AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

EXPLORER

JANUARY 2006

WORLD DEVELOPMENTS

China's Tarim Basin:

Beautiful Possibilities?

Vol. 27, No. 1
January 2006

AAPG EXPLORER

On the cover: A view of the northern Tarim Basin, along the Kuqa River by the Tianshan Mountains in western China, showing part of the foreland fold and thrust belt of the Kuqa foreland basin. The photo, looking north, shows the northern limb of the Bashijiqike Anticline; thick, dark red Paleocene-Miocene conglomerates, sandstones and mudstones in the background overlying the Lower Cretaceous Bashijiqike formation, and light pink to brown sandstones and conglomerates in the middle- and foreground. The Bashijiqike formation makes an excellent oil and gas reservoir, and the Tarim Basin was the site of significant exploration developments in 2005. See discoveries list, page 22. Photo courtesy of K.R. McClay, editor of AAPG Memoir 82, *Thrust Tectonics and Hydrocarbon Systems*.

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Officer Candidates Data Page

Complete biographical information on all seven candidates vying for positions as AAPG officers for 2006-07 can be found in a special insert at page 36 of this EXPLORER.

The insert, which can be taken out and saved for future reference, also includes each candidate's response to the question of why they are standing for AAPG office. ❑

PRESIDENT'S COLUMN

AAPG at The Crossroads

By PETER R. ROSE

This is likely the most important letter I shall write to AAPG members as their president.

I began it during a three-week tour of Europe (Oct. 30-Nov. 18), as I met with leading geoscientists and students from Norway, Hungary, Poland, Ukraine, Russia, Czech Republic and Austria.

I am finishing it after returning from the inaugural International Petroleum Technology Conference (IPTC), held Nov. 19-23 in Doha, Qatar, having talked with leading geoscientists and students from Bahrain, China, Egypt, India, Indonesia, Iraq, Lebanon, Libya, Malaysia, Oman, Qatar, Saudi Arabia and United Arab Emirates.

We discussed our various energy futures, our respective views about the geoscience profession and how AAPG can build bridges with them on a global basis to become "indispensable to their geoscientific careers," as our Strategic Plan mandates.

John Brooks, president of AAPG's European Region, traveled with me during the first three weeks. We were both overwhelmed by the warmth of the reception accorded us by our European colleagues, and the deep respect for AAPG that this conveys. We have high hopes that this respect will translate in the coming months to substantially increased participation of European geoscientists in the affairs of the European Region as well as the parent Association.

Already, we've laid the foundations for six new student chapters, at the universities of Warsaw, Krakow, Gubkin, Moscow State, Tyumen (West Siberia) and Leoben (Austria). And we have urged literally hundreds of European geoscientists to join AAPG.

More than 2,500 engineers, geoscientists and executives attended IPTC, where I spoke to more than 100 students at Education Day about careers in international E&P, as well as becoming acquainted with many leading geoscientists and engineers from various states and companies in the Middle East, during the four days of that conference.

* * *

It has become absolutely clear that AAPG has now come to a key decision point in its future direction.


Rose

We need to decide what we want our organization to be in the 21st century – a group of professional, mostly North American geoscientists, one among many regional societies in the world? Or a truly international community of professional geoscientists involved in all aspects of energy resources on a global scale?

One direction honors the status quo, and leads inevitably to some degree of future insularity as petroleum E&P becomes increasingly global. The other recognizes the distribution of global petroleum resources and attendant historical and economic tides, and leads inevitably to an increasingly international AAPG community, networked together for purposes of geoscience and the petroleum E&P business. North American geoscientists can play a leadership role in this coming community for many years to come.

I intend to lead AAPG in the second direction – the direction called for in our Strategic Plan – which will invigorate and expand our Association. To stay as we are will mean stagnation, departure

See **President**, page 4

Montana Instructor Named AAPG's Earth Science Teacher of the Year

James G. Schulz, an eighth and ninth grade earth sciences and biology teacher at Helena High School in Helena, Mont., has been named AAPG's National Earth Science Teacher of the Year.

Schulz, a 20-year teaching veteran, will receive his award in April at the AAPG Annual Convention in Houston.

The award of $5,000, funded by the AAPG Foundation, will be split: $2,500 is designated for educational use under Schulz's supervision, and the other half is for his own personal use.

Schulz, who received his bachelor's degree in history and science from Montana State University and his master's in earth sciences from Northern Arizona University, said his "purpose as an educator is to make earth science real, exciting and applicable to the lives of (his) students."

An EXPLORER interview with Schulz about his teaching experiences and his approach to earth sciences will be featured in a future EXPLORER.

President

from previous page

of international members, loss of future opportunities and the steady decline of AAPG's present prestige.

And I ask all members for their support in helping achieve this transition.

* * *

We need to decide now which path we choose. Putting off the decision is, in fact, choosing the first course. Present generations of international geoscientists are not going to sit around and wait while AAPG dithers. Some of them are AAPG members now – and they are growing justifiably impatient.

Moreover, our sister societies already have embraced the global pathway. They already are establishing significant presences in E&P centers such as Moscow, Dubai, London and Kuala Lumpur. So we need to decide whether AAPG wants to be present in the regions of the largest remaining petroleum resources (Middle East and Russia), and/or the fastest growing economies in the world (China and India).

The stakes are high. We have suffered steady decline in Active membership over the last 15 years. Only our international and student membership has grown in that period – and now that growth has flattened. We need to decide now.

* * *

The global pathway rests on four elements:

✓ International Regions.

✓ Local societies/chapters.

✓ Simplified application/sponsorship process.

✓ Membership fees adjusted to local purchasing power.

AAPG created six international regions six years ago, and encouraged them to choose officers, representatives to the Advisory Council and delegates to the House of Delegates. Beyond a few sporadic meetings, however, progress has been spotty, and AAPG has its smallest international presence where E&P future potential is highest, such as in Russia and the Middle East.

Our recent decisions to publish the EXPLORER and the BULLETIN electronically were important steps to reach our international members more efficiently, and the new electronic balloting facilitates their participation in our governance and elections of officers. And the EC's recent decision to establish a new position at Tulsa HQ – coordinator for Regions and Sections, reporting directly to Executive Director Rick Fritz – should greatly facilitate their interactions with the administration.

However, we have now lost more than three years, with little positive effort from the parent organization toward building regional communities.

U.S. members need to recognize that our International Regions, except for the ever-stellar Canadian Region, are not like U.S. Sections. They are composed of many different nationalities, with diverse languages. Many of their members have different customs; some of them are not accustomed to our traditions of individual volunteers cooperating on various society projects. We can benefit from their geologic models, insights, and collegiality; they can benefit from our mentoring, example and support.

Substantial flexibility may be warranted to try some new approaches in the five overseas Regions. We have been tardy in helping them get established – for example, it has only been recently that the European Region finally got its own bank account established!

All five overseas Regions may need seed money to underwrite important early initiatives. AAPG may need to cover clerical costs of Region officers whose office expenses are not covered by their corporate employers.

We may need to open small offices in localities such as Kuala Lumpur, Dubai, Moscow and/or London/Aberdeen to serve our international members. These could be cooperative with EAGE, SEG and/or SPE.

The long-range goal, of course, is for all five overseas Regions to achieve financial independence. Long-time AAPG members may take such independence for granted, forgetting that the U.S. Sections (and Canada Region, built on its parent, CSPG) have been in existence for more than 50 years. Rome was not built in a day!

* * *

But we also need to make some legislative and procedural changes.

We say that we solicit new international members, but we continue to require formal, signed sponsorship by two Active AAPG members for all new applicants. Finding the requisite number of AAPG sponsors is not difficult in Houston, Texas, or Casper, Wyo., but it may be nearly impossible for a Russian geologist in Novosibirsk, or a Chilean geologist in Santiago. Moreover, we might make it easier if applications were also printed in Russian, Spanish, Arabic and Chinese.

Also, we need to align our application procedures with today's world of online purchasing – mailing in paper applications and waiting three months for the mail to arrive is simply inconsistent with how business is done today.

Moreover, present annual international dues of $85, while inexpensive by North American standards, is often unaffordable to a Russian, Latin American or Indonesian geologist. Our sister society, SPE, has adopted a dues policy based on international standard-of-living levels. SPE has grown rapidly over the past few years, especially in its international

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cadres. We have not.

We say that we are an "international" Association (and our Strategic Plan calls repeatedly for AAPG to expand internationally), but our international members have not been adequately represented on our Executive Committee. Over the past seven years, one international member has been elected as an AAPG officer. If they had been represented proportional to their numbers, about 30 percent of AAPG officers would have been from the international regions – of 42 possible officers, parity would have suggested about 12, rather than one. During the same period, the House of Delegates provided two Canadian members as HoD chairs to ex-officio posts on the Executive Committee, of a possible seven.

We need to assure that our international members always have a voice representing their interests on AAPG's Executive Committee.

* * *

So, on November 19, at my request, Don Clarke, chair of AAPG's House of Delegates, and the HoD leadership began to prepare amendments to our Bylaws, to be considered by the HoD next April at our Houston Convention.

They address two immediate deficiencies:

1. Adopt a sliding dues scale consistent with recognized international standard salary scales such as the World Bank's, and consistent with prudent financial management of the Association.

2. Establish a new post on AAPG's Executive Committee to represent international members; I suggest this new elected officer (who must be a non-U.S. resident) should be called the international vice president.

At its Dec. 1 meeting, AAPG's Executive Committee approved a resolution to the HoD endorsing item 1. Although favorably disposed toward item 2, the EC deferred action until their January 14 meeting, pending notification of the HoD's version of the enabling legislation.

The EC also approved a variety of administrative and procedural changes designed to immediately facilitate International membership; these do not require approval by the HoD:

✓ Online application for Active and Associate membership, with timely electronic response by AAPG HQ.

✓ Translation of application forms into Russian, Spanish, Arabic and Chinese.

✓ For applicants for Active membership, changes of wording that explain and allow applications by geoscientists who are unable to locate sponsoring AAPG members.

✓ Establishment of Regional Application Review committees to vet new applications.

✓ For applications for Associate membership, drop the present requirement for a signature by an Active AAPG member.

✓ Streamline procedure for EC approval of applications not meeting standard requirements.

✓ Adoption of group (= company) membership-block deals, honoring all current individual requirements for Active membership.

The EC will monitor progress on all these changes at its Jan. 14-15 meeting.

In late November, I asked Executive Director Rick Fritz to provide, with highest priority, a base-case financial analysis of a sliding dues-scale on AAPG's budgetary bottom line, based on the SPE experience; this analysis was delivered to the HoD leadership for their use as they draft amendments, and to the EC for its consideration at their Dec. 1 meeting.

Preliminary indications are that adoption of such a scale would have little or no effect on the bottom line. Additional scenarios, conservative and optimistic, are now being developed by HQ staff.

* * *

So the choice will soon be up to the voting membership of AAPG – U.S. as well as international – through their elected representation in AAPG's House of Delegates, Advisory Council and Executive Committee.

The stakes could not be higher – it is clear that we are now in the emerging stages of a true global energy industry. Will AAPG be an integral part of it, or will we be watching from the sidelines? Shall we actively embrace a global future, or stay with the status quo?

I urge all members to contact their elected representatives and express their wishes. Please know that I shall spare no effort in leading AAPG into a global future, and I earnestly solicit your help. Meanwhile, stay tuned!

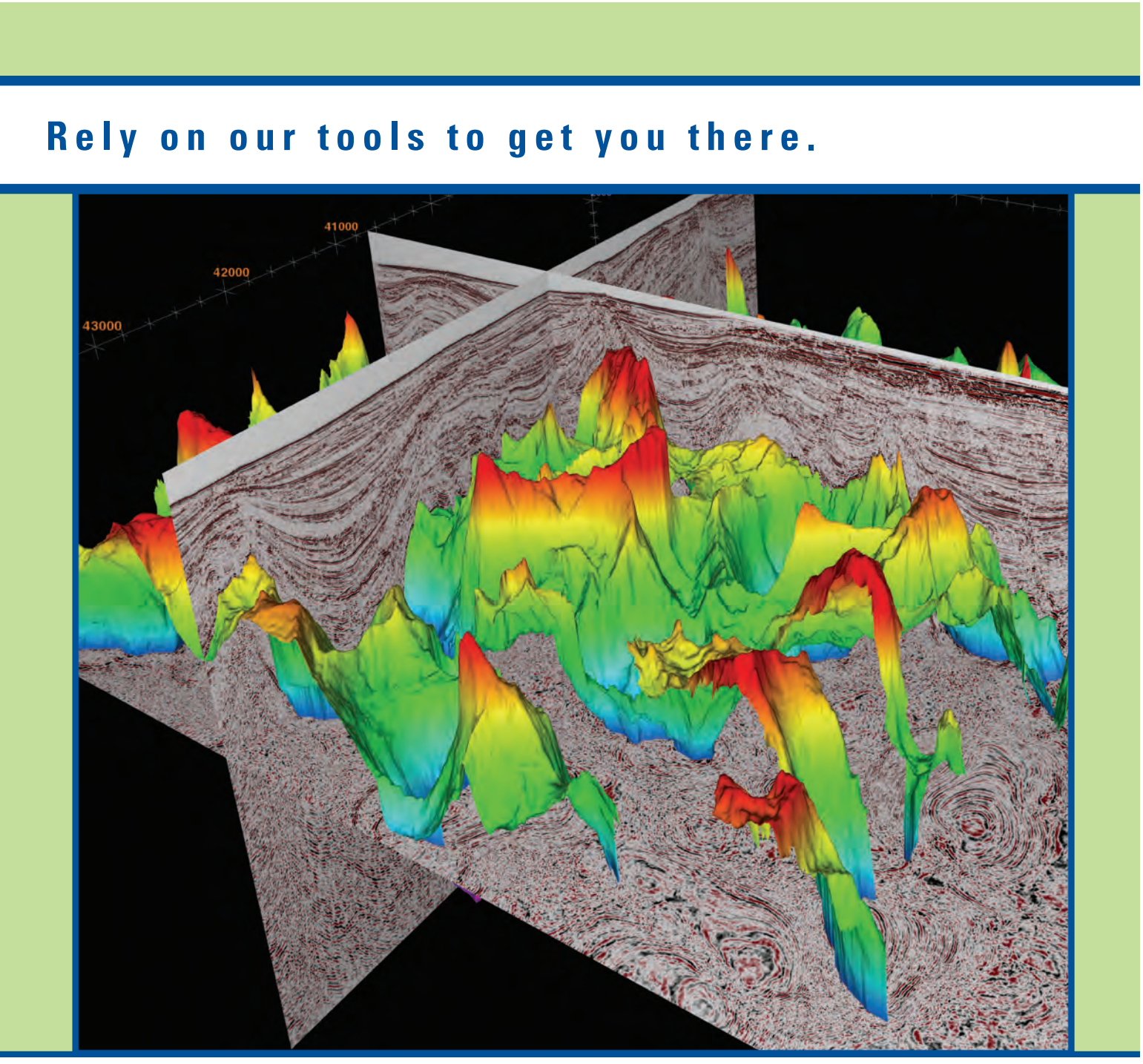
* * *

Recommended Reading: *The World is Flat: A Brief History of the Twenty-First Century*, by Thomas L. Friedman (2005, Farrar, Straus and Giroux), is the latest in a series of insightful and provocative books by Friedman about international affairs and globalization.

This latest one expounds his view that globalization is already a fact in many high-tech industries (like ours), and discusses its implications.

Read it, you'll like it.

Onward!



A Warm and Genuine Welcome

AAPG Presses Global Connection

Pete Rose returned from a four-week, eight-nation AAPG presidential tour in central and eastern Europe and the Middle East buoyed by his visits and observations – and somewhat tired.

He was a little worn down because he was in a constant round of meetings and also gave 20 speeches in the first 20 days of the trip, addressing more than 1,000 geoscientists and students and meeting with industry and government officials.

A number of new member applications are expected from Rose's tour.

Accompanied by AAPG European Region President John Brooks, the journey began in late October and included stops in Norway, Hungary, Poland, Russia, the Ukraine, the Czech Republic and Austria. The pair gave TV interviews in Kiev, Ukraine, and Prague, Czech Republic. Brooks also gave presentations in Oslo and Kiev (see page 32).

After the European stops Rose continued onward to attend the inaugural International Petroleum Technology Conference (IPTC) in Doha, Qatar, sponsored by AAPG, EAGE, SEG and SPE, which was designated as an AAPG Middle East Region meeting.

"The purpose of the tour was to affirm AAPG's full support of the European Region and its leadership, to encourage its eastward expansion, to make personal contacts for future interactions and to assess the overall situation of AAPG's status in the Region," Rose said.

"At every venue," Rose said, "we were greeted with a warm and genuine welcome. It was heartening to find that AAPG is held in great esteem in the scientific community, especially for its publications and scientific meetings."

Concerning business opportunities, Rose agreed with the observation of Istvan Berci, president-elect of the European Region, who said that "from the perspective of a petroleum geologist, the map of Europe slopes east," because of extensive resources that offer so many future opportunities.

Rose said that in eastern Europe there are favorable situations for entrepreneurial companies, and the potential for large resource development in Russia is limited only by the political climate, which he noted has become of more concern in recent months because of a decline in free-functioning of private companies, as well as increased control by Russian government officials.

Rose also said he encountered no anti-American sentiments during his trip, and politics and policies were not part of the conversations.

The Student Body

Of particular note, Rose said he observed "two major differences regarding petroleum geoscience between central and eastern Europe and the U.S.: The role of petroleum geologists is highly respected; the importance of the role we play in society, in providing the energy that continuously improves the standard of living is recognized and appreciated.

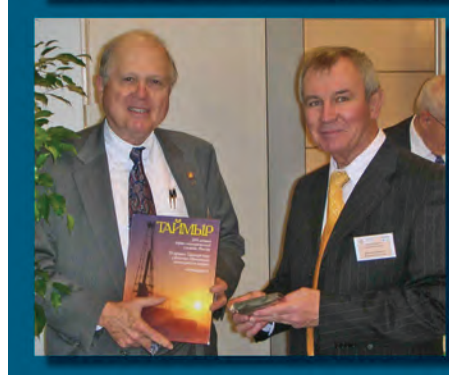
"You don't find ambivalence between academia and the practicing professionals as we see here in the U.S.," Rose observed. "Because of a continuing disconnect between academia and the geological profession in the U.S., many promising young U.S. students are going to miss out on fantastic careers because they were steered away from geological careers in the energy field."

The students he met on the tour also impressed Rose.

"A lot of the students speak adequate English, are eager, smart and ambitious and very well prepared for the professional world. If I were chief of recruiting for a western company and looking for entry-level geologists right now, the first place I would come to is central and eastern Europe."

Rose noted that "with the large number of international geoscience and engineering students now in U.S. universities, as well as the increasing diversity of such professionals presently employed by E&P companies globally (including the United States), it is clear that we are well along in the true globalization of the professional E&P work force. It is happening right now."

Left: Monument at the Leoben Institute of Mining in Austria; from left, Fritz Ebner, Rose and Reinhard Sachsenhofer. Above: Rose at Red Square and St. Basil's Cathedral, Moscow.



Above left: Rose with Nikolai Lopatin, chief of Petroleum Geology Lab at the Russian Federation of National Geoscience Institute, Moscow. Right: at the University of Kiev with Brooks and Lyudmyla Hafych, vice chair of the Association of Geologists of Ukraine.

Above left: Rose receives an honorary membership pin from Dr. Pavol Zagorodnyuk, chair of the Association of Ukrainian Geologists. Zagorodnyuk also is chairman of the board of NADRA Group. Right: Brooks and Rose with Nicolay A. Savostyanov, president, EAGO; Stanislav I. Golikov, executive director, Russian Geological Society; and Kairat Sydykov, TNK-BP, EAGE, SEG, EAGO.

Rose lecturing at the Hall of Education, University of Kiev with Alexander Kitchka, of the National Academy of Sciences in Kiev.

Head East

In Doha, Rose represented AAPG at the inaugural IPTC, which is being developed by a coalition of professional E&P associations led by SPE, into what will become the international equivalent of the very successful annual U.S. Offshore Technology Conference (OTC) in Houston.

This first IPTC, held under the patronage of H.H. Sheikh Hamad Bin Khalifa Al-Thami, emir of the State of Qatar, and led by co-chairmen Nasser Jaidah, director of oil and gas ventures for Qatar Petroleum, and Malcolm Brinded, executive E&P director, Royal Dutch Shell, drew major corporate players from the Middle East as well as around the world.

Of special interest, Rose said, was a standing-room only luncheon talk by Iraqi Oil Minister Ibrahim Bahar Al Olom. Olom reviewed Iraq's production goals and some of the difficulties they were experiencing in attempting to increase production revenues so desperately needed by the new Iraqi government.

Olom urged the audience to help encourage their respective governments to increase efforts to restrict funds from flowing into terrorist organizations, whose activities are compromising Iraqi efforts to stabilize and increase production.

"It was one of the most moving talks I have ever heard, given by a courageous, committed and knowledgeable man," Rose said.

With the European Region tour counted as a positive success, a presidential tour of the Asia-Pacific Region is being planned for February. ❑

New Mindset Born of Pain

Crash of ’86 Left Permanent Scars

By DAVID BROWN
EXPLORER Correspondent

You could almost hear the pain.

This year the petroleum industry observes the 20th anniversary of the Oil Price Collapse of 1986.

No one in the industry who went through that time will, or can, forget it.

In less than 12 months, world crude oil prices fell by more than 60 percent.

The global oil and gas business collapsed like air screaming through the neck of an over-inflated balloon.

Hundreds of thousands of oil workers were laid off.

Texas reported 366,200 jobs related to oil and gas extraction and oilfield equipment in the early 1980s, according to the Federal Reserve Bank of Dallas.

By 1987, only a year after the price collapse, 175,000 of those jobs had vanished.

Company divisions evaporated.

“There were guys with doctorates flipping burgers,” is a comment you’ll still hear in Houston oil firm offices.

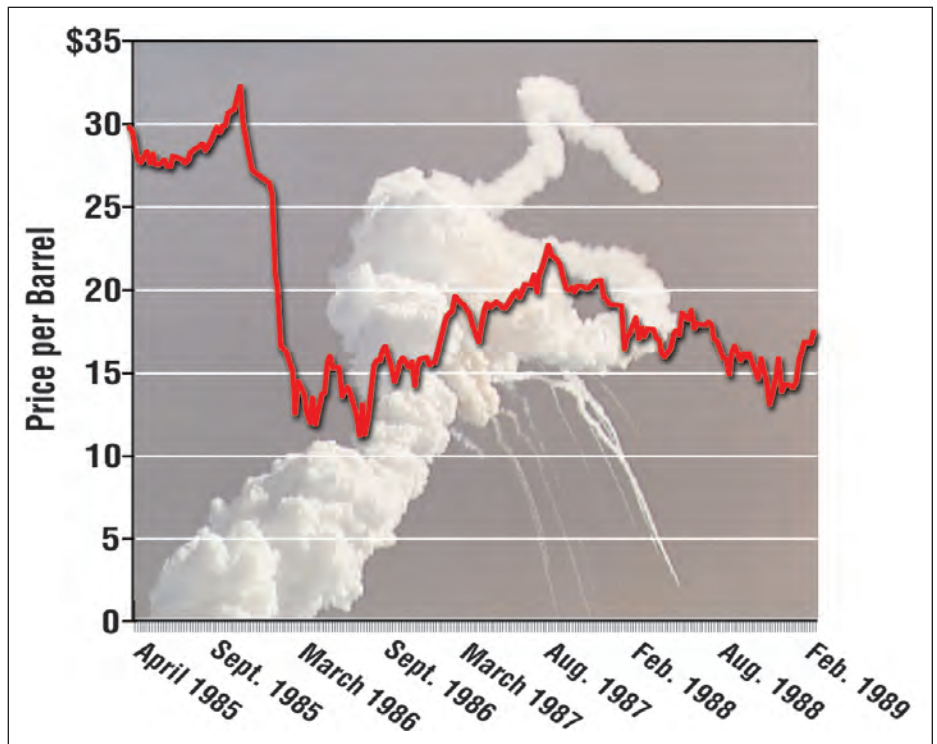
The biggest employer of petroleum engineers after 1986 was said to be Safeway grocery stores.

Texas alone – just Texas – lost more than $1 billion in oil and gas severance taxes.

Australia’s oil industry spent $740.4 million on petroleum exploration in 1984, according to the Australian Bureau of Statistics.

In 1987, it spent $346.4 million.

The Oil Price Collapse of 1986, coming so quickly and cutting so deeply, created a mindset in the global oil industry that persists to today.



Oil prices took a terrific tumble – and thousands in the industry paid the price.
Photo courtesy of NASA

Try to Remember …

Larry Nation, AAPG communications director, tells this story.

In January 1986, he traveled to New York City with the then-executive director and the president of AAPG to spread a good-news story about the oil industry to the “eastern press.”

“We were going to have meetings with the *New York Times*, *Time* magazine, *Newsday*, the *Wall Street Journal*,” Nation recalled.

“One of the difficulties at that time, we thought, was that people believed the world in general and the United States in particular was running out of oil. They were asking, in that case, ‘Why should I invest in the oil industry?’” he added.

At *Newsday*, a reporter asked, “Why are you here?” Nation said.

The AAPG team delivered their message: The world and the United States still had plenty of oil and the oil industry still held plenty of opportunity.

“We went down for breakfast the next morning and there was a *USA Today* newspaper on our chairs,” Nation recalled. “And the headline said ‘Oil Panic Hits Market, Tumbles Prices.’”

That was Jan. 20, he said. As it turned out, oil prices had barely started slipping, from over $30 a month before to a little over to $20.

“Our message became, ‘Stability of resources,’” Nation said.

No one could know what was coming.

Eight days later, during the annual “AAPG Day” (now Leadership Conference) gathering, NASA’s Space Shuttle Challenger exploded, killing all the astronauts aboard. Attendees bowed in a moment of silence upon hearing the news.

Nation compared the emotionally painful reaction and linked image of that disaster to the feeling of watching the industry implode as oil prices sank lower and lower.

“After AAPG Day, there were waves and waves of layoffs throughout the

See **Crash**, page 10

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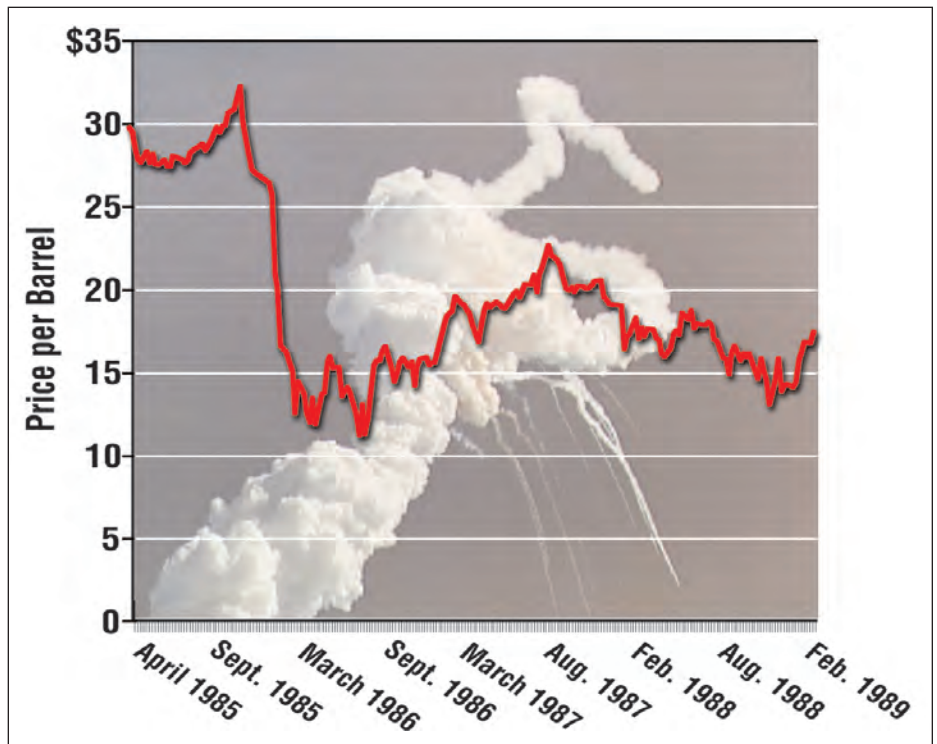

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Photo courtesy of NASA

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“After AAPG Day, there were waves and waves of layoffs throughout the

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Crash

from page 8

spring and summer. Layoffs were in the thousands, and even in the tens of thousands, per company," he said.

The lives of every person in the industry were affected. Tens of thousands of former oil company employees left the industry permanently.

Those who survived the collapse carry a permanent scar.

AAPG membership hit its high in May 1986 with 44,757 members. Five years later, membership was 34,909.

William L. Fisher, director of the Jackson School of Geosciences at the University of Texas at Austin, served as AAPG president in 1986 and made that trip with Nation.

A survey after the price collapse found that a third of AAPG members were unemployed or seriously underemployed, he said. By definition, 25 percent unemployment is an economic depression.

"We were in a whale of a hard time (at AAPG). We had to cut staff massively. Short courses fell apart overnight. We had to make some real sharp budget cuts to survive," Fisher recalled.

Expecting 15,000 to 18,000 registrants and exhibitors, AAPG had judiciously chosen the large Georgia World Congress Center in Atlanta as the site for its 1986 annual meeting.

"We had 3,000, if that many," Fisher said. "And there we were in that big arena in Atlanta, which would hold 20,000 people."

Historical Context

To understand the full impact of the 1986 price collapse, go back to 1973. OPEC, led by Saudi Arabia, took two remarkable and historic actions.

First, in October 1973, Arab oil exporting countries decided to cut back overall production by 5 percent a month and place a total oil embargo on the United States, in retaliation for U.S. actions in the latest Arab-Israeli war.

In an already tight oil market, the embargo led to gasoline shortages in the United States and packed an emotional punch for oil consumers.

Second, in December 1973, OPEC flexed its economic muscle by unilaterally raising its asking price to $11.65 per barrel. That was more than four times the price level of mid-1973 (April 2004 EXPLORER).

People started to believe that OPEC controlled both the supply and the price of crude oil. And why would OPEC do anything but keep raising prices?

In January 1979, the Iranian revolution suspended Iran's oil exports, beginning a period of rapid oil price increases. The Iranian hostage crisis later that year sent prices to $20 a barrel.

A few months later, Saudi Arabia officially raised its marker crude price from $19 a barrel to $26.

People in the industry began to tell each other, with absolute certainty, that oil would never sell for less than $20 per barrel again.

Dick Bishop worked in exploration for Exxon Corp. in the 1980s, and later served as AAPG president.

"In 1984 and '85 we were really pressed to drill a lot of wells. The number of wells we were drilling went from 12 to 65," he recalled.

"I remember very well, we went into a monthly meeting where we presented the wells we were planning to drill," he said. "I remember telling management we wanted some sensitivity on the oil price forecast.

"Our doomsday forecast was $20-$25 a barrel," he said.

Everywhere in the industry, drilling projects were justified on the promise of continuing high oil prices and the prospect of future price increases.

"The industry is far more focused on the fundamentals now than it was then," Bishop said. "There was more focus on volumes then, on finding the oil, and not necessarily on making money," Bishop said.

In 1980, ongoing skirmishes between Iraq and Iran broke out in full-scale war. Saudi light crude went to $28 per barrel, then to $34.

By the summer of 1981, oil prices were jostling toward $38 per barrel and seemed sure to go higher.

People in the industry had been afraid to whisper it aloud, but published projections now confirmed their belief: By the year 2000, oil would be selling for $100 a barrel.

The Perfect Storm

The wheels started coming off the oil price juggernaut in the early 1980s.

Penn Square Bank in Oklahoma City, with numerous bad energy loans, went bankrupt – and almost took a number of larger banks down with it.

"The Penn Square Bank failure on the fifth of July 1982, was an unseemly punctuation on an unusual situation," said Wayne Swearingen, a Tulsa independent oilman and consultant.

In the United States, a widespread recession reached its worst point in 1982, severely dampening energy demand. By 1983, oil prices dropped below $30 a barrel.

Then, in 1984, U.S. savings and loan institutions started to fail.

A series of changes in federal and state laws had allowed S&Ls to invest outside their traditional business areas. Some became dependent on continued high energy prices.

Bailing out the failed S&L system ultimately cost American taxpayers up to $150 billion.

But in the oil and gas industry, the price party kept going on.

Swearingen recalled seeing drilling rig construction contracts changing hands for $1 million.

"If you had a contract to buy a rig, you could sell your contract for a lot of money. You could sell your place in the conga line," he said.

"Within a year, rigs were selling by the pound," he said. "A lot of those rigs didn't drill a well for 10 years, or maybe even longer than that."

By 1985, the industry had reached a

See **Collapse**, page 12

Happy 100 Years, Glenn Pool!

Some milestones should be observed; when Robert Galbreath and his partner, Frank Chesley, staked their fortune on a lease and a rig they had no idea their well, the Ida Glenn No. 1, would discover a giant oil field and begin a legacy of Oklahoma oil production that would last into the 21st century (April 2005 EXPLORER). Their well "came in" at 5 a.m., Nov. 22, 1905. Eastern Oklahoma quickly became a magnet for investors and roughnecks looking to make their fortune, and the eastern Oklahoma oilfields powered the U.S. economy. The Ida Glenn No. 1 was "plugged" in 1917, but later re-entered and plugged to modern standards by Texaco during a waterflood operation in the early 1960s. Tulsa area oilmen and historians observed the week with appropriate ceremony and speeches, and the city of Glenpool held a parade and street fair. But there was no actual observation at the wellsite until five Tulsans – champagne-in-hand – made a pilgrimage through the thicket to the site. From the left are AAPG members Ted Beaumont, Norm Hyne, Mike Blechner (former AAPG science department editor), Rick Erickson and Ron Hart. The wellsite is located in a thicket about 300 yards northwest of the intersection of U.S. Highway 75 and 141st Street at Glenpool. Champagne is optional.

Photo courtesy of Ron Hart

Collapse

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consensus on oil prices.

The cost of crude, self-proclaimed experts agreed, would fluctuate downward a bit more, and then settle in around $25 a barrel before starting to rise again.

Everyone saw clear sailing ahead.

Today, we would call the 1985 oil price situation the Perfect Storm.

And the killing thunderbolt came from Saudi Arabia.

The Saudis, with their huge reserves, had been put in the place of reducing production when the world's oil supplies grew too large to maintain OPEC's target price.

It didn't work. High oil prices and new production sources led to a surge in supply, forcing Saudi Arabia to make cut after cut in its own production.

Saudi oil revenues fell by 75 percent as its market share dwindled. The country could foresee a day when its production would fall under a million barrels a day and it would have no exports.

In his Pulitzer Prize-winning history of the oil industry, *The Prize*, Daniel Yergin wrote:

"The Saudis sent warning after warning to the other OPEC countries and to the non-OPEC producers. It would not continue to accept the loss of market share; it would not indefinitely tolerate and underwrite quota violations by other OPEC countries and increased production by non-OPEC nations; it could not be counted on to be the swing producer.

"If need be, Saudi Arabia would flood the market."

Those warnings went unheeded by an industry intent on making as much money from as much production as possible.

Finally, Saudi Arabia decided it had to turn on the taps.

Its increased production began surging into the world's oil markets in December 1985. A few weeks later, the great Oil Price Collapse of 1986 began.

'Hurt Like Hell'

Everything people in the industry knew about oil pricing turned out to be wrong.

In August 1986, the world oil price dropped below $9 a barrel.

"The actual low point in Oklahoma was $8.25 in 1986, for good-quality sweet crude," Swearingen said.

Some shipments of crude changed hands at less than $7 a barrel.

The upstream sector of the industry went into a tailspin.

"Nationwide, marginal wells were being plugged one every 30 minutes. In Oklahoma, it was about eight per day," Swearingen recalled.

"The idiocy, when you look back on it, was, 'My God, why didn't more people see it coming?'" he added.

Out of the 20 biggest S&L failures, 14 were in Texas. Texas S&Ls accounted for more than half that industry's losses.

Other oilpatch states suffered equally.

In 2005, ExxonMobil Chairman Lee Raymond discussed his company's capital spending plans. He cited the Oil Price Collapse of 1986 as a cautionary example.

We saw it happen once.

It could happen again.

The collapse of 1986 occurred after a period when oil prices had been artificially high, Fisher noted.

"Nevertheless," he said, "it hurt like hell." ❑

Geo-Energy Powers Kansas Oil Field

Temps Fuel A New Breed of 'Rocking Donkeys'

By SUSAN EATON
EXPLORER Correspondent

When Brian Hageman of Arizona-based Deluge Inc. developed an engine to run on renewable energy sources – biomass, solar or geothermal – he had no idea that one day his technology would be used to optimize stripper wells, breathing life back into marginal fields.

"We always figured we were going into environmental or agricultural applications," said Hageman, the inventor of the pollutant-free Natural Energy Engine™. "The crude oil industry just sort of happened. Our future revenue base is going to be based upon the sale of crude oil."

Today, Deluge owns and operates a nine-well oil field in Kansas where each wellhead is equipped with an NE Engine™, replacing traditional pump jacks in the field. Not only is the surface footprint of the engine significantly smaller than that of a pump jack, but the operational cost savings achieved from replacing conventional diesel- and gasoline-powered engines with geothermal energy also are significant.

Hageman estimates that a nine-well field requires about 16 horsepower to operate – using his engine, Deluge has cut that energy consumption to about two horsepower.

"It works better, mechanically, when you have your engine right over the borehole," Hageman said. "Your line of power on a horse head electrical motor goes from the crank case through the cantilever system and into the borehole. The transfer of power is much more efficient with the NE Engine™," he said. "We have a whole lot more torque at low RPMs."

Geothermal waters represent a new form of abundant and cheap energy that's sequestered in underground aquifers across North America. The renewable energy stored in these subsurface aquifers is sufficient to power geothermal heat pumps and heat exchangers, generating electricity for municipal, residential and various industrial applications.

Photos courtesy of Deluge Inc.

The Natural Energy Engine™ standing next to a traditional pump for a test near Bakersfield, Calif.

San Bernardino, Calif. boasts one of North America's largest space heating projects – electricity produced from low-temperature geothermal waters powers 37 municipal buildings, including a 15-story high-rise. Geothermal waters are transported through 15 miles of pipelines within the city.

Assets for Strippers

Historically, the economics of geothermal energy projects have failed due to the high costs associated with drilling and completing wells. The oil and gas industry, however, may be poised to take advantage of its unique asset base – the inventory of well bores that tap into these warm, subsurface aquifers.

Viewed by many as a liability, the low-temperature geothermal waters that are co-produced with oil and gas are being transformed into an asset, extending the commercial lives of stripper wells.

Imagine a marriage of convenience between an end user like a municipality situated on the doorstep of a large oil field.

Liz Johnson is a geothermal officer with the California Division of Oil, Gas and Geothermal Resources. Johnson, an engineer, confirmed that California is the only state in the country to combine oil and gas and geothermal resources under one regulatory roof – and that's because California is the country's largest producer of electricity from geothermal.

Approximately 5 percent of California's total electrical power generation originates from geothermal sources. In late 2004, the U.S. Department of Energy's Energy Information Administration issued a report on "Renewable Energy Trends," stating that electrical power generation from geothermal across the United States surpassed wind and solar combined.

According to Johnson, low-temperature geothermal waters – and not the high-temperature steam geysers of California fame – do not exceed the boiling point of water at the altitude of occurrence. At sea level, the boiling point of water is 212 degrees Fahrenheit.

"There's a huge amount of overlap when it comes to drilling the wells," Johnson said of the technologies employed to extract both renewable and non-renewable resources.

In California, oil and gas comes primarily from sedimentary provinces, she said, while geothermal originates from fractures in metamorphic and igneous rocks.

"Other than that," she added, "the rigs are the same."

A Heat Wave

During its R&D field trials, Deluge tested the engine in a single-well configuration at a commercial oil field in Bakersfield, Calif. The mature field produced oil from a geological formation at 2,000 feet depth, and was under steam flood, creating what Hageman called a "man-made geothermal source."

The stripper well co-produced water and oil, which were separated at surface. Geothermal fluids were run through a heat

continued on next page

continued from previous page

exchanger at surface, in a closed loop system. The engine contains a "working fluid," a high-pressure, liquefied carbon dioxide that is heated and cooled, causing expansion and contraction – this change in volume pushes and pulls on a piston, creating mechanical energy.

In turn, the piston drives a pump that lifts oil from the well bore.

AAPG member Joel Renner agrees with the concept behind Hageman's engine design – it's critical to place the heat exchanger on the surface, and not down the well bore.

Renner is the group leader of the geothermal program for the Idaho National Engineering and Environmental Laboratory in Idaho Falls. According to Renner, down hole heat exchangers don't work in well bores.

"If you're relying on conductivity in the borehole, you typically just don't get real good heat exchange," he said.

Renner likens a heat exchanger to a "radiator in a car," where two working fluids are separated on different sides of the unit. His Idaho-based group evaluates the economics of geothermal energy and, in particular, the drilling of wells for geothermal sources – but his team hasn't run any economics on an application like the NE, which can reduce down costs by taking advantage of pre-existing boreholes.

With respect to tapping low-temperature geothermal for large, direct use space-heating projects, Renner said, "It might be a hard sell because people are reluctant to spend money on power generation."

However, he added, "economics should get better all the time as the cost of gas goes up."

'Power to Spare'

Last September Deluge and the Rocky Mountain Oilfield Testing Center (RMOTC) won the 2005 Outstanding Technology Development award from the U.S. Federal Laboratories Consortium, for field-testing the NE Engine™ at RMOTC's stripper field near Casper, Wyo.

During a 30-day test, Deluge demonstrated that its engine was capable of pumping an oil well at depths ranging from 400 to 1,600 feet, with power to spare.

Brian Meidinger, a project engineer at RMOTC, worked collaboratively with Deluge to put the engine through its paces. RMOTC's mission, according to Meidinger, is to provide a venue for innovation, and a proving ground for full-scale testing of technologies in the field under "near world" conditions.

"RMOTC shortens the timeline from a bench top to full scale implementation," he said.

Meidinger, a mechanical engineer, discussed the liability issue, and why the oil and gas industry is often reluctant to allow companies test their new technologies down producing boreholes.

"But at RMOTC the well bore liability is minimized," he said, "because a stripper well field allows us to take a certain amount of risk."

At RMOTC, Deluge conducted a two-well test configuration, using a producing oil well and a hot water supply well that produced 175-degree Fahrenheit water from the Madison Formation. A cooler water supply (68 degrees Fahrenheit) came from a nearby water storage tank. Produced waters were discharged – by permit – on the surface.

"For the NE Engine™, you have to have a hot water source and a cold water sink," Meidinger said.

An NE Engine prototype, installed in a Kansas field.

In order to simulate a 1,600-foot-deep well test, additional weight was added to the rod string.

"We went through several prototypes," Meidinger said. "We tested the engine, and it did work. The engine seemed to have more than enough pressure for the thermal expansion; it was impressive.

"This technology uses low quality heat and gets useful work out of it," he added.

Meidinger pointed to other potential applications for the engine, including powering a desalination system through a reverse osmosis membrane, which requires a huge amount of pressure.

Kicking in Kansas

After 10 years of R&D, Deluge's 20-acre oil field in Kansas is the company's first commercial operation. The field consists of nine new oil wells, each equipped with a four-cylinder NE Engine™ at surface.

Additionally, the field contains one gas well producing from a different formation than the oil, a fresh water well and a water disposal well.

According to Hageman, this "closed loop system" uses natural gas to create the hot water, and has a cold water system with its own cooling tower.

"We're recycling those BTUs in the closed loop," Hageman said.

Hageman has created Deluge Oil Services in order to leverage on the company's new business model – and he's actively purchasing mineral leases in various parts of the country.

Hageman also is developing a pollutant-free water injection engine, designed to reduce the power required to pump water at oil fields.

In the meantime, he's looking for "entrepreneurial innovators" in oil and gas companies who are willing to test drive his new, energy-saving technology. ❑

Juckett

Juckett Heads Office

GEO-DC Up and Running

By LARRY NATION
AAPG Communications Director

One of the first appointments Donald Juckett had as head of the AAPG Geoscience and Energy Office in Washington, D.C. (GEO-DC), was to attend the National Academy of Science Committee of Earth Resources meeting.

He came back with a proposal to the AAPG Executive Committee and is now pursuing the possibility of AAPG becoming a member of one of two committees advising the U.S. secretary of energy on implementing expenditures of at least $50 million a year headed for research and development in deepwater exploration and production and unconventional gas over the next nine years.

Thus, less than 100 hours on the job, AAPG was already pursing the goals of the GEO-DC office:

✓ To provide reliable scientific geotechnical and professional information to decision makers.

✓ Provide information on work force needs and develop opportunities for education and training for geoscientists.

✓ Identify changes to participate in emerging contracts or grants for the benefit of the profession and promoting sound energy policy.

✓ Participate as an active, informed and recognized member of the non-governmental organizations (NGO) that regularly caucus and counsel with respect to energy and science policy.

Juckett, who set up GEO-DC in the American Geological Institute's Alexandria, Va., headquarters in mid-November, has been in Washington since 1988, when he joined the U.S. Department of Energy as director of geoscience research. He retired in 2003 from DOE, serving as director of the Office of Natural Gas and Petroleum Import and Export Activities in Washington, D.C.

Most recently, he was a consultant and on the board of Far East Energy Corp.

Prior to joining DOE he worked for 14 years with Phillips Petroleum in various research and research management positions.

Previously, he was senior chemist for the New York State Department of Health. He received a bachelor's degree in chemistry from the State University of New York, Oswego, and a doctorate in organic chemistry from SUNY Albany.

"AAPG's Executive Committee and the GEO-DC Board of Governors are very pleased at the prospect of AAPG assuming a much higher profile in the Washington, D.C., community in the immediate future, under the leadership of Don Juckett, a *bona fide* expert in the legislative, administrative and NGO workings of the nation's capital, as they relate to petroleum geoscience," said AAPG President Peter R. Rose.

Having worked in the geoscience arena for more than 30 years (17 years in Washington), Juckett said AAPG is "very, very highly esteemed" in the Washington community and "is known as highly peer-reviewed in its publications and its policies.

"Because of the reputation in the knowledgeable community," Juckett said, "having a Washington presence will be very well received."

Long discussed, GEO-DC came to fruition with an Executive Committee vote at the Annual Convention in Calgary last year. The budget for the office is $150,000-$200,000 per year, with AAPG committing $150,000 the first year. The Division of Professional Affairs, also meeting in Calgary, voted to fund $50,000 per year.

The commitment for both is for a three-year trial period.

In addition, in 2004-05, a group of 10 members pledged annual donations of $1,000 each over the next three years to "kick start" the creation of the office. Donors are then-president Pat Gratton, president-elect Rose, Rick Fritz, Dan Smith, Jim Gibbs, Eddie David, Don Gifford, Bob Gunn, Scott Ritchie and Terry Hollrah.

GEO-DC is governed by a board comprising the current and immediate past presidents of AAPG; the current DPA president; the chairman of the DPA's Government Affairs Committee; and five other AAPG members who will have alternating two or three-year terms, appointed by the four permanent positions mentioned previously.

Thus, the first board of governors consists of Rose, Gratton, Deborah Sacrey, Carl J. Smith, Reggie Spiller, Lee Gerhard, John Armentrout, Ray Thomasson and James Gibbs.

Rick Fritz, AAPG executive director, serves as a non-voting secretary and coordinator of activities with the GEO-DC office and the governance board.

Juckett said setting priorities is the first order of business for GEO-DC – and will be an ongoing process as opportunities are identified.

A regular report from GEO-DC will appear in the EXPLORER and on the AAPG Web site. ❑

Recovery Expands Reserves

Discoveries Just Part of the Story

By LOUISE S. DURHAM
EXPLORER Correspondent

There are plenty of bears running about, predicting a downturn in oil and gas prices.

Then there also are lots of bulls still proclaiming *this time it really is different*.

The lingering impact of a trio of events that caught the E&P industry and many others by surprise between early 2004 and September 2005 continues to energize the bulls.

First came the soaring demand in China, which essentially took on a life of its own.

"The demand crunch early in '04 was only the second time in history that any single country's demand for oil or liquids increased more than one million barrels a day in a single year," said Pete Stark, vice president of industry relations at IHS Energy.

"Then at the end of the year a corresponding surprise was that 2004 new field discoveries of liquids was the lowest for any year since the end of World War II," Stark added. "So we had soaring demand and the immediate dichotomy of low discovery rates.

"Then in the fall of '05, the (Gulf of Mexico) hurricanes made indelible the risk the world's oil and gas supply situation is in due to the tight supply chain," he added.

Based on the countries where there are clean (transparent) data available, it's known that giant fields (>500 million barrels of oil equivalent, or MMboe) continue to deliver the giant share of production flows, Stark noted.

"These are projects that will be coming on, but it takes longer to bring these discoveries to market."

WORLD DEVELOPMENTS

The Down Side

Now, the bad news: The number of both large and giant discoveries has declined significantly, along with the average discovery size.

In fact, the number of discoveries peaked between 1980 and 1985, when more than 3,000 discoveries occurred, according to Sandy Rushworth, global senior data specialist at IHS. The average discovery size between 1980 and 2004 ranged between 49 and 80 MMboe, considerably less than the average high of 800 to 900 MMboe that occurred from 1925-55.

"If you look at all the discoveries between 2000 and 2005, they accounted for a total 120 billion barrels," Rushworth said. "Out of the more than 2,400 discoveries during that time, 237 were greater than 100 (MMboe) and 39 were giant with greater than 500 (MMboe).

"During that five-year period, there were only 11 discoveries greater than one billion barrels," Rushworth said, "and most of these are in the Middle East."

Does this mean the gauge on the global tank is heading toward empty?

Rushworth doesn't think so.

"We're very good at finding oil," she noted, "and we're getting better at increasing recovery rates in fields. We have data that shows more resources have been located in place since 1995 than found in the last 10 years."

Pre-1995 world liquids resources growth was 457 billion barrels. Discoveries since 1994 tallied 144 billion barrels, which replaced 61 percent of consumption, according to Stark. He noted field growth, mostly in giant historic fields, and increased recoveries in Canadian and Venezuelan oil sands added between 175 and 190 billion barrels of liquids.

Since 1994, giant fields represent only two percent of the discoveries – but almost half of the resources added.

"Over the past decade, by new information, classic technology and field growth, the combination of new discoveries – which is less than consumption – plus the addition of reserves to older fields, by whatever means, greatly exceeds consumption," Stark noted.

Needed: More Exploration

Even though worldwide the industry is more than replacing consumption, Stark emphasized it is not doing so through exploration.

See **Outlook**, page 21

Sandy Rushworth, who handles international and domestic data for IHS Energy in Houston, will present the paper "The Challenging Role for Giant Fields: Can We Expect Giant Fields to Meet Increasing Oil Demand Trends?" at the AAPG Annual Convention in Houston.

Rushworth's talk will be given at 8:05 a.m. on Wednesday, April 12, at the George R. Brown Convention Center.

The co-authors are Philip H. Stark, Alex Chakhmakhchev and Melissa Manning, all with IHS.

The paper is part of the AAPG Forum on "Winning the Oil End Game: The Future of Hydrocarbon Resources in Our Global Economy," co-chaired by Marlan Downey and David Morrison.

The forum also will include a paper by Daniel J. Tearpock on "What Makes a Good Prospect?"

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Strategies Changing

Big Potential Is Hard to Access

By LOUISE S. DURHAM
EXPLORER Correspondent

It's a given the oil and gas business is no place for the faint-at-heart.

There's never a lack of goings-on to keep most folks edgy; commodity prices rise or plummet based on tomorrow's weather forecast, al-Qaida updates, peak oil is at hand (or past), etc., etc.

But despite the abundance of threatening issues, there are studies by noted experts based on science and fact that negate the opinion of some that the end is nigh – or even near, for that matter – when it comes to hydrocarbon reserves.

During the 10-year period of 1994-03, commercial oil reserves discovered by the international oil companies (IOC) topped out at 60 billion barrels of oil equivalent (Bboe), according to information compiled at Wood Mackenzie, adviser to energy, life sciences and financial services industries.

Commercial gas reserves discovered tallied 200-plus trillion cubic feet (Tcf). Technical reserves discovered were 56 Bboe.

A look at the leading 28 companies during the period between 1995-04 revealed total exploration investment peaked in 1998, the advisory firm concluded. Still, production tallied five billion barrels at the start of the decade versus nine billion barrels at the end.

"The production was coming from new business development, revisions, enhanced recovery from all the discoveries, as well as the new field discoveries," said AAPG member Andrew Latham, vice president of energy consulting at Wood Mackenzie, Edinburgh, Scotland.

"If you look at the reserves replacement ratio from new fields over the 10-year period, Kashagan (discovered in Kazakhstan in 2000 with a projected yield of 13 billion barrels) is a big spike," he noted. "But aside from that, there's a fairly clear downward trend from typically over 100 percent in the early part of the period to well under 100 percent since 2001."

New Plays, New Challenges

Clearly, new plays will be important to the industry, but they come with their own set of challenges.

The search for new plays, for instance, is considerably more difficult than exploring in proven plays because it's tough to get a high level, qualitative analysis of the area.

The leading 28 companies studied by Wood Mackenzie explored in more than 100 countries since 1995. Of the 100, 24 had no material oil or gas production.

"The exploration in those 24 was essentially a hunt for new plays, and more than $3 billion was spent on this exploration," Latham said. "The commercial returns were much less than in more established countries.

"Hunting for new plays overall is associated with low returns," Latham noted. "When it works it's very good and can often be a 'company maker.' But there's a lot of disappointment for a lot of other companies."

Identifying and capturing new opportunities relies heavily on the basics, i.e., good basic geoscience and basin analysis work. In terms of exploration, it's a matter of high-grading before access.

For example, in the case of successful finds like the Chinguetti Field off Mauritania and Mboundi in Congo, the companies acquired acreage in relatively frontier basins and picked the right block immediately.

"The strategy was to high-grade before access," Latham noted. "The strategy deployed in those, in terms of when first set in motion, likely was several years."

Does that strategy still work?

"With so many new competitors, the companies around relative to the numbers of new licenses being offered is so much higher," Latham said. "So the companies have to think in terms of high-grading after access.

"They can't wait to carefully analyze and hope to choose the best block, because then the opportunity is past," Latham said. "So that's a change in exploration strategy, which reflects the much more competitive environment we're in now."

Adapting

The IOCs collectively produce about 10 billion barrels annually, so exploration replacement for that production will take considerable time.

"The point is, remaining exploration potential is very large compared to current production for the companies," Latham said. "Yet the companies are complaining they can't access sufficient exploration opportunities, so that's quite a paradox. There's huge remaining potential to find reserves, but it is all very challenging in terms of cost or of accessibility.

"Future strategies will include getting more comfortable with much higher exploration costs, and as long as prices are high this is okay," Latham said. "The companies are positioning now for long lead time access issues of getting into politically or technologically difficult areas of the world."

More and more of the large exploration budgets will be directed to some politically and technically difficult areas, Latham predicts.

Many of the big companies are looking at the Arctic – including the Siberian Arctic – as the site for new plays, which will only be feasible if oil and gas prices are high like today.

Also, a change of sorts in the current corporate mindset might be in order.

"We do see the companies are now spending 10 times as much on share buybacks as exploration," Latham noted. "In years gone by, a lot of the free cash was reinvested in exploration, but now it's being returned to shareholders." ❑

WORLD DEVELOPMENTS

Andrew Latham will present the paper "Overview of Recent Discoveries and Play Openers" at 8:05 a.m. on Monday, April 10, at the AAPG Annual Convention in Houston.

Latham's presentation will cover:

✓ The regional distribution of recent oil and gas discoveries worldwide.

✓ Key trends in activity, investment and reserve replacement.

✓ Strategies for successful exploration in new basins.

Outlook

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He cited an example of a super-major going into Russia thinking it was purchasing six billion barrels. After examining the data with a more Western mindset focused on new technology, enhanced recovery and more, the company began to understand the potential might be as much as 30 billion barrels.

"That type of thing is happening, and it's the giant fields that are critical to that," Stark said. "Many giant fields are producing, but only a small part of the potential is being produced. The potential to grow, exploit and develop exists with many of these fields."

Based on the combination of field discoveries and changes to reserves estimates in historic fields, Stark expressed confidence there is plenty of liquids production capacity growth coming in over the balance of this decade and early into the next decade.

But it's tough to be certain of anything in this uncertain world.

"If you draw a circle around the Middle East, there are policies, terrorists or other reasons restricting access of some type or scope to more than 600 billion barrels of oil reserves, which are not being fully produced, developed or exploited," Stark said.

"Unless there are changes in political and policy issues to get access to those giant resources," he added, "we'll continue to have difficulty to expand capacity to meet demand on into the 2020 period."

The Top Ten – and Deepwater

It is noteworthy that the top 10 fields of all time based on expected ultimate recoverable proven plus probable reserves are located in Saudi Arabia, Iran, Russia, Qatar, Kuwait and Venezuela, according to Rushworth. Four of the top five are in the Middle East.

Besides access, a critical factor for sustaining future production growth is technology.

A five percent increase in recovery factor could add about 220 billion barrels of oil from Western Hemisphere oil sands, according to Stark. Proposed GTL (gas-to-liquids) technology, principally targeting fallow giant gas resources in the Middle East and Asia could add 1.5 MMb/d of liquids production by 2020.

Accordingly, Stark predicted giant hydrocarbon accumulations will continue to dominate future liquids supplies.

Given the relatively recent surge in deepwater drilling action, it is worthwhile to look at what's expected in these environs.

An IHS global oil production forecast spanning the 2004-09 interval depicts deepwater production of 2.9 million barrels/day in 2004 will increase to 7.1 million barrels/day by 2009.

The largest components will come from Brazil, the Gulf of Mexico, Angola and Nigeria, in that order, as well as some from Indonesia.

"These are projects that will be coming on, but it takes longer to bring these discoveries to market," Rushworth said. "We have the technology, but contracts take longer, and now (because of the hurricanes) we have the deepwater rig availability problem." ❑

Some Important Finds

A Look at 2005's Major Discoveries

The following are some of the world's major new discoveries and resources that were tapped in 2005, as reported and provided by IHS Energy.

AUSTRALASIA

Australia – Pluto 1 is a large gas discovery encountering 111 meters of net gas pay in the Mungaroo and Brigadier formations and overlying Tithonian sediments. Estimated 2P recoverable reserves of 3.0 Tcf of gas. Owned and operated (100 percent) by Woodside, it was discovered in April and has been fast-tracked, with Woodside announcing in December that it had agreed to key commercial terms with customers in North Asia for the supply of LNG from Pluto.

Australia – Caldita 1 is a large ConocoPhillips gas discovery with estimated 2P recoverable reserves of 1.5 Tcf of gas. The discovery is located about 55 kilometers east of Tassie Shoal, where Methanol Australia has received approval to build a methanol and LNG complex on concrete artificial islands. Development of infrastructure in this region may also assist development of 11.5 Tcf Evans Shoal gas discovery.

CENTRAL and SOUTHERN AFRICA

Angola – Astraea 1, Ceres 1, Hebe 1 and Juno 1 are discoveries located in the ultra-deepwater Block 31 in the Congo Fan. All are in Tertiary channels and presumably do not exceed 250 MMbo reserves each, suggesting a joint development as an attractive option.

WORLD DEVELOPMENTS

Congo – Murphy announced in January 2005 that its Azurite Marine 1 wildcat in 1,381 meters of water in the Mer Profonde Sud exploration permit encountered more than 49 meters of net oil pay with no associated water in two main levels in the Lower Miocene. The oil is described as high quality and the reservoir properties are excellent. Indications are that the structure could contain more than 100 MMbo. The first appraisal, Azurite Marine 2 has been successfully completed testing nearly 8,000 bo/d from a single zone.

Equatorial Guinea – Three discoveries: Esmeralda 1, drilled by ExxonMobil in Block B; O-1, drilled by Noble in Block O; and P-1, drilled by Devon in Block P. The Devon (Rio Muni Basin) and Noble (Douala Basin) wildcats are particularly interesting, as both were drilled in little explored areas. The size and characteristics of the oil find made by Devon in Block P will be further evaluated in 2006. The gas and condensate flow rates in well O-1, 24 MMcfg/d and 1,225 bc/d, were limited by surface test equipment. The structure remains very promising, and a multi-well exploration and appraisal program is being considered for 2006. Gas processing infrastructure is relatively close by.

CIS

Kazakhstan – The Zhaik 1 well may be considered significant as it is OMV's first success. The Carboniferous and Permian carbonate play is well established in northwestern Kazakhstan; this well's full potential is yet to be established. Sulfur-free 40 degree API oil was recovered.

Russia – The BP/Rosneft Elvary Neftegaz joint venture recorded a second discovery in an unexplored basin with the Udachnaya 1 wildcat in the offshore Kaygan-Vasyukanskiy block (Sakhalin-5 project). The well encountered three pay zones, and one was tested flowing 2,190 bo/d through an 11mm choke. The Udachnyy prospect is located some 40 kilometers offshore between the Sakhalin coast and Pela Lache 1, the joint venture's first discovery drilled in 2004. Rosneft estimates potential hydrocarbon resources of the entire Kaygan-Vasyukanskiy block at 1.8 billion barrels oil and 1 Tcf gas.

EUROPE

Norway – Norsk Hydro's 35/2-1 (Peon) encountered a large Pliocene gas deposit at a total depth of 687 meters – the shallowest prospect ever drilled on the Norwegian Continental Shelf. Located in 384 meters of water, the discovery marks a whole new regional exploration model; Hydro says the possibility for a commercial development is very good.

Norway – Norsk Hydro tested gas in the 6605/8-1 (Stetind-A6) well in a relatively unexplored area of the Norwegian Sea. Located in 828 meters of water, the well sought Cretaceous Lysing Formation sandstones; a production test flowed 4.2 MMcfg/d.

Norway – Shell reported its 6406/9-1 well in the Onyx South West prospect as a significant discovery. Gas was encountered in Jurassic sandstones, where two production tests in two zones, each flowed a maximum of 49.4 MMcf/d through a ≤-inch choke. Several layers in the Jurassic also contained condensates. The results indicate the presence of a significant gas column while the NPD estimates that the size of the discovery may approach 2 Tcf of producible gas.

United Kingdom – Talisman's 13/23b-5 exploration well is a new Lower Cretaceous sandstone discovery with reserves of between 20 to 50 MMbo. Appraisal 13/23b-5Z, sidetracked to the southwest, found thicker oil bearing sands and tested 35-degree API oil at a rate of 6,700 bo/d.

United Kingdom – Nexen says exploration well 15/18b-11 discovered 10 meters of gas and approximately 16 meters of oil pay in Palaeocene Balmoral sandstone. The well flowed up to 1,500 boe/d on test.

FAR EAST

India – GSPCL's KG-8 well on the KG-OSN-2001/3 (Krishna-Godavari Offshore) block encountered an 800-850 meter gross gas column, and according to one minister discovered an estimated 20 Tcf of in-place gas reserves in Cretaceous reservoirs – the largest ever discovery of its kind in the

continued on next page

continued from previous page

country. The announcement is somewhat premature as additional testing and technical evaluation needs to be undertaken to determine the amount of proven and probable gas reserves. The structure, which reportedly covers an area of 75-100 square kilometers, has been named "Deen Dayal."

India – ONGC's G-1-12 (Vashistha 1A) well on the KG-OS-DW-IV (Krishna-Godavari Offshore) block reportedly encountered multiple levels of gas-bearing sands between 1,962-2,182 meters, with an estimated pay thickness of 42 meters and potential reserves of around 4 Tcf. It is located in 540 meters of water and targeted turbidite deposits in Pliocene aged Godavari Clays.

India – ONGC's D-1 well on the KG-DWN-98/2 (Krishna-Godavari Offshore) block is in about 600 meters of water. Although a formal announcement is yet to be made, the well apparently is a significant gas discovery, with approximately 60 meters of net pay encountered. Operational problems reportedly prevented the well from being tested.

Indonesia – The Kondur-operated MS BY-1ST Deepening is considered significant as it fits with the operator's plans to develop gas reserves in the block to supplement supply to Chevron's Duri steam flood project. Drilled by Lasmo in 1991-92, it was deepened to test the Pematang Brownshale and Pematang Basal Clastics and also to evaluate the Menggala Formation oil shows. Kondur says that contingent gas resources range between 230-580 Bcf, with a most likely figure of 380 Bcf. Cumulative flow from four zones was quoted as 50 MMcfg/d plus more than 1,000 bc/d. Two appraisals will be drilled in early 2006.

Indonesia – PetroChina's Betara Southwest 1 in the Jabung PSC flowed 4,250 bo/d and 3.4 MMcfg/d, making it the country's highest flowing discovery of 2005.

Indonesia – PT Caltex Pacific proved with its deviated Reco 1 well that exploration upside still exists in mature basins. Targeting Upper Pematang Formation sandstones within the Rokan PSC, the well tested 2,880 bo/d.

GULF OF MEXICO

Two deepwater Gulf of Mexico discoveries could be considered significant: BP's "Stones" (WR 508) and Unocal's "Knotty Head" (GC 512) prospects.

Stones is significant because it is yet another discovery made beneath the Sigsbee salt canopy in the L. Tertiary age section. It is on trend with the L. Tertiary discoveries made by Chevron at "Jack" (WR 759), Unocal's St. Malo (WR 678), which has a 396-meter oil column and recoverable reserves over 250 MMboe, together with BHP's Chinook (WR 468) and Cascade (WR 206) discoveries. BP has yet to release Stones' reserve levels, but it does represent more success in the early stages of this major new deepwater trend.

Knotty Head is still drilling (now over 9,700 meters) and has encountered pay in a shallower, secondary objective that Unocal says is large enough to develop on its own. No news as yet on the deeper objectives, but the well is drilling in the very prolific middle and Lower Miocene age trend just north of BP's Holstein and Chevron's Tahiti Fields.

MIDDLE EAST

Iran – Norsk Hydro spent three and a half months testing its Azar 2 oil discovery on the Anaran block. No test results have been disclosed, but Norsk Hydro's executive vice president with special responsibility for oil and energy, Tore Torvund, was quoted by Reuters as saying, "There may be more than a billion barrels, at least, in the structure. I would say that totally from this area we will in the long term be able to produce about 100,000 b/d."

Iran – The second sidetrack in Ramin 7 is significant in that it is deemed to have established a new deeper pool, assumed to be the Middle Cretaceous Sarvak Formation. According to oil minister Bijan Zanganeh, 5.7

See **2005 Discoveries**, page 43

JANUARY — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 New Year's Day	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16 Martin Luther King Jr.'s Birthday	17	18	19	20	21
22	23	24	25	26	27	28
29 Chinese New Year	30	31				

FEBRUARY — Indonesia

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2 Groundhog Day	3	4
				NAPE, Feb 2 - 3, Houston, TX		
5	6	7	8	9	10	11
12	13	14 Valentine's Day	15	16	17	18
19	20 Presidents' Day	21	22	23	24	25
26	27	28				

MAY — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
	OTC, May 1 - 4, Houston, TX					
7	8	9	10	11	12	13
AAPG Pacific Section, May 7 - 11, Anchorage, AK						
14 Mother's Day	15	16	17	18	19	20
AAPG SW Section, May 14 - 16, San Angelo, TX	CSPG/CSEG/CWLS, May 15 - 18, Calgary, Alberta, Canada					
GAC/MAC, May 14 - 17, Montreal, QC, Canada						
21	22	23	24	25	26	27
28	29 Memorial Day	30	31			

JUNE — North Sea

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14 Flag Day	15	16	17
	EAGE, June 12 - 15, Vienna, Austria					
18 Father's Day	19	20	21	22	23	24
			SIPES, June 21 - 24, Lake Tahoe, NV			
25	26	27	28	29	30	

SEPTEMBER — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4 Labor Day	5	6	7	8	9
10	11 In Memory of 9/11	12	13	14	15	16
17	18	19	20	21	22	23 Rosh Hashana
24	25	26	27	28	29	30
SPE, Sept 24 - 27, San Antonio, TX	GCAGS, Sept 25 - 27, Lafayette, LA					

OCTOBER — Gulf of Valencia

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Yom Kippur	3	4	5	6	7
SEG, Oct 1 - 4, New Orleans, LA						
8	9 Columbus Day	10	11	12	13	14
AAPG Eastern Section, Oct 8 - 11, Buffalo, NY						
15	16	17	18	19	20	21
22	23	24	25	26	27	28
			WTGS Fall Symposium, Oct 25 - 27, Midland, TX			
29 Daylight Savings Time Ends	30	31 Halloween				

MARCH — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 Ash Wednesday	2	3	4
5	6 APPEX London, Mar 6 - 9, London, England	7	8	9	10	11
12	13	14	15	16	17 St. Patrick's Day	18
19	20	21	22	23	24	25
26	27 GEO 2006, Mar 27 - 29, Manama, Bahrain	28	29	30	31	

APRIL — Sierra Leone

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2 Daylight Savings Time Begins	3	4	5	6	7	8
9 Palm Sunday	10	11	12 AAPG Annual Convention and Exhibition, Apr 9 - 12, Houston, TX	13 Passover Begins	14 Good Friday	15
16 Easter	17	18	19	20	21	22
23 30	24	25	26	27	28	29

JULY — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4 Independence Day	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 30	24 31	25	26	27	28	29

AUGUST — Northwest Africa

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23 Summer NAPE, Aug 23 - 24, Houston, TX	24	25	26
27	28	29	30	31		

NOVEMBER — Gulf of Mexico

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6 AAPG International, Nov 5 - 8, Perth, Australia	7	8	9	10	11 Veterans Day
12	13	14	15	16	17	18
19	20	21 PETEX, Nov 21 - 23, London, UK	22	23 Thanksgiving	24	25
26	27	28	29	30		

DECEMBER — Egypt

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16 Hanukkah
17	18	19	20	21	22	23
24 31	25 Christmas	26	27	28	29	30

All Holidays are based on (U.S.) Calendar year.

Egypt Fossil Field Named Heritage Site

Save the Whale Valley Effort Working

By PAT BLAKE
EXPLORER Correspondent

There is a place on Earth so rich in paleontological history that it is unmatched in the story it tells about early mammal evolution.

It could have been lost forever – it almost *was* lost forever – except for the efforts of a lot of people, not to mention the collective efforts done under the banner of AAPG and an influential AAPG field guide.

Largely because of all that, Whale Valley has become an offocial UNESCO World Heritage Site.

First, some background on the spectacular site. Just under the surface in the northern region of Egypt's Fayoum lies a snapshot of life at least 40 million years ago – the late Eocene period, when the ancient Tethys Sea had gradually receded to reveal the Fayoum Basin.

The great expanse was then dotted with lush estuaries, home to Basilosaurus whales that gathered annually to give birth in the protection of a sea channel. As the last whales with functioning feet, these ancient mammals left a grand testament to their lineage in this watery retreat. At last count, 406 whale skeletons of various species have been discovered in the area appropriately named Wadi Al-Hitan (Whale Valley).

"There are possibly as many as five species of fossil archaeocoete whales present in Wadi Al-Hitan, but only two are well known," said Samir Ghabbour, Institute of African Research and Studies, University of Cairo. "One of them is the very large (18 meters) Basilosaurus isis, with well-developed, five-fingered flippers on the forelimbs and, surprisingly, the presence of hind legs, feet and toes, not known previously in any archaeocoete. The other species is Dorudon atrox, a small (4-to-5 meter) whale with a more compact dolphin-like body.

An example of one of 397-plus Eocene whale skeletons preserved in Whale Valley. AAPG's "Field Trip Guide Book to the Greater Fayoum Basin/Whale Valley" is available on the AAPG Web site under *Search & Discovery*, and on the Northeast Africa/Egypt area of the Africa Region site.

"Besides whales, fossils from three species of early sirenians (sea cows), one partial skeleton of the primitive proboscidian Moeritherium (similar to an early elephant), early mammals, lower vertebrate remains, three kinds of sawfish, bony fishes and several kinds of turtles, sea snakes and crocodiles are also present."

With the continued retreat of ancient waterways, this lush, temperate refuge eventually withered into its contemporary desert form. The veritable aquarium of creatures, though, remained in fossilized form so dense and well preserved that it stands alone in its uniqueness.

Enter AAPG

When AAPG selected Cairo as the host city for its international conference and exhibition in October 2002, the local membership knew that the Wadi Al-Hitan, 100 kilometers to the south, would be a must-see. AAPG members received government permission to tour the site during the conference, with the caveat that the team prepare a field guide documenting Wadi Al-Hitan's paleontological value – and formulate a management plan to conserve the treasure while promoting ecotourism.

Tourists had routinely ignored the requisite permission to enter Wadi Al-Hitan – and unchecked in their access, these sightseers often plundered fossil remains and pounded the desert floor with four-wheel-drive vehicles that crush the delicate prehistoric remains.

A multi-industry team of geologists, ecotourism promoters and conservationists toured the Fayoum Basin and the data and individual impressions from their visit formed the basis for the AAPG-produced Wadi Al-Hitan Field Guide.

On that outing, the team found a sea cow skeleton nearly perfectly preserved. By the fall expedition, the remains from that same sea cow were completely destroyed,

See **Whales**, page 34

GEOPHYSICAL CORNER

Expanding an Elastic Definition

(The Geophysical Corner is a regular column in the EXPLORER, edited by Bob A. Hardage, senior research scientist at the Bureau of Economic Geology, the University of Texas at Austin. This month's column is titled "Elastic Wavefield Seismic Stratigraphy.")

By BOB A. HARDAGE
and I.J. ALUKA

Seismic stratigraphy has been an important seismic-interpretation science since the 1975 AAPG annual meeting, when its principles were introduced in a series of presentations – and particularly since its documentation two years later as AAPG's Memoir 26.

Emerging interest in multicomponent seismic technology now allows (and demands) the science of seismic stratigraphy be expanded to include all modes of a multicomponent seismic wavefield. The term "elastic wavefield seismic stratigraphy" is now used when the total elastic wavefield, not just the P-wave component, is used in seismic stratigraphy applications.

In elastic wavefield seismic stratigraphy, a seismic sequence is still defined as a succession of relatively conformable seismic reflections bounded by unconformities or their correlative conformities, just as Robert M. Mitchum (this year's AAPG Sidney Powers Memorial winner) defined the term for P-wave seismic stratigraphy decades ago – only now the definition is expanded to include interpretation and utilization of S-wave seismic sequences in addition to P-wave sequences.

A seismic facies is still defined, using Mitchum's original definition, as any seismic attribute that distinguishes one succession of reflection events from another. The only difference now is the term is expanded to include interpretation and use of S-wave seismic facies as well as P-wave facies.

* * *

Two arguments help explain why P-wave sequences and facies often differ from S-wave sequences and facies:

❒ First, assume an elastic wavefield is traveling vertically through a horizontally layered medium. The P-wave particle displacement vector associated with that wavefield then senses the fabric of the medium in a direction normal to the layering, and the S-wave particle displacement vector senses the fabric in a direction parallel to the layering.

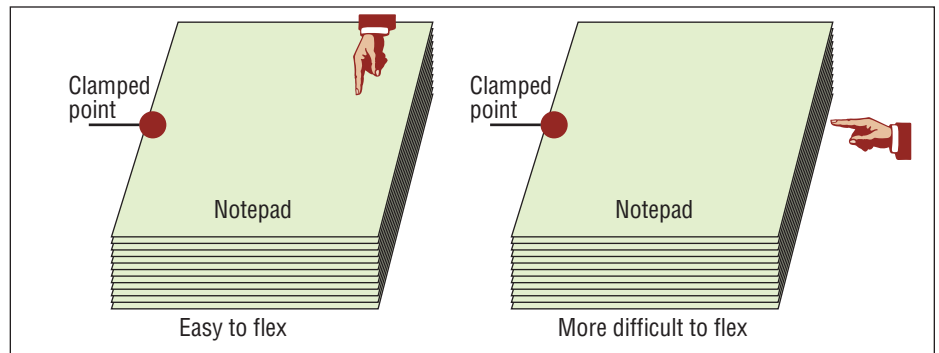

Figure 1 – A simple experiment illustrating a layered medium exhibits a different fabric (or strength) when its elasticity is tested in directions normal and parallel to its layering.

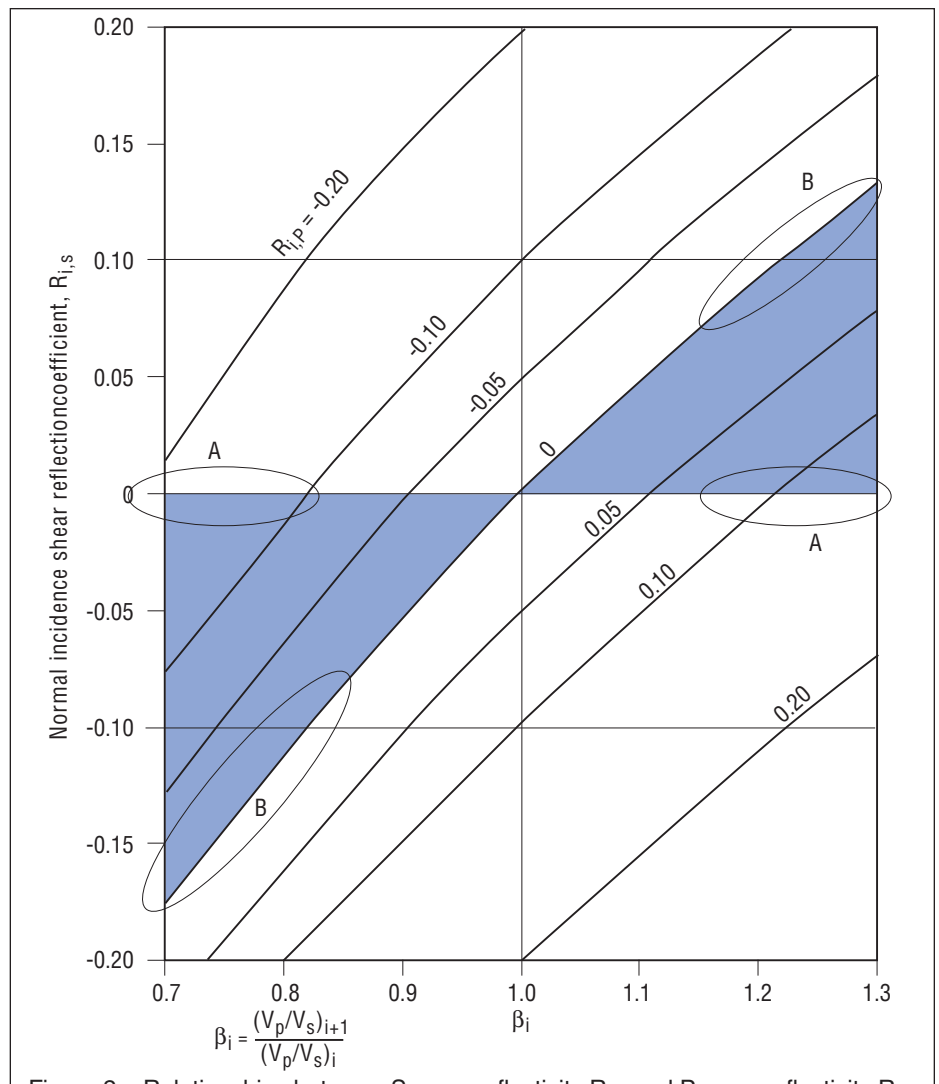

Figure 2 – Relationships between S-wave reflectivity $R_{i,S}$ and P-wave reflectivity $R_{i,P}$ for differing contrasts of the V_P/V_S velocity ratio across an interface.

❒ Second, the reflectivity of each mode of an elastic wavefield at an interface differs from the reflectivities of its companion modes.

The principle is illustrated in figure 2; the vertical axis $R_{i,S}$ is the S-wave reflectivity at an interface, the horizontal axis β is the ratio of the velocity ratio V_P/V_S across that interface (V_P = P-wave velocity and V_S = S-wave velocity), and the quantity $R_{i,P}$ labeled on each curve is the P-wave reflectivity at the interface.

These curves show there are interfaces that:

✓ Are invisible to P waves (the curve labeled $R_{i,P} = 0$) but are not invisible to S-waves unless $\beta = 1.0$.

✓ Are invisible to S waves (the horizontal line $R_{i,S} = 0$) but are not invisible to P waves unless $\beta = 1.0$.

✓ Cause P and S reflections to be in phase (shaded parameter region) and others that cause P and S reflections to be opposite polarity (unshaded parameter region).

✓ Are robust P reflectors but weak

See **Geophysical Corner**, page 30

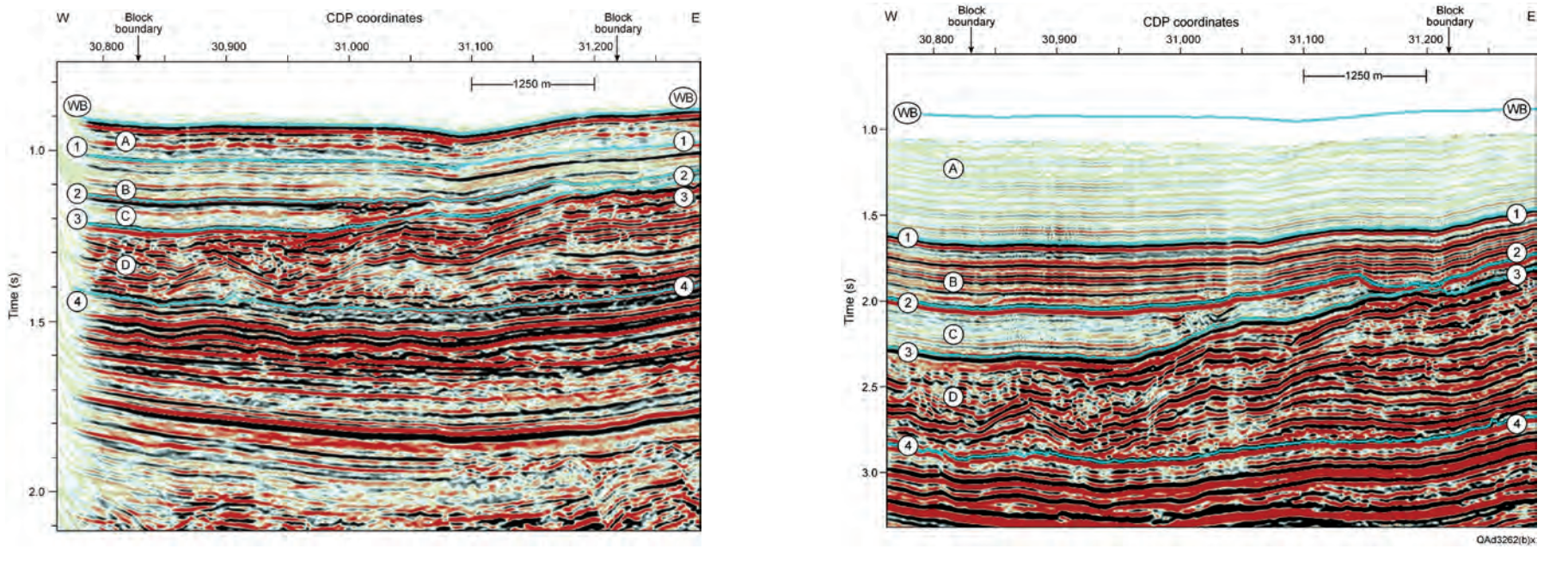

Figure 3 – P-P image (above left) and P-SV image (above right) along a deep-water ocean-bottom-cable profile. WB is the water bottom, which is not imaged by the P-SV data. Horizons 1, 2 and 3 are depth-equivalent sequence boundaries in each respective image space. Units A, B, C and D are depth-equivalent sequences and facies.

Bob Hardage Takes Geophysical Corner Reins

Bob A. Hardage, a senior research scientist at the Bureau of Economic Geology in Austin, Texas, has taken over the role of editor of the EXPLORER's monthly "Geophysical Corner."

Hardage succeeds Alistair R. Brown, who had been editor since March 2004.

He started his career with Phillips Petroleum in 1966, holding various positions that included geophysical researcher, supervisor of seismic interpretation, director of seismic stratigraphy, chief geophysicist for Europe and Africa, and exploration manager for Asia-Latin America. From 1988-91 he was with Western Atlas International, where he was vice president of geophysical development and marketing for Atlas Wireline Services.

Hardage

His research interests at the BEG include:

✓ Multicomponent seismic technology.

✓ Seismic stratigraphy interpretation.

✓ Reservoir characterization.

✓ Acquiring, processing and interpreting downhole and surface seismic data.

Hardage, an AAPG member since 1974, is a member of the AAPG Geophysical Committee. He won the Southwest Section's A.I. Levorsen Award in 2001.

He received his bachelor's (1961), master's (1967) and Ph.D (1967), all in physics, from Oklahoma State University.

His e-mail contact is bob.hardage@beg.utexas.edu. ❑

Geophysical Corner

from page 28

S reflectors (elliptical domains A) and others that are robust S reflectors but weak P reflectors (elliptical domains B).

Thus, any combination of P and S sequences and facies can be encountered in elastic wavefield seismic stratigraphy, depending on how the V_P/V_S velocity ratio varies across interfaces illuminated by a multicomponent seismic wavefield.

* * *

An example of elastic wavefield seismic stratigraphy interpretation is illustrated in figure 3. P-P and P-SV images shown in this example come from a deep-water, 2-D, four-component ocean-bottom-cable profile. The unique geometry of depositional unit C allows that unit to be defined confidently in each image space, even though P-P and P-SV image-time coordinates are drastically different.

There is an obvious facies change in the P-SV image that segregates the interval above unit C into two distinct seismic facies A and B. Sequence boundary 1 is defined at the common boundary between these two P-SV seismic facies.

An equivalent facies break is not obvious in the P-P image. Boundary 1 drawn across P-P image space and the two P-P units labeled A and B are inferred from the P-SV interpretation. An interpreter would be hard pressed to justify P-P units A and B are different facies only on the basis of the P-wave data.

This is only one example whereby expanding seismic stratigraphy beyond the confines of P-wave seismic data provides increased insight into depositional architecture and lithofacies distribution.

* * *

The U.S. Department of Energy provided funding that allowed the Exploration Geophysics Laboratory to initiate the elastic wavefield seismic stratigraphy research that is partly described here (Contract DE-FC26-03NT15396).

(Editor's note: I.J. Aluka is professor of physical science with Prairie View A&M University, Prairie View, Texas.)

Pete Rose and John Brooks meet and talk with European students and geoscientists.

AAPG Outreach

European Region Taking Big Steps

By JOHN BROOKS
European Region President

As Pete Rose's monthly column indicates (see page 3), I have just returned from accompanying him on a three-week tour of seven countries within the European Region. I was delighted when he asked me to facilitate this, as one of my goals is to visit every country within the region having oil and gas exploration and production, and /or Association members.

I need not reiterate Pete's account of our meetings, but the objectives of such visits are clear:

✓ To meet the members and key petroleum geologists and societies in each country.

✓ To engage with and foster students of geoscience, in order to explain and remind them of the value of AAPG membership and to show that the organization is flexible and willing enough to facilitate their involvement.

(This means making it easier to join, NOT by lowering standards, but in part by setting fees at levels affordable in every country.)

✓ To stimulate regular activity in each country and to encourage joint meetings with adjacent states about more localized issues.

✓ To identify volunteers, students and members who are willing to be representatives of members in each university and country, and to act as activists for the Association in arranging meetings and conferences.

(Potential volunteers can respond to me via e-mail, at jrvbrooks@supanet.com, especially those from Denmark, Germany, Latvia, Lithuania, Spain, Italy, Greece, Eire and the United Kingdom. Please, activists only!)

I am grateful to Walter Grün in Austria, Vlasta Dvorakova in Czech Republic and Alexander Kitchka in Ukraine for agreeing to seek out volunteers in their respective countries.

* * *

Pete has described our impressions of our visits and I will not repeat them, save to acknowledge my admiration and appreciation of the magnificent eight who organized each country visit: Sigrunn Johnsen, Norway; Istvan Berzci, Hungary; Ewa Zalewska, Poland; John Dolson, Russia; Alexander Kitchka and Pablo Zagorodnyuk, Ukraine; Vlasta Dvorakova, Czech Republic; and Wolfgang Nachtmann, Austria.

My first priority has been to those countries about which I had the least knowledge, but I have not forgotten the countries bordering the North Sea, Eire and the UK, nor those around the Mediterranean or bordering the Baltic Sea, with which I hope to establish contact during my term as European Region president.

The European Region plans to have meetings in London and Aberdeen this year, and will be present in Galveston, Texas, in February for the annual AAPG Leadership meeting.

Other specific plans include:

❒ The region has organized a conference on Reserves and Reserves Reporting, set Feb. 15 in London, at the Energy Institute's IP Week. Pete Rose has agreed to speak about the new "reservoir evaluator" training, and we have a good line up of those involved in definitions (SPE, WPC, IASB and UNECE Expert Group) and accounting together with those undertaking reserves work.

❒ APPEX London, set March 6-9, is largely organized by the Region, assisted copiously by Dana Patterson-Free of the

See **Europe Tour**, page 34

Under the patronage of HH Shaikh Khalifa bin Salman Al Khalifa
Prime Minister of the Kingdom of Bahrain

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General Chairman:
Abdulla Al-Naim, Saudi Aramco

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Image provided by Dhahran Geoscience Society

Whales

from page 26

presumably by off-road tracking and fossil pilfering.

"This site is the best preserved vertebrate collection I have ever seen in its natural habitat," says Mark Shann, geologist for British Petroleum (BP). "In Whale Valley, you not only see whale (remains), but also the beach sand onto which they died 50 million years ago, as well as the accompanying fossil sharks, turtles and mangrove swamps.

"Its proximity to Cairo means that human destruction is only a few years away. Fifteen years ago, it was untouched by car track, tourists and the like. Today, it is on its way to dusty oblivion."

Getting a Plan In Place

The significant geological merit of Wadi Al-Hitan and its chronology of Earth's development led UNESCO to designate the area as a World Heritage Site (WHS) during the summer of 2004. An integral part of that international moniker is that the location must have a management plan.

The 2002 AAPG field guide was not only the catalyst for nomination for World Heritage status, but it provided an in-depth plan to achieve the objectives of monitoring, ecotourism and overall management.

The field guide, along with the impetus to achieve the rare WHS designation, was a joint effort by some 15 AAPG members, corporate interests (including BP, Shell and Devon), Egyptian agencies and numerous embassies.

Phase two of the World Heritage Site implementation plan, currently under way, includes erecting signs, gates and a monitoring system. A visitor center and ranger station also are anticipated, plus the possible expansion of the WHS designation to include the Fayoum Basin to the north.

"This development is actually part of the important results of having the site enrolled to be on the World Heritage list," says AAPG member Ahmed El-Barkooky, Cairo University lecturer of geology and Shell Egypt senior stratigrapher.

"The research and the management, I think, encouraged the governmental organizations and the people to do more for the protection and the real management of the plan," he said, "and also to raise funds from other organizations to help the management process of this site."

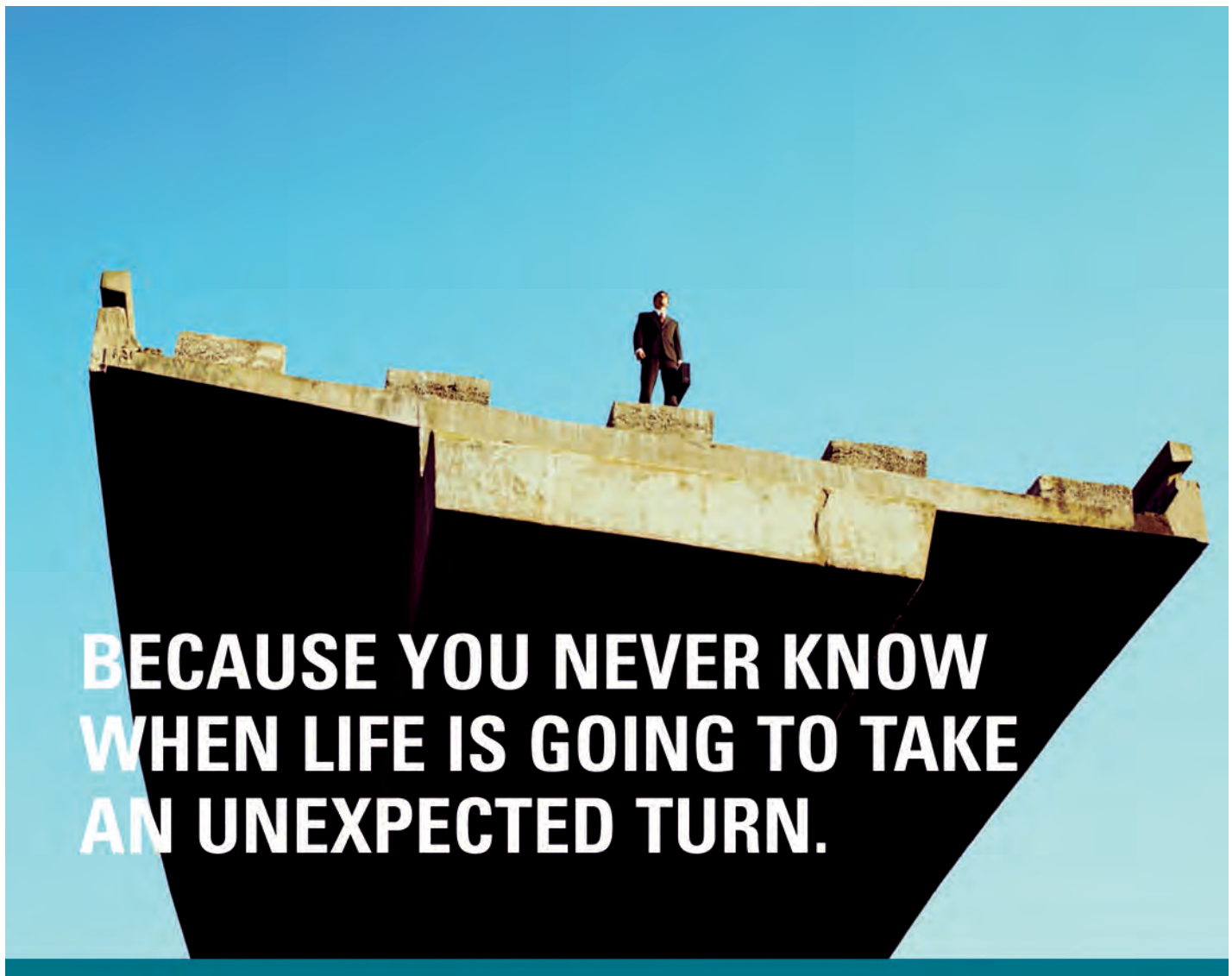
Nina Prochazka, general manager of programs and organizational development for the North South Consultants research accompanied AAPG and served as an ecotourism adviser.

"It's really not only about infrastructure; infrastructure is a much smaller issue," she said. "If you want local people to benefit, it should be about their skills and their capacities, too, to be able to work there, to run a functioning restaurant, to be ticket collectors, to be guides and provide resources to the site."

The multinational, multi-industry effort that put Wadi Al-Hitan on the map is potentially the best candidate to facilitate sustained conservation and investigation into this unique treasure.

"Each AAPG member is a center for getting this information to others among the community," Ahmed said. "It is really very important." ❑

For more information on this subject, visit the AAPG Web site.



European Tour

from page 32

AAPG staff. The country presentation program will again be arranged by IHS, which has sponsored APPEX London since its inception, and this year we shall continue with the successful Financial Forum, sponsored by ABN-AMRO. Booth uptake is promising, and we are looking to expand into a new venue for 2007.

If deals are your forte, do come along.

❒ The first conference to be held in the Region was in Prague in November 2004, and the Council is keen to build on this highly successful event. Hence, "Mallorca 2006," organized by the Region, will be held April 30-May 3 in Mallorca, an island just off Spain in the Mediterranean Sea.

The conference will be on the "Architecture of Carbonate Systems Through Time (Reference Models for the Mesozoic and Tertiary of Southern Europe, North Africa and Middle East)," and will include a field trip conducted by general chair Mateu Esteban and field trip chair Luis Pomar, world experts in the field of carbonates.

Organizers anticipate a large attendance, and space will be limited, so book early to avoid disappointment. The Web site at www.aapg.org, gives details. (Follow the International link to Mallorca 2006.)

❒ Work also has begun for a conference in 2007-08 on the Mediterranean basins. Again, the intention would be to link with Africa and Middle East regions. Sub-regional and local conferences also are being eyed to mobilize the eastern part of the continent with exciting topics like the future of the Black Sea province, and production case histories.

In the UK, as elsewhere in the region, there is considerable interest in ensuring that high school students receive the best advice about careers in the oil and gas industry, and on ensuring that young people (ages seven through 15) are given an early opportunity of taking an interest in earth science. These initiatives are supported in part by universities, learned societies, the World Petroleum Council, oil companies and trade organizations, but these are often disjointed and uncoordinated.

There is much AAPG can do to assist here, and much that we can learn from our U.S. colleagues in this domain.

Two important first steps might be to support schools with geoscience teaching materials and have established geoscientists visit schools to talk to classes, similar to the Visiting Geologists Program. ❑

REGIONS AND SECTIONS

(Editor's note: Regions and Sections is a regular column in the EXPLORER offering news for and about AAPG's six international Regions and six domestic Sections.

News items, press releases and other information should be submitted to the EXPLORER/Regions and Sections, P.O. Box 979, Tulsa, Okla. 74101.

Contacts: For Regions, Dana Patterson Free, at 1-918-560-2616, or e-mail to dfree@aapg.org; for Sections, Donna Riggs, at 1-918-560-2612, or e-mail to driggs@aapg.org.

This month's column, a look at the activities and potential for the Middle East Region, was prepared by ***Abdulla Al Naim****, the Region's president and general chair of the upcoming GEO 2006, the Middle East Geoscience Conference and Exhibition.)*

This year marks the second consecutive year for AAPG to participate as a major partner in oil and gas conferences and exhibitions in the Arabian Gulf Region. After the enormous success of the International Petroleum Technology Conference last November, AAPG is geared up to provide the Middle East with the GEO – a solid and well-established conference – on March 27-29.

And for or the first time, AAPG is the official secretariat of GEO.

The GEO, established in 1994, has been growing in scientific content as well as in popularity. GEO continues to distinguish itself by focusing on geoscience and technical content.

It prides itself in bringing the elite in technology providers, national oil companies, international oil companies, service companies and academia from all around the globe.

The GEO takes place in the Kingdom of Bahrain every two years to discuss progress as well as challenges in the oil and gas industry.

GEO 2006 – the seventh in its series – is no different; it is set to address the theme of "Meeting E&P Challenges to Energize the World." Hence, we will focus on the subject of finding oil and gas and developing it as the main challenge facing our industry, with the backdrop of the opportunity to excel at meeting this challenge in the hydrocarbon-prolific region of the Middle East.

Technical Program

For GEO 2006, we received 422 abstracts. Due to space, time and quality considerations, a total of 260 oral and poster presentations will be selected. Specifics of the program include:

✓ Many world-class experts were invited and will participate.

✓ An executive session where key industry leaders address the strategic issues of the oil and gas industry will be held.

✓ 160 oral presentations are planned over a period of three days, organized in four main periods (Monday afternoon, all day Tuesday and Wednesday morning). Each period will host five parallel sessions, holding eight oral sessions apiece.

✓ 100 posters will be displayed for 24 hours each starting at Monday noon, and the posters will be exchanged by Tuesday noon.

✓ A new plenary session, a "technical end-note" wrap-up, will be held, using the theme "Technology impact on Geoscience and Petroleum Engineering." Aspects of finding, developing, and producing Middle East Prolific reservoirs will be highlighted, focusing on Middle East oil and gas reservoirs.

Workshops, Courses, Field Trips

The technical program committee (and the local societies) committed themselves to offering workshops, courses and field trips at a reduced price to allow maximum number of participants to benefit. Course fees will not exceed US$100 per day for any workshop or course.

A partial list of these activities includes:

✓ A workshop displaying cores from the Paleozoic rocks in the Arabian Peninsula, managed by local societies.

✓ A second workshop on multiple suppression techniques is planned for land seismic acquisition and processing professionals.

✓ A course on near surface static corrections for seismic reflection.

✓ A two-day course on seismic interpretation (led by a world-class expert).

✓ A course on reservoir characterization (Applied NMR Petrophysics), which will cater to reservoir characterization and reservoir management professionals.

✓ A two-day course on integrated exploration and evaluation of fractured reservoirs is offered to the attendees.

✓ A post-conference field trip to Syria.

✓ Archaeological and shopping visits for geoscientists, technical people and spouses.

Other 'Side' Benefits

Executive networking, an update on the geoscience in the Middle East Region, new technology and insights that are shared, plus the friendly ambiance of the great, welcoming Kingdom of Bahrain are but a few of the benefits to be reaped when you join GEO 2006, the premier geoscience conference for the Middle East.

See you in Bahrain!

For more information, go to the conference Web site at http://www.aapg.org/geo2006/; or to the site of the local host Dhahran Geoscience Society (DGS), at http://www.dgsonline.org/. ❑

FOUNDATION UPDATE

Two new gifts to the Digital Products' university endowment program have been announced by the AAPG Foundation.

The endowments are:

✓ For the University of Houston, funded by Richard S. Bishop, in memory of his mother, Margaret Bishop.

✓ For the University of Michigan, funded by C.N. "Tom" Tinker and Maria D'Aloisio, in honor of the Tinker family geoscientists.

The Foundation's Digital Products University Alumni Fund was initiated in 2004, when several people as a group established a university subscription fund at Oklahoma State University in memory of Paul McDaniel.

Under the program, a one-time subscription gift of $12,500 provides the entire online AAPG/Datapages Digital Library to students and faculty at a designated university, which can be presented to honor the donor, colleague, family member or professor of the donor's choosing.

For more information on the program contact Rebecca Griffin in the Foundation office, (918) 560-2644, or e-mail to rgriffin@aapg.org.

* * *

In other Foundation news, another member has joined the Foundation Trustee Associates. He is:

❒ Thomas E. Kelly Jr., of Seattle, Wash.

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In honor of C.N. "Tom" Tinker, Scott Wheeler Tinker and Mark Andrew Tinker
Clarence Norman Tinker
In honor of the Tinker family geoscientists

Digital Products Fund University of Houston Alumni
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In memory of Margaret S. Bishop

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James S. Classen
In memory of E.F. "Bud" Reid

E.F. Reid Scouting Fund
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Lawrence W. Funkhouser
William E. Gipson
Robert Clarkson Millspaugh
Arthur M. Van Tyne

Visiting Geologist Fund
Paul F. Ozanich

The Geological Society

Second Call for Papers

International Conference

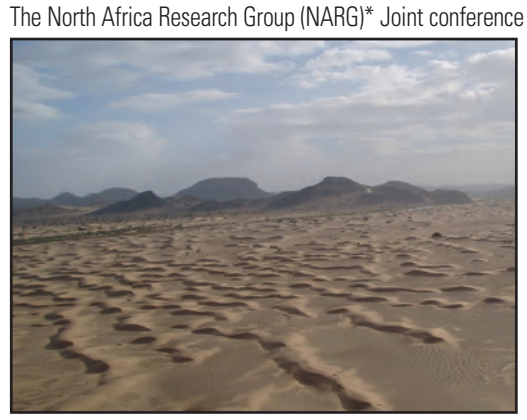
Petroleum Systems of Saharan Africa

19th – 21st April, 2006

The Geological Society, Burlington House, London

Geological Society Petroleum Group and

The North Africa Research Group (NARG)* Joint conference



The conference is open to a wide audience from across the spectrum of petroleum geoscience. Contributions are sought which address one or more of the following themes:

- Triassic reservoirs of North Africa - sedimentology, digital outcrop and reservoir modelling
- Basin modelling in the Ghadames Basin
- A number of field studies from Algeria and Libya
- Exploration plays in the Western Desert of Egypt and offshore Morocco
- Keynote lecture on the business environment in North Africa
- New insights into regional source rock development and petroleum systems

The conference will provide an opportunity for a number of presentations from invited-keynotes from national oil companies, plus papers and posters from exploration and production companies in the region, together with leading academic institutions and consultancy groups.

Abstracts to be submitted to
Jonathan Redfern
(jonathan.redfern@manchester.ac.uk)
by **15 February 2006**.

For further details please contact
Jo Mears, Conference Office,
The Geological Society, Burlington House,
Piccadilly, London W1J 0BG.
Tel: +44 (0) 20 7434 9944
Email: joanna.mears@geolsoc.org.uk

Technical convenors:

Jonathan Redfern (University of Manchester)

John Argent (Paladin Resources)

Adam Law (Equipoise Solutions)

James Stockley (CIECO E&P (UK))

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www.geolsoc.org.uk/petroleum

PROFESSIONAL NEWS BRIEFS

Jim Demarest, to general manager-international exploration, Burlington Resources, Houston. Previously exploration manager-Latin America/Far East, Noble Energy, Houston.

Dean A. Dunn, to program officer for earth sciences, Petroleum Research Fund of the American Chemical Society, Washington, D.C. Previously professor of geology, University of Southern Mississippi, Hattiesburg, Miss.

Jim Gagliardi, to regional practice manager-U.S. subsurface evaluation, Landmark Graphics, Houston. Previously principal consultant-geology, Landmark Graphics, Houston.

James B. Gresham, to managing director, seismic and lease acquisition program, Access Exploration, Houston. Previously consultant, Kingwood, Texas.

Edward D. LaFehr, to performance unit leader, North Sea partner operated production business, BP, Aberdeen, Scotland. Previously asset manager, Milne Point Field, BP, Alaska.

Carl Lothringer, to senior geologist, St. Mary Land and Exploration, Houston. Previously advising exploration geologist, Unocal, Sugar Land, Texas.

Chet McLain, to exploration manager, Energy Production Corp., Dallas. Previously geologist, Jetta Production, Fort Worth.

Gregory J. Palko, to project geologist-Midland division, EOG Resources, Midland, Texas. Previously consulting geologist, Pure Resources (Unocal), Midland, Texas.

Amos Salvador has been nominated for the Robert W. Hamilton Award, presented for the best book by a University of Texas professor, for his book AAPG Studies in Geology 54, *Energy: A Historical Perspective and 21st Century Forecast.* Salvador is the Morgan J. Davis Emeritus Professor of Petroleum Geology, University of Texas at Austin, Austin, Texas.

Vickey Price Sare, to team lead-Captain Field earth science, Chevron Upstream (Europe), Aberdeen, Scotland. Previously team lead-volume visualization services, Chevron Energy Technology, Houston.

Charles A. Sternbach has formed Star Creek Energy, Houston. He was previously with Jordan Oil and Gas, Houston, and is the general chairman of the 2006 AAPG Annual Convention in Houston.

James F. Webb, to senior geologist, Hunt Petroleum, Houston. Previously consultant, Inexs, Houston.

(Editor's note: "Professional News Briefs" includes items about members' career moves and honors. To be included, please send information in the above format to Professional News Briefs, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101; or fax, 918-560-2636; or e-mail, smoore@aapg.org; or submit directly from the AAPG Web site, www.aapg.org/explorer/pnb_forms.cfm.)

AAPG Online Training

AAPG Geoscience Education

Need some training but can't take time off? AAPG has several online courses available for your education needs.

Introduction to Geological Reservoir Characterization
Instructor: Roger M. Slatt, University of Oklahoma, Norman, OK
Class Begins: January 30, and runs through May 8, 2006
Lectures and Slides: ONLINE, Exercises and Exams administered by instructor via email
Tuition: $700 (includes textbook)
Limit: 25 students

Begins Soon!

Who Should Take this Course?
This course is ideal for the petroleum industry professional who is involved in analysis and/or decision-making. Geologists, project managers, engineers, and geophysicists will find this course to be both useful and stimulating. It should be considered an intermediate-level course which will provide individuals with the knowledge necessary to take more advanced courses.

Technical Writing
Instructor: Susan Nash, Ph.D., Excelsior College, Albany, NY
Dates: Begins the 2nd of every month, 10 week course (can be accelerated)
Exercises and Exams administered by instructor via email
Tuition: $300 (includes textbook)

Ideal for scientists, managers, and professionals for whom English is a second language, with personalized grammar and vocabulary review. This course is highly recommended for scientists and technical professionals seeking to develop a mastery of the communication skills required in an increasingly digital age.

Professional English
Instructor: Susan Nash, Ph.D., Excelsior College, Albany, NY
Dates: Variable, completely self-paced online.
Exercises and Exams administered by instructor via email
Tuition: $300 (includes textbook)

This course is ideal for individuals seeking to develop highly effective documents for their companies, personal businesses, and associations. Upon completion of this course, students will have gained an ability to develop and organize documents both printed and on the Internet which are read by individuals outside their company.

How To Find Oil and Gas Information on the Internet
Dates: Variable, completely self-paced
Exercises and Exams administered by instructor via email
Tuition: $199, AAPG members; $239, non-members
Instructor: Bill Crowley, Competitive Analysis Technologies, Houston, TX

This course is designed for anyone needing upstream oil and gas information from outside sources in their work. This will include, but not be limited to: engineers, landmen, geologists, geophysicists, librarians and legal researchers.

Environmental Issues in the Oil & Gas Industry
Dates: Variable, completely self-paced online.
Tuition: $30 to take online, $60 for a CD
Instructor: Margaret M. Dalthorp, Moorhouse Associates, Inc., Corpus Christi, TX

Who Should Attend
This course is ideal for the petroleum industry professional who is unfamiliar with environmental regulations and their application to the oil and gas industry. Environmental professionals who are unfamiliar with oil field operations as well as project managers, geologists, and engineers who are responsible for the management of field operations will find this course to be beneficial.

And don't forget our selection of 20 IOL Modules, developed by the BEG in association with AAPG and AGI. You can find out details on all 20 modules at http://www.aapg.org/iolcourse/index.cfm

Interactive Online Learning

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

Perth Abstract Deadline is Jan. 18

The final deadline has arrived to submit abstracts for the next AAPG International Conference and Exhibition, which will be held Nov. 5-8 in Perth, Australia.

The abstract deadline is Jan. 18.

The meeting's theme is "Reunite Gondwana – Realize the Potential." Ten main themes have been announced for presenters to consider, all of which can be found online at the AAPG Web site.

Abstracts must be submitted online at www.aapg.org/perth/. Those who cannot submit online should contact Sandy Hensley at 1-918-560-2641, or e-mail to shensley@aapg.org.

More information is available online at www.aapg.org.

SPOTLIGHTonEDUCATION

A new year has begun, which means it's time to make resolutions for improving ourselves.

Want to improve yourself as a professional? AAPG can help.

Our education department has many opportunities for you to learn a new topic or refresh a skill you haven't utilized in a while. They include:

✓ Our Winter Education Conference will be held Feb. 6-10 in Houston, so there is still time to sign up for this exciting program of 12 courses that will include classes on petrophysics, mapping, fractures and many others.

✓ The online course by Roger Slatt, "Introduction to Geological Reservoir Characterization," will be starting again on Jan. 30. This is a 15-week course, with weekly exercises and interaction with the instructor for maximum practical applicability.

There is a limit of 25 students in each session, so sign-up now.

✓ We have many other online course selections, including our 20 IOL interactive learning modules. Information about all our online offerings can be found at www.aapg.org/education/online.

✓ And, of course, our program of public short courses and field seminars begins in April, featuring some new courses as well as many returning favorites. Check out the complete list and all the descriptions at www.aapg.org/education.

Incidentally, those that want some family time along with their education should note that two new GeoTours this year have joined the always-popular "Lewis & Clark" GeoTour (which takes place in August this year). The new GeoTours are "Geologic Field Trip to Trinidad & Tobago," April 26-May 2, and "Geologic Tour Through the Napa-Sonoma Wine Country Region," June 10-14.

Clearly, AAPG is ready to help you become a better geoscientist. Visit us online at www.aapg.org for details on all our programs, or call (918) 560-2650. ❑

Plan Now for April Education with AAPG!!

Short Courses

E&P Methods and Technologies: Selection and Applications

Date: April 7-9, 2006
Location: Houston, Texas, with AAPG Annual Meeting
Tuition: $995 (increases to $1095 after 3/10/06), includes course notes and refreshments
Content: 2.3 CEU
Instructors: Alistair R. Brown, Rich Chambers, Fred Hilterman, Michael Hudec, John Johnson, James A. MacKay, Dave Marschall, Randall S. Miller, Henry Posamentier, Rawdon Seager, and David A. Wavrek

Who Should Attend
This is a broad spectrum course that targets members of integrated teams through middle managers, up to and including business unit leaders. Anyone who must design and select exploration and development teams will benefit from this course. The course will have value not only to geoscience professionals, but also to reservoir engineers and managers of all disciplines who supervise oil-finding teams.

Strategic Play Analysis

Date: April 8-9, 2006
Location: Houston, Texas, with AAPG Annual Meeting
Tuition: $600 (increases to $700 after 3/10/06), includes course notes and refreshments
Content: 1.5 CEU
Instructors: P. Jeffrey Brown, Decision Strategies, Inc., Houston, TX; Marshall W. Titus, Platte River Associates, Inc., Houston, TX

Who Should Attend
This course is designed to provide a succinct review of petroleum system and geologic play elements and processes, as well as all the information necessary to conduct a strategic play analysis, based upon an admixture of geologic and strategic variables. This course is suitable for geoscientists, engineers, planners, and managers. The math is algebraic and should pose no major hurdles to participation.

Field Seminars

Modern Terrigenous Clastic Depositional Systems

Leader: Walter J. Sexton, Athena Technologies, Inc., Columbia, South Carolina
Dates: April 23-30; May 22-29; September 18-25, 2006
Location: Begins in Columbia and ends in Charleston, South Carolina
Tuition: $2,400 (increases to $2500 one month prior to each start date), includes ground transportation to Charleston, water transportation, guidebook, beach cookout, modern core workshop, lunch on the fluvial day, and CD-ROM
Limit: 27
Content: 5.6 CEU

Who Should Attend
Geoscientists and engineers who need to understand the sedimentology, facies architecture, and sequence stratigraphy of modern terrigenous clastic depositional systems in tidal estuarine, incised valley, shelf, shoreface barrier island, fluvial and alluvial environments.

Clastic Reservoir Facies and Sequence Stratigraphic Analysis of Alluvial Plain, Shoreface, Deltaic, and Shelf Depositional Systems

Leader: Thomas A. Ryer, The ARIES Group, LLC, Katy, TX
Date: April 23-29, 2006
Location: Begins and ends in Salt Lake City, Utah
Tuition: $1,800 (increases to $1900 after 3/24/06), includes field transportation, lunches in the field, guidebook
Limit: 15
Content: 5.0 CEU

Who Should Attend
Exploration and development geologists, geophysicists, reservoir engineers, log analysts, and managers of exploration and development programs who want a better understanding of the facies variations that control the distribution of clastic reservoirs.

NEW GeoTour!!

Geologic Field Trip to Trinidad & Tobago

Leader: Patrick J. Gooding, Kentucky Geologic Survey, University of Kentucky, Lexington, KY
Dates: April 26 – May 2, 2006
Location: Begins in Port of Spain, Trinidad on April 27th at 7:00am and ends in Scarborough, Tobago on May 1st
Tuition: $2,000 (increases to $2100 after 3/15/06), includes field trip transportation, 5 lunches, 1 dinner, entry fees, welcome reception, field trip guidebook and boat travel to Tobago for the group
Limit: 30

Who Should Attend
Like other AAPG GeoTours, the trip will integrate geology, culture, history, and social activities for the geologists, spouses/partners and children (12 years or older) interested in an overview rather than detailed learning. The trip will be entertaining, recreational as well as learning experience about the islands of Trinidad and Tobago.

AAPG GEOSCIENCE EDUCATION

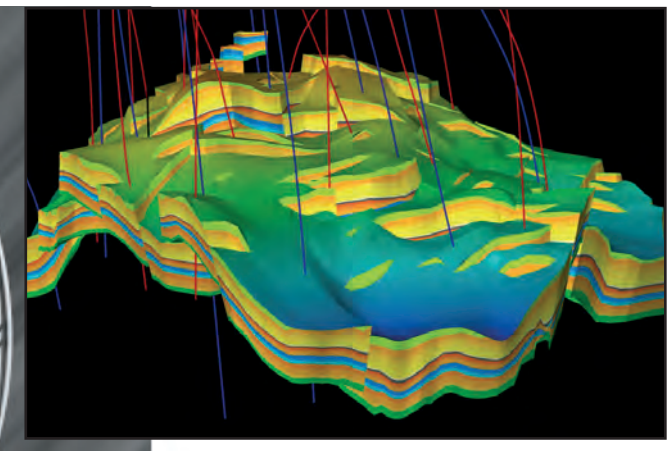
For further information, please contact the AAPG Education Department
Phone: 918-560-2650; Fax: 918-560-2678; e-mail: educate@aapg.org
Or log on to www.aapg.org/education/index.cfm

The Geological Society

Structurally Complex Reservoirs

February 28th – March 2nd, 2006

The Geological Society, Burlington House, London



Structurally Complex Reservoirs are an increasingly common feature of oil and gas exploration and production. Their growing contribution to global production is a function of the increasing geological complexity within modern reserves portfolios. This reflects the growing technical challenges for the discovery and extraction of remaining reserves from mature provinces (e.g. the North Sea); and the advancement of technologies which now permit economic development and production from structurally complex discoveries, previously 'parked' for this technology catch-up.

Our understanding, detection and ability to model and predict the compartmentalising effects and storage-transmissivity characteristics of fault and fracture networks, and the dynamic fluid flow and geomechanical behaviour of related reservoirs, is key to locating connected reserves, unswept blocks, and optimising field development, production rates and recovery factors. Geoscientists and engineers are addressing these issues within research institutions and operating asset environments around the world, either singly or within organised research collaborations, such as the recent ITF (Industry Technology Facilitator) programmes in the UK.

This integrated 3-day international conference was inspired by the ITF programme of the same name. It will attract leading-edge contributions from industry and academic researchers, specialist service providers, and practitioners within oil/gas field asset teams. We believe this will provide a well-balanced context and debate, representing a collective benchmark of the modern geoscience and related technology applied to the subsurface characterisation and production from structurally complex reservoirs. We intend to capture the conference proceedings within a Geological Society Special Publication.

Technical convenors:

Steve Jolley (Shell UK Ltd, Aberdeen, UK),
Rob Knipe (RDR Ltd, Leeds University, UK),
Dave Barr (BP, Aberdeen, UK)
John Walsh (FAG, University College, Dublin, Ireland),
Duncan Anderson (ITF, Aberdeen, UK)

For further details please contact Jo Mears, Conference Office, The Geological Society, Burlington House, Piccadilly, London W1J 0BG.
Tel: +44 (0) 20 7434 9944.
Email: joanna.mears@geolsoc.org.uk.

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www.geolsoc.org.uk/petroleum

READERS' FORUM

Editor's note: Letters to the editor should include your name and address and should be mailed to Readers' Forum, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101, or fax (918) 560-2636; or e-mail to forum@aapg.org. Letters may be edited or held due to space restrictions.

Glennie Responds

I think my former Shell colleague Jean Haremboure has been a little unkind to me. In the October EXPLORER (Readers' Forum) he twice accuses me of ignoring the important (unpublished) 1967 contribution made by him and his co-worker Jan Horstink in overturning the then-accepted autochthonous origin of the Hawasina and Semail nappes in the Oman Mountains.

He refers to a telephone interview with the EXPLORER in which I stated, "I led a team mapping the Oman Mountains. In all the work previous to that, everyone had thought that all the rocks were deposited where they currently were found."

It reads on: "But a new theory proposed they came from elsewhere (were thrust into place), and Glennie soon agreed." (In hindsight, "they" should have read "some.")

Haremboure ignored this last sentence that, in the interest of brevity, named no names, but clearly indicates that I agreed with the new nappe-emplacement hypothesis of an earlier worker or workers.

He later complains that in a 1974, 423-page multi-authored KNGMG memoir on "The Geology of the Oman Mountains" only two lines were devoted to the interpretations of Haremboure and Horstink. I note, however, that within a four-page summary of previous work and hypotheses we devoted a complete paragraph (12 lines) to their resurrection of Lees, (1926) nappe emplacement of the Hawasina and Semail, followed on the succeeding page by another of 11 lines stressing the importance of their faunal and structural findings in the Hamrat Duru Range.

In addition, we defined every formation, and the authorship of each is given; these include those by Haremboure and Horstink of that important Hawasina unit the Hamrat Duru Formation (we upgraded it to group status and its three former members to formations, but in every case retained Haremboure and Horstink as the original authors); also their naming of the underlying Muti and three more formations, even though we did modify their definitions.

Since then, many geological formations in Oman, including some of our own making, have been further modified by others on the basis of additional work; the science continues to progress. Similar recognition had been given to Haremboure and Horstink in two paragraphs of the earlier Glennie et al. AAPG BULLETIN article on the Oman Mountains (1973, Vol. 57, No. 1).

Ken Glennie
Ballater, Scotland

Regional Maps Can Help

With due respect to the career and accomplishments of the late Sam Bibler, I want to take exception to his rule number nine ("Rules for Finding Oil Still Apply," December EXPLORER), which reads "Don't waste time by keeping a set of regional structure maps posted to date." His follow-up comment that "there is something about a regional structure map that stifles imaginative thinking" is off base.

These days, with small overworked staffs, most geologists don't have the luxury of time to look at and understand regional geology. However, if you don't understand the regional geology, how can you understand the local geology in the proper context?

There is no doubt that with our limited staffs, taking the time to keep a set of regional maps posted is not efficient use of time. However, there are alternatives.

There are commercially available, comprehensive geological tops files available to the industry in the majority of the major oil and gas provinces. These files allow regional maps of any scale and on any horizon to be constructed on a PC computer very quickly. Not just regional structure maps, but isopachs and residual maps as well. If some parameter doesn't present the map correctly, change it and redo the map. This takes almost no time. This is exactly what geophysicists do to find the right way to show their data in the most meaningful way.

Contrary to Bibler's opinion, a regional isopach or residual map contains a wealth of ideas not seen before, mainly because the computer does not put one's preconceived biases into the mapping program. Prior to commercially available mapping software *and* accurate regional formation tops files, the production of a regional residual map (using up to tens of thousands of points) was impossible.

Richard Haines
Addison, Texas

(Editor's note: Sam Bibler's comments, which were written four decades ago, were part of the regular EXPLORER column "Looking Back." He wrote that regional structure maps stifle imaginative thinking because "the inference is that 'it is all mapped, so where else can one look?'")

MEMBERSHIP AND CERTIFICATION

The following **candidates** have submitted applications for membership in the Association and, below, certification by the Division of Professional Affairs. This does not constitute election, but places the names before the membership at large. Any information bearing on the qualifications of these candidates should be sent promptly to the Executive Committee, P.O. Box 979, Tulsa, Okla. 74101. (Names of sponsors are placed in parentheses. Reinstatements indicated do not require sponsors.)

Membership applications are available at www.aapg.org, or by contacting headquarters in Tulsa.

For Active Membership

Alaska
Laudon, Carolan M., Schlumberger, Anchorage (T.B.S. Berge, A.C. Banet Jr., R.L. Foland)

Colorado
French, Christopher D., U.S. Geological Survey, Denver (T.S. Ahlbrandt, V.F. Nuccio, C.J. Schenk); **Sutton, Sally J.**, Colorado State University, Fort Collins (W.C. Dawson, F.G. Ethridge, K.L. Milliken)

Michigan
Hinkley, Richard E., Dart Oil & Gas, Mason (reinstate)

Texas
Boring, Todd Hardy, Managed Petroleum Group, Richardson (reinstate); **Leiphart, Daniel J.**, Anadarko Petroleum, The Woodlands (M.E. Podell, J.P. Dube, J.B. Tautfest); **Newsom, Paul David**, self-employed, Houston (S.C. Balke, C.F. Dommer, J.G. Taylor III); **Paez, Rachel Hannah**, ExxonMobil Exploration, Houston (R.W. Wiener, D.F. Kosich, J.D. Ottmann); **Webber, Kurt Allen**, ENSR International, Fort Worth (reinstate)

Australia
Densley, Matthias Raymond, Santos, Adelaide (G.J. Kemp, D. Beckett, N. Saunders); **Duff, Bruce Alexander**, Oil Search Ltd., Sydney (S.R. Greaves, A.J. Young, P.J. Southwell); **Teasdale, Jonathan Peter**, FrOG Tech, Deakin West (T.S. Loutit, A. Bell, W.K. Morrison)

Cameroon
Loule, Jean-Pierre, National Hydrocarbons Corp., Yaounde (reinstate)

England
Spencer, Paul David, Lynx Information Systems, London (P. Wigley, D.R.D. Boote, M.J. McMurtry)

Nigeria
Ekweogwu, Anierobi Louis, Global Energy, Lagos (D.M. Jarvie, H. Alimi, T.E. Ruble)

Pakistan
Channa, Munsif Hussain, Oil and Gas Development, Islamabad (M. Ahmad, T.M. Jaswal, I. Rahman)

Saudi Arabia
Hughes, Geraint Wyn, Saudi Aramco, Dhahran (R.F. Lindsay, D.M. Bacchus, D.L. Cantrell III)

Venezuela
Contreras F., Carmen Cecilia, Schlumberger Venezuela, Caracas (H. Gamero Diaz, M. Delgado, P.J. Pestman)

Certification

The following are **candidates** for certification by the Division of Professional Affairs.

Petroleum Geologist

New Mexico
Winn, Rosilee, Mar Oil & Gas Corp., Santa Fe (R.H. Lang, E.A. Beaumont, L.J. Mazzullo)

Texas
McCall, Alden B., AMX Consulting Services, Dallas (reinstatement)

Wyoming
Milliken, Mark D., Critque Inc., Casper (B. Mook, B.L. Larson, W.K. Reaves)

IN MEMORY

John Roy Melton, 73
Dallas, Aug. 12, 2005
Raymond Lee Noel, 58
Spring, Texas, Sept. 12, 2005
Raymond Wallace Rall, 79
Littleton, Colo., July 20, 2005

(Editor's note: "In Memory" listings are based on information received from the AAPG membership department.)

Hans Krause at the town of Castrojeríz. The castle on the hill was built by Romans to guard the route to gold mines in western Spain; it was destroyed by the 1755 Lisbon earthquake. The Church of Santa María del Manzano stands to the right.

Commentary

Oil Finder Takes An Historic Trek

By HANS KRAUSE

In the spring of 2001 my wife Judi and I were in Burgos, one of Spain's history-filled cities. While admiring the stained glass windows in the cathedral I noticed a group of backpackers who displayed scallop shells on their packs.

Having once worked for an oil company identified by that symbol, I couldn't resist asking them, "Why the scallop shells?"

I was almost expecting them to be fellow oil people in disguise, which they weren't. They explained that they were pilgrims, passing through Burgos on their way to the western Spanish city of Santiago de Compostela, and that the scallop, common along the beaches of Galicia, was the centuries-old symbol of the pilgrims walking the Camino de Santiago, the Way of St. James.

I became interested and decided to find out more about this pilgrimage, which turned out to be a fascinating mixture of history, legend, religion, politics and business acumen.

Fascination led to action, and last May I stood in the French Pyrenees, in the village of St. Jean Pied-de-Port, at the start of my own 500-mile trek across northern Spain to Santiago de Compostela.

* * *

History tells us that the Apostle St. James the Elder was beheaded in Jerusalem in A.D. 44. Legend says that his body was transported in a week-long journey by a rudderless stone ship to the shores of what is now Galicia, in western Spain. There he lay buried and forgotten until 813, when a hermit rediscovered his bones and the local bishop verified that they belonged to St. James. Within a few years, the king of Asturias visited the site, built a chapel and declared James, Santiago in Spanish, the patron saint of Spain. Masterful medieval marketing soon followed and brought an increasing stream of pilgrims to Santiago's shrine. For Christian rulers it was a way to drive out the Moors; for businesses along the trail it meant incoming cash.

Santiago's name became more and more involved in the struggle between Christians and Moors across the Iberian Peninsula, and on occasion troops were said to have seen him descend from heaven on a white charger to help turn the tide of battle.

The number of pilgrims shriveled after the Christian reconquest of Spain was completed in 1492, and from then until late in the 20th century, when it once again became popular, few walked the Camino de Santiago.

In 1987 the European Union declared the Camino Europe's first Cultural Itinerary,

continued on next page

2005 Discoveries

from page 23

billion barrels of oil in place had been indicated in the Ramin oil field and that recoverable reserves had been estimated at 855 MMbo from four reservoirs together with 8,544 Bcf of gas, with 1,200 Bcf recoverable. The field currently produces around 2,000 b/d from the Asmari Formation, but with the new deeper pool, this should increase to 80,000 to 90,000 b/d.

Kuwait – Umm Niqa 1 is significant as it marks the first time that a well in Kuwait tested light crude in the Lower Jurassic Upper Marrat Formation; three test intervals yielded 1,879 b/d of 45-degree API of crude with 10.2 MMcf/d of associated gas. Also, two intervals in the Middle Jurassic Najmah/Sargelu formation flowed 1,300 b/d of 49-degree API crude with 14.5 MMcfg/d while two intervals in the Lower Jurassic Middle Marrat Formation flowed 2,455 b/d of 45.4-degree API crude and 14.4 MMcfg/d.

Turkey – Madison Oil's Akkaya 1 well in the 486-square-kilometer 3499 Black Sea block, South Akcakoca sub-basin, established a 283 meter gross gas column in which a test over an 84.5-meter interval flowed 7.6 MMcf/d from the Eocene Kusuri Formation through a 36/64-inch choke.

FAR EAST

China – PetroChina-Xinjiang flowed commercial oil and in new-pool wildcat An 5 in Lease Block Southern Margin West, southern Junggar Basin. The well tested 660 bo/d and 233 Mcfg/d, having previously flowed 121 bo/d and 42 Mcfg/d from the middle part of the Anjihai Formation. The well is significant in that this is the first time commercial hydrocarbon flows have been obtained from the Anjihai Formation along the basin's southern margin. The structure has hydrocarbon resources forecasted at 668 MMboe.

China – PetroChina-Tarim flowed oil and gas from a second interval in new-field wildcat Tazhong 82, in the Takla Makan desert, central Tarim Basin. The company tested 1,702 bo/d and 13,225 Mcfg/d from the second interval having earlier flowed 126 bo/d and 706 Mcfg/d from a deeper zone.

LATIN AMERICA

Brazil – Petrobras filed an oil and gas show report with the ANP for the 4-SPS-043DA (4-BRSA-334DA-SPS) well, suggesting it was a successful confirmation of the 1-SPS-037A (1-BRSA-201A-SPS) gas discovery the operator completed in July 2003. Petrobras is calling this the Cedro Field, a separate pool discovery of the Mexilhao Field located 10 kilometers to the northeast. The find extends the Cedro Field eight kilometers to the southwest, and although not confirmed, reserves are estimated here to be at least in the 500 Bcf range.

Peru – Petro-Tech tested 1,200 b/d of 35-degree API oil from the Paleozoic in San Pedro 1X, a wildcat in the southwest corner of offshore Sechura Basin shelf Block Z-2B. Petro-Tech calls it Peru's biggest crude oil discovery in the last 30 years. It also is the first oil discovered in the Sechura Basin, despite an exploration history in the area dating back 100 years, and the basin's first substantial discovery of any kind. The basin's northern part has had some small gas discoveries, but only minor production. It also is further south than any oil previously discovered offshore in Peru. San Pedro 1-X has opened a whole new productive trend in the Paleozoic in this basin, where reserves are thought to be 500 to 1000 MMbo. Peru has little Paleozoic exploration or production, and this find has renewed interest in the offshore.

Peru – Energy and Mines Minister Glodomiro Sanchez Mejia announced Buena Vista 1-X in the south central portion of Block 39 in the Maranon Basin as an important oil discovery. The well flowed 2,830 b/d of 13.7-degree API oil from the Chonta and Casablanca formations. Reserves have been estimated at 70 MMb. The well is located about 14 kilometers south of Barrett Resources 1998 discovery well Pirana 1X, and 19 kilometers northeast of Tangarana 1-X, abandoned in 1975 by Union Oil with heavy oil shows. The Buena Vista 1-X could be considered as the fourth heavy oil find in the area and, if developed together, could generate a 280 MMbo reserve estimate. ❑

continued from previous page

and by 1993 the United Nations added it to its World Heritage list. The yearly number of pilgrims has been rising since, and it is estimated that in 2004 an estimated 180,000 walked or biked the Camino.

* * *

Physically strenuous as the walk is today, it is a fraction of the effort that was required in the past.

In the Middle Ages walking or riding from somewhere in Europe to Santiago was a risky journey, an undertaking of sometimes years, from which many, for one reason or another, did not return. The driving force for most was religion; for others it was probably the search for adventure. And for some it was punishment, the stark choice between a chance to atone for a crime via the pilgrimage or the gallows.

Nowadays every person seems to have a different reason for doing the Camino, and each does it in his or her own way. Many still are motivated by religion or mysticism. For others it is a long hike or a time to share with friends. Some do it in one go; others do it in shorter segments over a span of years. Most overnight in economical, volunteer-run hostels along the way; others stay in expensive hotels.

Santiago de Compostela is the end point, but the starting points are multiple. Four Dutchmen I met had started in Rotterdam and walked across Belgium and France. Though most pilgrims were European I encountered people from many nations.

(A surprising number were Brazilian, including one group that I had decided in my mind was Japanese – until I heard them converse in very lively Portuguese!)

Thirty days after leaving St. Jean Pied-de-Port I reached the square in front of the magnificent cathedral of Santiago de Compostela. As had thousands of pilgrims across centuries, I entered the cathedral, bopped my head against the bust of Maestro Mateo, its 13th century architect, and placed my right hand on the marble column behind the Maestro.

The deeply worn finger grooves in the stone confirmed that I had reached my goal, which had been the journey and not the destination.

(Editor's note: Krause, an AAPG member, is an independent consultant in Caracas, Venezuela.)

CLASSIFIEDADS

POSITION AVAILABLE

Petroleum Technology: Assistant Professor (tenure track) for Fall 2006 to teach Petroleum Technology courses in the undergraduate BSIT program. A doctorate in the field of Petroleum Technology, or related field. Applicants are expected to develop and teach courses such as Petroleum Fundamentals, Petroleum Measurement, Gas (Fluid) Measurement, Pipeline Hydraulics, Pipeline Technology, Petroleum Production Technology and/or related areas. Successful candidates must demonstrate potential for excellence in teaching, research/publications, and service. Send letter of application, resume, and names, addresses, phone numbers and email addresses for three references to: Dr. Geralyn McClure Franklin, Dean, School of Business, The University of Texas of the Permian Basin, 4901 E. University, Odessa, TX 79762-0001 or via e-mail to franklin_g@utpb.edu. The position is open until filled. See www.utpb.edu <outbind://1/www.utpb.edu> .

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Happy New Year!

* *

Chair Position in the Department of Geological Sciences & Engineering University of Missouri-Rolla

The University of Missouri-Rolla, Missouri's premier science and technology university, invites applications for Chair of the Department of Geological Sciences & Engineering, to begin August 1, 2006. The department is building on sustained growth in research and teaching. We seek an exceptional scientist or engineer from the fields of Petroleum Engineering, Geological Engineering, Geology, or Geophysics to provide leadership and assist in creating a dynamic environment for the collaborative growth of these programs within the School of Materials, Energy, and Earth Resources. The Department has 15 full-time faculty, and currently has 120 undergraduate and 45 graduate degree seeking students with established BS, MS, and PhD programs in Petroleum Engineering, Geological Engineering, and Geology & Geophysics. Candidates must have demonstrated teaching and research excellence, including an internationally-recognized publication record and experience in obtaining and managing significant externally-funded research programs or equivalent industry/government experience The successful candidate is expected to provide leadership for the department in the areas of student and faculty recruitment, undergraduate and graduate teaching, fostering growth in distance education opportunities, research and service missions of the department, alumni, government, and private sector relationships, as well as maintain excellent working relationships with closely related departments on campus. Additional information about the department is available at http://gse.umr.edu/

Applications must include (1) a curriculum vitae including published research and grant support, (2) a statement of research and teaching goals, (3) a statement of vision and leadership goals for our department, (4) selected reprints, and (5) the names and contact information for at least four references. Review of applications will begin on January 15, 2006 and will continue until the position is filled. Please send application to:
Human Resources Services
Reference number #00030883
University of Missouri-Rolla
1202 North Bishop
1870 Miner Circle
Rolla, MO 65409-1050

Any questions regarding the position should be directed to the chair of the search committee at atekwana @umr.edu.

UMR is an equal opportunity/affirmative action employer. Our department is committed to promoting diversity within the university community and in the curriculum. Candidates that can contribute to these goals, as well as those outlined above, are strongly encouraged to apply.

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For further information or assistance, call Brenda Merideth at (918) 560-2647 or (800) 288-7636 (Canada and USA).

Mathematical Statistician: GS-1529-14

Permanent Full Time (one position)
Announcement Number: ER-2006-0028
Located in: Reston, Va.
Announcement Dates: Jan 2, 2006 through Feb. 28, 2006

The U. S. Geological Survey invites applications for the following position. This position is in the Eastern Energy Resources Team, Geologic Discipline, located in Reston, VA. The Team has responsibility for planning and conducting research relating to the oil, gas, and coal resources of the United States and for the application of the results of these investigations to the exploration, development, and assessment of the resources. Applicants must apply online on the Online Automated Recruitment Service (OARS): http://www.usgs.gov/ohr/oars.

The Energy Resources Team has oil and gas, and coal resource volume and quality assessment responsibilities as well as research responsibilities relating to effects of fossil fuel combustion and carbon sequestration. The incumbent will serve as a member of a multi-disciplinary team (geologist, geochemists, geophysicists, and economists.) to design assessment methods and participate in the preparation of assessments. In addition, the incumbent will be responsible for design, analysis, interpretation of laboratory experiments, and in the sampling design of field data collection programs in support of ongoing team research activities.

DIRECTOR'S CORNER

Cooperative Efforts Yield Results

By RICK FRITZ

It is the start of a new year, and AAPG is making an assessment of its strategic goals. One of those goals is to develop more intersociety cooperative efforts.

* * *

On Nov. 21-23, AAPG participated in the first joint international event among Society of Professional Engineers, Society of Exploration Geophysicists and European Association of Geoscientists and Engineers in the Middle East. The International Petroleum Technology Conference, or IPTC, was held in Doha, Qatar. The inaugural conference was managed by SPE with assistance and sponsorship from AAPG, SEG and EAGE, especially with regard to developing the technical program.

Doha is an important site, as Qatar has extensive gas reserves. The North Field is the largest single non-associated gas field in the world, and Qatar is developing the capacity to be the leader in world LNG exports.

Doha also is a beautiful modern city and its people were gracious hosts.

Approximately 2,500 people from around the world attended the three-day conference. The official sponsor for the event was Qatar Petroleum. The two principal sponsors included ExxonMobil and Shell.

* * *

Associations referred to in this article by their acronyms are:

SPE – Society of Professional Engineers.
SEG – Society of Exploration Geophysicists.
EAGE – European Association of Geoscientists and Engineers.
AAPL – American Association of Professional Landmen.
IPAA – Independent Petroleum Association of America.
GSA – Geological Society of America.
MSA – Mineralogical Society of America.
AGI – American Geological Institute.

Since 2000, AAPG has nearly doubled the number of intersociety cooperative projects around the globe.

This year, for example:

✓ AAPG and EAGE are acting as Conference Secretariat for the upcoming GEO 2006 conference and exhibition, which is held on even years in Bahrain. GEO 2006 is owned and operated by Arabian Exhibition Management. SEG is a key sponsor for this three-day event.

✓ In two months AAPG will participate for the first time in the very successful winter NAPE show in Houston. AAPL is the general partner in the program and IPAA, SEG and AAPG are limited partners. We encourage all AAPG members to support this program.

✓ APPEX London 2006 will be held March 6-9 in London. The sponsoring entities include the Geological Society of London (GSL), the Energy Institute (EI), the International Organization of Oil and Gas Producers (OGP) and the UK Department of Trade and Industry (DTI).

✓ Also, this year, AAPG participated in the launch of Geoscience World, a digital aggregate designed primarily for universities. Along with AAPG, the co-founders of this project are GSA, SEG, GSL, SEPM, MSA and AGI; including AAPG, a total of 22 societies participate in this program.

* * *

Datapages is perhaps one of AAPG's most successful intersociety programs. Datapages' goal is to digitally capture geoscience data, especially society archives, and ultimately place this data into usable search and GIS formats.

Currently, over 30 societies participate in the Datapages program. Recently the Canadian Society of Petroleum Geology (CSPG) and the Indonesian Petroleum Association joined the Datapages program. AAPG also helped Petroleum Abstracts develop their new digital delivery system.

Of course, almost all of AAPG's conferences are held jointly with other societies. AAPG's Annual Convention always is held jointly with SEPM, and last year in Calgary the host of AAPG's annual meeting was the CSPG.

This year's international meeting in Paris was held with the Institut Français du Pétrole as host, and next year we will travel to Perth, where the host will be the Petroleum Exploration Society of Australia. This should be a great event.

AAPG is constantly looking for new projects with our sister societies. This year we signed agreements to develop joint workshops with SPE and EAGE.

The next IPTC is scheduled to be in Dubai in 2007.

If you have any ideas on good intersociety joint projects, please let us know.

* * *

I wish all of you a happy and very productive new year.

GEO-DC Office, Board Certification

DPA Plans Being Advanced

By DEBORAH K. SACREY
DPA President

"Several noteworthy items concerning DPA business have happened ... the most important being that we have a director for the GEO-DC Washington office."

It is hard to believe that a new year already has begun, and my tenure as president of the DPA is half over. I guess it's true that time flies when you are having fun!

Several noteworthy items concerning DPA business have happened since the last time we wrote for the EXPLORER, the most important being that we have a director for the GEO-DC Washington office. (See related story, page 16.)

The GEO-DC Board of Governors and AAPG Executive Director Rick Fritz evaluated 10 very qualified candidates for the GEO-DC position during October. I was amazed at the quality and breadth of experience that the candidates had in their resumes.

However, there was one person who really stood out from the crowd when it came to the needs of the AAPG (and DPA!) and the definitions within the business plan. This person is Don Juckett, who got his Ph.D. in organic chemistry, but who has worked in all aspects of the "oil patch."

Don spent 14 years with Phillips Petroleum in Bartlesville, Okla., providing technical and research support for prospects in the North Sea, Europe, the Middle East, South America, Africa, Indonesia and China. He also worked in exploration and production, mainly through the research and development department, providing technical support for 30 plays in the United States.

He eventually managed the staff responsible for technology transfer, R&D activities and field support for five worldwide divisions.

Don left Phillips in 1988 and started working in the government arena. He worked in various capacities for the Department of Fossil Energy, starting as director of the Office of Geoscience Research, to finally being director for the Office of Natural Gas and Petroleum Import and Export Activities.

Then, in 2003, Don became a member of the board of directors of the Far East Energy Corp., a Houston-based E&P company with about 1.5 million acres of coal bed methane leases in central China.

He also is a consultant on natural gas and oil data.

As soon as he formally accepted the position he hit the ground running, attending the National Academy of Science Committee on Earth Resources meeting. He already has identified several opportunities for AAPG to seek grants through activities ongoing with this committee.

I believe Don will be a real asset to the membership of the AAPG and DPA, and hope everyone will give him a warm welcome to our organization!

* * *

DPA held its mid-year meeting in Houston Nov. 12. This is really the only time, other than the annual meeting, the board meets and conducts DPA business. We had a surprisingly good attendance, given the proximity to Thanksgiving and the distances that members had to travel.

One of the major items discussed were changes to the Bylaws made necessary by the creation of the new membership level – Board Certified. The Bylaws changes are still being "tweaked" at this point, but the DPA membership should expect to see a ballot for the changes in the near future.

Another item of business to occur is the approval of the people receiving honors and awards, and the slate of officer candidates. At the time of this writing the EC of AAPG has not yet approved the slate of officer candidates, so I cannot mention any names. However, I can tell you the names of the excellent and deserving people receiving DPA honors and awards:

✓ The Life Member Award is being presented to **Donald E. Lawson**.

✓ The Distinguished Service Award is going to be presented to **Rick L. Ericksen**.

✓ The DPA Heritage Award is going to **William L. Fisher**.

✓ The Past President's Award will be given to **J. Michael Party**.

✓ Certificates of Merit will be presented to **Debra Rutan** (treasurer, 1998-2000); **Jeffery C. Greenawalt** (treasurer 2004-06); and **Daniel J. Tearpock**, for his work on the Reserve Evaluator Committee.

These are excellent nominations, and I thank Terry Hollrah and his committee for the work they did in coming up with these recipients.

* * *

I guess I had better close (as the editor gives me word limits!) by saying the DPA has some great events at the annual meeting coming up next April in Houston – so stay tuned for more information in the next column! ❑