltwater Fishing Tournament** Teakwood Marina, Galveston **7:00 a.m.** See page 74
30 **RMAG Coal Bed Methane Symposium** Denver, CO See page 27	**Members Pre-registered Prices:** General Dinner Meeting .....$25 Nonmembers walk-ups..... $33 Env. & Eng. .....$25 Luncheon Meeting .....$30 Nonmembers walk-ups..... $33 International Explorationists .....$25 North American Expl. .....$25 Emerging Technology $25	

Upcoming GeoEvents

September 7–8
HGS/PESGB International Confernece on African E&P
See page 30

September 12
HGS General Dinner

September 19
HGS Golf Tournament
See page 42

September 19
International Explorationists Meeting

September 20
Northsiders Lunch

September 20
Environmental and Engineering

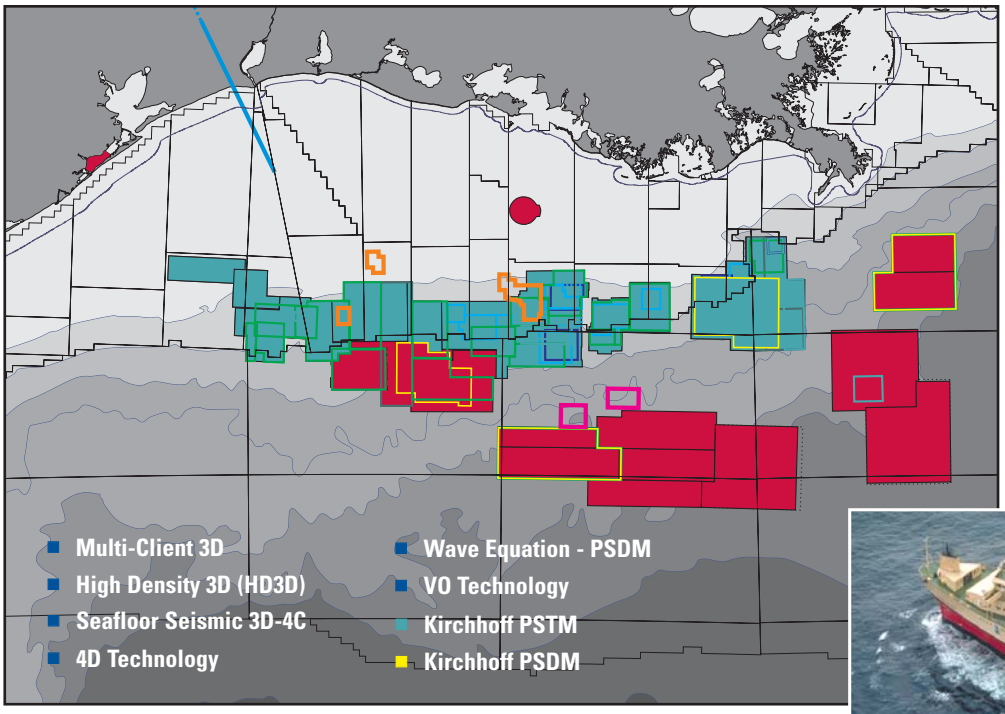
September 20
GSH Luncheon

September 21
HGS Reserves Course Part IV Petroleum Reserves - Avoiding Write-downs: An Overview of Recommended Petrophysical Practices
Bill Price, John Kuhla, Ted Griffin
8:00 AM BEG Houston Research Center, 11611 West Little York Rd.
See page 62

September 22
SIPES Luncheon

September 28
HGS General Luncheon Meeting

The PGS Gulf of Mexico Library: Watch for our HD3D™ Program



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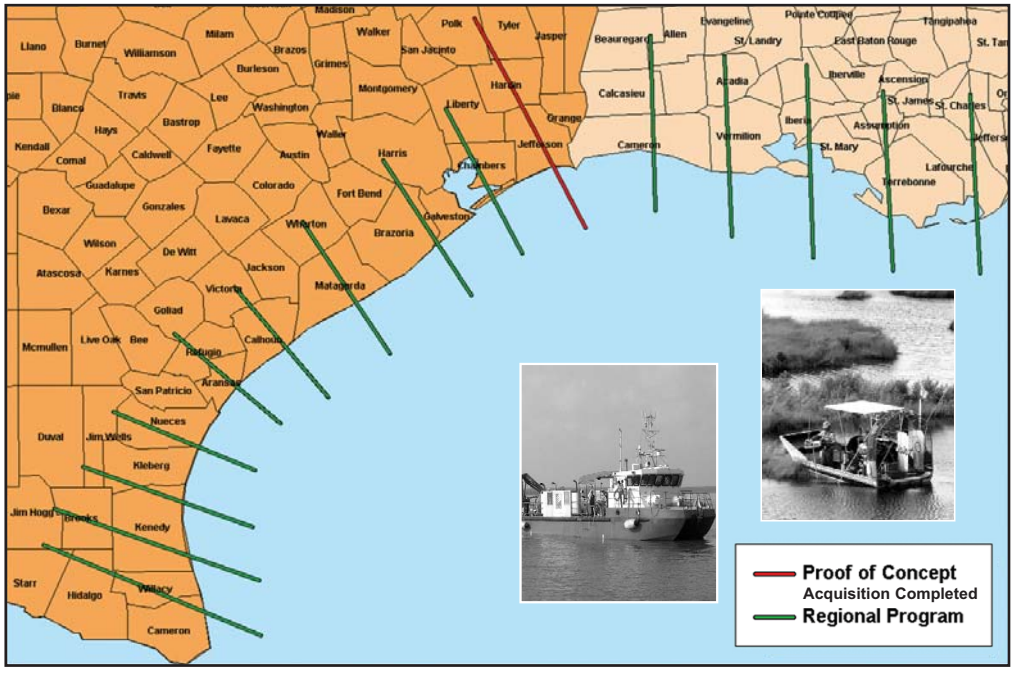

For more information contact James Bogardus at 281-679-2209 or Chuck Ward at 281-679-2220

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2004–2005 Distinguished Service Awards

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

Distinguished Service

Craig Dingler

Craig Dingler has been selected to receive the HGS Distinguished Service Award for giving so much time and effort to the Society. Craig joined the HGS in 1983 and in 1990 became a regular attendee at Environmental and Engineering Committee meetings, for which he remains loyal after 15 years. In 1993, he began assisting the *Bulletin* editorial staff and remained as a regular staff writer for the publication for seven more years. He accepted his first leadership role within the HGS as Chairman of the Environmental and Engineering Committee and remained in that position for three years. The link with the *Bulletin* proved to be strong and Craig accepted the Editor-elect office in 1997-1998 but remained Chairman of the Environmental and Engineering Committee. During that year, he and other *Bulletin* volunteers worked industriously to put together the special issue commemorating the HGS 75th Anniversary.

Craig assumed the office of editor in 1998 and the full-color cover was unveiled for the first time. He enjoyed writing and amused us with articles such as "Yes We Have No Rocks" and "Of Moose and Men", but he also wrote serious articles as well including "Houston's Geologic Hazards" describing geologic concerns facing the Houston area, and "Junk Science" defining a list of methods to confirm authenticity and technical credibility of geologic research and publications. While Editor, the HGS *Bulletin* won an Award of Merit from the Society of Technical Communication's Technical Arts, Publication, and Online Competition in January of 1999. A quote from a judge at the event "What's most impressive is the elegance of a no-frills publication that does just what it's meant to do, every month." With a year-long respite following his tenure as Editor, Craig was elected Treasurer-elect in 2000 and served as Treasurer in 2001-2002. He was as dedicated and perseverant with QuickBooks as he had been with the *Bulletin* as Editor.

Having now served four years as a member of the HGS Executive Board, it was only natural that he be nominated and elected as President-elect in 2002 and served as President in 2003-2004. Craig served in key HGS Executive Board positions for six years between 1997 and 2004, an amazing feat of dedication and stamina. While serving as the 79th HGS President, Craig aggressively pursued a number of goals, none more so than education, a favorite for Craig as he had once been an HISD teacher, and has remains a teacher today as an adjunct instructor at the San Jacinto Community College. During his term the HGS was actively involved in multiple educational outreach programs - Earth Science Week, and the Conference for the Advancement of Science Teaching (CAST), student sessions at the GCAGS. The new website was introduced and symposiums such as "Disappointing Seismic Anomalies" were highly successful.

Craig's wife Mary Kae, has been a very important contributor in her own right - an active HGA member, arrangements coordinator for the 2004 Presidents Night and more recently as a valuable member of the 2005 Scholarship Benefit Dance Committee. A great team they are.

To borrow a quote from Jeff Lund in 1999, "You gain from a society in proportion to what you put into it". Craig, thank you for your service to our society and to our profession. ■

2004–2005 Distinguished Service Awards

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

Distinguished Service

Linda Sternbach

The Houston Geological Society is pleased to present Linda Sternbach with the Distinguished Service Award for her many years of dedicated service. Linda has made great contributions to the HGS while serving in numerous leadership and support roles since becoming a member in 1985.

Within the last few years, Linda has devoted her service to providing high quality Guest Night Events. She has three outstanding themed Guest Night events at the Museum of Natural Science 2003 - 2005. She organized the now-legendary sellout Guest Night event in 2003 that featured Apollo 17 astronaut Harrison "Jack" Schmitt. Last year's Mars Rover theme Guest Night event, with NASA administrator Dr. Gordon McKay, was also a ticket sellout. This year's Guest Night to be held June 11 ,2005, featuring USGS senior science advisor and geologist, Dr. David Applegate, with his topic "Lessons from Sumatra: Reducing Earthquake and Tsunami Risk Worldwide." These Guest Nights have had the added bonus of a full evening during the night at the Houston Museum of Natural Science, including IMAX movies and planetarium shows, food and prizes. The promotion and organization of each of these showcase events requires a tremendous effort and Linda assembled a fine team.

Linda has not only performed an admirable job as an event planner, but she has proven to have a special talent as a writer and editor. She served as Editor of the HGS *Bulletin* in 1997-1998. During the years on 1996 to 1998, the *Bulletin* experienced a major upgrade of content and appearance, thanks to the efforts of Dave Orchard and Linda Sternbach. She had fun as *Bulletin* Editor, publishing one page editorials with catchy titles and quality text including, "Finding the Play Versus Finding the Pay", "Job Interviewing: Sort of Like Bungee Jumping, But with More Excitement," "The Christmas Tree that Roared," and "Can't Get no Job Satisfaction …". Linda introduced some innovative enhancements, including publishing the *Bulletin* content on the HGS webpage), heightened design quality and fine writing. All editors since Linda have only built upon her excellence.

Linda has been an active member of HGS for 20 years and has contributed in the role of Poster Session Committee chairman, International Explorationists Group treasurer and International Group technical program chairman/co-chairman, and HGS/GSH Directory chairman. Linda received the HGS Rising Star Award in 1995, and Presidents Award in 2003. Linda has been active with other national and local organizations. She served for four years as a member of the Editorial board for SEG's *Leading Edge* magazine, and was Continuing Education and Technical Program Chair for SIPES.

Linda started her career in Houston as geologist for ARCO Oil and Gas, and has followed the ups and downs of the oil industry with assignments inside many big and small independent oil companies as a seismic interpretation geophysicist. Currently, Linda is a senior geophysicist with Kerr-McGee, working assignments in the deepwater Gulf of Mexico, and in international areas.

The HGS is pleased to bestow the Distinguished Service Award to a creative individual who has enriched our society so greatly. Congratulations Linda. ■

2004–2005 President's Awards

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

President's Award

Arthur Berman

Art Berman is most deserving of the Presidents Award for his work as Editor-elect and Editor of the HGS *Bulletin* from 2003-2005. Art became an indispensable member of the editorial team as Editor-elect and likely was more active in that role than anyone in many years. As Art advanced to Editor, he made abundant changes to bring the *Bulletin* to an extraordinary level. He fine tuned the layout and upgraded the paper stock quality to improve photo and figure quality. He incorporated other societies in the publication in order to create a comprehensive newsletter for all of the Houston area geological and geophysical activities.

Art loves to write about technical and historical topics. Many of his articles received feedback from readers that extended well beyond the local society but to interested readers worldwide.

Response to his article "Forty Years of Ignoring Plate Tectonics", a tale of regional apathy prior to the devastating December, 2004 earthquake in Sumatra, Indonesia, and the need for an appropriate warning system, has generated the greatest response of any article in the recent history of the HGS *Bulletin*. Art is deeply concerned about the situation and it was evident is his writings that different approached to future earthquake

Arthur Berman *continued on page 59*

President's Award

Marsha Bourque

Marsha Bourque is a tireless, dedicated HGS volunteer and a most worthy recipient of the President's Award. She has completed her two-year term as Director and HGS Executive Board member and performed the duties of the office laudably. Marsha serves on numerous local and national charity, fine arts, and geoscience boards or advisory positions. Therefore the HGS Executive Board members and society leadership benefited mightily from her exceptional decision-making experience and wealth of knowledge. She is organized and thorough in her thoughts and actions, and these qualities proved to be valuable for her committees and the HGS leadership. Marsha was prepared, well informed about committee activities, and frequently assisted as a volunteer in whatever capacity required. One could find Marsha assisting the Treasurer at numerous technical dinner check-ins, participating in community service projects such as "Project Respect", judging student presentations at the Houston Area Science Fair, and teaching elementary school students about geology during Earth Science Week. Marsha was apologetic if she could not attend each and every HGS volunteer or technical event throughout the year.

Marsha Bourque *continued on page 59*

President's Award

Cheryl Desforges

Cheryl Desforges will receive the President's Award for her inspirational roles as the Chair of both the Continuing Education Committee and Finance Committee in 2004-2005. Quite amazingly, Cheryl still found time to contribute to the Website Committee!!

Cheryl stepped forward to share the duties as the Finance Committee Chair at mid-year. These critical duties as Finance Committee Chair require her to oversee the Society's Investment Funds, make recommendations for the investment distribution, and monitor investment account balances, assuring that the guidelines established by the Board for the Oversight Committee are adhered to by the investment fund manager. Additionally Cherly has been responsible for committee budget preparation and compilation of the next fiscal year's budget. Not satisfied with the status quo, she co-coordinated with the Treasurer multiple sessions to administer instructions for the HGS committee chairpersons in order to accelerate the annual budget process.

Cheryl volunteered to become Chair of the Continuing Education Committee recently when the previous chairman took an assignment overseas. Her leadership has greatly benefited this committee. Under Cheryl's leadership, as the committee immediately organized the

Cheryl Desforges *continued on page 59*

2003–2004 President's Awards

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

President's Award

Ken Nemeth

It is a rare occasion when the right person comes along at a critical time for an organization. With Ken Nemeth we found that person. His role as Treasurer of the HGS in 2004 -2005 was unexpected. Preparing to have a year to observe as Treasurer-elect, he was abruptly "promoted" to Treasurer due to an overseas transfer of the then-acting Treasurer. This required Ken to embark on a very steep learning curve early in his tenure. Through sheer diligence and the help of a new Finance Committee Chair, he became firmly grounded with the HGS budget. Identifying areas to improve the budget and communicating these results to the HGS Executive Committee has saved the HGS from additional budget spending.

Ken has initiated a new budget schedule for the committee chairs and has re-introduced committee chair training sessions. In an effort to reduce the lag time between the outgoing and incoming committees, new budget requests will be made prior to the officer transition on July 1.

Originally joining the HGS in 1981and serving on various committees including the Shrimp Peel Chairman from 1983-1985. Ken transferred to Dallas in the late 1980s and took an active role in the Dallas Geological Society serving in various offices including the Newsletter Editor. Ken was the Southwest Section AAPG Secretary and a candidate for SWAAPG President in 1999. He returned to Houston in 2001, and soon after volunteered as the HGS Finance Committee Chairman and the Website Committee.

Ken earned a BA in geology at Albion College in Michigan, and earned an MA in geology at the University of Texas at Austin. He is employed with Schlumberger Information Solutions.

Ken has a long-standing record of industriousness and performing the most challenging of duties. This is why it gives us great pleasure to present Ken with the President's Award. ■

President's Award

Andrea Reynolds

Andrea has brought a high level of zeal and motivation to the HGS membership and Executive Board while serving as Director for the past two years. Having been very active within the HGS since arriving to Houston in 1998, she introduced a different and highly valued prospective of the next generation of geoscientists. The focal point and probably most time-consuming aspect of her Director office duties was conveying the issues and directives back and forth between the website committee and the Executive Board. The present-day HGS website was developed from a beta test to a fully active web during her term of office. Issues regarding on-line meeting enrollment and credit card payments were abundant. She was a terrific conveyer of the enormous information and performed her duty well. Other committees reporting to Andrea as Director included the superb personnel placement committee, an increasingly important government affairs committee, fishing tournament, scouting, and exhibits committees. All of the committee chairs enjoyed working with Andrea as a liaison with the Executive Board

Andrea enjoys working with people, particularly the youth and new geoscientists. She has maintained her Certification as Volunteer Geologist at the Houston Museum of Natural Science since 1999 and has been a member of the Earth Science Week Committee. She co-developed the NeoGeos in 2000 and was an inaugural co-chair for the organization. As co-chair of the NeoGeos, she coordinated social events and speaker presentations, and contributed regular Bulletin articles and NeoGeos monthly e-mails. Given this background it was only fitting that Andrea was regularly sought for ideas on attracting and retaining younger geoscientists to our Society. Several of her suggestions became the seeds for the development of the ad hoc committee established in 2004 to progress the HGS through social events, scholarship fundraisers, and community service projects.

Andrea obtained a passion for bicycling several years ago and produced a terrific article on **Andrea Reynolds** *continued on page 61*

2004–2005 ☆ Rising Star Awards

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.

Rising Star

Mike Allison

Mike Allison has been awarded the Rising Star Award in recognition for his splendid work on the Continuing Education and Northsiders Committees. Since arriving from Lafayette, Mike has become a key volunteer for the HGS. He serves as the treasurer for the energetic Northsiders Committee and performs a second role for that committee behind a video camera recording the presentations. His expertise at audiovisual recording and editing has since expanded in 2004-2005 to the HGS Continuing Education Committee.

Faced with not having the financial ability to commercially record Part 1 of the "Petroleum Reserves - Avoiding Write-downs" short course series, Mike volunteered his technical services and his personal equipment to record the first short course. At the same time, Dominion offered a large contribution to purchase state of the art video recording equipment and software for the HGS. This was soon followed by the contribution of reproduction expertise and funds from SMT and additional funds from Fugro-Jason. From this point forward, Mike investigated alternative equipments options and ultimately recommended the equipment purchases. As well as contributing his knowledge of equipment and software, Mike has tirelessly contributed his time

Mike Allison *continued on page 61*

Rising Star

Mike Jones

Mike Jones receives a Rising Star Award for his service to the North American Explorationists group. Always helpful, Mike eagerly took over as treasurer when we had a vacancy and has performed those duties magnificently for the past several seasons. In addition to the collection and timely accounting of dinner receipts, he has also helped recruit a couple of outstanding speakers. He is currently in line to be the next chairman of the North American Explorationists group.

Mike is a recent graduate of Texas Tech, getting his MS in 2003 with thesis work on heat flow in the deepwater Gulf of Mexico. He received his BS in geology from Texas A&M University in 2001. Mike has taken a slightly different career path, becoming an independent geologist right out of school. He is currently working with Scout Petroleum where he is generating and selling prospects in South Texas. He opened the Houston office of Scout Petroleum downtown, while his dad still mans their Corpus Christi "headquarters." Upon his arrival in Houston, Mike immediately joined HGS for the education and networking opportunities. The North American Explorationists are very happy he did. ■

Rising Star

Frank Walles

Frank Walles receives the Rising Star Award in recognition for his enormous contributions to the Northsiders Committee since its inception in 2003. Frank also stepped forward to produce an outstanding feature article and *Bulletin* cover graphic in October, 2004.

Frank was instrumental in developing the technical program for the first year of the Northsiders Committee in 2003. He has since been actively involved in arranging the technical program with a team assembled from fourteen Northsiders members. He currently serves as co-chairman of the Northsiders Committee responsible for the tasks of the technical program, posters, and members' roles and assignments. "We try to blend all types of technical subjects and interests. We meet once a month and send a letter out to Northsiders members to keep fresh ideas coming forth" says Frank. The Northsiders are a progressive committee, they are the first group to routinely videotape their technical talks, they have arranged for alternating dinner and luncheon meetings to serve their membership, and the committee provides a wide array of geological/geophysical subjects for their technical talks.

Frank Walles *continued on page 61*

2004–2005 Corporate Star Awards

The Houston Geological Society honors companies that make special contributions of their staff or financial resources to help the Society.

Corporate Star Award

A2D/TGS-Nopec

The Corporate Star is presented this year to A2D/TGS-Nopec for providing its seventh consecutive year of scholarship giving. Each fall, A2D/ TGS-Nopec sponsors its industry golf tournament where all proceeds are donated to the HGS Undergraduate Scholarship Fund. This sustained level of giving to provide for university students scholarship funding is truly outstanding and noteworthy. A2D/TGS-Nopec also provided contributions to the HGS Guest Night. We thank A2D/TGS-Nopec and their employee volunteers for their generous contributions and service to our society. ■

Corporate Star Award

BHP Billiton

We proudly present to BHP-Billiton the Corporate Star Award for providing a generous contribution through sponsorship of the HGS Guest Night. BHP-Billiton has provided funds to support this annual event for several years. Thank you BHP-Billiton for your repeatedly generous contributions to benefit the HGS. ■

Corporate Star Award

Diversified Well Logging

The Corporate Star Award is presented this year to Diversified Well Logging for their many years of support to many of our social events. Food for hundreds of members at the annual skeet shoot and fishing tournament has been prepared by Diversified Well Logging employees and donated, thus providing the HGS thousands of dollars in contributions through expense savings each year. "The fish may be biting but the food is always great because of Diversified Well Logging," says Bobby Perez, chairman of the annual fishing tournament. Diversified Well Logging headquartered in Reserve, Louisiana, is a mudlogging service provider for the Gulf Coast and offshore regions of the Gulf of Mexico. ■

Corporate Star Award

Dominion E&P

We proudly recognize Dominion E&P this year with the Corporate Star Award for its commitment to the HGS Continuing Education Committee. Dominion E&P provided a large contribution to purchase sophisticated video recording equipment and editing software for the HGS. The equipment proved to be essential for providing quality videotaping and editing of the Petroleum Reserves mini-series. This equipment will be valuable in future HGS technical talks, symposiums, and training classes for years to come. We thank Dominion E&P for enabling us to advance our ability to provide an outreach to HGS members and non-members alike through digital recording of HGS programs. ■

Corporate Star Award

HRA Gray & Pape

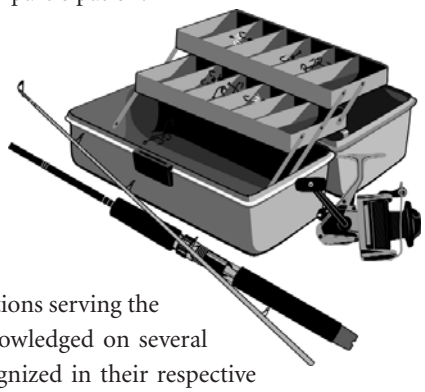
HRA Gray and Pape LLC have been recognized as a Corporate Star Award recipient for their outstanding support of the HGS-supported community service project "Project Respect—Evergreen Negro Cemetery". Staff from the geo-archeological and anthropological firm; have stepped forward to become major contributors in technical expertise and consultation for this historic site. HRA Gray and Pape employees were able to obtain state-of the-art surveying equipment through one of their product providers, Western Data Systems, and have begun the process to generate a detailed digital grid for the site. Their efforts are recognized by the Project Respect organization as a huge milestone in the progression of making this site into an officially recognized Texas historical site. ■

GET READY FOR THE 5th ANNUAL GSH/HGS SALTWATER FISHING TOURNAMENT 2005

Saturday, June 25, 2005

Teakwood Marina, Village of Tiki Island • Galveston, Texas

This year's Fishing Tournament will be held on Saturday, June 25, at the Teakwood Marina, Village of Tiki Island, Galveston, Texas. We are looking forward to a big event this summer and we encourage full family participation.



Trophies will be awarded for the heaviest individual Redfish (Non-Tagged), Speckled Trout and Flounder for the Anglers, Junior Anglers and Lady Anglers. Trophies will also be awarded for the heaviest individual Stringer: 1 Redfish, 3 Speckled Trout and 1 Flounder.

Registration fee includes: launch fee, GSH/HGS fishing cap, Fish Fry meal after weigh-in, refreshments, trophies and DOOR PRIZES.

The Geophysical Society of Houston and the Houston Geological Society are non-profit organizations serving the petroleum industry. Corporate and individual contributions are appreciated and will be acknowledged on several sponsor boards and banners at the weigh-in station and marina. All contributors will be recognized in their respective organization newsletters following the tournament. This is a great way to entertain friends, family, business associates and clients. So spread the word!

For more information, please contact:

Bobby Perez (HGS & GSH) • 281-240-1234 ext. 219 Office • 281-240-4997 Fax • 281-787-2106 Cell • 281-495-8695 Home
E-mail addresses: rdphtx@aol.com or r_perez@seismicventures.com

GSH/HGS SALTWATER TOURNAMENT

NAME: _____ COMPANY: _____

ADDRESS: _____

PHONES: (H) _____ (B) _____ (C) _____

E-MAIL ADDRESS: _____

Upon receipt of the registration form, each participant will be provided with a copy of the specific tournament itinerary and rules sheet by e-mail. Please register **EARLY.**

Please return this form with your check for $60.00 per contestant payable to:
GSH/HGS SALTWATER TOURNAMENT and Mail to:
Ms. Joan Henshaw, 10575 Katy Freeway, Suite 290 • Houston, Texas 77024

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

DISCLAIMER:
I acknowledge that neither the Geophysical Society of Houston nor the Houston Geological Society will be held responsible for injury or accidents during this event. PRACTICE SAFETY!!!!!

Signature: _____ Date _____

2004–2005 HGS/Houston Geological Auxiliary Distinguished Service Award

HGA Distinguised Service Award

Shirley Gordon

Shirley Gordon, wife of George E. Gordon, was born in Victoria, Texas. She graduated from Victoria High School, in 1953, and attended Victoria College. George and Shirley met in Victoria while he was in college there. They married in November of 1953. George continued his studies at Lamar University where he received his Bachelors Degree in Geology. Shirley earned her PHT from Lamar, which means "putting hubby through". After graduation, they moved to Houston where George continued his education in Geology at the University of Houston. During that period, Shirley also attended the University of Houston, and worked for Humble Oil while George pursued his Masters Degree. After graduation, George began work at Atlantic Richfield. Shirley and George moved to Corpus Christi, in 1962, where he worked for Skelly Oil Co. The tour in Corpus was only two years, because he then went to work for Brazos Oil & Gas which later became Dow Chemical. In 1981, George left Dow to form our own company, Gordon Exploration.

Shirley and George have two children, Gregory and Dana, five grandchildren and one great grandchild.

In 1968, Shirley joined the Houston Geological Auxiliary and GeoWives after George suggested that she "get involved". Oh my, did she! In 1976-77, she was President of the Auxiliary, after having already served as Secretary, Treasurer, Membership Chairman, Party Chairman, many times, Second Vice-President of GeoWives and other offices in both organizations.

Shirley and Sally Bybee were Co-Chairmen of Spouse Activities for the AAPG Convention in 1979 with the theme "Bluebonnet Time in '70". This convention was well attended with 1700 spouses. Shirley was often asked to serve as chairman of various committees for the Gulf Coast and AAPG Conventions.

As former Presidents of HGA, Shirley and Sally formed "The Past Presidents Club" who meet every Spring to reminisce about the fun and challenges they had while President of HGA.

In addition to her service to HGS and HGA, Shirley is involved in community activities. She is a member of Sugar Creek Women's Association, has served as president, and is currently Chairman of the annual "Holiday Boutique", a mini Nutcracker Fund-Raising project. Proceeds go to worthy Fort Bend Charities. She is also a member of Sugar Creek Garden Club, for which she has also served as president, as well as most other offices and committees. A few years ago, she was named "Gardener of the Year" She says, it was not for her green thumb. In May, Shirley will be a co-chairman of the Annual Flower Show.

On weekends, Shirley and George can be found either at their ranch in Victoria or their Rockport retreat enjoying family, friends, fishing or just relaxing. Only on weekends though, George is still active in the business.

Shirley has enjoyed a lifetime of service to her family, friends and clubs and HGS and HGA are fortunate to have had the benefit of her talents. ■

HGS Golf Tournament

Monday - September 19, 2005

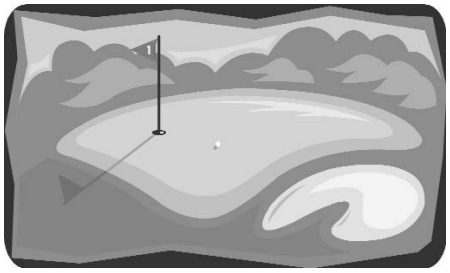
Place: Kingwood Country Club & Deerwood Country Club
Format: Four-man scramble
Featuring: Closest to the Pin, Bar-B-Q dinner, Refreshment stands, Trophies, awards, and prizes, Longest drive contest, Betting holes

This year's tournament will be a four-man scramble. A shotgun start at 11:45 a.m. using both golf courses will be followed by an informal buffet dinner with a presentation of awards at the Kingwood Country Club. Players may select their own course and foursome or be placed in a foursome by the tournament committee. The field will be flighted after play based on score. Entries will be limited to the first 144 four-person teams entered (576 total golfers), and will be accepted on a first-in basis.

The entry fee will be $125.00. Entry fee includes green fees, golf carts, refreshments, driving range use with practice balls, and a buffet award dinner with door prizes. So get your group together and come out and enjoy the competition, food, friends and fun.

Companies or individuals interested in sponsoring the event should contact Allan Filipov at 713-881-2877 or by fax at 713-881-2878. To enter, fill out the entry form at the bottom of this page and mail with your entry fee (payable to HGS Entertainment Fund) to:

HGS attn: Joan Henshaw
10575 Katy Freeway, Suite 290 • Houston, TX 77024



SCHEDULE OF EVENTS

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

All entries will be acknowledged by return phone call the week of September 5.

Name _____ Amount Enclosed _____

Company_____ Phone _____

Foursome Members *(Please Print)*	Company Name	Phone Number
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____

Foursome Captain's e-mail _____

If you wish, please circle your course preference: Island Lake Marsh Deerwood

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Dan Smith — *Gerald A. Cooley Award*

and for sure HGS, has been another beneficiary of Dan's dedicated talent. His term as President in 1987-88 and Vice President in 1985-86 capped years of service recognized by HGS having presented him Honorary Membership and Distinguished Service Awards. Not all of us remember how he lead the HGS during a painful decline in the price of oil when optimism was a critical leadership quality, and required unusual to budget challenges.

Dan has long been concerned with scholarship support of young geologists and has served many years as chair of the Graduate Memorial Scholarship Board and the HGS Advisory Committee.

HGS is the largest local society in the Gulf Coast Association of Geological Societies (GCAGS). Dan co-chaired a very successful 1991 GCAGS Convention and served for many years as the GCAGS Convention Committee chair. GCAGS awarded him Honorary Membership and Distinguished Service Awards and in 2001 dedicated the Transactions volume to him, one of the rarest of honors.

Of significant note is his participation in other earth science organizations including the Society of Independent Earth Scientists, Association of Independent Professional Earth Scientists, Society of Exploration Geophysicists, Houston Producer's Forum and regular attendance at the Chief Geologists and Exploration Manager's Luncheons.

I believe the most important contribution Dan's long service has brought to our profession is his optimism and positive vision for petroleum geology. His term as AAPG President emphasized his concept of making AAPG every geologists "Career Partner for Life" as industry rapidly evolves away from lifetime employment with a company.

Dan's Presidential address at the Salt Lake City Convention Opening Session focused on the "big picture" of the earth's energy future and its importance not just to geologists but to mankind.

Even today, Dan chairs a major strategic planning project by the AAPG Advisory Council and he proactively pursues outreach to students as a Visiting Geologist.

My wife Marti and I have had the honor of knowing not only Dan but his wonderful wife Laura and their close-knit family. We have been invited to join the special family tradition of celebrating their Scottish heritage and celebrating Robbie Burn's birthday with the Houston Heather and Thistle Society annual Burn's Supper. This opportunity has been especially meaningful to us after our ex-patriot assignment in Aberdeen, Scotland during Dan's year as AAPG President. Dan visited Aberdeen and spoke to the geology department students at the University of Aberdeen. As you can imagine, the former Chieftain of the Heather and Thistle Society was a big hit with the students, many of whom plan careers in energy exploration.

Finally, I invite all HGS members to join in congratulating Dan on receiving the truly special Gerald A. Cooley Award. It has been visible only to a few, but Dan's leadership roles have occurred during times of great change, debate and stress to our industry and professional societies. He has been called upon to serve in the face of criticism, divisive debate and strong political pressure.

Dan has responded admirably! I am sure Jerry Cooley is smiling as Dan receives this coveted award! ■

—Jeff Lund

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Paul Britt — *Honorary Life Membership Award*

in which Paul's contributions to HGS will have major impact.

While the breadth of Paul's contributions to the HGS are almost unparalleled, he has been virtually as active on behalf of the Society of Independent Earth Scientists and the American Association of Petroleum Geologists. He has served as Chapter Treasurer and Chairman, and is currently a National Director for SIPES. He has served several terms as a Houston Delegate in the AAPG House of Delegates, as General Chairman of the 2004 AAPG Prospect & Property Expo, and he currently serves both as a Gulf Coast Councilor to the AAPG Division of Professional Affairs and as Chairman of the AAPG Constitution and By-laws Committee.

Paul has truly distinguished himself by his steadfast and generous service to the Society and for his past efforts has been awarded both the President's Award and the Distinguished Service Award. As is often the case with individuals as productive as Paul, he has lent his support in arenas beyond his profession — most notably with his involvement with the Fort Bend County Fair and 4H program. And by his dedicated and valuable service to other professional associations, he has also brought much distinction and honor to the Houston Geological Society. ■

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Deborah Sacrey — *Honorary Life Membership Award*

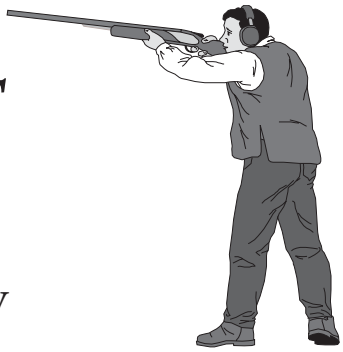
In addition to all of the accomplishments just cited, Ms Sacrey also maintains an excellent library of fine wines, which she is not reluctant to share.

I asked Deborah how she was able to accomplish all this. She told me that she was driven by her liking for people and for working with them. Whatever the spark is, **Deborah Sacrey** continued on page 59

22nd Annual HGS SKEET SHOOT

Saturday, June 18, 2005

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. 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 a.m. until 1:30 p.m. Refreshments will be available throughout the day.

IMPORTANT!!

WE ARE LIMITED TO 160 SHOOTERS IN FOUR ROTATIONS. ENTRY FEE IS $60 PER SHOOTER FOR REGISTRATIONS RECEIVED BY FRIDAY, JUNE 10. AFTER JUNE 10, REGISTRATION WILL BE STRICTLY ON A "SPACE AVAILABLE" BASIS AND THE ENTRY FEE WILL BE $80 PER SHOOTER. REGISTER EARLY!!

For more information, contact: Tom McCarroll at 832-366-1623 ext. 205 or tmccarroll@cheypet.com.

****

HGS SKEET SHOOT REGISTRATION FORM

Name: _____ Company:_____

Email: _____ Phone:_____

Preferred shooting time: (circle one) 9:00 10:00 11:00 12:00

Indicate ammunition required: (circle one) 12 gauge 20 gauge

Please return form(s) with check for $60.00 per shooter, payable to: ***Houston Geological Society***

Mail to: ***Noirin Taber • Cheyenne Petroleum • 1221 Lamar St #1301 • Houston TX 77010***

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

If you wish to shoot with a specific squad (5 shooters max.), please submit all forms together.

****

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

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Deborah Sacrey — *Honorary Life Membership Award*

it certainly works for her, and has made her an excellent choice for Honorary Life Membership in HGS. ■

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Arthur Berman — *President's Award*

catastrophes should be deliberated. As a result of this publication, Art was selected to give an interview on tsunami warning systems on National Public Radio, received an invitation to speak at a technical symposium of a major international oil company, and delivered a technical presentation on the northern Sumatra earthquake of 2004 to the Houston Geophysical Society. The outpouring of feedback from Indonesian government officials and local decision-makers has been colossal. Reaction and response to Art's articles have elevated the HGS *Bulletin* to a level of worldwide recognition.

Art's articles are thought provoking, well researched, and genuinely informative and entertaining. His topics have included election issues and the petroleum industry, a historical perspective of the 1973-1986 oil boom, the diffusion of new ideas, and interviews with fascinating individuals such as NPR's John Lienhard of Engines of Our Ingenuity fame, HMNS President Joel Bartsch, and Anadarko's CEO Jim Hackett. The expansion of the Bulletin to include a web-based equivalent to the print version has been created with Art's assistance.

Art has a BA in Middle Eastern history from Amherst College and an MS in geology, as well as two years of post-graduate study in petrophysics and advanced stratigraphy from the Colorado School of Mines.

Art is a consulting geologist with 27 years of experience in the petroleum industry. He is the Director of Labyrinth Consulting Services, Inc. and Petroleum Reports.com. His areas of expertise include sequence stratigraphy, integration of seismic interpretation, database analysis, petrophysical evaluation and technical risk assessment. Prior to this he worked over 20 years for Amoco in both domestic and international exploration.

Congratulations Art on a job well done as Editor-elect and Editor during 2003-2005. ■

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Marsha Bourque — *President's Award*

Marsha is an avid volunteer and advocate for the fine arts in Houston, including the Houston Grand Opera, Houston Ballet, and Alley Theatre. She was able to utilize her contacts to provide exceptional silent auction items for the HGS Scholarship Benefit. She has also arranged for the first HGS Ballet Night that includes a backstage tour with a lead performing ballerina to be held on June 9, 2005. She served a key role in assisting with arrangements and ticket sales for the Scholarship Benefit. Marsha has been a long-standing volunteer within the Earth Science Week and Academic Liaison committees, and possesses a particular interest for issues affecting science education in schools at the K-12 levels and scholarship opportunities for geoscientists.

Marsha has a BS in geology and political science from Vassar College, New York, and an MS in geology from the University of South Carolina. She is currently a geological consultant. She began her career with Chevron in New Orleans and later worked for a variety of major oil companies concentrating on deepwater E&P, the most recent being Statoil and Conoco. She is a member of AAPG, a scholarship committee chairman for AGI, and is a licensed Professional Geologist in the State of Texas.

Marsha, we are proud to recognize you for your dedication and leadership to the HGS. ■

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Cheryl Desforges — *President's Award*

well-received mini-series on Petroleum Reserves held throughout the Fall and Spring. The success of the initial events created a vibrant and dynamic atmosphere for the previously somewhat lethargic committee. An additional course on Rock-Based Integration: Geologic Interpretation of the Integration of Seismic and Petrophysical Data was created, and the committee helped set up the Texas Board of Professional Geoscientists Continuing Education Requirements Forum. Cheryl led the committee in the innovative concept of videotaping the Continuing Education Series on Petroleum Reserves that has now been prepared for distribution and sales as a CD-ROM. A significant milestone in this achievement was the procurement of sponsors to purchase the videotaping and editing equipment ($5000) which is now available for use at any Geological Continuing Education Course or meeting (with author's/speaker's consent); underwriting the copying of the CD-ROMs from the Reserves Course; and underwriting the CDROM production. This video project may have likely never surfaced and succeeded without Cheryl's efforts and leadership.

Several of these Continuing Education Courses will be offered again at the upcoming AAPG **Cheryl Desforges** continued on page 61

HGS Awards continued from page 59

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Cheryl Desforges — *President's Award*

National Convention to be held in Houston in 2006.Cheryl previously also has served four years as the HGS Publication Sales Committee Chair.

Cheryl has a BS in geology from Texas Christian University, and an MS in physical science/geology and an MBA in finance from the University of Houston. She received the prestigious Gayle Scott Award for the Outstanding Geology Senior at TCU, the same award received by AAPG and HGS President Richard Bishop. She also received the Arthur J. Ehlmann Award for TCU Geology Alumni.

Cheryl is a consultant at the Ryder Scott Company, currently working on projects at BP. Cheryl began her career with ARCO and later worked for a variety of companies in the environmental and petroleum fields, the most recent being Subsurface Consultants & Associates, and Randall and Dewey, Inc. She is a member of AAPG, AIPG, GSA, SEG, SPE, and is a licensed Professional Geologist in the State of Texas.

Thank you Cheryl for your service to the HGS. ■

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Andrea Reynolds — *President's Award*

energy employees participating in the MS 150 bicycle challenge. The cleverly titled article "The Energy Cycle - The 2004 MS 150" contained a dazzling collage of colorfully embellished cyclists at the event.

Andrea is a native of Buffalo, NY. She earned a BA in geology at the State University of New York (SUNY) at Geneseo, and an MS in geology at Texas A & M University "whoop." She is a geoscientist with Shell International E&P in the deepwater Brazil business unit. The HGS is proud to recognize Andrea with the President's Award for her sustained, elevated level of service to the Society. ■

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Mike Allison — *Rising Star Award*

and phenomenal skill in recording and editing the final products. He spent countless hours beyond the camera, doing the editing and mixing of the voice narratives of the short courses. Mike's generous contributions have enabled the Continuing Education Committee to parlay the generous corporate contributions into a legacy for the HGS. We will now be able to capture the knowledge of Geological experts for distribution to a wider audience and for historical archival purposes. Mike has just completed the first two CD-ROMs for the four part "Petroleum Reserves - Avoiding Write-downs" series, which will be sold as a set, with the proceeds going directly to HGS programs.

Mike has a BS in Geology from the University of Miami in Florida at Coral Gables and an MS in Geology from the University of Tennessee. He is currently working as a geoscientist for Geoscience Data Management and as a geology instructor at Cy-Fair College. Mike previously worked for Landmark Graphics Corporation as a research and development product geoscientist. Before that he worked for Chevron and Gulf Oil on a variety of assignments since 1983. Mike's interests in geology, computer software, and videotape recording have been a tremendous benefit to the HGS. In such a brief time span, few HGS volunteers have ever left such a unique and indelible mark on the society. ■

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Frank Walles — *Rising Star Award*

Franks's expertise in hydrocarbon producibilty model development particularly with unconventional reservoirs was tapped for the creation of a fine paper entitled "A New Method to Help Identify Unconventional Targets for Exploration and Development Through Integrative Analysis of Clastic Rock Property Fields " written exclusively for the HGS *Bulletin* in October, 2004.

Frank is a geologist with Kerr-McGee O&G specializing in international petroleum systems analysis. He has worked in many international and domestic E&P projects in his career with various major oil companies. He specializes in advanced petroleum systems evaluations, producibility model development, and identification of missed completions.

Thank you for serving the HGS as a leader and author. ■

HGS CONTINUING EDUCATION COMMITTEE PRESENTS

Part Four of the Mini-series

Petroleum Reserves — Avoiding Write-downs:

An Overview of Recommended Petrophysical Practices

by

Bill Price
Petrophysical Solutions, Inc.

John Kulha
Consultant

Ted Griffin
Core Lab

Wednesday, September 21, 2005 • 8 a.m. – 4 p.m.
Registration Table opens at 7:30 a.m.

Bureau of Economic Geology Houston Research Center
11611 West Little York (Please use the Cunningham St. entrance)
Houston, TX 77441

Large corporate reserve write-downs have increased attention of financial analysts, investors, rating agencies, banks, the U.S. SEC and corporate boards to the process of estimating and reporting reserves. Obtaining accurate net pay counts from correct petrophysical analysis is one of the basic ingredients of accurate reserve estimations.

- Understand the dangers of the digital world in which we live
- Discuss why the proper integration of data is still undervalued
- Learn the rules of wireline pressure interpretation and use of core data to validate reserves
- Learn the ten causes/sources of LRLC response and how to adjust your petrophysical evaluation to compensate.
- Learn a proven methodology to evaluate LRLC pays and when to apply it
- Real world examples will be presented

REGISTRATION FORM

Petroleum Reserves—Avoiding Write-downs

An Overview of Recommended Petrophysical Practices

Name: _____ Company: _____

Address: _____ City: _____ State: _____ Zip: _____

Phones: _____ E-mail: _____

Payment (US$): _____

Credit Card type (circle one): VISA MASTERCARD AMERICAN EXPRESS DISCOVER

Name on Card: _____ Billing Address: _____

Card Number: _____ Expiration Date: _____

Signature: _____ Date: _____ Card Holder Phone: _____

***Members: $80, if registered by 4:00 p.m. Friday September 16; $95 thereafter.**
Non-Members: $105,if registered by 4:00 p.m. Friday September 16; $120 thereafter

Price includes continental breakfast, box lunch and afternoon snack.

Visit www.hgs.org for details.

* Membership prices are extended to any member of (circle one): Member Number: _____

HGS GSH API Houston HAPL SIPES Houston SPE Gulf Coast SPEE Houston SPWLA Gulf Coast

Consider $24 annual dues to join HGS and save $1 off non-member prices:

http://www.hgs.org/join_hgs/join_hgs.asp

HGS Continuing Education Committee Responds to Recent Petroleum Reserve Write-downs

*by **Mike Allison and Cheryl Desforges***

Large corporate reserve write-downs have increased attention of financial analysts, investors, rating agencies, banks, the U.S. SEC and corporate boards to the process of estimating and reporting reserves. In response to concerns raised by the recent reserve write-downs, the HGS Continuing Education Committee, in conjunction with a number of corporate sponsors, enlisted the help of leading industry experts to produce four one-day short courses focused on ways to avoid petroleum reserve writedowns.

There was good attendance for the first three short courses, which we hope to repeat for the final segment offered next September. Audience participation is critical to the success of this series. So bring your questions and you will leave with answers from industry experts, as well as a bound set of course notes. You can register for the CEC sponsored short courses on the HGS web site.

As a new venture of the HGS, our corporate financial underwriters and presenters have provided the HGS with the means to deliver these short courses to a much broader audience, as well as to preserve the knowledge of these industry experts for the next generation of geoscientists and engineers. A single, easy to use CD-ROM is being prepared for each one day short course. Each CD-ROM will contain a very high quality recording of the presentation and the speaker's voice. They can be played on a local computer and are easily navigated by the simple click of a mouse on a menu of topics. These live recordings will provide a convenient source of review which can be replayed at home, in the office or in a conference room.

The HGS will be selling this mini-series as a set of four CD-ROMs for $120 as early as the 2005 AAPG Annual Convention in Calgary. Sets will also be available for purchase through the HGS web site and during the HGS lunch and dinner meetings starting next fall. The CD-ROM for the final course, presented during September, will be mailed later in the fall to all early purchasers who simply return a coupon contained in the original case. Your support of this important effort by purchasing a CD-ROM set for your personal library will immediately benefit other HGS programs and provide revenue which will fund CD-ROMs of future short courses.

The "Petroleum Reserves - Avoiding Write-down" series includes:

"An Overview of Reserve Definitions and Reporting Requirements," which was presented by John E. Hodgin and Thomas Wagenhofer of Ryder Scott Company, LP on December 15, 2004.

- Review SEC and SPE/WPC definitions, as well as the Sarbanes-Oxley Act
- Find out who is subject to civil and criminal penalties for non-compliance or false reporting
- Review the issues the SEC routinely questions in letters of inquiry regarding reserves
- Review SEC "Red Flags"

"An Overview of Recommended Geological Practices," which was presented by Daniel J. Tearpock of Subsurface Consultants & Associates, LLC on January 20, 2005.

- Review common geologic errors which contribute to inaccurate reserve estimates
- Review geologic methods and techniques recommended to avoid these pitfalls

"An Overview of Recommended Engineering Practices," which was presented by Ed Travis and Bill Kazmann of LaRoche Petroleum Consultants, Ltd. on May 20, 2005.

- Review basic reservoir evaluation techniques from performance to volumetric analysis, as well as fundamental economic evaluations and their impact on calculations of reserve volumes.
- Review common engineering errors which contribute to inaccurate reserve estimates and the recommended practices to avoid these pitfalls.

"An Overview of Recommended Petrophysical Practices," which will be presented by Bill Price of Petrophysical Solutions, Inc., John Kulha, Consultant, and Ted Griffin of Core Lab, on September 21, 2005.

- Review the rules of wireline pressure interpretation and use of core data to validate reserves.
- Learn the ten causes/sources of LRLC response and how to adjust petrophysical evaluations to compensate, as well as when to apply a proven methodology to evaluate LRLC pays.
- Real world examples will be presented

As with most major projects, this effort could not have been completed without help from many sources. The HGS Continuing Education Committee is indebted to the above mentioned presenters and their companies, our financial underwriters Dominion Exploration & Production, Seismic Micro-Technology, and Fugro-Jason, and the organizations who provided venues for each course: Noble Energy, Shell Oil Company, Marathon Oil Corporation and the Texas Bureau of Economic Geology. ■

HGS and ESTCH Advocate Awareness of Subsidence Threat for the Gulf Coast Region

*By **Cheryl Desforges,** Continuing Education Committee Chairman, and **Robert Traylor**, TCEQ*

Inundation of the Louisiana and Upper Texas Coasts could become one of the great geological disasters of the 21st century. This could have a huge economic impact not only on the inhabitants of the Gulf Coast, but also on our whole nation. The public has become aware of subsidence through press coverage of the high frequencies of flooding and increases in the loss of coastal areas in recent years. Unfortunately, the press and even some governmental agencies have only focused on identifying man-induced causes, such as fluid withdrawal from groundwater and petroleum extraction, as well as sea level rise due to global warming. As scientists who are intimately familiar with the Gulf Coast, we know this subsidence is primarily due to the complex geological setting of the Northern Gulf Coast Basin itself, although also to contributions from man-induced causes in isolated localities. Today's scientific analysis does not allow us to quantify the proportion of each cause across the region. The major impediment to this type of analysis is the difficulty of measuring vertical tectonic movements, because of an inadequate and outdated datum reference plane. Research has been conducted in Louisiana to enable quantification of the various causes of subsidence but has not been carried into Texas.

Planning for significant and costly public works projects is currently underway in Louisiana and at the Federal level. Most efforts to date have been directed at programs that would help to restore wetland areas of the coast. However, recognition that the entire coast is subsiding, including populated areas, has prompted some to call for massive public works projects. These include building coastal levees to protect life and property. Input from scientific evaluations of all the causes of the problem is now critical, so that we as a nation can direct these public works expenditures to projects that will have satisfactory outcomes.

To increase the awareness of the issues, the HGS and ECH are organizing a three day conference **"Coastal Subsidence, Sea Level and the Future of the Gulf Coast",** to be held November 3, 4 and 5, 2005. The first day of the three-day conference will be devoted to understanding the reasons for subsidence, how to measure and analyze each component's contribution to the overall subsidence budget. On the second day, the focus will be twofold: one part on assessing the economic/cultural impact and the second part on reviewing mitigation efforts, options, and consequences. A field trip on the third day will visit sites of active faulting and subsidence within the Houston area.

Conference participants and speakers will include contributions from the scientific community, government agencies, elected officials, construction and real estate industry representatives, members of the media, and the general public. We invite you to join us for this event and also ask that you help spread the word about this issue. We are also seeking corporate sponsors to help defray some of the expenses for this non-profit community service project, so please encourage your companies to become sponsors. ■

Book Review

James Allen Ragsdale

Richard Fortey, Earth: An Intimate History, *Alfred A. Knopf, New York, 2004, 405 pp. + index, $30.00*

Richard Fortey has done it again. The English paleontologist, already author of two acclaimed popular science books, (*Life: A Natural History of the First Four Billion Years of Life on Earth* and *Trilobite! Witness to Evolution*), has produced a third which may be the best of the lot.

In *Earth: An Intimate History*, Mr. Fortey takes the reader on a grand tour of the geology of the world, starting at the Bay of Naples with a description of Mount Vesuvius and then swooping from outcrop to outcrop around the planet, finally returning to Italy for his finale.

Some of the finest pleasures of his previous books have been Mr. Fortey's descriptions of terrains. His technique in *Earth* is first to describe the landscape of each area of interest and its relationship with the people who live there before delving into the geology that created the terrain. Along the way, he tells the stories of the scientists who through hard work and trial and error have unraveled the physical history of our world.

Mr. Fortey leaves few geological bases untouched as he goes around the earth. His lucid explanation of plate tectonics is woven through the entire fabric of the book as he explains how so much of the form of the Earth is the result of the collisions, splitting aparts, grinding togethers, and subductions of the mobile crust of the planet.

The book describes in geologically delicious terms many of the critical places in the history of our science and the geology of the earth, with chapters devoted to Pompeii and Herculaneum, Hawaii, the Alps, the development of the theory of plate tectonics, the "ancient ranges" of the Appalachians and Caledonides as typified in Newfoundland, the geological origins of the dollar, the Deccan traps and the nature of granite, faults around the world, the age of the planet and Precambrian continents, a wonderful description of a mule ride into the Grand Canyon, the earth from surface to core, and finally a whirlwind journey around the earth that ties it all together.

This is not a "coffee table" book-the text is the thing — but it is loaded with illustrations, both drawings and color photographs, that come with informative captions.

The author is successful with his method of presentation — starting with the surface of the world as we see it before plunging into the rocks — in large part because he has seen so much of the planet. Fortey's search for trilobites has taken him to all sorts of odd places, starting with a bleak island near Spitzbergen doing his graduate work, an experience that he described — appropriately bleakly — in his first book, *Life*. He is not at all lyrical about some of the landscapes in *Earth*, either. For example, he describes a sabkha along the coast of Arabia as "a dark and scrofulous-looking patch" — "the most treacherous place I have ever visited, a darkly crusty, boiling hot wasteland, sprouting gypsum crystals like perverse jewels."

Earth is very readable and entertaining, as well as being informative. It is on a level with John McPhee's similarly acclaimed books about North America (Rising from the Plains, Basin and Range, etc.). The difference between the two is that Mr. Fortey writes in a slightly more technical style because of his professional background, whereas Mr. McPhee, a journalist, wrote his books for the mostly non-scientific but educated readers of the New Yorker.

I highly recommend Richard Fortey's book to anyone interested in understanding how the world works or in just a darn good read. ■

Book Review

George O. Chandlee, *Source Environmental Sciences, Inc.*

Page, J., and Officer, C. 2004, The Big One*, 239 pp. Houghton Mifflin Company, $24.00.*

The three largest earthquakes ever known to have occurred in the continental United States were in December 1811 and January 1812 near New Madrid, Missouri. The most powerful of these quakes is estimated to have been of Richter magnitude 8.3. The event has been described as "a profound shuddering of the earth". "Subterranean fires threw down the arches or vaults of the earth, abyssal waters combusted, fermented or electric fluid pervaded the bowels of the earth, driven by volcanic impulses" causing a heaving of the ground "upward in coruscations and explosions". This was an inexplicable catastrophe, "the very world itself gone mad". Near the pioneer town of New Madrid, the night air became "redolent with foul odor", and near the mouth of the Ohio River, the ground shook incessantly, as one resident described it. In what was then a sparsely populated wilderness, some 1,500 people were killed. The tremors reached as far as Montreal, Canada. An area as large as Texas, centered in Missouri and Arkansas, was affected. This series of earthquakes constituted the "Big One".

For illustration, it is worth comparing the New Madrid earthquakes with the 1906 San Francisco earthquake. A few minutes past five o'clock in the morning on April 18, 1906, movement occurred on a fracture in the rock in the earth's crust beneath San Francisco. The fracture expanded in various directions, soon traveling at 5,600 miles per hour. It reached the surface in a matter of seconds. The fracture propagated along the San Andreas Fault. At locations on the surface, the ground on either side of the fault moved about twelve feet. The well-known San Francisco earthquake was of Richter magnitude 7.6.

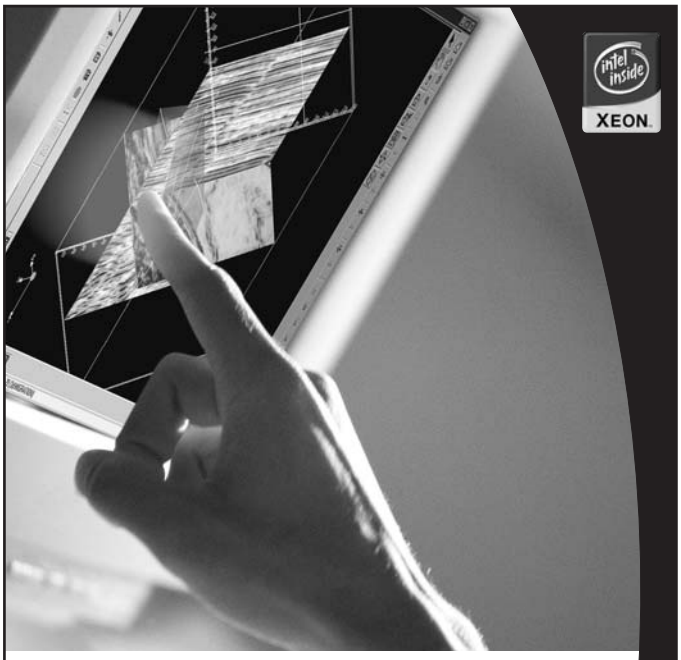
In the book entitled *The Big One* Jake Page (a natural history writer) and Charles Officer (a Dartmouth earth scientist) detail the history of seismology and describe the current state of seismology. The authors translate descriptions of the 1811-1812 earthquakes associated with the New Madrid fault zone into an informative narrative of the historical development of seismology. As an example, they discuss Jared Brooks, an American engineer, who was an early pioneer in scientific seismology. He used pendulums of different lengths and summarized the earthquake history of the New Madrid earthquakes. Brooks was one of the first to develop a scale and detailed rating of earthquakes based on the damage resulting from an earthquake.

John Milne, an English geologist, was unquestionably what could be called "the father of modern seismology". The Japanese offered Milne, a widely traveled mining geologist, a professorship at the Tokyo Imperial College of Engineering, at that time the largest technical school in the world. Milne lived in Japan for twenty years. Because Japan is one of the most seismically active areas in the world, it was a good place to study earthquakes. He used the same techniques as Brooks, pendulums of various lengths (some up to 3 feet long) so he could measure and record the magnitudes of earthquakes.

The name of Charles Richter is perhaps the one best associated with earthquakes in the public mind. Richter was an amateur astronomer and used the word "magnitude" to describe levels of earthquake activity. The Richter scale is based on the greatest amplitude of waves reaching a seismograph. The Richter scale does not measure the intensity of an earthquake, which is essentially the damage that an earthquake inflicts. Giuseppe Mercalli, an Italian, developed the scale that is widely used today. The scale was subsequently modified by two Americans, Harry Wood and Frank Neumann and is now known as the Modified Mercalli Intensity (MMI) scale. It is a finite scale specifying 12 levels of intensity. These levels range from "Not felt except by a very few under especially favorable circumstances" (I) to "Damage total. Lines of sight and level are distorted. Objects thrown into the air." (XII)

The authors describe how scientists, engineers, and others have tried to understand what caused buildings to be destroyed by earthquakes and how corrective and protective measures could save lives and ensure increased safety. Readers will learn about the Scottish engineers who worked with Japanese engineers to develop new methods for measuring earthquakes, and how that work led to new building codes. Recent advances in ways to describe the severity of earthquakes are discussed, as well as the ways that new studies have generated more precise estimates of the strength of historical earthquakes. The book presents black and white drawings of historically important seismograph measuring devices as well as maps showing areas of earthquake activity around the world.

The December 2004 tsunami has focused our attention on the devastation and global effect that earthquakes can have. Earthquakes are inevitable and knowledge concerning their cause, effect and historical impact is thus important. So, this not-overly technical book is well worth reading. The authors present a clear discussion of the science of seismology. The appeal of natural history and stories of catastrophe assure the book will enjoy a wide audience among geoscientists and non-geoscientists alike. ■



PETROLEUM SYSTEMS OF DIVERGENT CONTINENTAL MARGIN BASINS

25TH Annual GCSSEPM Foundation
Bob F. Perkins Research Conference
December 4-7 2005, Houston Marriott Westchase

The majority of recent and projected future discoveries of giant hydrocarbon fields occur in petroleum systems associated with divergent continental margin basins. Consequently, an improved understanding of these basins is increasingly important as targets are sought in what may be the last exploration frontiers capable of holding giant reserves.

Divergent continental margin basins typically exhibit rift, rift-to-drift, and passive margin stages in their evolution; major accumulations occur in each of these stages. As the location and type of traps and petroleum systems vary with basin location and stage of evolution, an analysis of each stage provides a framework focusing on the evolution of the architectural development and stratigraphic progression that may be used as analogs and applied to other basins in similar stages of development.

Currently 51 papers have been accepted for oral presentation and 3 papers for poster-only presentation. As in the past, our registration fees will include conference CD, ice breaker, meals, and refreshments. A listing of papers and abstracts will be posted on our website.

For More Information, Check our Web Site at www.gcssepm.org
or call Foundation Headquarters at 281-586-0833.

Government Update

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

Texas Board of Professional Geoscientists News

Chairman Kevin Coleman and Vice Chairman Ed Miller will be retiring in April. There is currently no word as to who the new Chairman and Vice Chairman will be, but the two new board members are Glenn Lowenstein, P.G., President of Terrain Solutions in Houston, and Lynn Clark, a consultant from Dallas.

The TBPG's website has finally been revised. You can now do everything you could do before through it, but you can now read the most recent version of the proposed continuing education regulations as well.

Texas Board of Professional Engineers

Kimberley Robinson Phillips of Houston is being reappointed to the board. It has been noticed recently that the Texas Board of Professional Engineers (TBPE) Policy Advisory Opinions have been excluding everyone but Professional Engineers from performing various types of work that has traditionally been performed by others, including geologists and hydrogeologists. There has been a small group of individual Professional Geologists who have been watching out for Geologists' interests who deserve our thanks. These opinions are important to notice because they often become the basis for future regulations. We need to make sure we are not excluded from work we have traditionally been performing.

Mark Baker, P.G., with the Texas Association of Professional Geologists is trying to establish the TAPG as the lobbying body for professional geologists in Texas. If you think having a lobbyist representing Texas professional geologists is a good idea and want to join his group you can contact him at:
POB 495457, Garland, Texas 75049-5457, 469-443-0990 Office, 469-443-0989 Fax, http://www.bakeresi.com

Pending Texas Legislation

There are several bills pending in the Texas Legislature of interest to geologists/hydrogeologists. These bills are:

- Senate Bill SB-1413 by Senator Shapleigh on Brownfield regulations. It states that engineers and contractors will perform all assessments.

- House Bill HB-1116 pushes back the sunset review of the Texas Board of Professional Geoscientists (TBPG) by a couple of years, to 2015. However, it also includes a provision that the review is to be conducted by the Texas Department of Licensing and Regulation (TDLR). The big question is, does the TDLR also review other professional boards, such as the PE board? Evidently, Bill Kuntz, director of the TDLR, is pushing this effort, and this isn't the first time the TDLR has tried to take over the TBPG. HB-1116's companion Senate Bill, SB-412, is still languishing in the Senate Government Organization Committee. If/when they craft bill analysis language we need to make sure it does not link the TBPG to the TDLR in the sunset review process.

You can find more information on these two bills at: http://www.capitol.state.tx.us/

TCEQ News

The TCEQ has reported that they will be finalizing their new Affected Property Assessment Report (APAR) form in May. In the meantime, keep using the old form until the new one is posted on the TCEQ website.

The TCEQ has posted its annual update of the PCL tables. They can be downloaded from the Texas Risk Reduction Program (TRRP) web page at: www.tnrcc.state.tx.us/permitting/trrp.htm.

The TCEQ announces the publication of TRRP-14, "Screening Chemicals of Concern from PCL Development". This document is available at: http://www.tnrcc.state.tx.us/permitting/remed/techsupp/guidance.htm

Clean Air Interstate Rule Signed

On March 10, 2005, the Acting Administrator Stephen Johnson of the U.S. Environmental Protection Agency (EPA) signed the Clean Air Interstate Rule (CAIR), which is expected to reduce sulfur dioxide (SO2) and nitrogen oxide (NOx) emissions from coal-fired power plants by roughly 70% by 2015. Utilities operating in 28 Eastern States and the District of Columbia are to engage in a cap-and-trade system in order to meet these industry-wide limits. For more, go to: http://www.agiweb.org/gap/legis109/cleanair.html.

New EPA Mercury Rule In a Ton of Trouble

On March 15, 2005, the EPA mandated a cap-and-trade program to control mercury emissions **Government Update** *continued on page 72*

Government Update continued from page 71

from U.S. coal-fired power plants in two phases in their Clean Air Mercury Rule. The EPA rule has been plagued by two recent accountability studies by the EPA Inspector General and the Government Accountability Office, which report biased rulemaking procedures and incomplete cost-benefit and health risk analyses. After the EPA ruling, the Washington Post and Greenwire reported that the EPA omitted findings from another study, a peer-reviewed health benefit analysis from Harvard University.

On March 28, 2005 EPA published the first part of its mercury rule, removing mercury from the list of toxic pollutants covered by stricter MACT emission caps required under the Clean Air Act, and that same day nine states sued, including New Jersey, New Hampshire, California, Connecticut, Maine, Massachusetts, New Mexico, New York and Vermont. Other states and environmental groups plan to file their own lawsuits when other parts of the mercury rule are published in the Federal Register.

Coal Policy Fires Up the Senate

On March 10, 2005, the Senate Energy and Natural Resources committee convened representatives from 25 groups to consider the best proposals for U.S. coal production to be included in this year's energy bill. Department of Energy officials said they expect the U.S. will face a 25% increase in coal consumption by 2025, adding an additional 87 GW of domestic coal capacity as well as increased imports. A full summary is available at: http://www.agiweb.org/gap/legis109/energy_conference.html

Senate Hears Debate on Federal Renewable Energy Standards

On March 8, 2005, the Senate Energy and Natural Resources Committee considered arguments for and against the use of a federal renewable portfolio standard (RPS) as a means of promoting energy diversity. Senator Jeff Bingaman (D-NM), the Committee's ranking member, proposes that 10% of the national power supply should be derived from renewable sources by 2020. Committee Chairman Pete Domenici (R-NM), who will introduce the Senate version of the energy bill this spring, opposes a federal renewable energy standard but said he wished to recognize the wide support Bingaman's proposal received in the Senate last year.

House Takes a Look at Growing Energy Demand in China

International energy experts warned the House Energy and Mineral Resources Subcommittee on March 16, 2005 that Chinese energy demand is rising sharply and is one of the factors contributing to recently high crude oil prices. Since 2000, energy use in China has unexpectedly skyrocketed, outpacing the country's economic growth. As a result, Chinese state-run oil companies are making a major push to lock down new supplies around the globe, which could pose future problems for U.S. imports. "The United States must take a serious look at its energy and mineral supply strategy for the long-term," said Rep. Jim Gibbons (R-NV), Chairman of the subcommittee. A full summary is available at: http://www.agiweb.org/gap/legis109/energy_hearings.html

Arctic National Wildlife Refuge Becomes a Budget Item

On March 16, 2005 the Senate voted 51-49 against an amendment proposed by Senator Maria Cantwell (D-WA) that would have removed a provision to include the Arctic National Wildlife Refuge (ANWR) revenues in the $2.56 trillion fiscal year 2006 Senate budget resolution. With that close vote, the issue of drilling in ANWR becomes part of the budgetary process and cannot be held up by a filibuster.

Does the United States Have Enough Water? Report Released

The Subcommittee on Water Availability and Quality, reporting to the Committee on Environment and Natural Resources, National Science and Technology Council, has released its first report, Science and Technology to Support Fresh Water Availability in the United States. The report is available on the internet at: http://www.ostp.gov/NSTC/html/swaqreport_2-1-05.pdf

At the request of the Office of Science and Technology Policy and as a follow-up to this report, the Subcommittee is now developing a strategic plan for Federal science and technology research and development to support freshwater availability and quality. As this plan takes shape there will be an opportunity for public review and input. If you would like your name added to the review list, please email gpatter@usgs.gov with the subject, "add to swaq review list". For further information or to request a printed copy of the report, please contact Glenn Patterson at: gpatter@usgs.gov.

Global Earth Observations

At the third Earth Observation Summit in Brussels on February 16, 2005, 60 nations agreed to expand and integrate their own Earth observing capabilities into a single, global data-sharing network and all-hazards warning system. This Global Earth Observation System of Systems (GEOSS) was also endorsed by 40 international organizations at the summit.

For more information, visit: http://www.agiweb.org/gap/legis109/earthobservation.html and the EPA website, (http://www.epa.gov/GEOSS).

Millennium Ecosystem Assessment

A Millennium Ecosystem Assessment was called for by United Nations in 2000. Initiated in 2001, to inform global policy initiatives, the assessment was released on March 30, 2005. The 2500 page assessment is considered to be the most comprehensive survey of ecosystem vitality to date and involved 1,300 researchers from 95 nations over four years. The complete assessment, summaries and additional coverage are available at: www.millenniumassessment.org

Education/Evolution Update

National Academy of Sciences Alert

On March 4, 2005 Dr. Bruce Alberts, president of the National Academy of Sciences, sent a letter to NAS members regarding the mounting threats to science education in public schools. To view the entire letter, please visit the NAS at: www.nas.edu/nas/evolution0305

Deep Sea Volcanoes Sunk

The IMAX movies, "Cosmic Voyage," "Galapagos," and "Volcanoes of the Deep Sea," about creatures that thrive near the vents on the ocean floor, have been rejected by some theaters in museums and elsewhere because they mention evolution. The *New York Times* reported that the Fort Worth Museum of Science and History showed "Volcanoes of the Deep Sea" to a sample audience and decided not to book the movie because some viewers objected to the mention of evolution. The Associated Press reported that cities in Texas, Georgia, North Carolina and South Carolina were refusing to show "Volcanoes of the Deep Sea" because it makes a connection between human DNA and microbes living on the sea floor. Lisa Buzzelli, director of the IMAX theater in Charleston declined to show the film because she said, "If it's not going to sell, we're not going to take it. Many people here believe in creationism, not evolution."

Professorial Dictators Warned

In the Florida House of Representatives, the Committee on Choice and Innovation voted along party lines (eight Republicans approved while two Democrats strenuously disapproved) to advance the Student and Faculty Academic Freedom in Postsecondary Education bill (HB-837) out of their committee (see http://www.myfloridahouse.gov/).

The bill, which must be approved by two more committees before it goes to the full House for a vote, ensures that university students cannot be punished for stating beliefs that disagree with their professors. It may allow students to sue a professor and the university if students think that they are being singled out for ridicule because of their beliefs. ■

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.

Annual Dues Expire Each June 30.

Annual dues are $20.00; full-time students and emeritus members pay $10.00.

Mail this application and payment to:
Houston Geological Society
10575 Katy Freeway, Suite 290
Houston, TX 77024
Telephone: 713-463-9476 Fax: 713-463-9160

Payment method:

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

Card # _____ Expiration Date: _____

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.

Name: _____
Address: _____

Home Phone: _____ Spouse's Name: _____
Email: _____
Job Title: _____
Company: _____
Company Address: _____

Work Phone: _____ Fax Number: _____
Circle Preferred Mailing Address: Home Office
Professional Affiliations:
❑ Active AAPG Others: _____

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

Membership Directory Preference
❑ CD Rom
❑ Printed

School _____
Degree _____ Major _____ Year _____

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 _____

rev. 5/5/2003

The 2004 HGS/GSH Membership Directory Now Available in Electronic Format on the HGS/GSH Website!

The long-awaited 2004 HGS/GSH Directory is now available. For the first time, the directory has been published in electronic format and may be downloaded directly from the HGS/GSH Websites directly to your computer.

The Directory Committee worked very hard and we owe special thanks to Mike Brennan and Deborah DeBram for their extraordinary effort and resolve to produce the excellent product that we now have. The decision to "publish" the 2004 Directory as an electronic document was made jointly by the boards of the HGS and GSH to ensure the most timely and cost-effective delivery of the directory.

The 2004 HGS/GSH membership directory is now available in PDF format on the HGS and GSH Websites and can be downloaded by members who are current in their 2003-2004 dues. Active members can get the directory by linking to http://hgs.org/Directory and following the instructions found there.

Members must be logged in when they go to the HGS or GSH Websites in order to have access to the directory.

For those who want a printed copy of the directory, the electronic document is printer-ready. For members who do not have internet access, a CD can be checked out at the HGS/GSH office that can be taken to a print shop to get a paper copy made.

In addition to the formal membership directory, the HGS and GSH Websites include a member-lookup facility that is available to any registered Website user. That information is more likely to be current than the annual directory. Members are encouraged to keep their contact information on the Website current. Changes made in member records on the website will immediately update the office records, and vice versa, but will not change the annual directory until the next publication cycle. ■

HGA *and* GeoWives **News**

HGA

by Norma Jean Jones, President

I am delighted and honored to have been elected as the Houston Geological Society Auxiliary President for the 2005-2006 year. I will endeavor to serve the organization to the very best of my ability. Margaret Eisenhardt Jones, outgoing President and the Board of 2004-2005 are to be congratulated on an exceptionally fine year. Each social has been well attended and thoroughly enjoyed.

Congratulations to Shirley Gordon, upon receiving the HGS-HGA 2004-2005 Distinguished Service Award. Shirley is certainly deserving of this award.

Our annual Business Meeting and luncheon was held at the Briar Club on Thursday, May 12. The membership and guests all enjoyed a lovely lunch and musical entertainment by The Kingsmen. A sincere thanks to Lois Matuzak and her committee for an excellent event. After lunch, a brief business meeting was held, and the new officers were installed.

In reviewing the slate of dedicated and talented officers elected to serve this year, I fell confident that HGA will have another great year. Let me introduce you to the 2005-2006 Board:

President	Norma Jean Jones
President-Elect	Sally Blackhall
First Vice President	Winona LaBrant Smith
Second Vice President	Norma Jean Bacho
Third Vice President	Edie Bishop
Secretary	Vicky Pickering
Treasurer	Betty Alford
Historian/Photographer	Suzy Stepanek
	Myrtis Trowbridge
Parliamentarian/Past President	Margaret Jones
Directors:	Mary Harle
	Margaret Jones
	Anne Rogers
	Millie Tonn

A highlight of next year will be the AAPG National Convention to be held in Houston in April, 2006. The HGA has received word that members of the HGA will be called upon to assist with the Ladies' Hospitality Room and Activities. I hope that all members will keep this in mind and be prepared to volunteer as opportunities arise, to help the Houston Geological Society make this a very successful event.

Please make note of news from your summer vacations and activities and report them for the Eclectic Log.

We want to encourage all wives of HGS members and all female geologists interested in joining the Auxiliary to fill out the membership application form printed in the HGS *Bulletin* and get your application and dues in soon, so that your name and address can be included in the Year Book. Our first social will be held in September and we will be advising you regarding details of our five upcoming events.

HGS Guest Night is June 11, 2005. Dr. David Applegate, USGS Senior Seismic Advisor, will speak on "Magnitude 9 Tsunami and Earthquakes, Learning from Indonesia's Experience". This will be at the Houston Museum of Science, from 6:30 to 10:00 P.M. Ladies, join your spouses or friends for a fun evening.

Norma

You are invited to become a member of
Houston Geological Auxiliary
2005–2006 dues are $20.00

make check payable to *Houston Geological Auxiliary* and mail to: Margaret Jones • 1407 Lakecliff Dr • Houston, Texas 77077

HGA YEARBOOK INFORMATION

Last Name	First Name	Name Tag
Spouse Name	**Name Tag**	**HGS Members Company**
Home Phone ( )	**Business Phone** ( )	**Business Fax** ( )
Street Address	**City**	**Zip**
Birthday, Month, Day ONLY	**Email Address**	**Home Fax** ( )

GeoWives

by Debra Munsell, President

The GeoWives had a nice annual luncheon on Thursday, May 19, at Cohen House, the faculty club at Rice University. The annual business meeting was held. 2004–2005 was a fun as well as educational year with luncheons and trips.

Membership forms are found in the *Bulletin.*

Have a great summer!

As a member you are invited to join

GeoWives

2005–2006 dues are $7.50

make check payable to *GeoWives* and mail to:

Dene Grove
12715 Pebblebrook
Houston, Texas 77024

Please provide the following

Name: _____

Sreet Address: _____

_____

City/State/Zip: _____

Telephone: _____

email: _____

I will help plan a GeoWives activity ☐
I will serve on a committee ☐
Notification / Phone Committee ☐
Courtesy / Hostess ☐
My home is available for a meeting ☐

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June, 2005		
2-3	AVO, Rock Physics and Inversion	Houston, TX
6-7	Logbust™ Computer Application of Multiple Bischke Plot Analysis	Houston, TX
8	Maps, Positions & Grids	Houston, TX
9-10	Quick Look Mapping Techniques For Prospect Evaluation	Houston, TX
July, 2005		
11-15	Advanced Subsurface Structural Geology	Houston, TX
27-29	Basics of the Petroleum Industry	Houston, TX
August 2005		
10-11	Salt And Clastic Sediments	Houston, TX
15-19	Cased Hole and Production Log Evaluation	Houston, TX
22-26	Applied Subsurface Geological Mapping	Houston, TX

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