AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

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ROCKY MOUNTAIN ROUNDUP

No Rest In the West

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AAPG EXPLORER

On the cover: It's a new century and a new era, but Horace Greeley's famous words still ring true for today's U.S. exploration efforts – if you want success, go west. This month's EXPLORER offers our first "Rocky Mountain Roundup" issue with a variety of stories that tell of the struggles, accomplishments and remaining potential that can be found throughout the region. Cover design by Rusty Johnson; photos courtesy of Lyco Energy, Bill Barrett Corp. and Rusty Johnson.

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2006-07 AAPG Officers Elected

Willard R. "Will Green, an independent from Midland, Texas, was voted president-elect by the AAPG membership. He will serve as AAPG president in 2007-08.

Also elected were:

❑ Vice president – **John C. Dolson**, of TNK-BP, Moscow, Russia.

❑ Treasurer – **Randi S. Martinsen**, University of Wyoming, Laramie, Wyo.

All three will begin their duties on July 1, serving on an Executive Committee headed by Lee Billingsley as president.

Remaining on the committee are J. Michael Party, who will complete the second of a two-year term as secretary; and Ernest Mancini, who will serve the final year of a three-year term as Editor.

Larry Jones, of Houston, will also serve on the Executive Committee as chairman of the House of Delegates.

Green, the fourth petition candidate in the last four ballot seasons and in the 89-year history of AAPG, is the second petition candidate voted into office.

Green was named winner after the runoff system adopted last year was invoked, where the third candidate is dropped and the preference votes came into play for the two remaining candidates, with Green tallying over 50 percent. ❑

PRESIDENT'S COLUMN

President Reflects On Past Fiscal Year

By PETER R. ROSE

This is the last letter I shall write to AAPG members as their 89th president, and it summarizes the Executive Committee's goals and accomplishments during the 2005-06 fiscal year.

The accompanying table (see page 4) provides details comparing the EC's 11 stated goals at the start of our fiscal year 2005-06 last July 1 (printed in bold) with what has actually been accomplished (as a percentage) during the following 11 months (in italic).

Following are some comments on a few developments not anticipated when I took office. From there I'll move on to some observations about AAPG policies and directions, and conclude with some personal observations about my year as president.

Summary

❒ Fiscal year 2005-06 has been an excellent year for the Association. As promised, we stayed within budgeting constraints and will finish in the black, with an expected surplus of around $500,000 (final financial results will be reported in fall 2006).

❒ Although membership continued its expected decline, active new measures are under way to reverse this trend next year.

❒ AAPG sponsored or co-sponsored seven U.S. and international meetings during FY 2005-06. All were technically successful; six of the seven were commercially successful.

❒ The Executive Committee enjoyed a good working relationship with Executive Director Rick Fritz.

❒ All the goals that are rated in the 50-70 percent range were multi-year initiatives that made a good start in their first year. There were no major disappointments.

* * *

There were other unanticipated, but noteworthy, developments during FY 2005-06:

✓ AAPG undertook two legal actions – one to protect its copyrights from unwarranted infringement, the other to recover deposits from its ground operator for the September 2005 international conference in Paris. Negotiations are proceeding in both matters and favorable outcomes are expected.

✓ The joint AAPG/SPEE/SPE Reserve Evaluator Training project continued to progress, implemented on behalf of AAPG by the Division of Professional Affairs and co-chaired by DPA's Dan Tearpock. The first Geotechnical Training module was completed and presented at the Annual Convention in Houston. The AAPG/SPEE/SPE group provided the basis for proposing, with the World Petroleum Council and other sister societies, a spring 2007 conference on reserves and resources in Washington, D.C., involving three concerned groups – accounting professionals, geotechnical/engineering professionals and government regulators, administrators and legislators.

✓ Proposals affecting U.S. as well as international AAPG members were suggested by the president:

❒ Constitutional and Bylaws amendments creating two vice presidents – a VP (Sections) and a VP (Regions) – were passed overwhelmingly by the HoD on April 9 in Houston.

The Constitutional Amendment was sent out to members for their approval on April 26, and final results will be known by June 30.

❒ Graduated dues based directly or indirectly on "ability to pay" was referred to a "blue ribbon" committee chaired by the chair of the Advisory Council, for study and recommendation to the EC and HoD leadership by Oct. 15, 2006.

❒ Simplifying and facilitating applications for AAPG membership was referred to Executive Director Fritz, to be implemented by Tulsa HQ. Online applications, with translations of applications into Chinese, Arabic, Russian and Spanish, plus establishment of Regional/Sectional Applications Review Committee, were all under way in the last half of FY 2005-06.

✓ Responding to continued suggestions and inquiries (as well as the Strategic Plan), I asked past president Marlan Downey to head a committee charged with evaluating the optimum long-term location of AAPG's headquarters, and to report back to the Executive Committee in June 2006.

✓ Recognizing the long-term potential financial liability represented by AAPG's current Defined Benefits Pension Plan, the EC established an ad hoc committee to explore procedures by which the plan could be discontinued, fully compensate participating employees and adopt an alternate 401(k) plan. This committee

See **President**, next page

TAKING STOCK, SUMMING UP AND REFLECTIONS ON FY 2005-06

AAPG EXECUTIVE COMMITTEE GOALS, 2005-06 VERSUS *(%) ACTUAL ACCOMPLISHMENTS*

1. DIGEST/CONSOLIDATE/INSTITUTIONALIZE 2004-05 INITIATIVES – Get iMIS/Great Plains, Zero Base Budgeting, new overhead systems standardized. *(95%) SUMMARY: Fully accomplished and integrated; routine use as management tool may need more time.*

2. TRANSFORM TULSA – Work with Executive Director (ED); Finish second TacOps Committee report, start third report; staff organization and effectiveness issues: chain-of-command, initiative, delegation, accountability, responsibility, performance reviews, continuous improvement (Hermann Eben). Dedicated clerical help for president. *(60%) SUMMARY: Progress being made in adjusting culture, but uneven; need to become proactive rather than reactive; clearer performance-based culture with manifest service orientation; still a ways to go:*

a. Quarterly performance reviews with ED.
b. TacOps Report #2 (Geoscience) completed, implementation under way; TacOps Report #3 (Business) will commence Q4.
c. Staff organization and effectiveness – Sections/Regions coordinator moved to ED supervision, responsiveness improved, some staff changes, regular staff coaching (Hermann Eben); chronic understaffing corrected by new hires, with more stringent performance measurement.
d. HQ Location Committee report due June 1.
e. Dedicated clerical support for president agreed as policy.

3. REVITALIZE COMMITTEES – Motivated chairs, connected with EC liaisons; training (Hermann Eben); valid charge w/buy-in; effective decision-making, balanced membership, goals and time-tables; monitored performance by CoC. *(70%) SUMMARY: Progress being made, need more frequent reports to EC representatives; need earlier and more frequent committee meetings to plan and monitor progress; this needs continued attention.*

a. Revision and reorganization by EC from 48 committees to 36.
b. Appointed active new chairs, connected with EC liaisons.
c. Training for committee leaders re effectiveness, performance (Hermann Eben).
d. Valid committee charges, re-evaluate leadership in Q4.
e. Balanced committee membership – more young professionals, international, industry representatives.
f. Committee Oversight Committee monitored performance.

4. RENEW RELATIONSHIPS WITH SECTIONS – Peter R. Rose (PRR) Section speaking dates, AAPG Town Hall meetings, emphasized Leadership Conference role, membership retention, increased nominations to AC. *(70%) SUMMARY: Progress being made, needs more work in FY 2006-07.*

a. PRR visited all six sections, 13 affiliated societies, ~2,000 members; repaired some relationships between HQ and Sections.
b. Sections/Regions coordinator hired, ED monthly teleconferences with Section presidents, relationships improving, fewer complaints about HQ services from sections.
c. Leadership Conference (Galveston) – largest ever, useful

training, "hot" topics reviewed w/reports, very successful.
d. Membership retention – expanded, reorganized Membership Committee (Dan Smith).
e. More nominees for officer candidates, Honors and Awards – still uneven, AC representatives must be more proactive.
f. Need more effective communication to members about value of AAPG membership.

5. INCREASE INTERNATIONAL MEMBERSHIP – Goal ~ 1,000 new; PRR speaking tours (2) encourage Region annual meetings; involve and invigorate regional leadership; involve with AAPG standing committees. *(60%) SUMMARY: Much progress (laying foundations), must have follow-through in next two years, two VPs proposal essential; won't know for 6-12 months whether international efforts have been productive re membership; evidence of stronger Regional communities via meetings, committee participation.*

a. PRR tours: 15 countries, 19 professional societies, 17 student groups.
b. PRR: 18 business meetings with international industry leaders promoting AAPG.
c. Regional meetings under way in all six Regions.
d. VP (Regions) important to represent and empower Region leadership.
e. Graduated Dues committee set up, at work, reports to EC Oct. 15.
f. Applications easier, online, regional review committees being set up by HQ.
g. Emphasize international participation in committees (FY 2006-07).
h. Opened London office; evaluate others (Moscow, Bahrain, Kuala Lumpur).
i. Proposed company sponsored memberships to four NOCs.
j. Very successful GEO conference (Bahrain) March 2006.
k. Monthly conference calls with ED.

6. INCREASE AAPG ANNUAL INCOME – $500K annual; Sources: NAPE, APPEX, Research Conferences, GEO, IPTC, etc. *(100%) SUMMARY: Annual earned income increased ~$400K, plus AAPG Foundation grants may be increased; expenses reduced (*BULLETIN*, Datapages) ~ $300K. Net surplus > $700K. Income sources diversified.*

7. ESTABLISH GOV'T AFFAIRS OFFICE – Set up Board of Governors, choose new director; establish relationships, priorities and values, obtain support. *(100%) SUMMARY: Board of Governors (BoG) appointed; GEO-DC up and running with excellent early results (Don Juckett, director)*

a. BoG operating.
b. AAPG involved in government energy study.
c. Advisories now regularly arriving to BoG, ED, GAC, EC.
d. Reserves and Resources conference planned spring 2007 with SPE, SPEE and WPC.

8. OBTAIN NEW CONTRIBUTIONS – ~$4MM Foundation campaign; corporate support; PRR cultivate Foundation relationship. *(275%) SUMMARY: Greatly exceeding expectations.*

a. Contributions in Year 1 > $11M.
b. Contributions coordinator hired.
c. Campaign under way by AAPG Foundation.
d. Good working relationship with Foundation leaders.

9. PRACTICAL LONG-RANGE PLAN – Final version (2005); "Call in the Experts"; measurable and achievable mid-term strategies; sound, doable short-term tactical plan with clear goals. *(95%) SUMMARY: Essentially completed.*

a. Final management review finished.
b. Final edit due June 30, 2006.
c. ED designing business plan from the Long Range Plan.

10. REVITALIZE THE DIVISIONS – Workshops; training in goal-setting, implementation, follow-through. *(60%) SUMMARY: A good start, must maintain progress in FY 2006-07.*

a. Divisions workshops (8-05 Dallas).
b. Management training (Hermann Eben) 2005-06.
c. Regular conferences with ED.
d. Memberships stabilizing.
e. Developing new publications.
f. Focusing on pertinent tasks: DEG (field trip safety); DPA (GEO-DC; reserve evaluator training project); EMD.

11. PROMOTE JOINT EVENTS WITH SISTER SOCIETIES – SEG, EAGE, SPE; Proactive pursuit of future cooperation and consolidation, especially joint annual meetings. *(50%) SUMMARY: Started, with uneven success; good ED buy-in.*

a. SEG – Committee to review long-range joint plans; maybe focus on near-term regional events; apparent support for more cooperation from senior leadership.
b. EAGE – Joint conferences and workshops, possible joint overseas offices.
c. SPE – Participation in IPTC, OTC; reserves studies; joint research conferences.
d. SPEE – Reserve evaluator initiative. ❑

President

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reported progress to the EC on May 22.

✓ In February, AAPG HQ received a number of complaints about our decision to award the 2006 Journalism Award to author Michael Crichton for his novels *State of Fear* (2004) and *Jurassic Park* (1991). Most of the complaints were directed at *State of Fear*, for its condemnation of scare-tactics employed by the environmental lobby.

Fritz issued an excellent public justification of the award, while acknowledging that it was poorly named. The EC changed the name of the award at its April 12 meeting to "Geosciences in the Media" Award.

* * *

Kudos and olive wreaths to General Chairman Charles Sternbach, vice chairs Deborah Sacrey and Dan Tearpock, and technical program chair Bob Merrill for a superb 2006 Annual Convention. Contributions chair Gonz Enciso raised a record $600,000 in corporate contributions.

HOUSTON, WE HAD A MEETING!

There were 8,223 attendees who enjoyed excellent facilities, mind-boggling exhibits, a superlative technical program and every ancillary feature and event one could imagine. It was a truly memorable convention, sponsored by an outstanding host society – so successful that crude oil went up to $75 within two weeks afterward. Now that's performance!

Members of the HGS worked for more than two years organizing and preparing for the 2006 meeting. They deserve a warm thank-you from everyone who attended.

* * *

As a respected international association of professional geoscientists, it is now time for AAPG to adopt an informed and responsible public stance with regard to world supply and usage of crude oil and natural gas.

We should not be arguing about when "peak oil" will arrive, because that is not the critical question. Instead we should be warning the public about the steady convergence of global crude oil demand upon available world productive capacity, as expressed by the decline of OPEC spare capacity since January 2003, and rational, feasible means to alleviate the problem.

With maximum visibility we should be urging all available remedies – conservation, increased efficiency, alternate sources, expanded access to energy lands, a more active public voice for AAPG and informed, responsible energy leadership from government.

Such a stance by AAPG also would be consistent with some policies espoused by the environmental lobby (for partly different reasons), which might provide some welcome relief to the consistently opposed positions AAPG usually finds itself taking with respect to doctrinaire environmental interests!

* * *

As I have learned more and more about AAPG over the past two years, I'm increasingly impressed with what great value AAPG provides to members for their annual dues – much more value than do sister societies such as SPE, SEG and EAGE. But what really gets your attention is when you ask other professionals what services their professional associations provide, and what their dues are.

For example, I have a relative who is a licensed member of the American Institute of Architects (membership about 70,000). Annual dues are $700, with his employing firm also contributing additional dues on behalf of their professional employees. For this he receives services and products that are broadly analogous but somewhat reduced compared to AAPG's.

So AAPG is a bona fide bargain; the problem is that despite repeated efforts to spread the word about our various services to members, we still get frequent critical comments from members who aren't aware of the services and values available through their membership.

Take a look, friends! Are you taking full advantage of the service and products AAPG provides?

* * *

Fortunate circumstances made it possible for me to devote all my time to AAPG affairs, from January 2005 clear through to the end of June 2006.

For me, being AAPG president was a full-time job, and I am impressed that most of my predecessors have carried out the president's duties while holding down their real jobs simultaneously! How in the world were they able to accomplish that?

In any case, it really is a big job. During FY 2005-06 I logged 120,000 air miles, visited all six U.S. Sections and four

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international Regions, made more than 60 formal presentations to professional and student audiences and participated in at least 40 business meetings. I wrote an estimated 300 pages of text for the EXPLORER and *Delegates' Voice*, position papers and official correspondence, and God only knows how many e-mails!

The Executive Committee met together nine times and by teleconference three times. A substantial aspect of the president's job is ceremonial, which I found to be demanding, interesting and gratifying: demanding, because of the required full attention to protocol and often impromptu public speaking; interesting in meeting many influential leaders; and (especially) gratifying in being able to recognize and thank (on behalf of AAPG) so many accomplished geoscientists who have contributed so much to our profession and to society. That was indeed a high privilege for me.

But I always remembered that the spotlight was not on Pete Rose – rather it was on AAPG!

* * *

I want to thank many people who helped make this a productive and fulfilling year for me and for the Association:

✓ The hard-working, capable and cheerful AAPG headquarters staff, all good people who did their best to help an often demanding, occasionally impatient president.

✓ Receptive, intelligent and conscientious House of Delegates' leadership and Advisory Council representatives who translated my sometimes flawed visions into useful legislation and procedural recommendations.

✓ Faithful, diligent and objective members of the Executive Committee, who worked collegially and productively for the good of the Association, especially Lee Billingsley, president-elect, who took on necessary special chores, provided wise counsel and support and who will serve very capably as my successor.

✓ Executive Director Rick Fritz, who admirably and cheerfully kept a complex organization on track while embracing and adapting to many new priorities and mandates.

✓ Rose & Associates LLP, which generously provided financial support for the 2006 Presidential Reception in Houston, a real blast!

✓ Elizabeth Sherry, my long-standing office manager, whose proficient and responsive help made my year possible.

✓ Alice Rose, my wife and primary support, who accompanied me on many AAPG events, brightening them up for everyone (and who looks forward to getting her husband back!).

✓ And above all, to 30,000 AAPG members who allowed me to represent their wonderful association during this past year. Ladies and gentlemen, it has been a privilege and pleasure to serve as your 89th president.

* * *

Recommended reading: *Human Nature*, by James Trefill (2004), Times Books (Henry Holt & Co).

The first book I have yet found written by an informed, objective, broad-gauge scientist who examines the entire environmental movement from a thoughtful, calm and rational perspective, free from either doctrinaire zealotry or dogmatic denial.

Read it, you'll like it!

Onward!

Photos courtesy of Bill Barrett Corp.

Exploration operations in Utah's beautiful but rugged and remote West Tavaputs Plateau required determined and often innovative approaches – on land and in the air.

Tough Topography, Tough Regulations

Uinta Success Didn't Come Easy

By DIANE FREEMAN
EXPLORER Correspondent

Success stories often include words like "fun" and "wonderful."

When Roy Roux talks about his company's success in Utah's remote and rugged Southwest Uinta Basin, different words are used.

Words like hard. Frustrating. Challenging.

And ultimately, of course, rewarding.

"All our activities have been difficult," Roux said of the lengthy process of drilling in the remote West Tavaputs Plateau area. "The area is rugged, remote and beautiful … The environmental obstacles were manageable, but the regulatory ones were very difficult."

Roux, senior vice president of the Bill Barrett Corp. in Denver, talked of the experience at the recent 3-D Seismic Symposium, an annual event in Denver sponsored by the Rocky Mountain Association of Geologists.

At times the story is filled with the excitement that success stories typically carry. At times the story is a cautionary tale.

Either way, company officials had a good reason for being enthusiastic about the play's potential: The survey data showed substantial structures with depth. And in the beginning, the 3-D project's estimated cost was $4.2 million.

Ultimately, costs ballooned to

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Nine Mile

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$8 million.

"We were completely unaware of the obstacles we were facing," he said.

Roux noted that patience and perseverance won out over the challenges of the project – but added that "this project would have never got off the ground if it had to pass yearly financial metrics."

'Majestic, But Rough'

The site, located south of Utah's Nine Mile Canyon, has seen sporadic exploration and intermittent drilling for the last 50 years. However, rough topography and access to markets suppressed more thorough development in the past.

How rough is it?

"Our pumpers were carrying two to three spares in the trucks to get out there," he noted.

The area saw an initial surge in the 1960s for oil, then a quiet period that became active again in the 1970s. In 2002 the Bill Barrett Corp. acquired 13 wells in the Stone Cabin, Jack Canyon and Peter's Point federal units and adjacent areas in Carbon County Utah, Southwest Uinta Basin.

The company faced an array of regulatory challenges in conducting its business in the area, far beyond what is usually encountered on federal lands, he said, including:

✓ Special interest group scrutiny.

✓ Difficult regulatory practices from the Bureau of Land Management.

✓ Intense legal opposition from environmental groups.

In April 2002 the company applied for a 3-D seismic permit with the BLM for an 83-square-mile survey that covered steep hillsides and a 6,000-foot offset.

"That's where all our producing horizons were," Roux said. "I was naive enough to think the geophysical problems would be the most difficult."

Instead, it was the regulatory requirements that caused the biggest challenge, he said; the BLM controlled 95 percent of the surface.

"We faced a whole host of BLM obstacles, from crew waste control to road dust control," he said. "It was a painful process of going through all the steps with the BLM."

Finally, in March 2004, the company received approval for the survey.

The survey was conducted in the extremely rugged plateau area south of Nine Mile Canyon that is known for containing petroglyphs and rock art. More than 240 archaeological sites were identified and avoided during the course of the seismic project, he said.

"Seismic operations were continuously followed by independent third party compliance, archaeological and ground motion monitors," Roux said.

After 54 days, the survey was completed in mid-October 2004:

✓ About 52 percent of the program was acquired with heli-portable drills.

✓ About 38 percent was acquired with buggy drills.

✓ About 10 percent was acquired by Vibroseis that was utilized on canyon roads because of its low impact. Particle motion was required within 500 feet of all recorded archaeological sites, he said.

Surface elevation on the prospect ranged from 4,700 feet to over 8,200 feet with several canyons bisecting the 3-D with vertical relief over 3,000 feet, he said.

"This difficult topography necessitated the use of true heli-portable seismic acquisition techniques for both shot hole drilling and recording," he said. "Several isolated plateaus within the 3-D boundary were recorded using recently developed microwave links, which allowed the company to avoid laying seismic cables across these rugged canyons.

"It's a majestic but rough area," he said. "We used six microwave data links that were very helpful."

And In the End …

Meanwhile, a lawsuit was brewing over the project. The Sierra Club, Wilderness Society and other environmentalist groups sued the BLM over the operation.

"We spent 22 months with the BLM. Then we got hit by a lawsuit and we prevailed in court," Roux said.

Roux noted that the company consulted with 12 Native American tribes along with four state and three federal agencies, and 14 organizations and Carbon County government in its effort to drill in the area.

After more than three years the company finally spudded a well at Peter's Point. The target was located underneath the canyon floor of Jack Canyon, which required the well be deviated laterally some 3,500 feet.

The well was spudded in May 2005 and reached a total depth of 15,349 feet in September.

This deep discovery earned the company the *Oil and Gas Investor* magazine's Discovery of the Year award.

The company plans to drill two and perhaps as many as six Dakota/Jurassic locations this year. Future wells are slated to test the deeper Weber and Mississippian Formations at 17,000 plus feet.

At the end of 2005, the West Tavaputs area had 33 producing wells and currently is producing 51 MMCFGD gross, he said. ❑

Ewing Voted DPA President-Elect

Thomas E. Ewing, of Frontera Exploration in San Antonio, has been voted president-elect by the Division of Professional Affairs.

Also elected were Suzanne Cluff, The Discovery Group, Denver, vice president; and Michael R. Canich Jr., Equitable Production, Pittsburgh, treasurer.

They will join on the DPA Executive Committee Richard G. Green, LaRoche Petroleum Consulting, Dallas, president; Craig W. Reynolds, Cobra Oil and Gas, Wichita Falls, Texas, secretary; and Deborah K. Sacrey, Auburn Energy, Houston, past president. ❑

AAPG's Explorer of the Year

Oil Finder Shares Some Insights

By DAVID BROWN
EXPLORER Correspondent

Dick Findley has two pieces of advice for working petroleum geologists.

You'll want to pay attention.

Findley opened up a Bakken formation play that led to development of the giant Elm Coulee oil field in eastern Montana.

The field now produces almost 50,000 barrels a day of high-quality crude.

By his estimate, Elm Coulee's total output will reach 200 million to 250 million barrels.

In April, Findley received AAPG's Outstanding Explorer Award.

During the same month, his likeness ended up on the cover of the *Wall Street Journal*.

Here's his first advice:

You have to think big to see big.

"If you get focused on a small trap, that's all you're going to see," he said. "You've got to step back and see the big picture."

ROCKY MOUNTAIN ROUNDUP

On Goes the Switch

Findley, a member of AAPG for more than 30 years, speaks directly from experience.

His work in the Bakken dates back to a shale play in the 1980s.

"That play, in my opinion, got pretty badly over-developed," Findley said. "It turned out there were just a couple of sweet spots."

So the linked phrase "Bakken shale" became familiar to the industry, and not always in a good way.

In the Williston Basin, the Mississippian-Devonian Bakken extends from eastern Montana across most of North Dakota and into Canada.

The upper and lower Bakken shale member has organic-rich source rock, with as much as 14 percent organic carbon. Lots of people knew the Bakken contained some oil.

But everyone thought it was too difficult to produce, and too limited to be commercial.

By the late 1980s, Findley had started his own small exploration company, Prospector Oil Inc. The Bakken was one of the formations he chose to re-evaluate, but without great enthusiasm.

"I was looking for bypassed pay on small closures at that time," he said.

The Devonian Nisku appeared promising to him, and a relatively under-explored stratigraphic trap in Richland County, Mont., seemed like a good prospect.

"It was fairly well-defined when I started out," Findley said. "However, the updip trap was not well-defined. There was a large gap in control."

Few geologists saw the Bakken as a target: "People thought of the Bakken as a re-entry, bailout zone," he noted.

But drilling disclosed good porosity and a likely oil zone in the formation's fractured-dolomite middle section, between upper and lower shale layers.

"I was surprised there was porosity in the middle member. When we went down into it, we had a really good drilling break," Findley said.

"That was a light-bulb moment for me."

A Tiger By the Tail

Findley discussed the potential new play with a partner in Michigan.

"My partner asked a very profound question. He said, 'Do we have any place to develop this idea?'" he recalled.

Starting to the south, Findley searched out existing control to see if any other well

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showed the same Bakken porosity.

"This porosity in the middle member turned out to be present in all the wells I looked at in that direction," he said.

Findley thought he'd been petting a kitten, but he had a tiger by the tail.

He knew the upper Bakken held world-class source rock. Now he had unveiled a zone with good porosity, high resistivity and low water saturation.

"Looking through the literature I found some depositional models where a shoreface model was proposed for the Bakken," he said. "It looked like a big marine bar just offshore."

Findley began studying porosity readings and indications to determine the extent of the play area.

"This is a very unique porosity zone. I'd been working this basin coming up to 25 years at the time, and I didn't know there was porosity in the middle member," he said.

"If I made one mistake, I used too high a (porosity evaluation) cutoff. I think I used 8 percent as a cutoff," he added.

When he started the Richland County work, Findley was convinced he had a promising 320-acre stratigraphic trap to explore.

He needed to think bigger.

Now the potential productive area grew to 12 miles wide and 50 miles long.

And talk about irony.

The overall size of the prospect excluded his company as the sole player.

Findley concluded that leasing would require an initial $2 million cash, with more money needed for the first tests – an impossible financial hurdle for his small company.

Big thinking for the Big Sky: Dick Findley knew he had to "think big" when he tackled the Bakken formation in eastern Montana – and doing so helped him to become the AAPG Explorer of the Year.

Photo courtesy of Lyco Energy

Bad News, Good News …

As every playmaker geologist knows, the magic isn't in putting together a prospect. The miracle is in getting one drilled.

Findley needed backing. At that point, fate, luck and timing collided.

An industry contact of Findley's had been working with Bobby Lyle, head of Dallas-based Lyco Energy Corp. He thought Lyle's independent operation might be interested in the Montana play.

"The first thing I had to tell Lyco was, 'I have a Bakken play – but it isn't shale!" Findley said.

"For most of its history, the Bakken, except in the 1980s and 1990s, was not seen in a very good light, so it was not a formation most workers would have focused on," he noted.

When he flew to Dallas to meet with Lyle, an all-day marathon meeting ensued, Findley recalled.

Lyle "asked his staff to stay over that same night to do due diligence," he said, and a deal quickly came together.

In 1996-97, Lyco began to examine the Bakken play's potential with 10 vertical wells. Out of those, seven reached the formation and three failed, Findley said.

Timing and chance intruded again.

"In 1997 there was the most precipitous price drop in the history of the

See **Findley**, next page

Members Voting on VP Question

Members are now voting if the Association will have two vice presidents, a proposal that was approved by the AAPG House of Delegates during its meeting at the Annual Convention in Houston.

With the session chaired by Donald D. Clarke, delegates voted overwhelmingly with a "stand up" vote to send the matter to the membership, which is deciding whether to change the constitution to provide for two vice president positions – one for U.S. Sections and one for international Regions.

Active AAPG members were sent information and a ballot and legal information concerning the proposal. Online voting is available at www.aapg.org. Voting will cease June 25 and results will be announced on July 1.

It will take a two-thirds majority of members to approve the constitutional change, and it must be completed by June 29.

The proposal specifically calls for changes to Article V of the constitution, and will allow for seven members of the Executive Committee (the HoD chair also is a voting member of the EC).

The Executive Committee previously had voted unanimously in favor of sending the proposal to the membership.

In other action, the House also voted Martin D. "Marty" Hewitt, with EnCana Oil & Gas, Calgary, as chairman-elect, and Jeannie Fisher Mallick, an independent consultant in Houston, was elected secretary/editor.

Larry Jones, of Spartan Petroleum in Houston, will take the House leadership role on July 1. Hewitt will serve as chairman in 2007-08. ❑

Findley

from previous page

basin. Oil went down to $8.50, I recall," he said.

Lyco suspended work, and "looking back, that was probably the best thing that could have happened to us," Findley added.

The partners had one heck of a reservoir, and Findley was convinced that oil "filled every pore space of the middle member."

But how to get it out?

The Race Is On

In a story filled with twists and turns, luck favored the partners once again.

"We went to Halliburton and asked them to develop a frac. They had actually been doing a study looking at the Bakken," Findley explained.

"It turns out Halliburton thought there were no swelling clays, and they recommended using water," he said.

In addition, Halliburton drew on horizontal drilling expertise to tap the oil zone. That greatly expanded the area of the middle member available for fracturing.

By 2000, Halliburton had invested its own money in the Bakken hunt, the first horizontal well was drilled in Findley's play, and oil began to flow.

Debates continue about the most effective development tools for the formation.

"It's still somewhat controversial, but based on the data we see, I think fracturing is just a small part of the reservoir," Findley said.

No one doubts the success of the basic approach, however. Drillers piled into the area, which should see more than 100 new wells this year.

Estimates of total oil in place in the Bakken oil play range into the hundreds of billions of barrels, so the race is on to extend Findley's concepts.

Finally, Keep It Simple

Only a short hike separates his Elm Coulee find from the Montana-North Dakota border. Because the Williston Basin Bakken can be found in most of North Dakota, interest in that state has soared.

Findley also looked into prospects there, without getting over-excited.

He sees more localized plays in North Dakota, and "a very large learning curve" to develop the Bakken as a resource.

"I came to the conclusion there was not another Elm Coulee in North Dakota, but that's not to say it has no potential," he commented.

Other operators are working the fringes of the Montana play, hoping to extend it.

Another irony: After its big success with Bakken production, Lyco Energy couldn't last long as an independent.

In July 2005, Enerplus Resources Fund of Calgary announced it would acquire Lyco for $421 million.

Elm Coulee has been called a "sleeping giant" because its potential went overlooked for so long. Findley finally changed that with a sound geological approach, backed by proof from the drillbit.

Here's his second piece of advice:

The other thing I've learned to do in my career is to keep things simple.

In the end, the working geologist has to keep going back to the vocabulary of reservoir, trap, seal and source, according to Findley.

Focus on those fundamentals, and you should be able to stay in business as a small exploration company.

Until you start thinking big. ❑

Wyoming Field 'Like a Bowl of Potato Chips'

Pinedale: Tight Gas, Tight Rules

By DIANE FREEMAN
EXPLORER Correspondent

Environmental concerns are a major factor in all U.S. exploration, but it is especially true in the West.

That includes Wyoming's Pinedale Field, a tight gas sand giant in the northwest part of the Greater Green River Basin.

Ultra Petroleum, relying on cutting-edge geophysical and geological techniques, was able to unlock the natural gas potential of Pinedale, the country's fourth largest field.

But they also relied on environmentally acceptable practices.

"Reasonable recovery will require wells drilled on equivalent to 10-acre density (5,000 wells) with wildlife and archaeological restrictions, water disposal and air quality issues, and permitting constraints," said Steve Kneller, Ultra Petroleum vice president of domestic exploration.

Ultra also relies on hydraulic frac technology.

"We use pretty extensive frac treatments," said Sally Zinke, Ultra's Denver-based geoscience manager. "That's been utilized for about a decade in this area. That's what makes Pinedale economic."

Although Ultra is headquartered in Houston, the Pinedale Field work is conducted from the company's Denver office or from Wyoming, Zinke said. The Pinedale Field area covers a 90-square-mile region.

"We have 5,700 feet of an alluvial section that's called Lance Pool, comprised of highly discontinuous sands and overpressured," she said. "We view it as a stratigraphic play with a structural overprint."

In the reservoir itself, the sands are typically nine to 15 feet thick.

"They typically come stacked in packages in excess of 50 feet," she said. "We describe it like it's a bowl of potato chips. Some chips are bigger than others when we drill into the pile."

Keeping It Fresh

Ultra acquired 450 square miles of 3-D seismic and has used it extensively in defining the area and establishing the initial reserve.

"We have nearly a 100 percent success rate," Zinke said earlier this year when speaking before the annual 3-D Seismic Symposium in Denver.

The company acquired its first 3-D seismic survey of the area in 1999. Seismic data has been used for location planning, reserve validation, lateral and vertical field expansion, drilling risk assessment, completion monitoring and resource recovery planning.

Geophysically, the company has used crosswell seismic and achieved five-foot horizontal and five-foot vertical resolution between wells to help verify the discontinuity in the reservoir and fracture efficiency, she said.

"We monitored an 18-stage frac job on one of the wells and saw the behavior of the fracs relative to the reservoir discontinuities," she said. "It was a very powerful thing for us. We saw what types of barriers exist on that scale."

ROCKY MOUNTAIN ROUNDUP

Extensive core work also has been particularly significant in the Pinedale Field project, she said.

Geologic technology has helped assess the resources in this high pressure, low porosity and permeability interval. Extensive core work also has been significant in the Pinedale project, she said. Ultra initiated a 21-interval, 10-well coring program that evaluated over 900 feet of core across the entire field.

"We've discovered that it is extremely important to have fresh state cores," she said. "The core information has really helped our understanding of reservoir fluids."

Zinke said this marked the first time the company has handled cores this way.

Conventionally, cores are dried "but we have a very small clay content in them," she added. "Our typical porosity is 7 percent. Drying the core plugs changes the fabric of the clays. If you shrivel up all the clay, you do not understand the rocks as well.

"We try to preserve them as close to the reservoir condition as we can because conventional analysis changes the rock structure," she continued. "That's really changed some of our understanding. We have almost no mobile water.

"Our formation water salinity is higher than the water we're producing. Using correct data gives us a thicker productive section and we end up with a petrophysical model that has significantly more gas in place than what was originally perceived," she said.

The petrophysical model was applied to 283 wells to develop gas in place estimates. Pinedale Field has in excess of 44 tcf of original gas in place.

"That gives us about 25.8 tcf recoverable," she said, "and that makes it a giant field.

A Sensitive Play

Meanwhile, because the field is located in an environmentally sensitive area, the company has limited surface disturbances by opting for multi-well pads.

"Typically we're drilling 16 well pads, all directional," she said.

The average well cost in the field is $5.7 million and typical reserves per well are 7.65 bcfe. ❑

Big Crowds Help Make Houston a Big Success

By VERN STEFANIC
EXPLORER Managing Editor

Smiles were broad and plentiful in Houston in April, with good reason: The AAPG Annual Convention there ended as one of the largest, most successful meetings in association history.

Final attendance figures showed 8,223 people attended the event at the George R. Brown Convention Center, the highest figure since the 1985 New Orleans meeting (9,276).

It was the fifth largest meeting in AAPG history, behind only the meetings in 1981 (San Francisco), 1980 (Denver), 1985 and 1984 (San Antonio).

"Fantastic" is one word used to describe the meeting by general chair Charles Sternbach. Others included "innovative" and "inspiring."

"We also set the record for raising the highest dollar amount of total sponsorship monies ($675,000)," Sternbach said. "We also had 207 exhibitors showing the latest technologies, and representatives from nearly 80 countries attending.

"This annual meeting was one for the record books," he said.

The meeting began with the opening session and awards ceremony, which featured a multi-media film montage that honored "the joy of discovery," plus a talk by author/geophysicist Peter Tertzakian (see related story, page 18), the presentation of AAPG awards plus remarks from this year's Sidney Powers medalist Robert Mitchum, and the presidential address from AAPG President Peter Rose.

Rose, in speaking on the meeting's theme of "Perfecting the Search, Delivering on Promises," set the scene for the next generation's energy future.

"So-called 'peak oil' is not imminent, but may occur toward the middle or end of the next generation," Rose said. "Even so, peak oil is not the key question. The larger issue is the shrinking of world productive capacity compared with growing world oil demand."

Rose said that because oil use continues to grow, "it will be increasingly expensive. It is now time for the professional societies, especially in the United States, to publicly emphasize the immediate need for increasing energy efficiency and conservation, especially with regard to motor fuels. Americans accomplished such efficiencies once before, 25 years ago, and we can do it again – but we must get started now."

He said the coming years for petroleum geoscience will be "global, challenging, exciting and rewarding.

"Our basic task, as geoscientists and engineers, is to bridge the global energy gap," he said, "to find and develop the necessary oil and natural gas supplies to sustain living standards, buying time as the world navigates a tricky transition to an increasingly hydrogen-based economy.

"We should not expect that Western society will accept our warnings about energy supply and necessary conservation without suspicion and resentment," he added. "Nor will they applaud our sustaining contributions to global welfare. We alone will recognize that our task is a skilled, necessary and heroic undertaking. I have no doubt that petroleum geoscientists will be fully equal to the challenge." ❑

For more information, visit the AAPG Web site.

Tough Future Awaits World of Oil Addicts

Geophysicist and author Peter Tertzakian told the opening session audience in Houston that the world has become addicted to oil, a theme also sounded by U.S. President George W. Bush.

Tertzakian, author of *A Thousand Barrels a Second*, said in the present environment the gap between world demand and supply has become so tight even small factors can send prices higher, while multiple events have a cumulative impact greater than their sum.

He said slowing down the global addiction to cheap oil will be disruptive and painful for global economies and for individuals. The bad news is for the first time in the history of energy consumption, there is no "magic bullet" offering an immediate, large-scale alternative.

He noted developing technology to produce energy is not akin to the easy, rapid pace of innovation in consumer electronics like cell phones, PCs and iPods.

There's also good news, he said: Forward-thinking nations, corporations and individuals can anticipate and navigate the coming break point.

– LARRY NATION

'We Deliver On Promises'

Being Taken for Granted Not Bad

By LOUISE S. DURHAM
EXPLORER Correspondent

Even though the majority of the global population relies on energy from hydrocarbons each day, it's taken for granted for the most part, noted A.T. (Tim) Cejka, president of ExxonMobil Exploration Co. and a vice president of ExxonMobil Corp.

Here's the news: That's not necessarily bad.

"This is the biggest compliment we can get, and one of the greatest measures of the industry's success," Cejka told the audience at the recent AAPG annual meeting All-Convention luncheon. "We deliver on promises."

It's widely known that the world guzzles more than 80 million barrels of crude oil each day. When you convert this to 40,000 gallons per second, it underscores why just a minor supply disruption – or even the threat of one – spooks the oil traders and plenty of other folks.

Cejka's take on remaining resources is that large volumes remain to be tapped, enough to offer challenges for future generations.

In fact, he estimates global conventional oil resources to be 3.2 trillion barrels. Adding in non-conventional frontier resources ups the total to more than four trillion barrels. These numbers include discovered and undiscovered resource estimates.

From the beginning through today, the industry has produced more than one trillion barrels.

Even though significant volumes of hydrocarbons are estimated to remain, it would be naive to think they'll be easy to find or extract. They not only will pose considerable scientific and technical challenges, it will require "big money" to find and wrest them from the reservoirs.

"The International Energy Advisory Council estimates the energy industry must invest on average $200 billion each year between now and 2030 to meet the demand in the world," Cejka said. "All nations are bound to one another."

Additionally, the global gas market is anticipated to grow as the LNG supply grows.

As the remaining resources become more challenging to ferret out, look for the barriers between the disciplines to become blurred.

Technology breakthroughs will often be found at the interface of the sub-disciplines, Cejka noted. Individuals with breadth and scalability to integrate will be fundamental to the industry's success in finding and extracting the remaining resources.

Public misconceptions about energy are many and varied, he said. Some of the more obvious are:

✔ Prices – Price fluctuations are a fact of life in commodities. Cejka doesn't expect today's prices to be reflective of what will be seen over the longer term.

✔ Energy independence – This is way far away, if ever, Cejka said. For instance, wind and solar will average double digit growth over the next 25 years, yet wind and solar will account for only 1.2 percent of U.S. energy consumption in 2030.

✔ Insularity from others – No nation can insulate itself from the global energy market; energy is, after all, a global business.

Angst abounds about the lack of new talent coming into the industry – but for those companies evaluating the somewhat rare potential new-hire, it pays off in the long run to look for a lot more than grade point average.

Look for excitement about the industry along with the ability and desire to learn, he said. These traits can help carry the industry through the next down cycle, which some say is inevitable while others still cling to the thought (hope?) that this time really is different. ❑

Future Rosy for Geologists, Speaker Says

Lower Consumption Prescribed

By SUSAN R. EATON
EXPLORER Correspondent

Amory Lovins wears many hats – theoretical physicist, adviser to the U.S. auto industry and to the Pentagon on energy efficiency, and co-founder of the Rocky Mountain Institute, a Colorado-based think tank whose vision is a world without oil by 2025.

But during the luncheon address to the Division of Environmental Geosciences at the recent AAPG Annual Convention in Houston, Lovins added a new hat to his collection – that of "wildcatter."

Lovins regaled the audience with his recent "exploration" discoveries – a "8.3-million-barrel-a-day oil field in the Detroit Formation" and a 15-Tcf-a-year natural gas play somewhere in the continental United States. These "discoveries" are actually made through cutting consumption.

Lovins laid out the roadmap for the United States to offset its energy consumption – without drilling a single oil or gas well – by the equivalent of 8.3 million barrels a day and 15 Tcf a year (or half the nation's annual natural gas consumption). Such a monumental feat could be accomplished, he said, through the adoption of currently existing, energy efficient technologies and the substitution of oil with hydrogen.

A co-author of *Winning the Oil Endgame: Innovation for Profits, Jobs and Security*, Lovins described how the United States can reduce, even eliminate, its escalating consumption of oil by building energy efficient, ultra-light automobiles and aircraft, by substituting biofuels for oil, by retrofitting the electrical power industry and its gas end users, and by redesigning its key industrial sectors.

Lovins challenged the DEG audience to picture an American economy in 2025 that's not held hostage by the global commodity price of oil or by the handful of countries that produce that oil. Further, he described how the United States could prosper on all fronts – corporate profits, jobs and national security – while eliminating its geopolitical dependence on oil.

"The prize is enormous," Lovins said of the potential change, "a world that doesn't depend upon or fight over oil. Public policy must support – not distort – this change."

Having a New Model

Lovins suggested that market forces and "business logic" – not government policies or subsidies – should drive this monumental step-change in how we consume energy.

As a model he pointed to the financial successes of the Royal Dutch Shell Group and British Petroleum. During the past five years, British Petroleum has parlayed its acronym "BP" into "Beyond Petroleum" – an elegant marketing tool that's predicated upon a multi-billion dollar investment in solar, wind and hydrogen technologies.

True to its mantra, as BP's profits have increased, the corporation's greenhouse gases have decreased (on a percentage basis, relative to the amount of energy produced).

Lovins likens the demise of today's oil industry to the transition that saw whalers lose market share in the 1850s.

Lovins

"Whalers were astounded when they ran out of customers before they ran out of whales," he said. In fact, Lovins declared that many nations have adopted some of the prescriptive moves detailed in *Endgame*, and that we have already transitioned the hydrogen economy.

"Two-thirds of the fossil fuel atoms being burned worldwide are hydrogen," he said. "We're only talking about the last one-third of these atoms, namely carbon."

No stranger to the oil and gas industry, Lovins has consulted to the U.S. Department of Energy and to many of the world's multinational E&P firms during the past couple of decades. Given the opportunity, he would immediately retrofit the United States' aging fleet of oil refineries, resulting in a 42-percent energy cost savings with payout of capital expenditures over three years.

"Oil is a great industry," Lovins said, "but a bad business, sort of like airlines.

"The smartest oil companies have been trying to broaden their business model for several decades," he added, suggesting that E&P companies need to redefine themselves as "energy" companies.

For more on this subject, visit the AAPG Web site. www.aapg.org

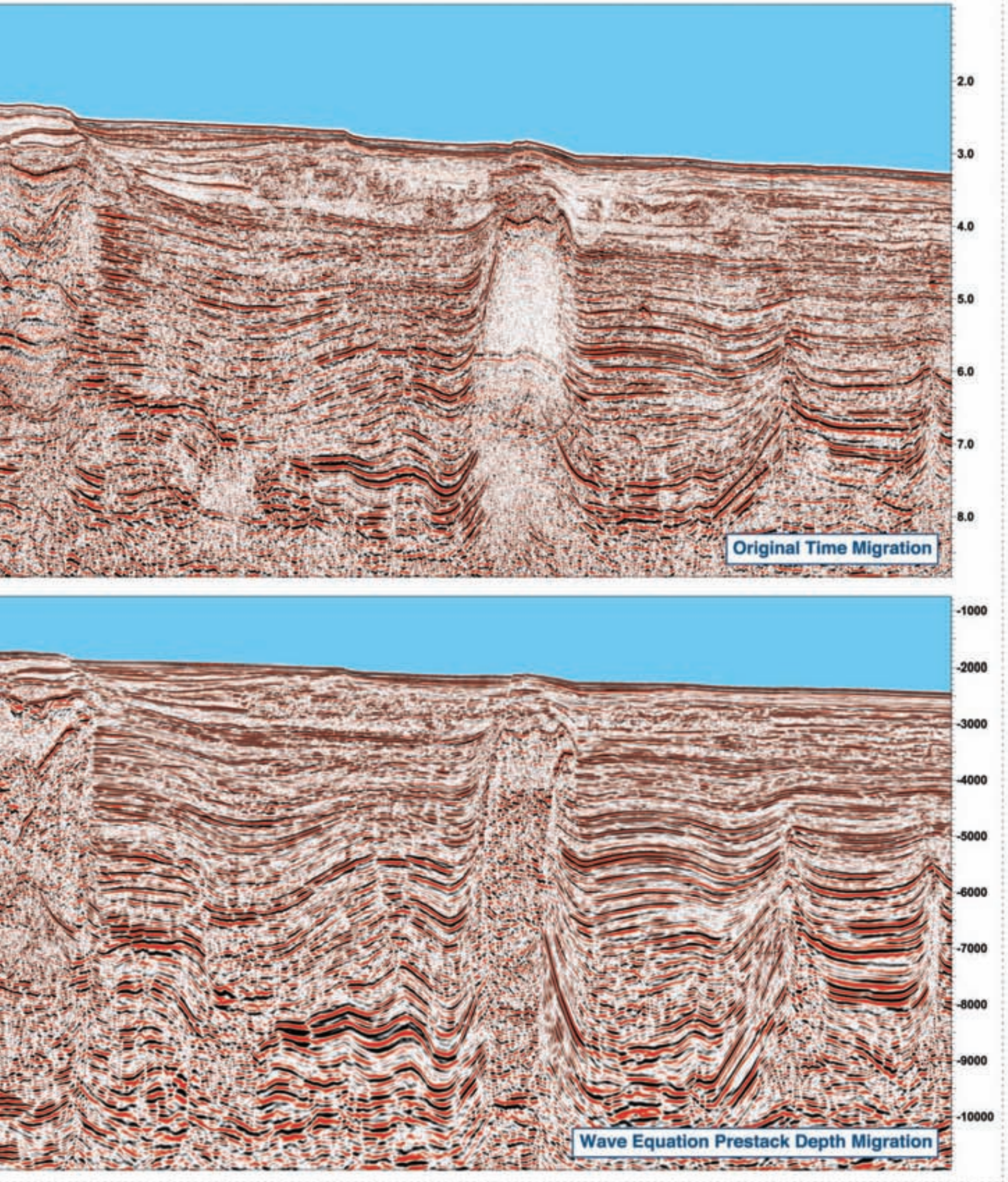
Geologists' Future: 'Rosy'

Lovins challenged the petroleum industry to squeeze significantly more revenues out of assets that already have been amortized. At a time when the oil industry is reaping unprecedented profits, he called upon it to change its paradigm, to invest in a diversified and energy efficient portfolio.

Should oil and gas geologists fear the hydrogen economy? Not according to Lovins who already views non-renewable fossil fuels – coal and petroleum – through the lens of the hydrogen economy.

Geologists, he suggested, will continue to play a crucial role in the decades to come, even as the United States and the rest of the world embrace the hydrogen economy – geologists' skills will be used to map subsurface reservoirs for enhanced oil recoveries and for carbon dioxide sequestration.

See **Lovins**, page 29



Rockies New Gas Champ?

‘Unconventional’ Becoming Usual

By LOUISE S. DURHAM
EXPLORER Correspondent

An oil executive talking in the heart of the Gulf Coast pointed to an unexpected locale in forecasting the “it” place for future gas production.

His pick to be the soon-to-be-crowned king of natural gas: the Rocky Mountains.

A seemingly unconventional observation, perhaps, but then “unconventional” is the buzzword these days in the Oil Patch.

Want to be perceived as hip and cool? Finding and drilling for unconventional hydrocarbons should do it – perhaps one more reason why the Rockies have become the domestic industry’s hot topic.

Even some of the majors are taking on the challenge of going after these often-complex and sometimes mystifying reservoirs, which acquired bad reputations early on, e.g., too small to bother with or too difficult and pricey to drill and produce.

That was then.

Today, the volumes being produced from unconventional reservoirs are having an impressive impact on the domestic hydrocarbon supply, according to Peter Dea, president and CEO of Western Gas Resources.

“There’s a growing importance of unconventional gas resource plays,” said Dea, the featured speaker at the EMD luncheon held at the recent AAPG annual meeting in Houston.

“We now see about 35 percent of the technically recoverable reserves in the U.S. from unconventional plays,” Dea said. “Nearly a third of U.S. gas production is from unconventional reservoirs and growing rapidly, totaling nearly 500 Tcf.

“This is dominated by tight sands, followed by coalbed methane and shale gas, and the latter is quickly catching up,” he added.

It is noteworthy, in deed, that the Rockies are becoming the number one gas-producing region in the United States. In fact, Dea said the region will surpass the Gulf Coast between now and 2008, largely due to unconventional gas production.

‘Think Shallow and Small …’

The search for unconventional hydrocarbons demands a number of traits on the part of the explorers, including:

✓ Vision.
✓ The focus to stay on course.
✓ Calculated risks.

These traits apparently were lacking in a number of well-known cases “back when.”

During the 1950s to the 1980s, 5,000 wells blew right through the coalbed methane deposits in the Powder River Basin, Dea noted. Yet results in the 1990s showed more than 20 Tcf of recoverable gas.

Likewise, in the now-active Pinedale-Jonah area, Dea said the wildcatters smelled it as far back as the 1950s but went home hungry (see related story, page 14). Then in the 1990s, tens of Tcf were discovered.

“Early comers exit, and late comers arrive,” Dea said. “It’s not always necessary to be the leader.”

Dea

Patience and perseverance can break through the paradigms long-associated with unconventionals. In fact, there have been a number of paradigm shifts relative to the past when tight sands were deemed too complex with excessively low permeability, coals had low gas content or were too permeable or too tight, and shale was defined as only a source rock.

“Think shallow and small, like ‘Plankton plays,’ because it can take a lot of little things to add up to something significant,” Dea said. “Some of these plays are less than 3,000 feet deep with subtle gas shows and low rates.

“However, you must think deep and tight as well,” he noted, “because some of these animals are real wells, maybe 20,000 feet total depth and 10-20 million a day IPs.

“Some plays are tens of thousands to millions of acres,” Dea added, “meaning you must lease far and wide and think on a fairway scale.

“They’re all different, so keep on thinking.”

Things to Remember

Issues to keep in mind when zeroing in on unconventional deposits include:

✓ Prospect size and initial discovery reserves estimates are often low by several orders of magnitude.
✓ Reservoir areal extent often grows.
✓ The vertical column expands.
✓ Structure turns out to be more complex than anticipated.

Unconventional reservoirs often are comprised of interbedded sandstone, siltstone, mudstone and coals, so it’s wise to think in terms of rock packages. And it’s highly important to understand the geological system and the pressure regime, as well as the sequence stratigraphy and the fracture system.

Investors have become enamored of unconventionals – for a number of good reasons, as Dea pointed out:

✓ High returns.
✓ Repeatable low risk development drilling.
✓ Long-term drilling inventory.
✓ Low finding and development costs.
✓ Low lease operating expense.
✓ Field size grows over time. ❑

Participant Concerns: Prices, People, Equipment

OTC Crowd Reaches 25-Year High

By LOUISE S. DURHAM
EXPLORER Correspondent

The huge crowd of attendees from 110 countries, along with the more than 2,000 exhibitors at this year's Offshore Technology Conference in Houston appears to make it official: the industry has segued from boomlet to boom.

When the final numbers were tallied, registration topped out at 59,236, which is a 24-year high for the event.

In addition to the many gee-whiz exhibits, the extensive technical program included an array of panel discussions and other sessions.

"Independent Spirits Driving Offshore Industry" was one of the panels to attract a sizeable audience.

Remember several years back when the occasional independent would venture out – not just to the mature offshore shelf, but into deep water – by piggybacking on the majors? Today, they're more likely to work alongside the majors even in the ultra-deepwater, and their role worldwide is increasing.

Vanco Energy, for instance, reportedly just inked a deal for Ukraine's first deepwater drilling rights. The company holds an extensive acreage position off Africa.

The latter part of the independents panel discussion took a different twist in that a series of multiple choice questions were posed by the moderators to solicit the opinions of the audience. This was followed by comments from the presenters.

Q: Regarding your expectations for future commodity prices: High prices will be sustained for:

(a) Three-five years?

(b) One-two years?

Response: (a) 42 percent (b) 26 percent.

Not a lot of folks likely would argue with the comment from Brian Reinsborough, vice president of exploration at Nexen, that $72 is extremely high. While there will be oil shocks, the company's view is the current price isn't sustainable and will settle into the $50s range.

On the other hand, Devon Energy's outlook is that high prices will be sustained for a long time. However, the company – like many of its peers – doesn't invest that way, according to Earl Reynolds, vice president and general manager.

Reinsborough emphasized some areas of the world help make America more energy independent. For example, Canadian oil sands, which are believed to contain vast reserves, are a safe bet for the industry – the region is stable. However, a lot of production around the world, which was once viewed as unconventional – and pricey – could not be sustained if oil were to drop to, say, $25. Continuing unconventional E&P supports current prices.

Q: Given work force shortages, what are your expectations of changes to come?

Response: The industry will remain chronically understaffed for many years, according to 86 percent of the respondents.

Devon is actively recruiting on campuses, offering multi-experience opportunities, Reynolds said, and it also is looking outside North America. Basically, however, companies are robbing from each other.

Reinsborough noted that attracting people has a lot to do with giving them responsibility. The labor market is very tight in Canada, which may jeopardize some projects coming on in time. Nexen also is looking overseas for people.

Q: How long will we continue to see a shortage of drilling equipment and supplies?

Response:

Three years – 45 percent.

Five years – 28 percent.

Mariner Energy is considering how far out to extend contracts, according to Cory Loegering, vice president of deepwater at the company. More rigs will become available, but he questioned who will be available to operate them.

Q: Will access to people or to resources be the biggest challenge to our business over the next three-five years?

Response:

continued on next page

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Access to people: 48 percent.
Access to resources: 34 percent.

In deep water, technical excellence is crucial, noted John Simon, vice president of development at Amerada Hess, but it's widely known the universities aren't graduating the number of people the industry needs. Regarding resources, he cited what has become a common lament among operators: access to opportunities is becoming hugely competitive around the globe.

Reynolds considers the resource issue to be more of a challenge than talent. He emphasized the need to have a clear strategy and relationships in place to conduct business outside North America going forward.

Q: Primary strategy for future growth of independent operators: Organic growth through the bit? Acquisition of underexploited assets? Acquisition of companies with strategies that fit?
Response: All of the above: 43 percent.

Nexen takes a balanced approach to growth, according to Reinsborough, while Reynolds noted Devon remains consistent with its approach, whereby the company has grown via acquisitions. Acquisition of companies is on Mariner's radar, Loegering said, but he noted all three methods are related.

Q: Should independent operators buy back their stock?
Response:
Yes – 56 percent.
No – 24 percent.

Nexen doesn't need to buy back stock, Reinsborough said. His take on buybacks is that it means a company doesn't have enough opportunities in inventory. Money should be put into growth programs rather than stock.

Devon has a different outlook on this issue, according to Reynolds. He said the company thinks buybacks are good investments for shareholders.

Q: Do independents use (a) only proven technology and push it to the limits? (b) Some new technology?
Response:
(a)Yes – 47 percent.
(b) Yes – 41 percent.

Loegering commented that Mariner uses proven technology and pushes it to the limits at which point new technology then begins to evolve.

Reynolds predicted the industry likely may see the independents using some highly innovative technology if commodity prices remain at lofty levels.

Regarding technology, it is noteworthy to mention that the independents led in many ways to unlock the deepwater Gulf of Mexico – think Kerr McGee – as Simon pointed out. ❑

GEOPHYSICAL CORNER

Seismic Imaging? Try Stratal Slicing

(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 "Stratal Slicing Makes Seismic Imaging of Depositional Systems Easier.")

By HONGLIU ZENG

Many people today view land surfaces from commercial airplanes or on satellite images and are amazed by the geomorphic forms of river channels, deltas, barrier islands, dune fields and other features. These views show us modern stratal-time surfaces of exposed landforms.

Three-D seismic technology has now made it possible to image similar, but much older, geomorphic features and stratal surfaces preserved in the rock record.

Historically, interpreters have analyzed vertical sections of 3-D seismic volumes line by line and found field-scale (50 meters or thicker) geologic and depositional features. Sometimes, reservoir-scale (three-10 meters thick) features can be detected in these vertical sections, but many of these small-scale targets cannot be resolved and interpreted because of data bandwidth limitations.

For example, in the vertical view in figure 1a the seismic facies around the dash line are interpreted to be fluvial deposits based on the presence of discontinuous, patchy events and frequent lateral changes in amplitudes. Wells drilled through the interval support this interpretation.

However, correlating individual channel-fill sand bodies and marginal facies (levee, crevasse splay, etc.) on adjacent vertical views is difficult because these facies elements are thin (three-10 meters) and the seismic resolution barely resolves the tops and bases of the thickest units.

In this particular section view it is not possible to decide what depositional elements are represented by the circled features.

* * *

One strategy to map depositional systems with high resolution is to change the emphasis of seismic interpretation from vertical sections to horizontal sections.

For a perfectly migrated 3-D seismic data set, horizontal resolution is the same as vertical resolution. Outcrop and subsurface studies show depositional bodies have horizontal dimensions greater than their vertical dimensions. As a result, small depositional bodies often can be resolved in plan view even if they can only be detected in vertical view.

As a demonstration of this principle, a stratal slice made by the method described in this article and then passed through the dash line in figure 1a shows high-quality images of fluvial channels, crevasse splays, flood plain and a mud plug (figure 1b). Although most of these depositional elements are less than 10 meters thick – and thus below vertical seismic resolution – they are well resolved in the horizontal dimension.

To implement horizontal-view seismic interpretation, we must pick geologic-time surfaces (or stratal surfaces) from 3-D seismic volumes so that seismic attribute maps across these fixed-geologic-time surfaces can be analyzed in terms of depositional systems.

Time slices and horizon slices are the horizontal-section views most commonly used by seismic interpreters (figures 2a-b). Time slices are extracted from a data volume at a constant image-time coordinate. A horizon slice is constructed by extracting a seismic attribute parallel to a picked time-varying horizon.

For either horizontal view to be an accurate representation of a stratal surface, one must assume the formation being sliced is flat lying when time slicing is used (figure 2a), or that the formation has a sheet-like geometry (figure 2b) when horizon slicing is used.

Many depositional sequences, however, are characterized by thickness changes (figure 2c), which cause horizon-slice and time-slice surfaces to sample seismic events that are associated with strata of different geologic ages. A different surface extraction method must be used to ensure an extracted surface follows a fixed-geologic-time surface.

One such method is "stratal slicing" (figure 2c), or proportional slicing, which divides the variable-thickness vertical interval between two seismic reference events (figure 2) into a fixed number of uniformly spaced subintervals.

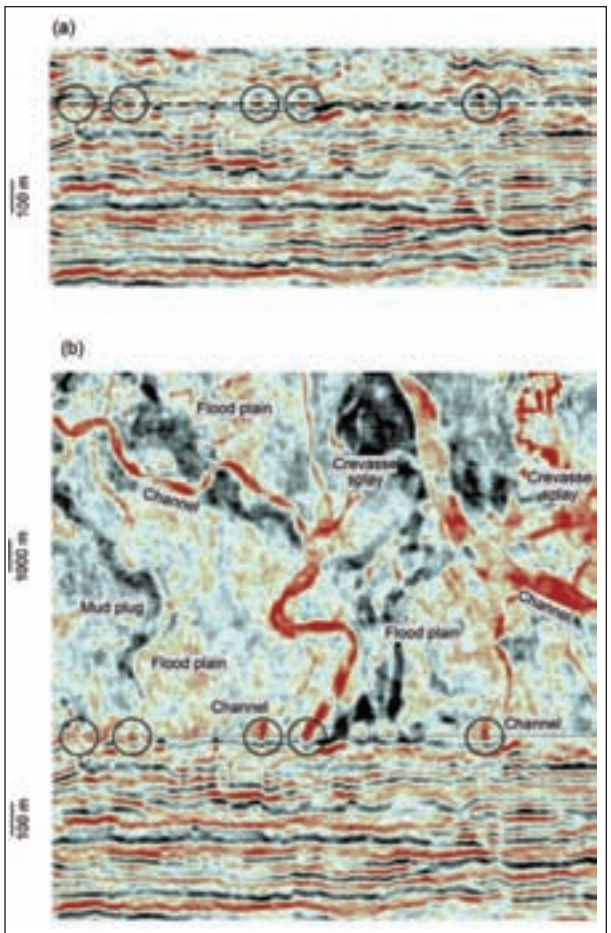

Figure 1 – (a) Vertical section view of a fluvial environment (dash line and circled features); (b) Stratal slice showing small depositional features are better seen in horizontal view than in vertical view.

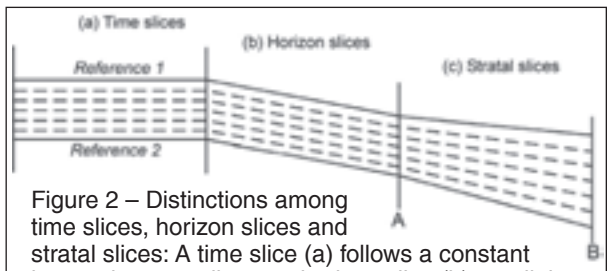

Figure 2 – Distinctions among time slices, horizon slices and stratal slices: A time slice (a) follows a constant image-time coordinate; a horizon slice (b) parallels a reference reflection event; stratal slices (c) divide a time-varying interval thickness into uniform geologic time increments.

If the number of subintervals is 10 and the time thickness between the reference surfaces at points A and B (figure 2) is 27 ms and 58 ms, respectively, then the thickness of each subinterval at coordinate A is 2.7 ms, and at point B each subinterval is 5.8 ms thick. The interface between each pair of subintervals (the dash lines in figure 2) approximates a stratal surface.

In principle, no major angular unconformities (truncations) or other discordant reflections should occur between the reference events.

* * *

Stratal slices provide a stratigraphic resolution that cannot be achieved using vertical sections alone.

The data in figure 3 show a Gulf Coast Pliocene sequence having a dominant frequency of 30 Hz and a vertical resolution of 10 m.

Four stratal slices were taken inside a 30-ms (36-m) interval (figure 3, S1 through S4). Interpretation of wireline well logs (SP) across the interval shows the sandstones are fluvial in nature. Some of the sandstone units (e.g., a, b and e in figure 3) are thick (20 to 25 meters) and create amplitude anomalies. Others are thin (10 meters or less) and subtle (c, d and f in figure 3).

In map view, the four stratal slices image four episodes of fluvial deposition (figure 4, S1 through S4). The fluvial systems on stratal slices S1, S2 and S4 are fully resolved without interference from overlaying or underlaying units.

Stratal slice S3 shows a narrow (35 to 70 meters, or 1 to 2 traces wide), well-developed meandering feature interpreted to be a small coastal plain channel (figure 4, arrows). Wireline logs indicate this channel-fill sandstone

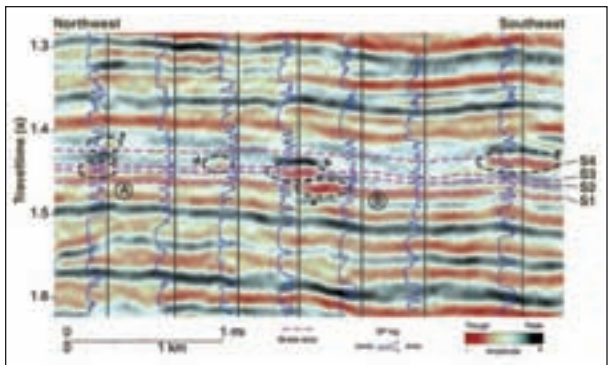

Figure 3 – A Pliocene interval from the Gulf of Mexico. Dash horizons S1 through S4 are stratal slices. Time intervals between stratal-slice pairs vary in thickness across seismic image space, as seen by comparing the interval between S1 and S2 at points A and B. Circled features are sandstone units.

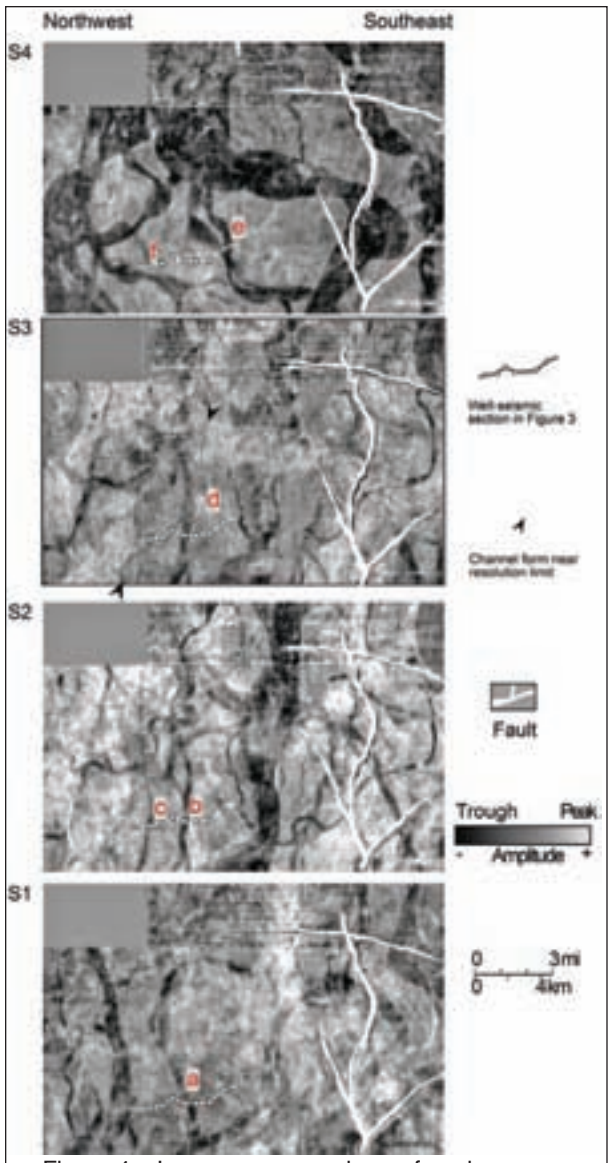

Figure 4 – Large-area map views of geology across the stratal surfaces defined in figure 3. The position of the vertical section in figure 3 is identified on each surface.

is about four meters thick. Image S3 is only six ms (seven meters) above slice S2 and is contaminated by some interference from the S2 fluvial system.

Even so, identification of the meandering channel across stratal surface S3 is unambiguous. The image resolution achieved in this case is much smaller than vertical resolution and probably represents the limit of resolution expected from stratal-slice analysis for this data set.

* * *

The software used to make stratal slices, including necessary reconditioning of seismic data and various attribute applications, was developed by a joint effort of academia and industry, and is available at http://www.austingeo.com.

(Editor's note: Zeng, an AAPG member, is research scientist with the Bureau of Economic Geology in Austin, Texas.)

WashingtonWATCH

Be Alert: Actions Are Being Taken

By DON JUCKETT
GEO-DC Director

Even with Congress in recess a large part of the month of April, Washington remains an active place – and to help keep everyone better informed, Carl J. Smith and the Government Affairs Committee are working to reactivate the system of "Action Alerts" for notifying members of pertinent issues.

The first Alert 2006-1 addressed the draft of the Minerals Management Service 2007-2012 Five Year OCS Leasing Plan, which includes acreage in the Gulf of Mexico's "181" area, OCS Virginia and OCS Alaska.

A major effort by an ad hoc group of interested parties – including retirees, consumer organizations, industry organizations and professional organizations – mobilized input for support for the Five Year Plan. The public open comment period on the draft plan closed on April 11, during the busy days of the AAPG Annual Convention in Houston.

The ad hoc group acquired booth space at the convention and many of you stopped at the booth to add your comments to the final tally. The final overall count was:

✓ Favorable comments – 26,643 (70 percent).

✓ Opposable comments – 11,681 (30 percent).

Defenders of Wildlife provided MMS with 9,827 comments at the 11th hour that significantly increased the "opposed" total.

The ad hoc group will continue its efforts to update interested parties in preparation for the Minerals Management Service issuance of the 2007-2012 Final Plan this summer. At that point, there will be a final comment period that will require another push for public/interested party response.

Although the start time and duration of the comment period has not been announced by the Minerals Management Service, look for the AAPG Government Affairs Committee to issue an "action alert" for Association members at the beginning of that comment period.

Member participation in the draft plan comment period was excellent. The response for the final plan will have to be even better considering the clear message that was sent by the enhanced level of comments received by MMS as the result of the effort mounted to support opening of increased acreage in the 2007-2012 plan.

Even greater membership participation will be needed in the next few months.

In the interim, look for a push by the various upstream organizations, consumer groups and other parts of the concerned energy community to press the administration to include even greater OCS acreage in the plan. By the time this column is published, that effort should be under way.

* * *

The various committee discussions during the Houston meeting suggested there was a need for a mechanism that permitted greater real time communications between the GEO-DC office and AAPG members.

In response to this need for current information for members, AAPG will be developing a GEO-DC area of the Web site to provide greater coverage of current event activities in Washington that could impact Association members. Presently we plan to have that area active by the end of June.

The design will provide for response and feedback to this office on breaking energy news and events from Washington.

* * *

I want to thank the many individual members who took time to visit with me during the Houston convention. I appreciate and welcome the candor of your suggestions and insights.

I hope, too, that as a result of these conversations, the GEO-DC office will be able to track and respond to member interests more effectively and with greater insight into Association needs.

Good reading – *Drilling Ahead: The Quest for Oil in the Deep South 1945-2005*, by Alan Cockrell, 2005, published for the Mississippi Geological Society by the University Press of Mississippi/Jackson.

A very readable history of the events and colorful players in 60 years of oil and natural gas exploration and development in the Deep South.

(Editor's note: Don Juckett, head of AAPG's Geoscience and Energy Office in Washington, D.C., can be contacted at djuckett@aapg.org, (703) 575-8293.)

Lovins

from page 20

"The future is rosy for gas under any scenario, even mine," he said, as natural gas is a key feedstock for hydrogen.

Pointing to recent technological developments in biofuels, Lovins described how Brazil has replaced 34 percent of its oil needs with biodiesel, repaying initial government subsidies by 50-fold. And, he cited Europe's adoption of biofuels as "a good transitional product."

He suggested, further, that the United States could replace one-fifth of its oil consumption (or four million barrels a day) with "modern" biofuels, substituting ethanol derived from costly, heavily subsidized corn-based sugars with ethanol from the woody parts of plants like switchgrass and

PROFESSIONAL NEWS BRIEFS

Jorge Eduardo Baldi, to general manager, Repsol/YPF Oriente Medio SA (Iran branch), Tehran, Iran. Previously E&P manager, Repsol E&P, Trinidad & Tobago.

Jim Burnett, to senior geophysicist, Chesapeake Energy, Oklahoma City. Previously project geophysicist, EOG Resources, Midland, Texas.

Tom Feldkamp, to geological adviser, Noble Energy, Denver. Previously senior geologist, Kerr-McGee O&G Onshore, Denver.

Matt Frankforter, to technical team leader, Chevron North American E&P, Anchorage, Alaska. Previously Kutei hub coordinator, Chevron (Indonesia), Jakarta, Indonesia.

James S. Gagliardi, to senior vice president and exploration manager, Goldking Energy, Houston. Previously division manager, U.S. subsurface consulting, Landmark Graphics, Houston.

Stephen Hamm, to geoscience project manager, Sovereign Oil and Gas, Houston. Previously geophysical consultant and geoscience specialist, Schlumberger DCS (Mexico), Villahermosa, Mexico.

Joseph J. Kmeck, to senior staff geophysicist, Pioneer Natural Resources USA, Denver. Previously senior staff geophysicist, Pioneer Natural Resources, Irving, Texas.

Steven Krause, to geologist, North America gas, North Group, Jonah Asset, BP, Houston. Previously geologist, Southern Africa BU, Chevron International E&P, Houston.

Ed LoCricchio, to senior geologist, Cordillera Energy Partners, Greenwood Village, Colo. Previously senior staff geologist, El Paso Production-Medicine Bow Energy, Denver.

Neil McNaughton was recently honored for his journalistic coverage of petroleum data management by the Petroleum Network Education Conferences at its recent conference in Houston. McNaughton is editor, Oil IT Journal, Sevres, France.

Alan H. Morgan, to vice president-land, Access Exploration, Houston. Previously vice president-land, Remora Oil, Denver.

Robert S. Nail, to geologist, asset development-Permian technical team, Chevron North American E&P, Midland, Texas. Previously petroleum geoscientist, Nail Geoscience, Houston.

John A. Parker, to senior vice president-exploration, Phoenix Exploration, Houston. Previously exploration manager, Gryphon Exploration, Houston.

Brian C. Payne, to senior geoscience system analyst, El Paso E&P, Houston. Previously geoscience technology manager, Gryphon Exploration, Houston.

Doug Pethound, to exploration geologist, Continental Resources, Enid, Okla. Previously district geologist-Permian Basin, Chaparral Energy, Oklahoma City.

David W. Phelps, to senior geological adviser, Apache Energy, Perth, Australia. Previously senior geological adviser, Apache (Egypt), Cairo, Egypt.

Bryan Ritchie has been awarded the Young Explorers Medal from the Petroleum Group of the UK Geological Society, presented to those under the age of 35, for his outstanding contributions to both UK and international exploration. Ritchie is geoscientist-Sakhalin exploration team, BP, Houston.

Will M. Satterfield, to chief geologist, Libya, Occidental Oil and Gas, Houston. Previously senior geological adviser, Occidental Oil and Gas, Houston.

Stephanie Sofranoff, to staff geologist, TXOK Energy, Tulsa. Previously consultant, TXOK Energy, Tulsa.

Thomas E. Voytovich, to region vice president-exploration & production, Apache, Tulsa. Previously exploration manager, Apache, Tulsa.

Daniel B. Williams, to principal geologist, 3-D reservoir characterization, Envision AS, Stavanger, Norway. Previously senior reservoir geoscientist, Roxar, Houston.

Ian Woollen, to independent oil and gas consultant, Edinburgh, Scotland. Previously principal consultant and senior analyst, Wood Mackenzie, Edinburgh, Scotland.

Mark Yarlot, to geological adviser, Vintage Production California, Bakersfield, Calif. Previously senior geologist, Berry Petroleum, Bakersfield, Calif.

Andrew Zolnai, to consultant, Impington, Cambridge, UK. Previously petroleum manager, ESRI, Redlands, Calif. Zolnai also recently was inducted as a member of the Madison Who's Who of Executives and Professionals, New York City.

(Editor's note: "Professional News Briefs" includes items about members' career moves and the honors they receive. 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.)

SPOTLIGHT ON EDUCATION

AAPG's Winter Education Conference has gained in popularity over the past three years, so we decided to add a Fall Education Conference, set Sept. 11-15 in Houston, but with a twist – this conference is centered on the theme of deepwater exploration.

Recognizing that deepwater exploration poses unique challenges, the six fall conference courses will address and attempt to "de-mystify" some of those challenges.

The courses are:

✓ Jurassic-Recent Subsurface Geology, Paleogeography and Regional Tectonics of the Gulf of Mexico and Caribbean Region, taught by Paul Mann, Alejandro Escalona and William Galloway.

This course provides a fundamental understanding of tectonic phases and their effects on regional geology and petroleum systems. It will be taught using a combination of lectures and practical exercises that allow participants to synthesize multiple data types essential for regional exploration.

✓ Interpretation of Three-Dimensional Seismic Data, taught by Alistair Brown.

This emphasizes the proper understanding of seismic data, the thoughtful utilization of interpretation workstations and the special interpretation techniques applicable to 3-D seismic data today. The understanding of amplitude both qualitatively and quantitatively is a major focus of the course.

✓ Deepwater Sands – Integrated Stratigraphic Analysis: A Workshop Using Multiple Data Sets, taught by John Armentrout.

This hands-on workshop consists of a series of exercises and lectures focused on deepwater deposits of sand-prone facies, most often called turbidite systems. The exercises, using data sets from around the world, involve the integration of seismic record sections, wireline logs and biostratigraphic data that define both the vertical succession of facies and the sub-regional depositional geometry of the depositional systems.

✓ Pore Pressure Prediction in Practice, taught by Richard Swarbrick and Martin Traugott.

Designed to show participants how pressure data relate to the safe and efficient exploration and exploitation of petroleum reservoirs. The course is a mixture of short lectures, ample hands-on exercises and case studies. Material for the course includes many of the classic overpressure areas, such as the Caspian Sea, Gulf of Mexico, North Sea and basins of southeast Asia.

✓ Risk Analysis of Deepwater Exploration Prospects, taught by Gary Citron and James MacKay.

This course begins with a panoramic view of the world's deepwater realms, and then systematically links estimation under uncertainty to the petroleum system – from source and migration, to reservoir quality, to trap definition and containment. We also focus on a comprehensive, systematic and calibrated amplitude grading scheme to cross-check and influence the prospect resource variance and probability of success.

✓ Deepwater Salt Tectonics, taught by Martin Jackson.

This reviews key features of salt tectonics present in deepwater settings, with the goal of providing seismic interpreters with a mechanically sound basis to interpret the geometry of diverse salt bodies and associated sediments – and to recognize how these structures form and how salt flow and sedimentation interact. The course is taught using lectures and short exercises.

Registration for the entire week is $1,095 for AAPG members and $1,195 for non-members – if you sign up before Aug. 14! Special group rates are available at the Hilton Houston Westchase Hotel.

For more information contact the AAPG education department at (918) 560-2650; or e-mail educate@aapg.org.

You also can download a conference brochure and registration form on our Web site at http://www.aapg.org/education/fec.cfm. Courses are already filling up, so don't delay!

See you in Houston! ❑

General Chair Mateu Esteban addresses the opening session of the recent AAPG European Region conference in Mallorca, Spain.

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 U.S. Sections.

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 was provided by two people: The first part from John Brooks, president of the AAPG Europe Region, and the second by Debbi Boonstra, of the AAPG education department.)

Officials are calling the first-ever AAPG European Region conference to be held in Mallorca, Spain, a "great success."

The conference, "Architecture of Carbonate Systems Through Time," was held in late April and attracted over 130 attendees from 31 countries – and over half of those attending were members of AAPG.

The object of the conference was to address the subject of carbonate reservoirs in a thematic sense – with an emphasis on poster presentations – and to attract an audience from Western Europe, the Middle East and North Africa.

The Mallorca conference was the second conference held by the European Region. The first was held in Prague in 2004.

These regional conferences are designed to address both local and regional topics of interest to members.

The organizing committee making this successful meeting possible included:

✓ Mateu Esteban, general chair, REPSOL/YPF.

✓ Keith Gerdes, general vice chair, Shell International E&P.

✓ Frans van Buchem, technical program chair, IFP.

✓ Luis Pomar, technical program co-chair and field trip chair, Universitat de les Illes Balears.

✓ Arve Lønøy, technical program co-chair, Hydro ASA.

✓ Rudy A.J. Swennen, oral sessions chair, University of Leuven.

✓ Philippe Lapointe, poster sessions chair, Total.

Co-sponsors of the Mallorca event included REPSOL/YPF, Statoil, Shell, Total, the Government and University of the Balearic Islands, SAGEX, Chevron and Carbonates International.

The Region's next conference, in Athens, Greece, will be held in the fall of 2007. AAPG will announce details as they become available.

* * *

AAPG's education program has something very important in common with our Regions and Sections – it likes to be "there," with you, where the action is.

U.S. members have a variety of upcoming short courses to consider, including Quantification of Risk (June 6-9) in Denver; Practical Salt Tectonics (June 26-28) in Houston; Basic Well Log Analysis (Aug. 15-18) in Austin, Texas; and Practical Mapping for Reservoir Characterization (Sept. 30-Oct. 1) in New Orleans, in conjunction with the SEG annual meeting.

Also, a new course has been set in Jackson Hole, Wyo., July 31-Aug. 4, on "Application of Structural Geology in Prospecting in Thrusted and Extended Terrains."

On the international scene are two upcoming field seminars: one in Barcelona, Spain on "Folding, Thrusting and Syntectonic Sedimentation – Perspectives from Classic Localities of the Central Pyrenees" (June 12-16), and one that begins in Malaysia and ends in Brunei on "Fluvial to Turbidite Reservoir Systems of Southeast Asia" (July 19-28.)

Four Hedberg Conferences – three in international locales – are currently scheduled in the next 12 months. They are:

✓ **Mobile Shale Basins**, June 4-7 in Trinidad.

✓ **Heavy Oil: Origin, Prediction and Production in Deep Waters**, which will be presented with the AMGP Oct. 8-10, in Veracruz, Mexico.

✓ **Understanding World Oil Resources**, Nov. 12-17 in Colorado Springs.

✓ **Basin Modeling Perspectives: Innovative Developments and Novel Applications**, May 6-9 in The Hague, Netherlands.

For further details on any of these programs contact the AAPG education department at (918) 560-2650, or visit the AAPG Web site at www.aapg.org/education. ❑

THANK YOU SPONSORS

AAPG extends our sincere appreciation to the following companies for their financial and technical support of the 2006 AAPG Annual Convention

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THE 4TH GEOLOGICAL CONFERENCE OF THE GEOLOGICAL SOCIETY OF TRINIDAD AND TOBAGO FIRST CALL FOR PAPERS

"Caribbean Exploration – Planning for the Next Century"

Dates and Location: June 17-22, 2007, Hilton Trinidad, Port-of-Spain Trinidad and Tobago.

Conference Goals:
This 4th Geological Conference of the Geological Society of Trinidad and Tobago (**GSTT**) is being organized to convene geoscientists, reservoir and petroleum engineers, environmentalists and government policy makers within Trinidad and Tobago, the S.E Caribbean and South America. Scientists from the various disciplines are invited to participate in this conference to discuss state-of-the-art concepts, methodologies, results, policies and case histories.

Oral Sessions: Three days of oral presentations each 20 minutes in length in the following categories:

- **Petroleum Geology and Geophysics**
- **Biostratigraphy and Sedimentology**
- **Environmental Policies, Standards and Geohazards**
- **Mining of Natural Resources**
- **Geochemistry and Petrophysics**
- **Reservoir Characterization & Engineering**
- **GIS Applications, Remote Sensing and Data Management**
- **Tectonics of the Caribbean**

Poster sessions: Presentation by authors in separate sessions.
Symposium: Half day interactive session with prominent geoscientists.
Registration Fees: To be announced. All speakers must register.
Short Courses: At least three short courses will be offered

Publication of Papers: Papers in digital format (MS Word) with colored diagrams and attachments are anticipated to be published in Conference Transactions on a Compact Disc. For inclusion in this volume, papers should be submitted prior to February 28, 2007.

Abstract Submittal: Please submit in English a digital abstract (1-3 pages) including optional figures (up to 2) via email or hand delivered before the deadline date of November 15, 2006 to:

Geological Society of Trinidad and Tobago
C/O 4th GSTT Geological Conference
Phone: 868-679-6074 Fax: (868) 679—7217
E-mail: gstt@tstt.net.tt fhosein@tstt.net.tt
Include all co-authors' names (including contact information for the primary author). An abstract cover sheet is required for all submitted abstracts. Log on to http://www.gstt.org or contact Ms. Nazreen Mohammed at GSTT Secretariat to obtain this form.

Deadline for Submission of Abstracts: November 15, 2006.

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

California
Negrini, Robert Mark, California State University, Bakersfield (R.A. Horton Jr., L.C. Knauer, M.L. Wilson); **Urrego, Alexandra**, Occidental Oil & Gas, Tupman (R.J. Webster, M.L. Couchot, M.I. Mora-Glukstad)

Colorado
Kendall, Ted K., Fidelity Exploration and Production, Denver (H. Terbest Jr., W.T. Brown Jr., A.F. Jacob)

Florida
Rodgers, Bruce Allen, Electric Fuels Corp., St. Petersburg (W.G. Leel, J.M. Lloyd, J.B. Brami)

Louisiana
Jordan, Kevin Brian, PetroQuest Energy, Lafayette (G. Carpenter, N.R. Crowson, T.D. Keegan)

Texas
Bunge, Robert James, Anadarko, Houston (M.R. Thomasson, T.L. Fasnacht, B.E. Hogenson); **Miller, James F.**, Anadarko Petroleum, Houston (T.H. Morris, L.T. Shannon, T.W. Griffith); **Pearson, Ben Neal**, ConocoPhillips, Houston (B.K. Reitz, D. Rutan, H. Ge); **Sellepack, Brandi**, ConocoPhillips, Houston (S.W. Young, B.K. Reitz, B.N. Pearson); **Soethout, Joost A.**, Shell, Houston (L.A. Pearce, L. Zarrow, B.T. Mitchell); **Wise, Karen Celine**, Shell Oil, Houston (reinstate); **Yough, Charles Thomas**, Kerr-McGee Oil and Gas, Houston (M.J. Lahr, F.H. Burton, R.L. Grantham)

West Virginia
Hebert, Virginia Lee, Chesapeake Appalachia, Charleston (L.C. Bridges, E.M. Rothman, J.P. Lemon)

Canada
Dolph, David, Talisman Energy, Calgary (J.R. Hogg, G.R. Karlen, M.D. Hewitt)

England
Izatt, Christopher Neil, BG Group, Reading, (B.A. Smith, R.W. Glendinning, M.A. Bond)

India
Parmeshwar, Vishwanathan, Geoservices S.A., Mumbai (V.K. Jain, G.R. Amruthapuri, S.N.V.V. Perumalla)

New Zealand
Browne, Gregory Hawtrey, GNS Science, Lower Hutt (J.M. Beggs, R.A. Cook, M.J. Arnot)

Nigeria
Adebanjo, Titilayo Olubunmi, Amni International, Ogun-State (T.J. Afolabi, V.F. Agbe-Davies, E.A. Ojelabi)

Certification

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

Petroleum Geologist

Louisiana
Moore, John Michael, AmSouth Bank, Shreveport (W.R. Meaney, P.J. Wheeler Jr., T.H. Marshall)

Texas
Franklin, Christopher T., T-C Oil Co., Victoria (reinstatement)

IN MEMORY

Donald F. Towse, a former EMD president and longtime active Division leader, died April 16 while snorkeling off the San Blas Islands, Panama. He was 81.

Towse, of San Jose, Calif., was president of EMD in 1989-90. In addition to serving in a number of EMD leadership positions, Towse provided generous financial support to the AAPG Foundation, helping to establish and fund the Energy Minerals Named Grant.

George Bramald Amery, 79
Houston, March 12, 2006
Paul D. Anderson (AC '82)
Midland, Texas
William Earl Bauer, 77
San Clemente, Calif., April 3, 2006
Clarence E.S. Bellows III (EM '48)
Midland, Texas
Arden Francis Blair, 81
Billings, Mont., Jan. 3, 2006
Augustus Bart Brown (AC '37)
Dallas
Harry M. Buchner (EM '41)
Holdenville, Okla.
John Judson Chapman, 87
Sylva, N.C., March 21, 2006
William John Coffman, 75
Norman, Okla., March 2006
La Vern Albert Curry, 82
Midland, Texas, March 18, 2006
Raymond W. Dudley, 93
Lenexa, Kan., Feb. 12, 2006
Robert Edward Eggerton, 75
Slidell, La., Dec. 15, 2005
Stewart H. Folk, 90
Houston, Feb. 15, 2006
Waldo Emerson Ford Jr., 93
Torrance, Calif., March 9, 2006
Theodore Max Gard, 65
Lafayette, La., Dec. 18, 2005
Lester G. Germany, 60
Evans, Ga., March 16, 2006
Joseph Gallagher Gibson, 78
Houston, February 2005
James Paul Gillum, 82
Casper, Wyo., October 2005
Robert Wynn Grayson, 83
Austin, Texas, July 5, 2005
Werner Henry Heidtbrink Jr., 83
Denver, Feb. 20, 2006
John Drew Hill, 82
Dallas, Feb. 10, 2006
John Fowler Ireland, 77
Fort Meyers, Fla., July 9, 2005
Edward Rogers Kemp, 86
Houston, Dec. 20, 2005
Margaret Applegate Kitchen (AC '47)
Sylvania, Ohio
Jean Louis Lee, 83
Calgary, Canada, Feb. 1, 2006
Robert M. Leibrock, 85
Midland, Texas, April 3, 2006
Rodney Conant Leland (AC '51)
Conroe, Texas
Clyde Vernon Lisman Jr., 88
Black Mountain, N.C., August 2005
Henry Madison Morris (AS '75)
Santee, Calif.
Carl Arnold Nilsen (AC '50)
Oklahoma City
Herbert George Officer, 84
Austin, Texas, Feb. 26, 2006
Gordon Walter Prescott, 93
Concord, N.C., Feb. 21, 2006
Jack Aaron Simon (EM '48)
Urbana, Ill.
Donald N. Smith, 53
Sparta, N.J., September 2005
Shelby Wilman Smith, 82
Metairie, La., March 27, 2006
Charles Odell Tucker, 76
Oklahoma City, March 28, 2006
Edwin Humes Stinemeyer Jr., 97
Bakersfield, Calif., March 30, 2006
Richard Allen Struble, 81
Columbus, Ohio, Dec. 19, 2005
John Endre Szatai, 87
Greenwich, Conn., Nov. 25, 2005
Dewey Elton Thornton, 78
Midland, Texas, Jan. 13, 2006
Donald F. Towse, 81
San Jose, Calif., April 16, 2006
William Harwell Wise, 84
Metairie, La., Sept. 23, 2006
Paul L.H. Worley (AC '77)
Bakersfield, Calif.

(Editor's note: "In Memory" listings are based on information received from the AAPG membership department. Age at time of death, when known, is listed. When the member's date of death is unavailable, the person's membership classification and anniversary

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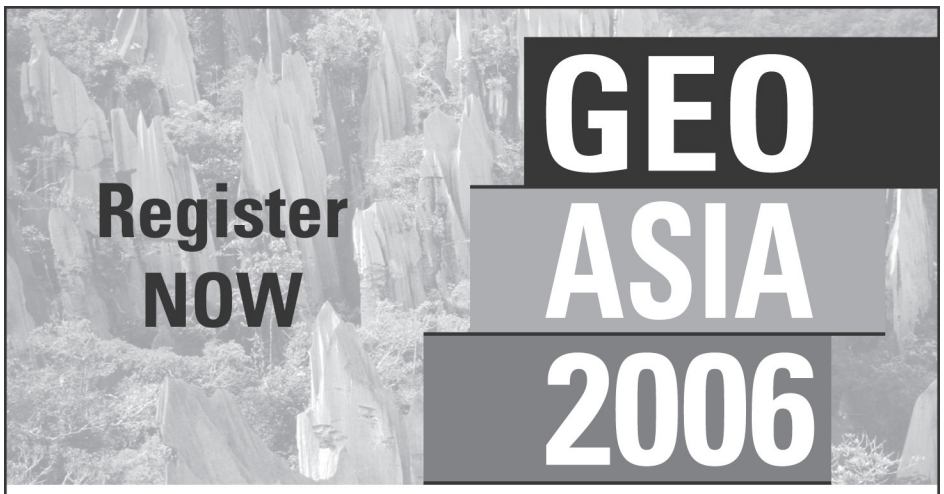

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Foundation Elects New 'Members'

Six new Regular Members have been elected to the AAPG Foundation's Members of the Corporation.

Elected in Houston during a Members of the Corporation meeting were:

❒ Robbie Gries, Denver.
❒ Don O'Nesky, Venice, Fla.
❒ John Shelton, Tulsa.
❒ Ray Thomasson, Denver.
❒ Marta Weeks, Miami, Fla.
❒ Mike Wisda, Houston.

Weeks was elected to replace Marlan Downey, who was elected as a member of the Foundation's Board of Trustees.

The election of Gries, O'Nesky, Shelton, Thomasson and Wisda expands Regular Member membership to 20, which is intended to broaden and diversify the membership base and provide additional positions for recognizing persons who demonstrate a continuing, significant interest in the Foundation.

The role of the Foundation Corporation is broadly to influence the direction and activities of the Foundation. As such, the Members of the Corporation elect members from their ranks to be Trustees of the Foundation.

While not a requirement, all 20 members of the corporation also are Trustee Associates.

Downey was elected Foundation Trustee to fill the unexpired term of Eugene "Bud" Reid, who died last October. Bill Gipson was elected Foundation Trustee to replace Jack Threet, who is not seeking re-election. His term expires July 1.

Threet said that the combination of his age plus the available pool of highly talented Trustees helped him decide to not seek re-election for another three years.

"I have thoroughly enjoyed being a Trustee of the Foundation for the past 12 years and being chairman for the past five years," Threet said. "The support I received from my fellow Trustees, the staff and all our generous friends of the Foundation was always most welcomed and allowed us to pursue proudly, generously and successfully the mission of the Foundation and assure even more success for the future.

"I truly look forward to continuing my service to the Foundation as Trustee Emeritus, particularly in the upcoming financial campaign," he said.

New officers for the Board of Trustees will be announced in the July EXPLORER.

* * *

The AAPG Foundation recently received funding for two new Digital Product University subscriptions.

Funding for a Texas Tech University subscription was endowed by member Michael R. Wisda, of Houston, and funding for Texas A&M University was endowed by Will Green, Midland, Texas. Each university will benefit in perpetuity of this gift, which provides over 450,000 pages of AAPG's digital library.

* * *

In other Foundation news:

✓ William and Jean Crain, of Danville, Calif., have provided funding for an annual $1,000 grant in their names for a geoscience graduate student at the University of Minnesota, Duluth.

✓ AAPG President-elect **Lee Billingsley**, of Corpus Christi, Texas, has accepted an invitation for membership to the Foundation Trustee Associates.

✓ Also joining the group is **Thomas J. Schull**, of Danville, Calif.

The group currently has 265 members. ❑

Guilty Plea Brings Expulsion

The AAPG Executive Committee has voted unanimously to expel an Active member who pleaded guilty to two felonies.

Sara Sue Foland, of Craig, Colo., was expelled under the bylaws provision authorizing the Executive Committee to consider the expulsion from AAPG of a member pleading guilty to a felony. Foland had pleaded guilty last December to criminal impersonation and forgery charges in Colorado.

AAPG President Peter R. Rose said the process as laid out in the bylaws was followed "meticulously" and the action "serves as a reminder to members that ethics charges will be properly investigated and enforced."

Foland was offered the opportunity to appear at a hearing before the Committee on the expulsion, but opted to have a letter sent from her attorney on her behalf, which was considered by the Executive Committee before the unanimous vote. ❑

Levorsen Winners Announced

Levorsen Award winners, honored for presenting the best paper at Section meetings, were recently announced. All will receive their awards at this year's Section meetings.

Eastern Section

✓ **J. Fred Read**, department of geosciences, Virginia Tech University, Blacksburg, Va., for "Greenhouse, Transitional and Icehouse Eustasy Yield Distinctive Parasequence and Sequence Stacking on Carbonate Platforms."

Mid-Continent Section

✓ **Raymond P. Sorenson**, Anadarko Petroleum, Houston, for "A Dynamic Model for the Permian Panhandle and Hugoton Fields, Western Anadarko Basin."

Rocky Mountain Section

✓ **Glenn Ulrich**, LUCA Technologies, Golden, Colo., for "Active Biogenesis of Methane in Ft. Union Coals of Wyoming's Powder River Basin." ❑

FOUNDATION UPDATE

The names that appear here are of those who have made donations to the AAPG Foundation in the past month – predominately through adding some additional monies on their annual dues statement.

To these people, and to those who have generously made donations in the past, we sincerely thank you.

The AAPG Foundation will continue its stewardship for the betterment of the science and the profession of petroleum geology, thanks to you.

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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.

Obstacles

I just got an e-mail regarding the upcoming ballot (proposed vice president amendment; see page 12), and in it the following sentence stands out:

"E&P globalization is accelerating rapidly in key overseas regions such as Russia, the Middle East, India and China, where our sister societies (SPE, SEG and EAGE) are actively expanding right now. AAPG is not, and we need to affirm the importance of international members in our Association if we are to take our proper place in the International E&P community."

In my view there are two areas of possible improvement, both of them easy to implement, but possibly with a high emotional connotation for many members.

An important obstacle to many is undoubtedly the name of the association. On one hand, the word "American" does not indicate this is an international association. One has to know more about it to realize this, but one sees that the main focus of the Association is still the United States – which will probably stay that way, as this is where most members come from.

Especially the last few years, the association with "America" creates a massive barrier to many in the Middle East and central Asia (and a lot of other places) due to the actions of a very narrow-minded government. Getting mail with the word "America" prominently displayed can be unacceptable. A simple change would be to rename the AAPG to APG (drop American) or IAPG (change for International).

The other item is that it is quite a hassle to become a member – requiring a lot of paperwork and others to support you. I myself deferred my membership application many years for this reason.

Make it easier to become a member. Some existing members may feel their membership gives them extra status/credibility. Then ensure there are good rules for removing members who do not behave according to the code of practice. I expect this to be required only very rarely anyway.

It may not be easy to convince the membership, but these items would definitely help a lot, so it is worth the effort. Many other associations have gone through this type of change, so we should be able to do this, too.

Han Raven
The Hague, Netherlands

Voting No

Regarding the proposed creation of two vice presidents for AAPG: I do not think it is a good move to have two vice presidents – one for U.S. Sections and one for International Regions (read, other non-U.S. countries). The world is already divided based on so many criteria; let us not bring it into AAPG.

If the workload is more (than one person can handle), then we can have more than one vice president – but there should not be separate vice presidents for different regions/country.

Kanak R. Nambiar
Karaikal, India

(Editor's note: Voting at www.aapg.org on the constitutional amendment to create a new vice president post is open through June 25.)

The Decimal Point

Allow me to be among the first 500 geologists to tell you of a major goof in the April EXPLORER.

The world does not use 854 million barrels of oil a day. You left out the decimal point – 85.4. Actually, that may be a million or so high at the moment, but in any event it is close.

There are some quite spectacular figures on the oil industry. One that strikes me is that our DAILY oil import bill – crude and refined products – is now more than three-quarters of a billion dollars!

How long can that last when our annual international deficit in balance of payments now is in excess of $800 billion! The world now loans us more than $2 billion a day to support our happy life style. We live in a "fuels paradise" and it is unsustainable. Then what?

"Interesting times" lie directly ahead.

Walter Youngquist
Eugene, Ore.

(Editor's note: Actually, not quite 500 let us know about the goof, but we appreciate all who did.)

On Global Warming

On June 7, 2005, the U.S. National Academy of Sciences (in conjunction with the national scientific academies of Brazil, Canada, China, France, Germany, Italy, India, Japan, Russia, Spain and the United Kingdom) issued a statement on climate change that said:

"The scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action ... a lack of full scientific certainty about some aspects of climate change is not a reason for delaying an immediate response that will, at reasonable cost, prevent dangerous anthropogenic interference with the climate system."

On July 6, 2005, President George W. Bush stated: "I recognize that the surface of the earth is warmer and that an increase in greenhouse gases caused by humans is contributing to the problem."

On May 3, 2006, the Bush Administration's Climate Change Science Program issued the following statement with White House approval:

"There is no longer a discrepancy in the rate of global average temperature increase for the surface compared with higher levels in the atmosphere," and that there is "clear evidence of human influence on the climate system."

Accordingly, I, an AAPG member for 22 years, wish to know what justification AAPG uses retaining an official position statement on global climate change that includes such falsehoods and misleading statements as "scientific examination ... does not support the supposition of human-induced global climate change," and "detailed examination of current climate data strongly suggests that current observations do not correlate with the assumptions or supportable projections of human-induced greenhouse effects."

Either we are, as AAPG claims, an international "scientific" society or we are a lobbyist group for the energy industry. If the latter, we deserve to lose our tax-

See **Forum**, page 40

Commentary

Prices Creating New Conversations

(Editor's note: A report on AAPG's participation in this year's "Congressional Visits Day" was included in the May EXPLORER's Washington Watch column.)

By G. WARFIELD "Skip" HOBBS

As a follow-up to my meeting in Washington, D.C., with U.S. Rep. Christopher Shays, R-Conn., during April's "Congressional Visits Days," I met with Shays again in May to give him a "Petroleum Geology 101" course on oil reservoirs. When we met in Washington, the congressman had asked about how oil forms, what are reservoirs like and what oil sands and oil shales look like.

After a constituents meeting in New Canaan, Conn., Shays and I met to look at some of my conventional core and oil samples, and samples of Colorado oil shale and Utah tar sands.

The congressman was truly interested, and asked lots of questions.

Shays and Rep. Maurice Hinchey, D-N.Y., have introduced a comprehensive, bipartisan bill called "The Energy for Our Future Act." This bill will promote conservation and alternate energy sources, and reduce dependence on foreign oil.

During the public meeting, I commended the congressman for his initiative in proposing new energy legislation, but said that in addition to conservation and alternative energy that the necessary third "leg" of the energy policy must be access to lands in America that are likely to enable us to boost domestic oil and gas production, such as Alaska National Wildlife Refuge (ANWR), the Rockies, Eastern Gulf of Mexico and the Atlantic continental shelf.

I pointed out that ANWR could produce 1 MMBO/day for 20 years per U.S. Geological Survey estimates, and that would save $22 billion per year that we would not be paying to oil exporters that despise the American way of life (a number of people applauded).

Shays responded that he is prepared to consider increased access if the petroleum industry actively supports conservation and new energy technologies. He will not support access to ANWR until we improve conservation and make more progress on alternate energy technologies, but would consider supporting drilling to the Atlantic and Eastern Gulf.

He views ANWR as a future "strategic reserve," and recommended more exploration in the areas of Alaska that already are open to exploration. He also said that the Canadian government have contacted him and asked him to support a treaty between the United States and Canada concerning preservation of the Arctic wildlife reserves that are contiguous in the U.S. and Canadian arctic.

After the public meeting I was accosted by an individual who was very much against the proposed offshore Broadwater LNG terminal in Long Island Sound. He asked me if I were a recreational boater, as the LNG facility would "ruin" recreational boating in Long Island Sound.

I assured him that I had sailed in Long Island Sound all my life and had no problem with the facility. In fact, I told him, the fishing just might improve with a major artificial reef formed by the LNG terminal. I suggested that he contact the recreational fishermen's associations in the Gulf Coast.

As I reported after the Congressional Visits Day, Shays' position represents a "crack in the door" in the anti-oil position of so many liberal congressional and senatorial officials. Constituents are complaining about high gasoline prices. Elected officials are beginning to consider increasing access and permitting new refineries and energy infrastructure.

Now is the time to talk to our officials at the local and national level about energy. Like Shays, they will listen. We encourage all AAPG members – domestic and international – to get more involved in energy policy deliberations.

(Editor's note: Hobbs is managing partner of Ammonite Resources in New Canaan, Conn., and a recent candidate for AAPG president-elect.)

AAPG member Skip Hobbs (standing) offers a "Petroleum Geology 101" course on oil reservoirs to U.S. Rep. Chris Shay (R-Conn.) in his follow-up meeting after the annual "Congressional Visits Days" event in Washington, D.C. "The congressman was truly interested," Hobbs said, "and asked lots of questions."

Forum

from page 38

exempt status.

Our policy position on this issue is embarrassing and costs us credibility. Whoever is responsible must answer to the membership.

James E. Evans
Bowling Green, Ohio

Our Reputation

By recognizing Michael Crichton with the Journalism Award, the AAPG Executive Committee and the Advisory Council Awards Committee have disgraced our organization and its membership.

While the AAPG leadership would like AAPG to be perceived as an international organization, this award and the editorial response to criticism (April EXPLORER) only diminish AAPG's reputation. I concur with Jim Rine's depiction of this award as an "in your face" move, and Roger Barnaby's criticism of it as a political action contradictory to AAPG's own award guidelines.

The editorial response states that AAPG is "not making a policy statement as an Association, or saying that every AAPG member agrees with the content or conclusions in Dr. Crichton's books." The same piece also notes, "AAPG's official policy is that there is not enough data at this time to determine the actual anthropogenic effect on global climate change."

Despite claims to the contrary, I perceive the Crichton award as a political statement. Intentions and perceptions do not always coincide. As a loyal, long-time AAPG member, I request that my organization not speak for me on fiction, global warming or any other area outside the membership's expertise.

Our organization, in its scientific and legitimate lobbying efforts, should stick to what its membership knows best – geology and its role in petroleum exploration and development. While our members, like all informed citizens, should be well-read and have a right to opinions on other matters, such as global warming, very few of us have expertise in this area. Our organization supports the licensing of geologists and it should know well that pronouncements on global warming, an area outside our expertise, represents malpractice.

When I joined AAPG in 1978 it was a world-class scientific organization, and the AAPG BULLETIN remains a fine journal – but the lobbying efforts of our organization are increasingly troubling. Our membership needs to decide whether AAPG is to be known primarily as a world-class scientific organization or as a lobbying organ of the petroleum industry. I am not sure that it can do both effectively.

Regarding the membership trends, I have no idea why AAPG membership is stagnant (April EXPLORER), but I would like to venture a hypothesis. As our organization has taken positions based more on political than scientific grounds, many college graduates and international geologists see AAPG as a petroleum industry lobbying arm rather than a world-class scientific organization. (The recent Journalism Award is a case in point.)

Many members may not care how the outside world perceives us, but they should if they hope to effectively lobby for their profession and see our organization grow.

Perhaps we should poll potential members to learn why they have elected not to join.

Steven Boyer
Tacoma, Wash.

Workstations and Geology

Regarding Cindy Yeilding and her views on workstations and geology (January EXPLORER): It is not too late to congratulate (Yeilding) for her selected topic and its relevance. Different people involved in geology (students, engineers, scientists) who try to improve their work using computers, advanced interpolation and interpretation methods, workstations ... expected that results could be better than results obtained by geologist's hands and head.

Unfortunately, or better fortunately for us, the real job is not so simple, or cannot be described as "simple system." Fieldwork, office panels, academic education, short courses, discussion in teams about subsurface framework – all of them can be only supported by computers.

Geology is natural science, including math, engineering, paleoclimate processes ... But, from my modest opinion, any prospect with e.g. five wells can be mostly better described by hand-made

continued on next page

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maps for any parameter than by computer algorithms. Computers, as well as statistical procedures in background of many algorithms, could be appropriately applied only in case of "significant large" input dataset. How many such cases we had opportunity to solve in our careers?

It is our task (to find) the "right" balance between academic knowledge, fieldwork, practice from teamwork and computer algorithms.

Tomislav Malvic
Zagreb, Croatia

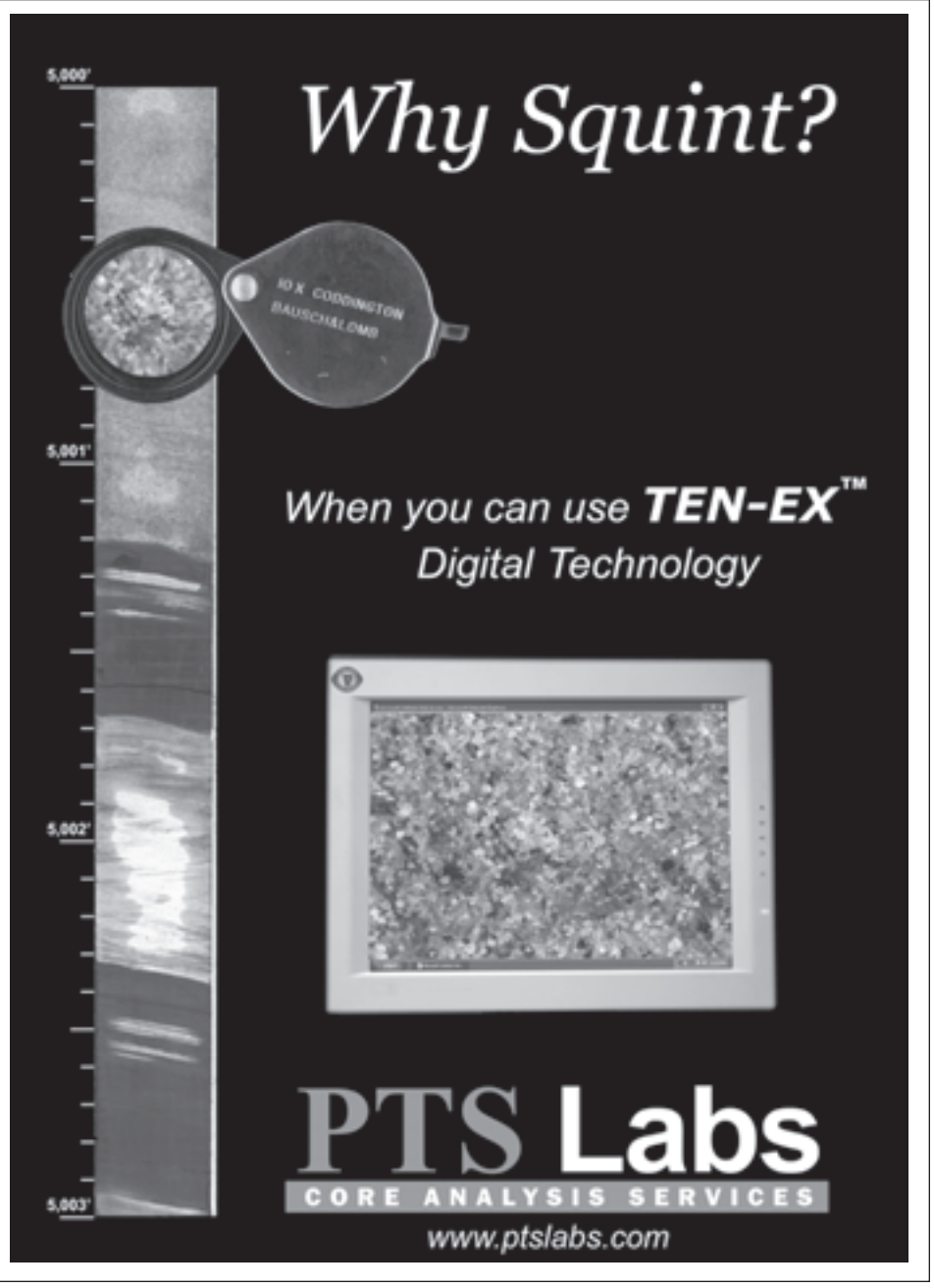
An Ethical Question

As a victim of the 1986 crash, I would like to make the following comments regarding "Crash of '86 Left Permanent Scars" (January EXPLORER): In my experience, the most painful aspect of our sudden and unexpected dismissals was the casual cancellation of our pensions as well. Even after seven years of dedicated work for Marathon (three in the UK plus four in Tunisia), I receive nothing.

Pension rules in the UK are that "if you leave your employer's pension scheme after two years or more, you will be entitled to a pension and the benefits that go with it." My pension was due in 1998. Yet, I receive nothing either from the state or the company. Queries on the subject remain unanswered.

Does the AAPG Code of Ethics regard this situation as "par for the course"?

J. Pierre Copponex
London, England



DIRECTOR'S CORNER

Science: A Core Value of AAPG

By RICK FRITZ

"... People really do not change unless they continue to learn."

As I am writing this column I am returning from the first European Region field workshop held in Mallorca, Spain. Once again, I am wondering how close the airlines are going to move the seats (my knees are now arm rests for the person in front of me), and eating food that nobody would touch in a regular restaurant.

Before I left, I heard on the news that some airline is testing a system to strap passengers onto boards so we can stand up the whole trip. Maybe it would be easier to swallow the food!

* * *

In any case, sitting *or* standing, Mallorca was worth the trip, because it brought me back to the roots and essence of our society.

The Mallorca conference was titled "Architecture of Carbonate Systems Through Time." This conference was primarily focused on Mesozoic and Tertiary carbonate strata in the circum-Mediterranean and Middle East. It lasted three days and included oral sessions followed by poster sessions each morning and afternoon.

The conference was hosted by the AAPG European Region, and the conference organizers were led by general chair Mateu Esteban (see page 32).

"... People really do not change unless they continue to learn."

Approximately 140 people attended, so it was about the size of a large Hedberg conference.

One of the great parts of any conference is the people. The attendees were from all over the world, and each Region and most of the Sections were represented.

The important part was the power of the pure passion for science.

* * *

In our quest to provide service and products to members we often focus on membership problems, business issues or delivery of products and services. At the conference I was reminded that "science" and the ability to wrestle scientific questions with one's peers is one of the key dynamics that drive people to be part of our Association.

At the end of each day there was general discussion on the things we had learned and what problems needed additional consideration.

There was considerable debate about the need for carbonate reference models. Some thought models were essential; others felt it would be better to build a dataset of parameters that would help each worker build models for each unique situation. This was a revelation to me – and I realized that this is something that AAPG should and could help facilitate.

Also, there was general recognition of the role AAPG played in developing modern analogues during the 1960s and 70s. Several participants lamented the fact that there are only a few groups working on modern analogs and there has been little work on modern carbonates published since that time. Most agreed to the need for additional work in modern carbonates.

Again I asked, "Is there someway for AAPG to facilitate?"

* * *

All the discussion, talks and posters opened my eyes again to AAPG's prime directive – *the dissemination of scientific data*. That "science" represents the *heart* of AAPG. This group of diverse participants representing industry, academia and government institutions is one of the several nuclei of leaders that help foster new ideas and ultimately new processes and information for use and development by all AAPG members and other interested entities.

When I was a kid I liked to throw a handful of small pebbles into the center of a large pond. The small wave rings would grow and interfere, but would ultimately form a larger ring that covered the pond. Results from scientific presentations at meetings or in publications are part of the "scientific ring" of information that grows over time to be used by the largest company to the smallest consultant.

I am convinced that people really do not change unless they continue to learn. It is that essence of learning and its ultimate distribution to interested professionals that make an association of geoscientists, like AAPG, valuable and unique.

* * *

By now we have been on the plane for over eight hours, and everybody looks like they were at an all night party – including myself. The flight attendants just served the pre-landing snack and we are all eating like bears just out of hibernation.

Who said travel was glamorous?

Cooperative Ventures with EMD

CO_2 at the Center of DEG Projects

By STEVEN P. TISCHER
DEG President

A joint effort by the Energy Minerals Division and the Division of Environmental Geosciences has been undertaken to compile peer-reviewed contributions of research and applications of geological sequestration of CO_2 being performed in the petroleum, energy minerals, and environmental fields into an AAPG special publication.

Matthias Grobe, chair of the EMD/DEG CO_2 Book Committee – which consists of Rebecca L. Dodge, Jack C. Pashin, Robert Menzie and Andrew R. Scott – are seeking new material (results) in the area of CO_2 geological storage from research programs, pilot demonstration projects and commercial applications in oil and gas reservoirs, saline aquifers and deep coal beds.

This can include, but is not limited to, regional assessment studies on suitability and storage capacity as well as project-specific studies on site selection, baseline characterization, operation and performance.

The goal is to have the publication compiled and ready to hand over to AAPG publications no later than the early spring of 2007, before the next AAPG Annual Convention in Long Beach, Calif., April 1-4.

If you have an abstract on CO_2 sequestration that fulfills the requested ideas mentioned above, please submit it to Grobe at matt.grobe@gov.ab.ca.

The goal is to have the publication compiled and ready to hand over to AAPG publications no later than the early spring of 2007.

Grobe also is the contact for those who are interested in being a reviewer for the future publication.

* * *

The June *Environmental Geosciences* (Volume 13, Number 2) is a special issue titled "Characterization of Demonstration Projects of CO_2 Geological Sequestration – Part I."

The peer-reviewed manuscripts for this volume are truly global in nature. The initial article is from the UK sector of the North Sea, while those that follow are contributions from the Ohio River valley, Gulf Coast Frio Formation and southeast Queensland, Australia.

The September 2006 *Environmental Geosciences* (Volume 13, Number 3) is another special issue, titled "Characterization of Demonstration Projects of CO_2 Geological Sequestration – Part II." Again, the articles for this volume will be from across the globe.

For both upcoming special issue volumes of *EG*, the EMD has generously given a contribution for their publication. The DEG Executive Committee humbly thanks and appreciates the sponsoring donation provided by the EMD Executive Committee.

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I must acknowledge the members of the present DEG Executive Committee for all their work this year. I really appreciate all the diligence to service and camaraderie, from president-elect Jane McColloch; vice president Craig Dingler; secretary-treasurer Nancy Dorsey; editor-in-chief Jerry Baum; and past president Ken Vogel.

Dingler (pulling double duty) and Robert Menzie put together excellent DEG sessions for the annual meeting in Houston, and arranged for our luncheon speaker, Amory Lovins (see related story, page 20). All the Advisory Board members and committees put in an effort to make this a successful year for DEG.

I especially appreciate Kevin Bohacs and Stephen Oliveri with ExxonMobil for putting together the initial Field Safety Leadership short course that was held immediately before the annual convention. The course was a great success, drawing attendees from academia and industry. Our goal is to have this short course as an offering at next year's annual meeting in Long Beach.

I would be remiss if I did not acknowledge the AAPG Foundation, again, for its generous grant for the publication of *EG*.

I look forward to working as past-president on next year's issues with Jane McColloch; incoming president-elect Charles (Chip) Groat; in-coming vice president Mike Jacobs; Nancy Dorsey, in a second year of a two-year term as secretary-treasurer; and new-term editor-in-chief, Jerry Baum.

Thank you for a successful year for the DEG – and remember to volunteer! ❑