

AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

EXPLORER

JANUARY 2001

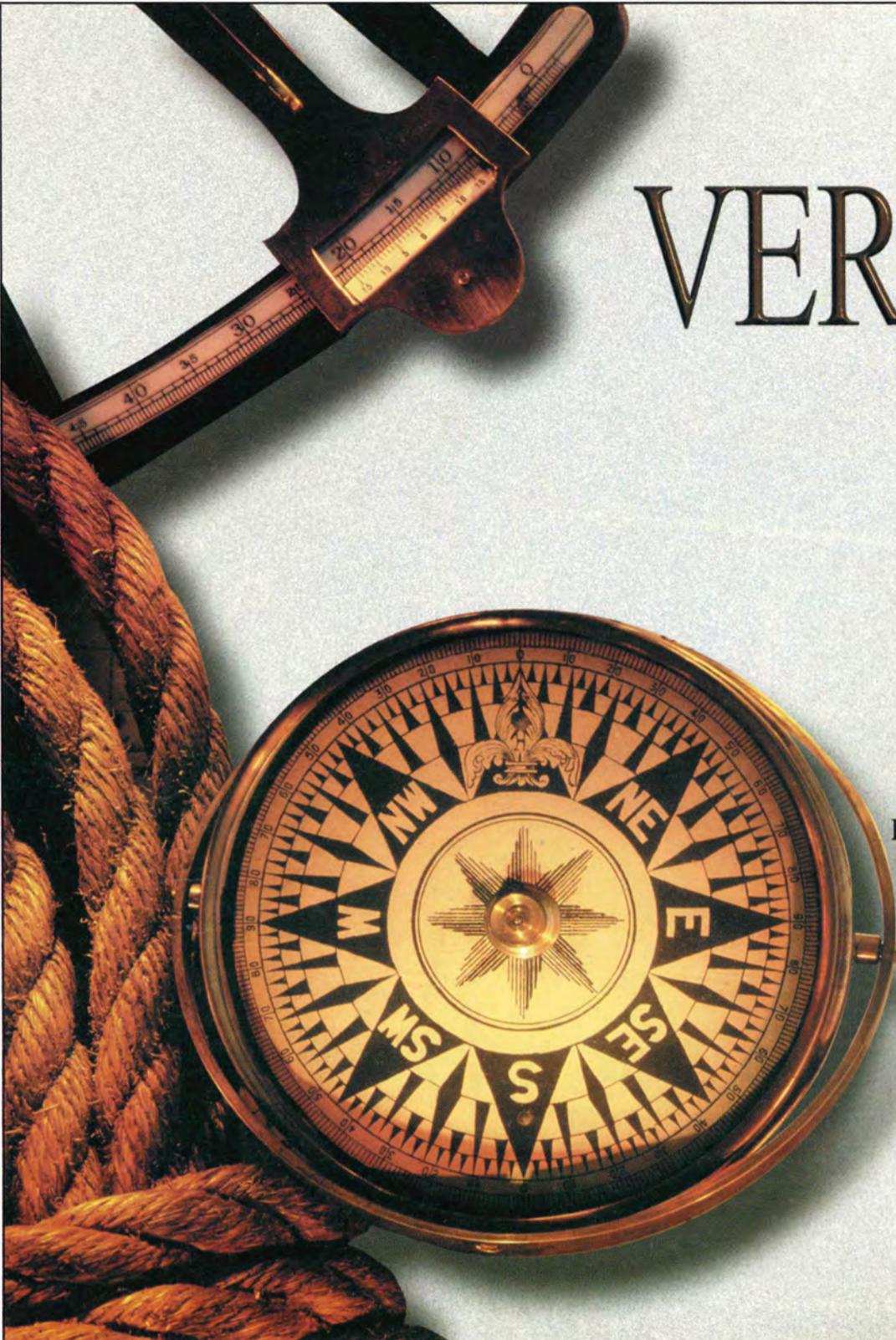


**WORLD
DEVELOPMENTS**

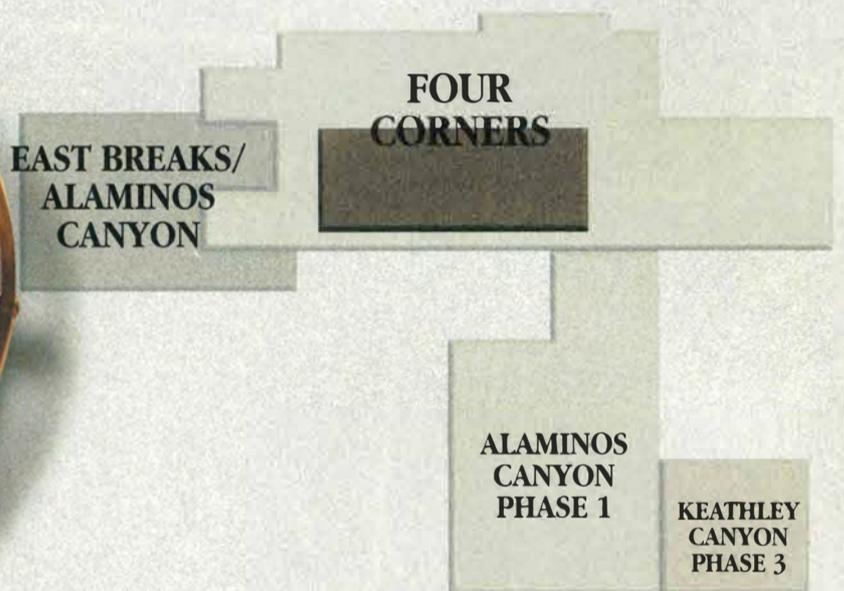
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A STAGE**

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is too remote ...**





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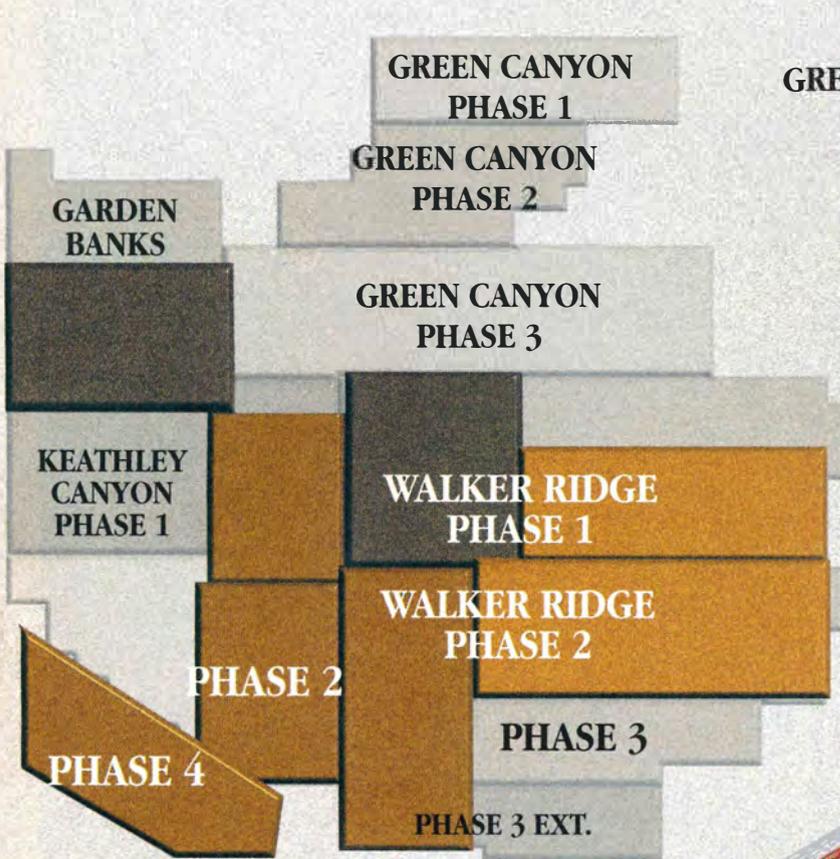
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On the cover: What in the world is going on regarding exploration, you ask? A lot of answers are found in this month's EXPLORER, our annual World Developments issue, via stories that showcase the world's hottest exploration region (hint: think West Africa), a listing of the past year's notable discoveries and how independents can get a part in the drama. As suggested in our cover design by Rusty Johnson, E&P activity is a global event. Photos and 3-D computer images courtesy of Landmark Graphics.

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PRESIDENT'S COLUMN

When You Ask for Advice, Expect It

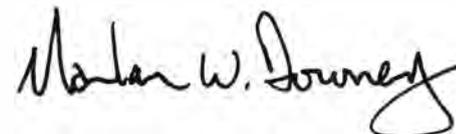
Continuing our conversation . . . We've finished the holidays, and I think I can now take off my Ebenezer Scrooge mask and admit that – I really like fruitcake, holiday letters from friends, Christmas movies and crowded family dinners. I even like making New Year's Resolutions.

For example, I resolved to lose 20 pounds this year, and so I asked my

trim wife for good weight-losing advice.

She suggested that I stop eating my evening pint of ice cream.

I retorted that wasn't dietary advice . . . that was meddling!



ORGANIZATION	ANNUAL DUES	ORGANIZATION	ANNUAL DUES
AAPG	\$62**	American Bar Association	\$95-\$295*
SEG	\$70**	National Association of Legal Secretaries	\$135*
SPWLA	\$50*	Texas Classroom Teacher Association	\$90
AAPL	\$75*	Society of Professional Journalists	\$70*
SPE	\$75*		
SEPM	\$70		
GSA	\$120**		
American Medical Association	\$420**		

* Includes one publication
** Includes two publications

AAPG a Bargain, Even Compared to Others

It's coming up on dues statement time.

And, perhaps it's time to take a look around the neighborhood and see what our friends are paying for membership in their professional associations as well.

As we look around, we can see what some of the other professionals expect to invest this year to continue their education, first-rate information about their chosen field, networking and access to myriad other services they expect.

In comparison, AAPG continues to be a good value. For less than the price of a subscription to many magazines, membership in AAPG allows for the receipt of two high-quality publications – and much, much more.

So when you receive your dues statement soon, just remember how much your association means to you, your profession and the science of geology. And, you might also think about how much you receive – for what you give. □

Two More Recipients Added To Service Award Honorees

Two AAPG members have been added to the list of those who are being honored this year with the association's Distinguished Service Award.

Those added to the list of award winners are **Charles A. Caughey** and **Ian D. Collins**. They, like all award winners, will be honored during the opening session June 3 at the AAPG annual meeting in Denver.

The Honors & Awards Subcommittee of the Advisory Council, chaired by Richard S. Bishop, submitted the names of Caughey and Collins to receive the award after the list of 25 people and a publishing company was previously approved for

awards by the Executive Committee and published in the December EXPLORER. The Executive Committee accepted the Subcommittee's recommendation.

Caughey, of Unocal in Bangkok, Thailand, and Collins, of Gulf Indonesia, Singapore, will receive the award that is presented to those who have distinguished themselves in singular and beneficial long-term service to AAPG.

Others to receive the Distinguished Service award in Denver are Elizabeth B. Campen, Robert L. Countryman, Ben D. Hare, Jean R. Lemmon, Tom Mairs and Wolfgang E. Schollnberger. □

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So, Where's the Party?

2000 Saw Record Gas, Oil Prices

By LARRY NATION

AAPG Communications Director

In a year when West Texas

Intermediate crude prices never fell below \$23 and gas prices tripled over where they were last year, one would think there would be a lot of joy in the oil patch.

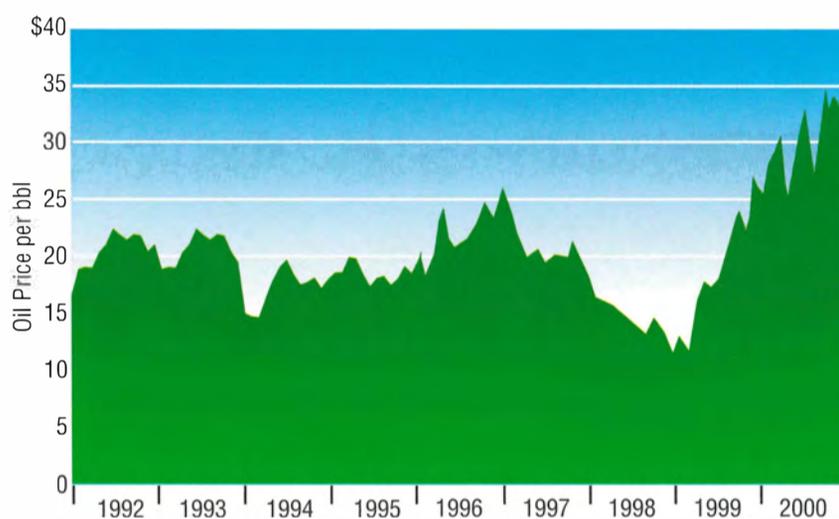
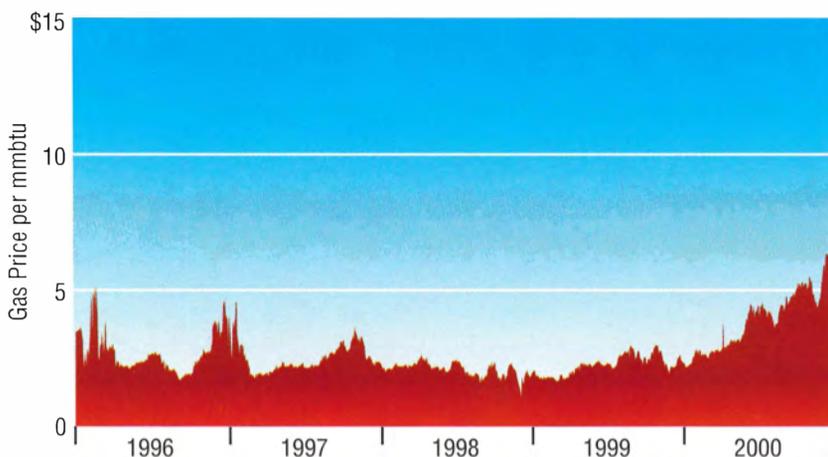
However, 2000 didn't seem like much of a party year, despite some grand occurrences that otherwise would make it a year of wine and roses.

Consider:

✓ The lowest oil price of the year was \$23.85. This was higher than the top price in 1998 (\$17.83). It also was more than the average per barrel since 1993. The 2000 highest price hit \$37.20 in late September. Average for 11 months of the year was over \$30 a barrel.

✓ Gas prices were \$2.14 per mmbtu on the first trading day of 2000. On Dec. 1 the price was pushing \$6, and by mid-December the price had topped the \$10 mark.

✓ The prices over the course of the year certainly caught the attention of the consuming public over the world. Fuel prices drew angry protests in England and throughout Europe. Carping by U.S. consumers prompted discussions in Washington, D.C., about energy policy that have been on



the back burner since the times of Jimmy Carter's presidency.

✓ An executive from the industry was nominated – and then elected – vice president of the United States.

✓ More geophysical data at good prices became available to the industry, and the new drilling and technology were put to task in deep waters.

But the industry, exhibiting more angst than elation, reacted as middle-aged professionals who have the BMW, the two-story house with a pool, wonderful spouse and college-bound kids, and still wonder why they are not happy.

Hiring levels remained low, drilling activity was average and merger-related layoffs and downsizing continued.

Merger activity certainly is having its effect on the psyche of the industry, with the blockbuster Chevron-Texaco and BP Amoco-Arco deals being done in 2000.

The major mergers of 2000 in Figure 1 notes the number of AAPG members in the affected companies. These mergers alone directly affect about 1,800 active members.

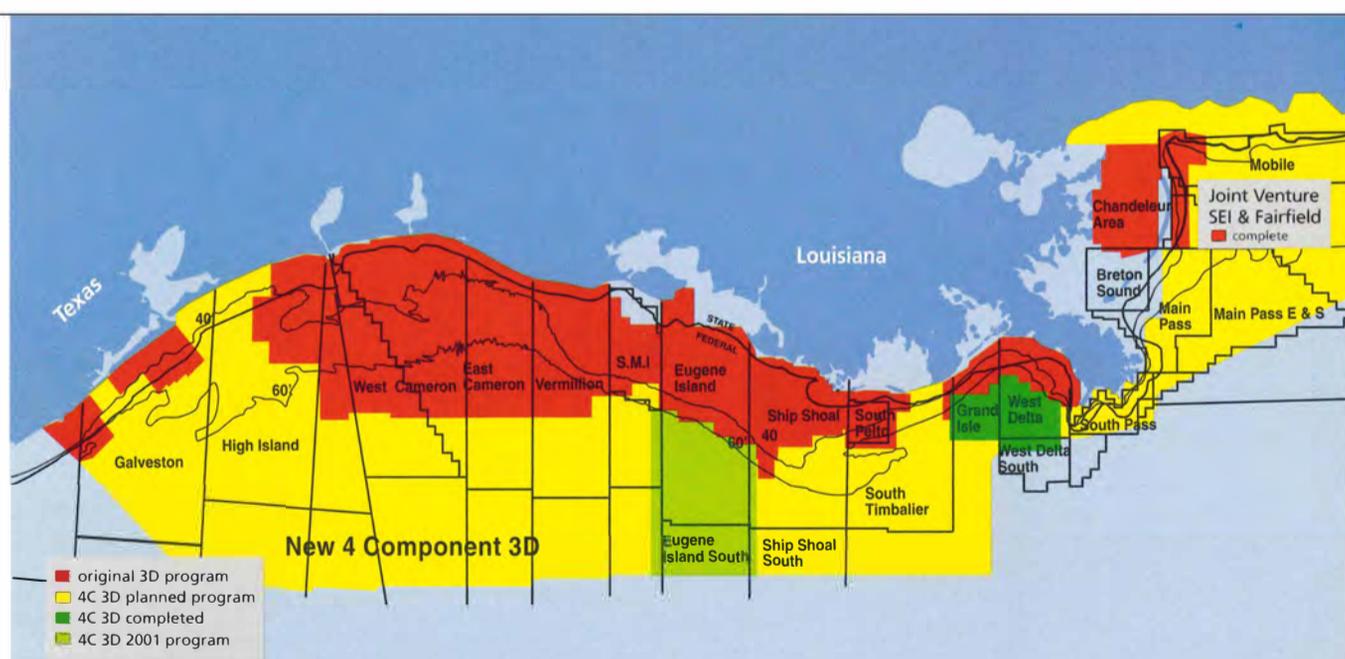
Invariably, the number of geologists remaining with the merged entity is less than the sum of the two in pre-

See **Trends**, page 16

Take
another
look, a
deeper
look.



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The Headline Discoveries of 2000

The following is a list of notable worldwide discoveries as of Dec. 1.

The list is provided courtesy of IHS Petroconsultants, Houston, as were reported in the IHS Energy Group's *International Oil Letter*.

This geographical list includes field name, well name and production reports.

AFRICA



Algeria

Azrafil Sud-Est 1, Azrafil Sud Est 1, 14,440 mcf.

Djebel Heirane Kahla Tablb, Djebel Heirane Kahla Tablbala, 15,200 mcf.

Hassi Terfa 1, Hassi Terfa 1, 1,520 bopd & 1,066 mcf.

Angola

Batuque 1, Batuque 1, 5,200 bopd.

Jasmim 1, Jasmim 1, 10,800 bopd.

Lobito 1X, Lobito 1X, 10,200 bopd.

Mondo 1, Mondo 1, 4,200 bopd.

Paladio 1, Paladio 1, 3,980 bopd.

Perpetua 1, Perpetua 1, 8,740 bopd.

Saxi 1, Saxi 1, 5,472 bopd.

Tomboco 1, Tomboco 1, 17,000 bopd.

Congo (Brazzaville)

Andromede Marine 1, Andromede Marine 1, 7,000 bopd.

WORLD DEVELOPMENTS

Egypt

Akik 1, li37-7, 54,000 mcf & 543 bcpd.

GS 302 2, Gd083-11, 4,000 bopd.

Karama 1, Hf046-01, 1,450 bopd & 500 mcf.

Lagia 6, Hc79-7, 170 bopd & 300 mcf.

Neama 1, Hh45-2, 159 bopd.

Sapphire 1, Sapphire 1, 35,000 mcf & 1,100 bcpd.

Tawoos 1, Fc088-10, 833 bopd.

Ghana

Western Tano 1, Western Tano 1X, 1,000 bopd.

Morocco

Sidi Belkacem 1, Sidi Belkacem 1, 2,500 mcf.

Senegal

Ecole 1, Ecole 1, 8,000 mcf.

Tunisia

Nassim 1, Nassim 1, 1,007 bopd & 440 bopd.

EUROPE



Denmark

Nini-1, 5605/10-01A, 5,856 bopd.

Italy

Arnica 1, Arnica 1, 7,063 mcf.

Fausta 1dir, Fausta 1dir, 2,825 mcf.

Netherlands

G/17-04, G/17-04, 40,000 mcf.

K/12-13, K/12-13, 30,000 mcf.

P/06-09, P/06-09, 45,000 mcf.

Poland

Racot 1, Racot 01, 25,120 mcf.

Rensko 1, Rensko 01, 40,937 mcf.

Ruchocice, Ruchocice 01, 91,434 mcf.

Terliczka 3, Terliczka 03, 16,047 mcf.

Wielichowo 2, Wielichowo 02, 65,092 mcf.

United Kingdom

015/27-09 (Rochelle), 015/27-01, 7,973 bopd & 4,670 mcf.

FAR EAST

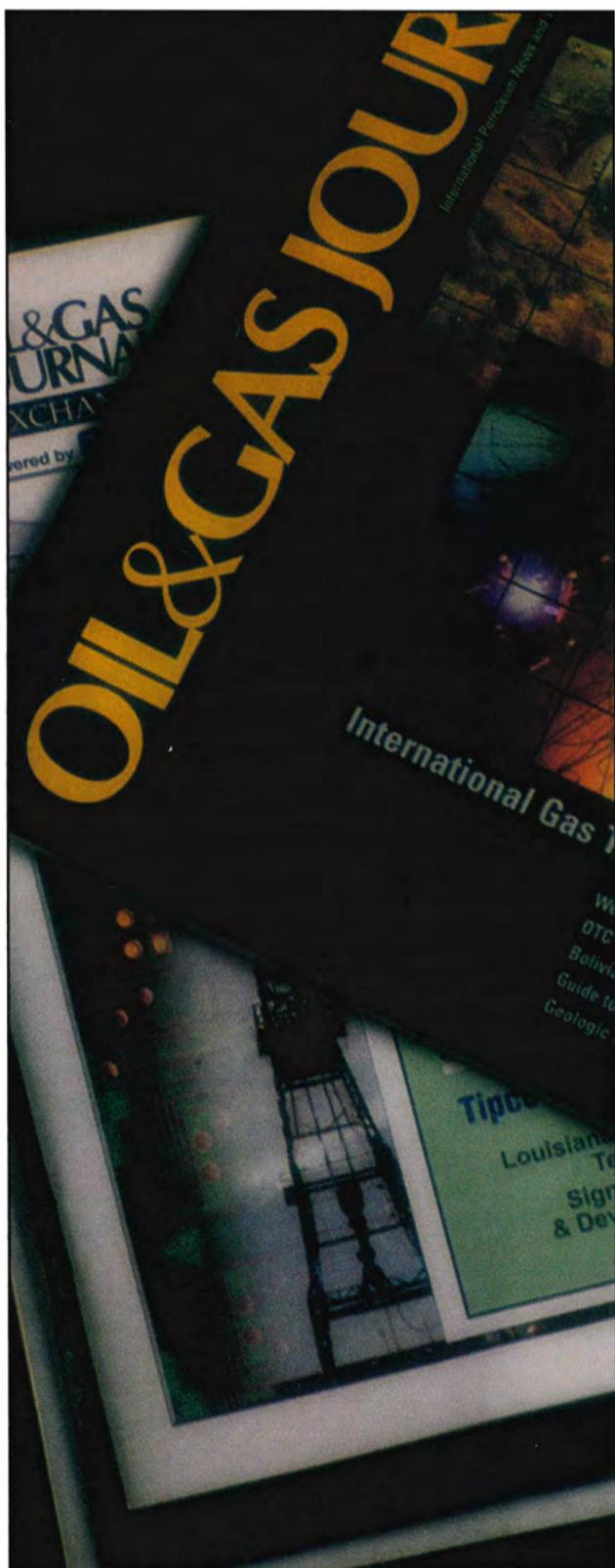


China

Banshen 6, Banshen (Bo) 006, 9,182 mcf.

Caofeidian 12-1, Caofeidian 12-1 2, 2,700 bopd.

Dabei 1, Dabei-1, 6,933 mcf.



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continued on next page

Nine Wells to Watch: The World's Top Discoveries of 2000

Country	Sub-basin	Basin/	Contract Operator	Current Name	Oil	Gas
Angola	Lower Congo Basin - Congo Fan	Block 14	Cabinda Gulf Oil Co Ltd	Lobito 1X	250	145,000
Angola	Lower Congo Basin - Congo Fan	Block 15	Esso Exploration Angola	Mondo 1	300	150,000
Angola	Lower Congo Basin - Congo Fan	Block 15	Esso Exploration Angola	Saxi 1	250	
Angola	Lower Congo Basin - Congo Fan	Block 18	Amoco Angola BV	Paladio 1	300	150,000
Colombia	Upper Magdalena Basin	Boqueron	Petrobras Internacional S	Guando 1	280	300,000
Nigeria	Niger Delta	OPL 246	South Atlantic Petroleum	Akpo 1	300	750,000
Russia	Karpinskiy Folded Zone	ShKS10608NR	Lukoil	Yuri Korchagin	450	
Russia	Turkmenia Antecline	ShKS10608NR	Lukoil	Khvalynskaya	300	500,000
Vietnam	Cuu Long Basin	Block 015-1	Cuu Long Joint Operating	15-1-SD 1X	250	

P+P recoverable reserves given in MMbbl and MMscf

Courtesy IHS Petroconsultants

continued from previous page

Hei 52, Hei 52, 210 bopd.
Huang 202, Huang (Bo) 202, 526 mcf.
Luoji 1, Luoji 2, 22,319 mcf.
Mobei 10, Mobei 9, 530 mcf.
Qikou 18-2, Qikou 18-2 1, 2,441 bopd & 3,000 mcf.
Tai 601, Tai (Bo) 601, 273 bopd & 357 mcf.
Tazhong 40, Tazhong (Ta) 040, 1,012 bopd.
Tong 56X, Tong (Bo) 56X, 181 bopd & 670 mcf.
Yan 5, Yan (Ji) 5, 158 bopd.

India
BRC-1, BRC-1, 327 bopd & 290 mcf.
CB-A 1, CB-A-1, 28,100 mcf.
Suryaraopeta AA 1, SUAA-1, 200 bopd.
Tichna 5, TI, 5,300 mcf.
Tichna 5, TIAB, 600 mcf.
WO-24 1, WO-24-A, 2,300 mcf & 816 bopd.

Indonesia
Iguana 1, Iguana 1, 25,000 mcf.
Sei Utara 1, Sei Utara 1, 2,690 mcf.

Malaysia
Alab 1, Alab 1, 4,700 bopd.

Myanmar
Sabagyisan 1, Sabagyisan 1, 1,000 mcf.

Thailand
Arthit 15-6X, Arthit 15-6X, 34,800 mcf & 764 bopd.

Vietnam
15-1-SD 1X, 15-1-SD-1X, 5,655 bopd.
52/97-CV 1, 52/97-CV-1X, 41,000 mcf.
B-AQ 1, B-AQ-1X, 39,000 mcf.

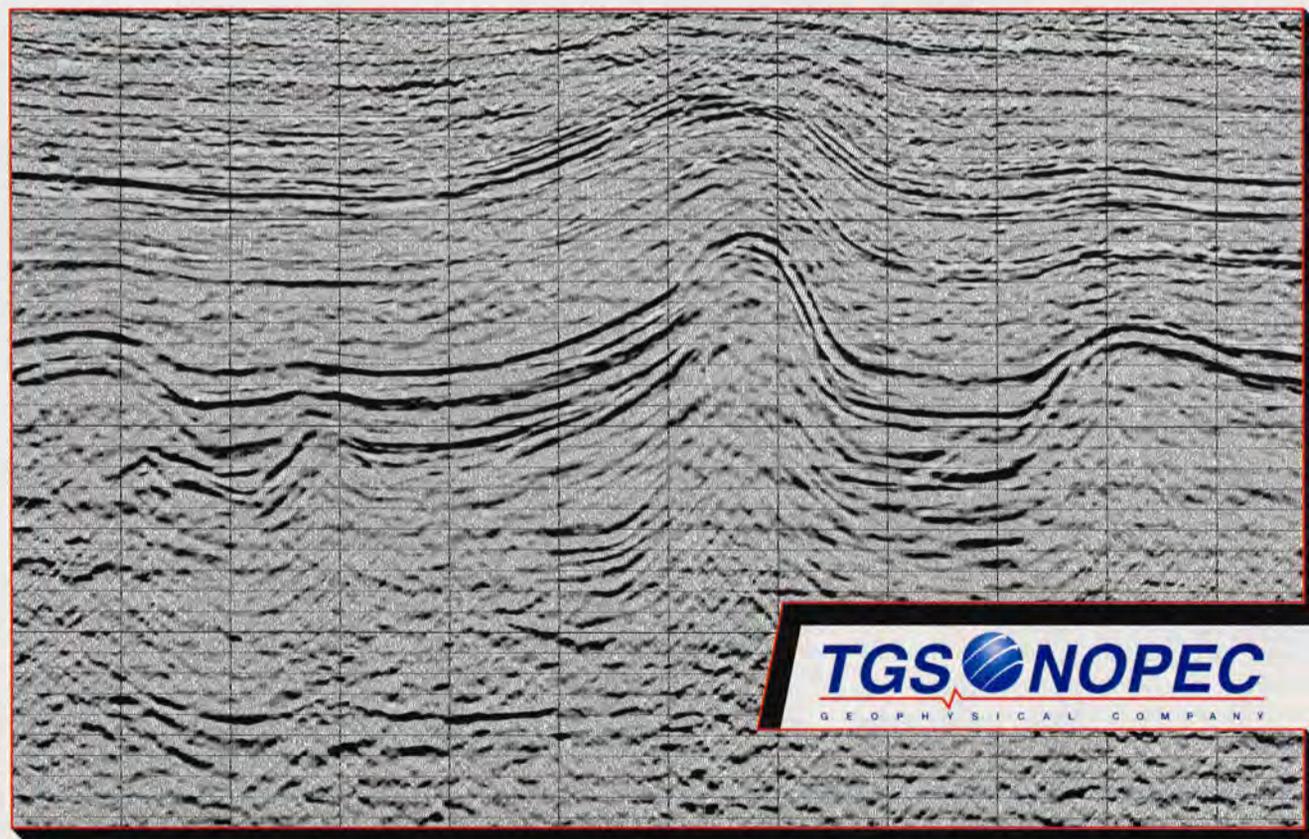
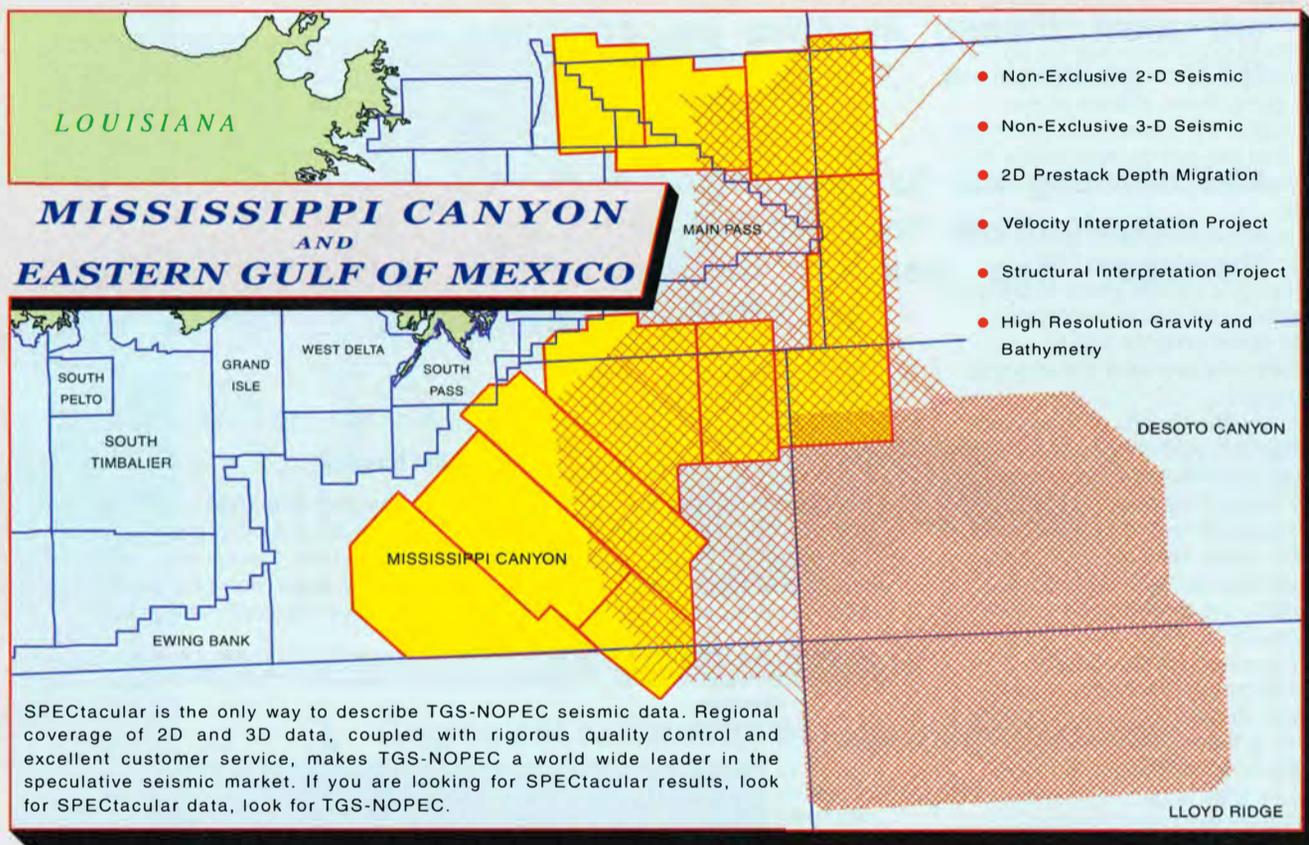
EURASIA



Russia
Khvalynskaya, Khvalynskaya 1, 1,095 bopd & 34,000 mcf.
Semenovskoye (Kaliningrad), Semenovskaya 4, 1,887 bopd.
Shershnevskoye, Belopashninskaya 65, 94.9 bopd.
Yuri Korchagin, Yuri Korchagin (Shirotnaya) 1, 4,380 bopd.

Turkmenistan
Tore-Shikh, Tahtabazar-one 1, 390 bopd & 12,355 mcf.

See **Discoveries**, page 24



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'On-the-Ground Advice'

A Perspective on Venturing Abroad

By LOUISE S. DURHAM
EXPLORER Correspondent

You've heard it all before: The deep water Gulf of Mexico requires deep pockets, the United States is all drilled up, what's left behind is too small to be economical, yada, yada, yada.

Maybe, maybe not – but don't look for any going-out-of-business signs just yet.

The obvious domestic elephants might be gone, but there are plenty of opportunities to keep the oil finders busy – particularly if they're willing to forsake the comforts of home and stake their claims overseas.

Indeed, international ventures are becoming commonplace for an increasing number of both small and large companies, thanks to the dazzling array of available technical tools that are just as applicable in, say, West Africa as in the United States.

The domestic oil and gas industry has continuously honed E&P technology over the years to be able to explore and drill in evermore hostile environments and to economically produce the ensuing discoveries.

Initially, the technical tools were essentially under lock and key within the major companies. But when these large firms began shedding their R&D labs in the 1980s, the service companies stepped in to take up the threatened slack, quickly moving to the forefront in technology innovation.

As a result, sophisticated technology tools became available to smaller companies for the first time, liberating them from the need to operate only on familiar territory because they know the geology and accompanying quirks. Access to technology opened up the whole world as an exploratory arena for most any size company with astute management.

Somewhat ironically, however, the oil finders who venture confidently into foreign lands to ply their trade learn quickly that technology know-how is but a piece of a very big pie.

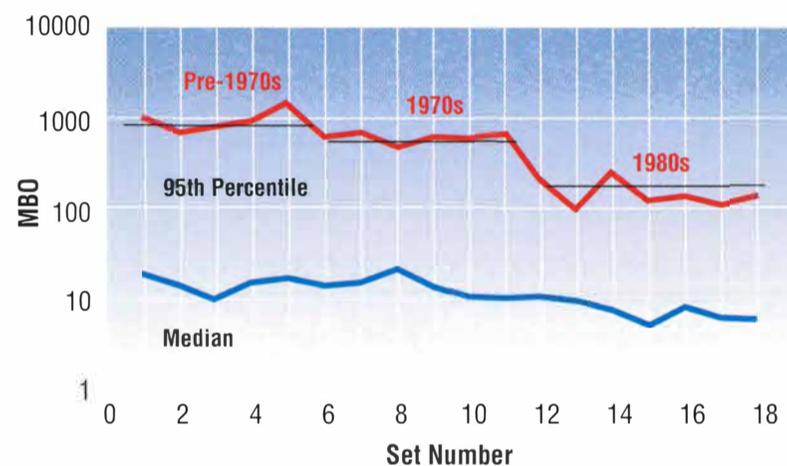
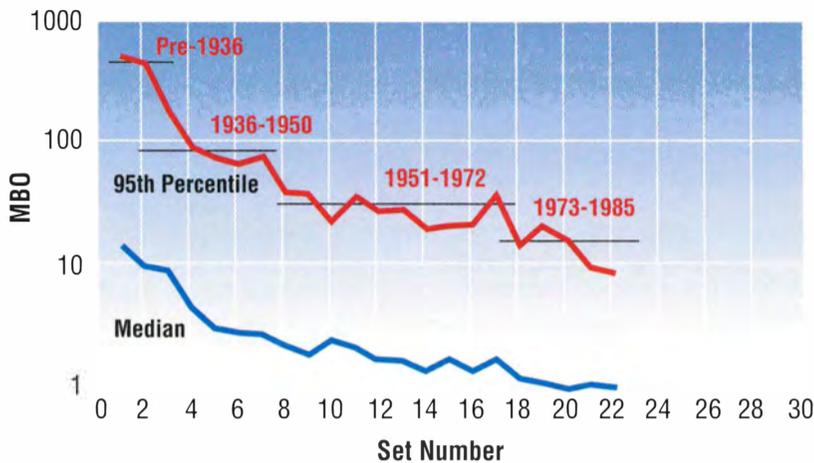
This is not just a matter of different geography, but a whole new world fraught with unknowns of varying magnitude.

Success may await the hardy souls who are patient and adaptable, but foreign shores have their unique laws, business practices and relationships that, if ignored, can just about guarantee economic loss, failure of a venture and perhaps worse.

Requirements for a successful international venture run the gamut from carrying off complex contract negotiations to understanding, respecting and abiding by the nuances of the local culture.

Without any tried and true guidelines to help navigate these uncharted avenues, the E&P community has had to rely essentially on "street smarts" just to get a good foothold in a selected international locale, much less pull off an economically successful venture from start to finish.

But help is now available.



Top chart, domestic U.S. field size discovered by time (pre-1936, 1936-1950, etc.) and, bottom, international field size discovered by decade. Also shown are the median and 95th percentile of that distribution with time. Field size statistics are in sets of 400 discoveries. The top figure illustrates declining domestic exploration success rates, while the bottom chart shows relative international success.



A Stimulating Offer

AAPG recently published a hefty tome to be used as a ready reference for information regarding the business aspects of international E&P ventures. It likely will prove invaluable to oil and gas companies hoping to move out of the domestic arena and into new frontiers.

International Oil and Gas Ventures – A Business Perspective was the brainchild of the book's three editors: George Kronman, a senior managing consultant at Landmark Graphics; Don Felio, a consultant in international business and petroleum ventures; and Thomas O'Connor, a petroleum management advisor in the private sector.

Over time, each member of the group had gradually moved away from his technical background in geology to become involved in the business side of the international E&P arena. As a result, they all had the opportunity to view a slew of non-technical failures – as well as successes – firsthand.

"The idea for the volume was conceived during a discussion about the increasing focus of human resources into international arenas," Kronman said, "and we concluded there was a need for a reference work where the numerous non-technical issues facing the international E&P community could be addressed."

"With the trend of declining reserves and production in North America, Canada and Western Europe, the new big fields are going to be found overseas, but you must understand how to conduct business there," he continued.

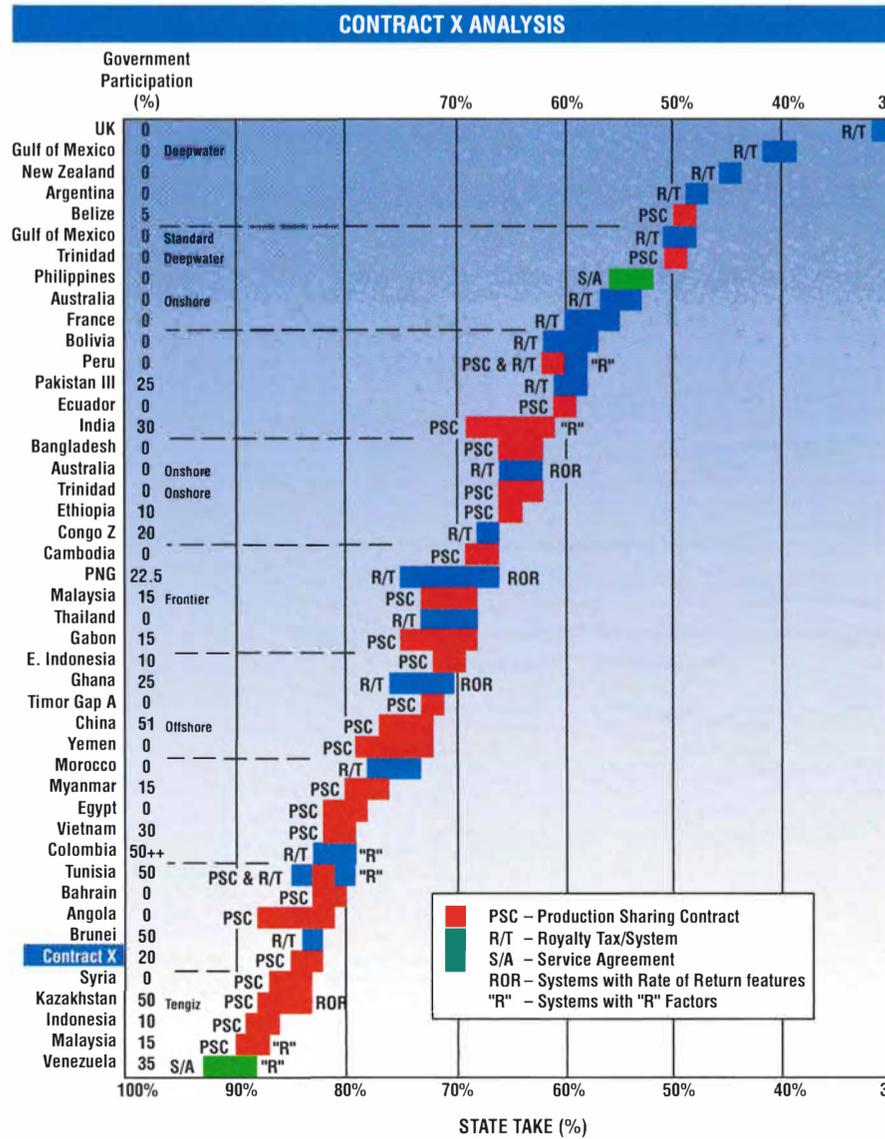
"The objective of the book is to provide valid, on-the-ground advice on how to approach the business side of the international E&P sector of the world petroleum industry."

"We think the book will stimulate thinking and challenge many existing ideas."

Wanted: Perceptive Geologists

Some of the non-technical issues that can override even the best of technology applications to undermine an international project, according to Kronman, include:

- Inadequate contract negotiations.
- Lack of understanding and appreciation of local business practices and social culture.

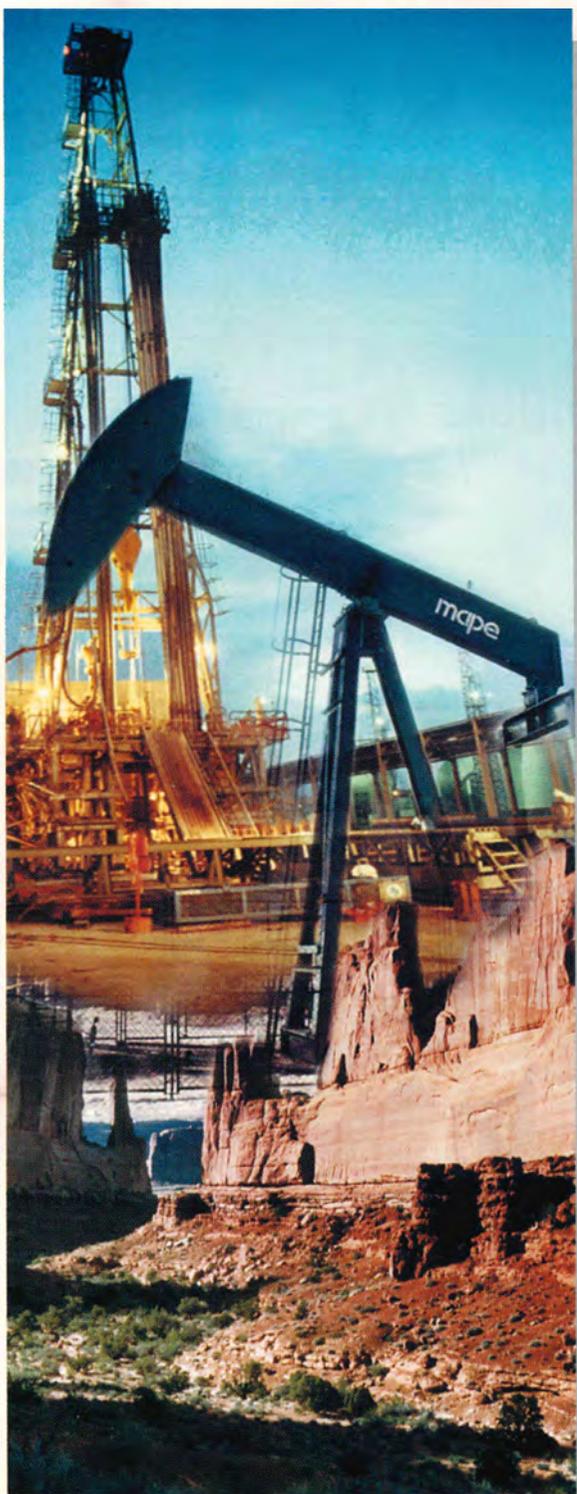


Division of profits worldwide (state take) where Contract X fits.

See **Global Ventures**, page 14

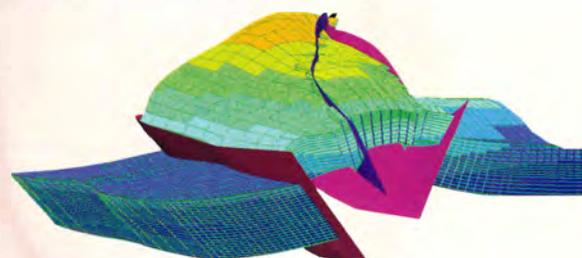
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Rely on experts

*Adventures in E&P Wonderland***'Accidental' Steps Give Global View**

By LOUISE S. DURHAM
EXPLORER Correspondent

Domestic oil and gas finders are attracted to international turf for any number of reasons – the lure of the big find, the challenges inherent in uncharted territory. Indeed, it can be a heady experience.

Occasionally, however, a trek overseas might be a matter of fate stepping in. Look at Benton Oil and Gas Company (BOGC), for instance.

For them, a meeting in Houston and a telephone call from contacts in London triggered an odyssey that would result in BOGC striking agreements in such far-flung locales as Siberia, Venezuela, the Middle East, Africa and the People's Republic of China.

Alex Benton, the company's founder, offers a comprehensive account of many of the highs and lows of such a journey in a paper he authored titled "The Accidental International." The article is one of many case studies detailed in AAPG's newly-published *International Oil and Gas Ventures – A Business Perspective*, slated to become a must-have reference for anyone contemplating an overseas E&P venture.

A Toehold in Venezuela

With its technical team trained at the majors, BOGC debuted as a niche player, drilling on California gas leases prior to moving into the Gulf Coast to capitalize on opportunities to apply its 3-D seismic expertise more effectively.

In 1990, the company's industry contacts in Houston introduced Benton to an engineer from Corpoven, a Petroleos de Venezuela, SA (PDVSA) affiliate.

At the time, BOGC was busy establishing a track record for applying new exploration and development technologies to old oil and gas fields in Louisiana. Knowing that Venezuela had many such old fields and wanted to open its oil and gas industry to outsiders, Benton flew to Caracas to meet with Corpoven.

His goal: Get a license or agreement for a small field so the company could demonstrate its value and then capture more business.

The ensuing meetings went well, according to Benton. Then, to his dismay, Venezuela in 1991 announced a global tender offer for a Marginal Field Reactivation program, calling for the kind of work that Benton had proposed – but on far more than a single field.

Refusing to be intimidated by the prospect of worldwide competition, BOGC decided to go after fields that best suited its technical expertise. Its bid strategy for this international tender was a continuation of its domestic strategy, according to Benton:

- ✓ Avoid or minimize up-front cash payments.
 - ✓ Stage capital commitments over time.
 - ✓ Prepare a development plan to result in early cash flows.
 - ✓ Provide checkpoints for investment revisions and potential exits.
- But Benton incorporated a non-industry-related element in his Venezuelan strategy that would hold almost any international player in good stead.

BOGC struck a 50:50 partnership with Vinccler, C.A, a local engineering and construction company with a long history of successful public works and private sector projects in Venezuela. The partner could provide advice and assistance on dealing with governments, regulatory bodies, customs and importing procedures, local banking relationships and, perhaps most important of all, labor unions.

Another non-industry-related operative would come later in the form of medical, dental, optical and surgical



assistance to the needy who resided in the areas of eastern Venezuela next to BOGC's operations.

Purchasing Power

More than 200 companies indicated interest in the field reactivation program, and PDVSA then pared the list to 83. Ultimately, three foreign companies were awarded contracts, and in 1992 BOGC signed an agreement to reactivate three fields in the South Monagas Unit in eastern Venezuela. One of these had been produced heavily and the other two barely touched.

Within nine months, Benton Vinccler

continued on next page

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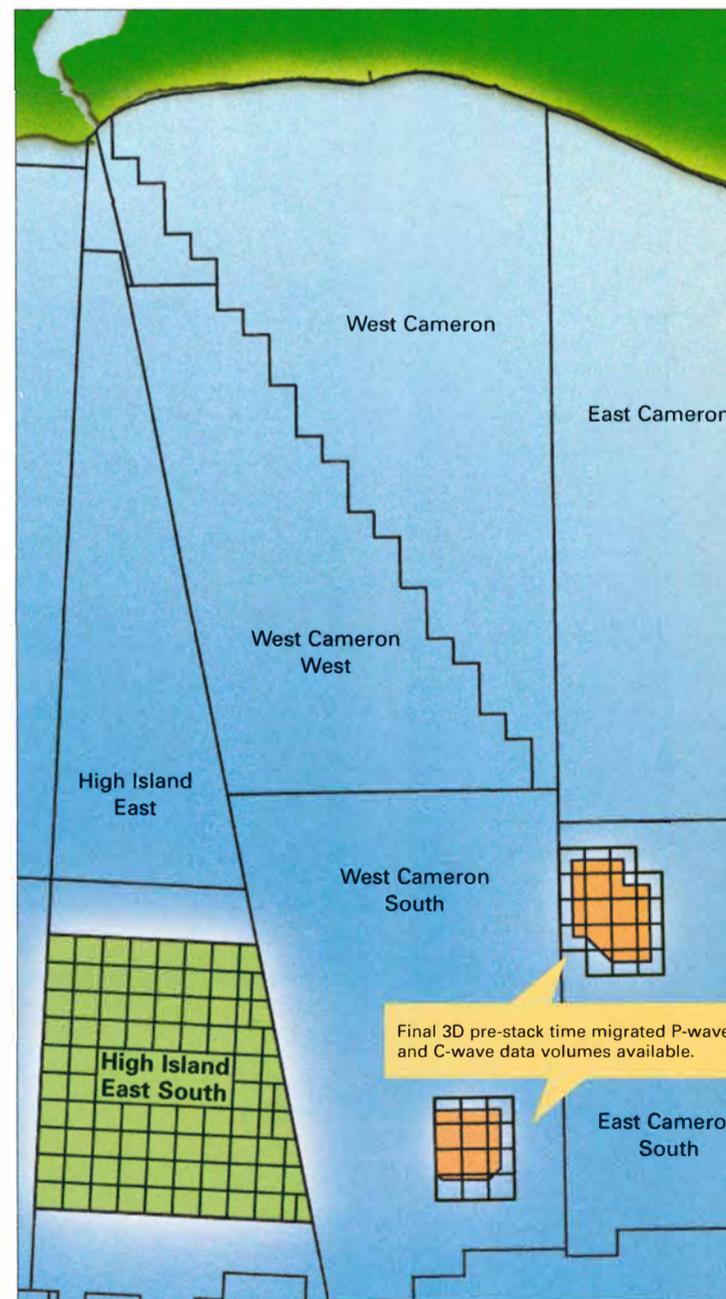


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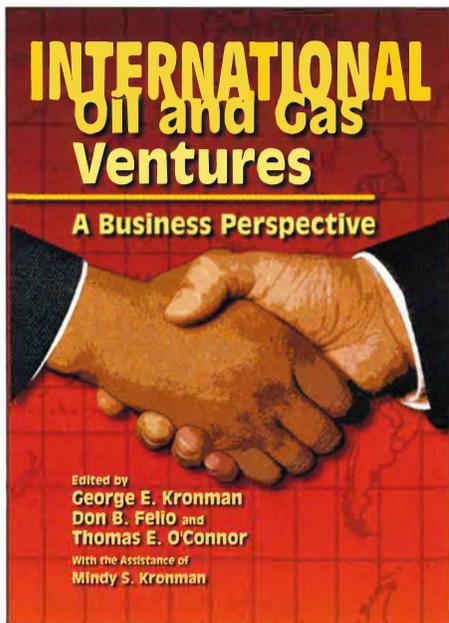
continued from previous page

had established commercial operations essentially by recognizing opportunities to improve on how things historically had been done in this area by means of the effective use of off-the-shelf technologies, according to Benton.

But already, turmoil was brewing on the foreign turf.

Two coup attempts were mounted by the military even before the contracts were finalized. The following year, the president was impeached for financial misdealings, and in 1994 the banking system collapsed, sending the country into an economic nosedive – but indirectly triggering one of the best investments ever made by BOGC, according to Benton.

Vinccler's banking institution was shut down by regulators, causing the



Benton's goal: Get a license or agreement for a small field so his company could demonstrate its value and then capture more business.

company to become illiquid and to need capital to continue its own operations. Benton came to the rescue, negotiating to purchase more than half of Vinccler's shares in their jointly-owned company via a combination of cash, notes and warrants.

Benton Vinccler, however, had only 12 months of commercial production on its books, so valuations were based essentially on undeveloped, probable and possible reserves.

Deciding to take the reserves and valuation risk, BOGC purchased 30 percent of what Benton said may turn out to be as much as 250 million barrels for less than \$15 million – or less than \$0.10 per barrel.

By the end of 1995, estimated cumulative recoveries were already double the risked reserves of 70 million barrels estimated during the tender process, and Benton Vinccler had become the heavyweight in BOGC's asset portfolio.

To compete with the majors as the Venezuelan oil and gas climate became increasingly attractive to foreigners, BOGC formed a consortium with The Louisiana Land & Exploration Co. (now a part of Burlington) and Norcen Energy (now a part of Anadarko via the UPR acquisition). In 1996, the group successfully bid on the Delta Cantro Unit 10 miles north of the South Monagas Unit, with the idea that certain economies of scale might be achieved.

Benton noted that many of the competitors were weary of being shut out by big bids, and bonus fatigue had set in by late on the last day of bid week when the Delta Cantro Unit bid was scheduled. Little did anyone suspect that any bid at all would have beaten the no-bonus bid submitted by the consortium at the last minute.

After the bidding, however, the project became bogged down in paperwork, moving at the proverbial snail's pace compared to South Monagas.

Hello, Mother Russia

Meanwhile, BOGC had plenty of activity elsewhere on the international scene.

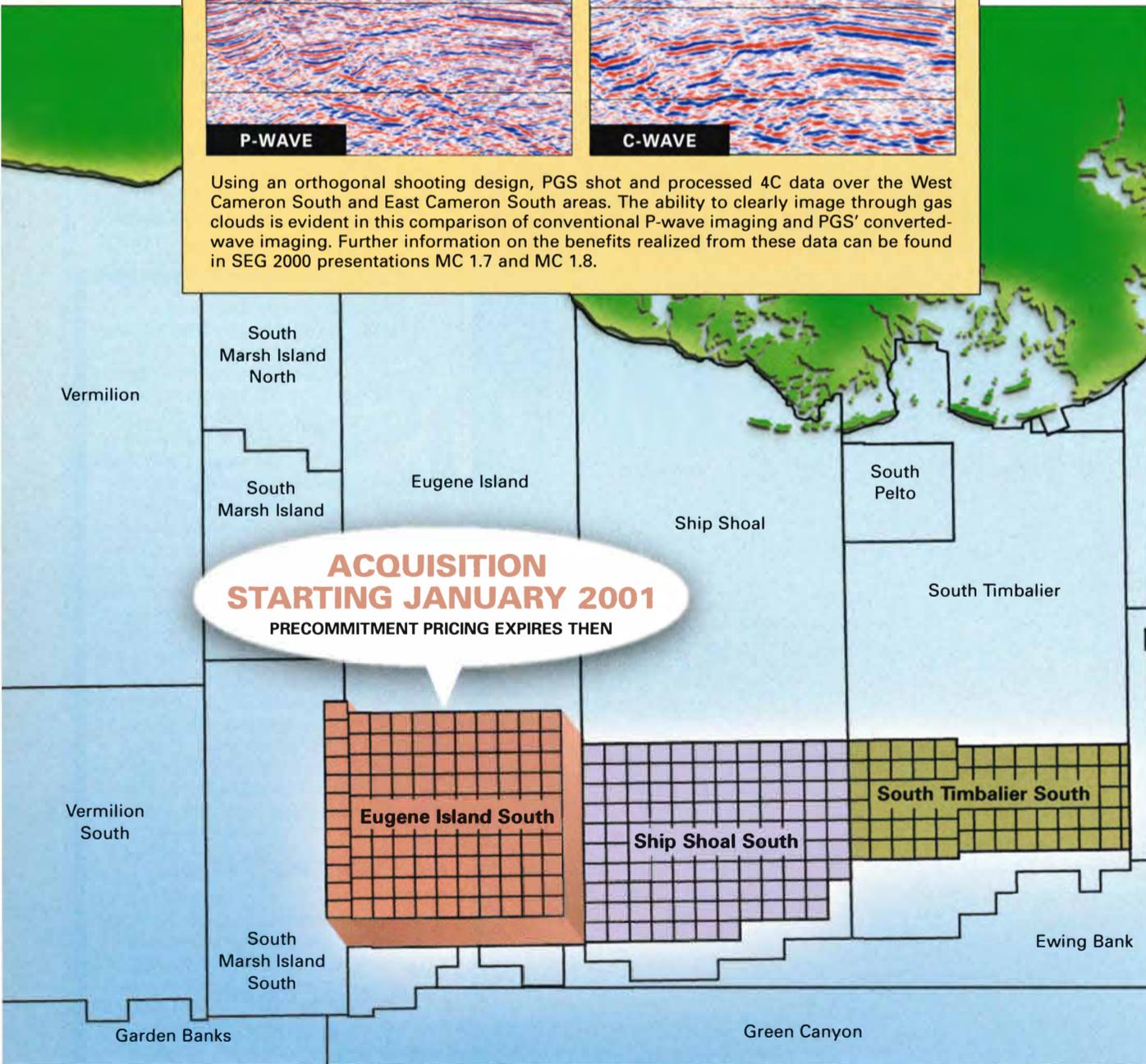
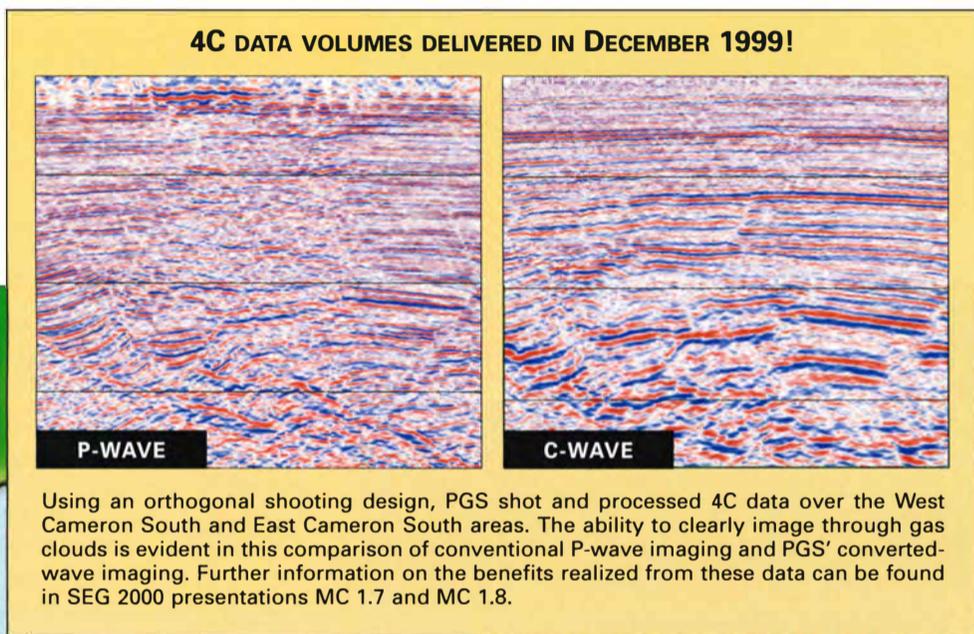
In 1990, the same year he was introduced to the Venezuelans in Houston, the Russian-born Benton steered his company into Russia quite by accident, he said.

A London-based seismic house got word there might be large-scale opportunities opening up behind the Iron Curtain to investment by Western companies willing to take a risk in an unproven area. The oil and gas ministry in Moscow thought a smaller company might move more quickly than the majors, so Benton's seismic house contacts suggested he pursue this potential opportunity.

Introductions were made, and the only advice given by the oil and gas ministry was a caution that BOGC could rely on the political and economic stability of the Russian Republic more than anywhere else in the USSR. This would prove to be fortuitous, given the instability that wracked some other regions in later years.

The ministry arranged for Benton to see three fields in various locales, and his first stop was to visit Purneftegasgeologia (PNGG), a geological company in western Siberia whose mission was to find and study fields via seismic operations, test wells and volumes of written reports.

Once an assessment was completed, a geological company would turn the field over to various scientific and industrial research bodies



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See **Accidental**, page 15

Global Ventures

from page 10

❑ Failure to understand and manage the values and requirements of host governments and individuals from other cultures.

❑ Not properly executing operational plans.

Indeed, a perusal of the book's content quickly reveals that technology is not an issue here. Instead, the critical themes are:

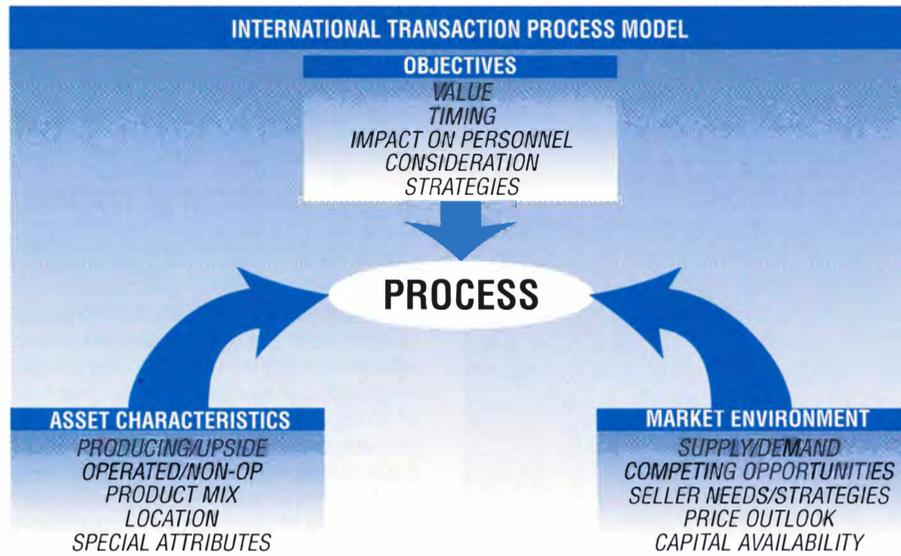
- ✓ Relationships.
- ✓ Cultural understanding.
- ✓ Business understanding – fiscal systems, understanding contracts.
- ✓ Environmental and operational issues.
- ✓ Managing resources in terms of money and people.

Failure to address any of these points will cause an international project to falter or possibly even fail, according to Kronman.

The book's international scope is underscored by the inclusion of myriad viewpoints and advice from potential host governments and other overseas professionals as well, addressing such questions as:

How do these potential host governments perceive the new industrialists they meet during their negotiations?

How do the expectations and aspirations of the host governments



Above, an international transaction process model, developed by Randall & Dewey Inc.

Table 1. The Government's Objectives

- A significant share of the revenues
- Employment for citizens
- Use of local contractors
- Training for citizens
- Transfer of technologies
- Adequate sovereignty/control over the project
- Minimization of threats to health and safety of citizens
- Minimization of damage to the environment
- Augmentation of domestic sources of petroleum

Table 2. Some Nontechnical Risks an Investor Will Seek to Address

- Future petroleum prices
- Nature and levels of government take and other agreed expenditures
- Control over project-related decisions and operations
- Exchange control rules
- Dispute resolution mechanisms/choice of law
- Impact of force majeure on contractual obligations
- Stability of the E&P agreement
- Political risk

What constitutes a "good" international petroleum agreement? Clearly, there are several factors to consider.

Graphics, tables courtesy of George Kronman, Don Felio and Thomas E. O'Connor

mesh with the economic expectations of companies new to the international exploration and production scene?

"We all three leveraged our many contacts, and the people who contributed to the book were industry experts and experienced leaders who poured in a lot of expertise," Kronman said, "and we wound up with world-class articles.

"The volume is not a "how-to-do-it" manual but a series of closely-linked observations by people who have lived with the issues they describe," he continued. "Our objective has been to learn from both sides of the negotiating table, and the papers are about people first, nationalities second and companies third – they are about relationships."

The articles represent a cross-section of the E&P industry, with editorial contributions from attorneys, managers, geologists, major and independent companies, oil field service firms, academia, national oil companies and consultants, among others.

A section of case studies yields insight on the good and the bad encountered on actual projects.

"We see this book as having universal appeal to all concerned," Kronman emphasized, "majors and independents, national oil companies, government and banking people and even the ancillary industries that support E&P."

(Editor's note: The book is available to members for \$54.95 through the AAPG Bookstore. Go online to <http://bookstore.aapg.org>)

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and to a nearby production association, which was called Purneftegaz (PNG) in the PNGG case.

However, PNGG had been able to keep a license for itself that included the North Gubkinskoye field, and it needed a partner willing to risk E&P capital. Oil reserves there were estimated by both PNGG and the Tyumen Institute at over 300 million barrels, with another 50 million barrels of condensate and 4 Tcf of free and associated gas.

The opportunity to produce a brand new field had an added attraction: Unlike most of the deals being cut by foreign investors, BOGC would not have to expend effort and capital to rework and modernize an old field – a somewhat daunting task in many Russian fields with poorly managed reservoirs that had been badly drilled.

Benton called off the tour of other sites and began contract negotiations on the spot, ruling out any interference by rivals.

Uphill Challenges

Recognizing that PNG had the production experience in the area, the two companies invited it to join the venture. Benton pointed out that PNG enjoyed total control over the region in production affairs, including access to pipelines and service companies.

The charter documents designated the two Russian companies each to own 33 percent of the new limited liability company, Geoilbent Ltd., with BOGC owning the remaining 34 percent.

The Russians would make non-cash contributions, and the only source of cash would come from BOGC, which paid for Western equipment and outside contractors. Its exposure was limited to about \$7 million – a lot for the company's size, but a paltry sum to control a third of the vast reserves estimated to await the drillbit.

But the going was definitely uphill.

First, finding good managers and technicians who could work in a capitalist mode was a problem. Apathy that stems from working for a huge government ministry in a remote location presented its own kind of problems, as did disagreements on drilling methods and skills.

Even so, the wells were drilled adequately, and Geoilbent was exporting oil in just over a year.

In the midst of the sometime chaotic activity, the Soviet Union dissolved, replaced by the Russian and other republics. Still, business kept grinding away, slowly but surely.

To contain its own capital exposure in the Geoilbent project, BOGC went on a quest for external financing – a nightmare, in Benton's words.

None of the potential lenders he approached had ever done a reserve-based loan on a new field in Russia. Besides, BOGC was small, and its only assets at the time were its small gas production in the Gulf of Mexico and its oil production in Venezuela, which didn't lend themselves as security for guarantees.

The company persevered, and six years after the initial meetings the first funding occurred.

Seeking to leverage its Geoilbent experience, BOGC evaluated other Russian deals, and in 1996 snared a stake in Severneftegaz, or Senega, which had a license for a block containing as much as 17 Tcf of natural

gas. Fallout from the tumbling oil prices of 1998, however, put a damper on rapid exploitation of these significant reserves.

Benton attributes his small company's international good fortune to a number of strategies, including a willingness to trade political risks for low geological and development risk opportunities that have company-making reserves.

The Benton Vinccler and Geoilbent ventures both are testimony to the importance of striking a positive relationship with host countries and seeking out local business partners.

BOGC's monetary strategy includes placing a premium on receiving revenues in U.S. dollars or other freely convertible currencies, with costs being a blend of local currencies and dollars. □



Photo courtesy of George Kronman

Working abroad: Geologists Antenor Aleman (left) and Ron Nelson (now AAPG vice president) resting during a geological field trip around the Maricaibo Basin, Venezuela, in 1991.

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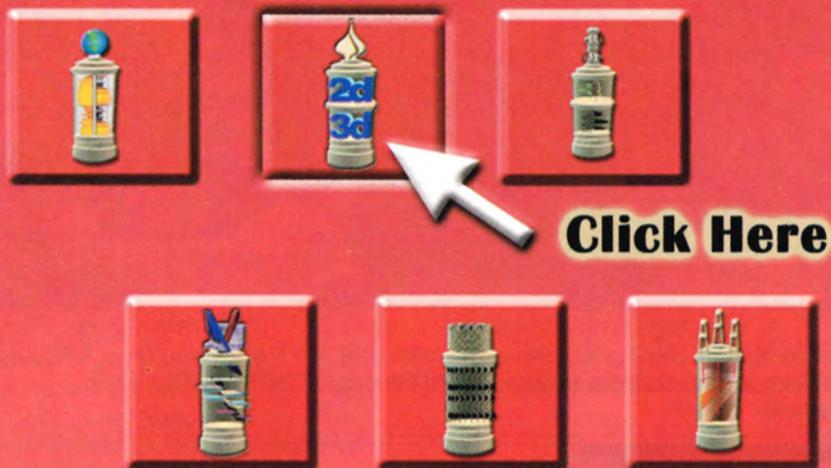
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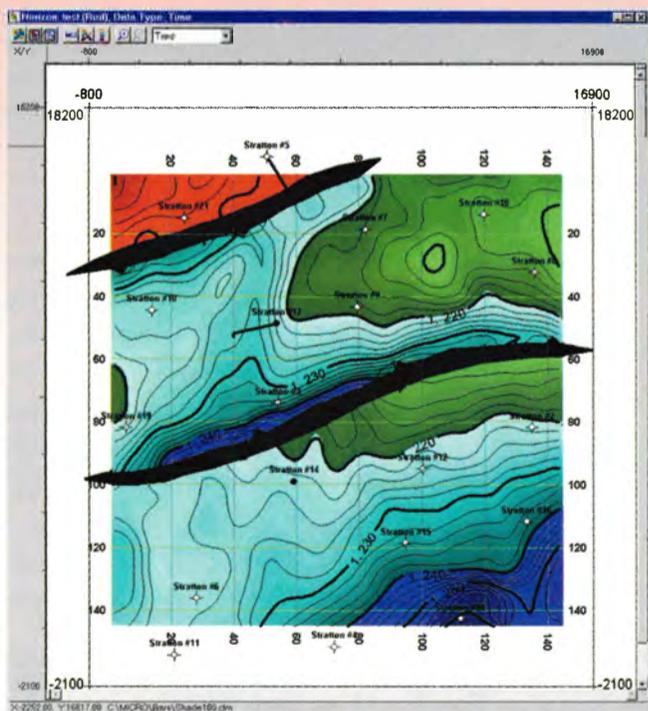
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Trends

from page 6

merger days.

Figure 2 (below) notes the number of AAPG members affected by recent mergers, with double-digit percentage declines seen in the number of professional explorers in the ranks of the merged entities.

It is also startling to note the effect the decade-and-a-half industry downsizing has had on the AAPG membership – even in pre-merger days.

In 1990, there were 568 AAPG members employed by Amoco; in 1998, before the BP-Amoco merger, there were a total of 568 members in both companies.

This occurs in the face of the most positive price environment for two decades.

"In my 72 years in the oil business, I've never seen anything like it."

Those are the words of legendary Houston wildcatter Michel T. Halbouty, who's been around the industry in both good times and bad.

"In other years when we got a dollar a barrel price increase, we'd be happy and we'd use it and go out and find some more oil," Halbouty said. "Now, we have \$35 a barrel, and there is very little extra drilling."

Observers, including Halbouty, see recovery from a downturn in 1998-99 as a major culprit in the current slightly funky feeling of the industry.

"Companies are buying reserves and paying off debt," Halbouty said. "They're not drilling wells. I thought that when the price stabilized at \$25 that we'd see more activity."

"Maybe it's because we don't have the rigs and we don't have the manpower," he continued. "We could have 100 rigs and still not be able to drill."

Past AAPG president James A. Gibbs, principle of Dallas-based Five States Oil and Gas Co., agreed with Halbouty, noting that the spot price for oil in Oklahoma was \$8 a barrel for a time in 1999.

"A lot of people are getting their balance sheet back in shape," Gibbs said.

"Those who have production are

MERGING COMPANIES	# of AAPG Members
Chevron	471
Texaco	350
BP Amoco	422
Arco	172
Vastar*	
*Included in Arco's member counts	
Amerada Hess	82
Lasmo	33
Chesapeake Energy	13
Gothic	1
Anadarko	132
Union Pacific Resources	40
Devon Energy	37
Santa Fe Snyder	34
Number of members as of 11/1/2000	

Figure 1.

smiling now, but nobody's jumped in with a big amount of money to do some big deals."

With only the big companies able to play in the deep Gulf, and plays such as the coalbed methane that is long term, capital intensive and not conducive to a singular creative action.

"The coalbed methane play is not a one-well deal," Gibbs said. "In the past an independent could drill a well or two and be just fine. Times have changed. Now it's more like we are conducting a war rather than engaging a skirmish."

"There is also a high degree of skepticism – particularly on oil – on how long the higher prices are going to last," he added.

Gibbs sees more confidence in gas prices, "but the prices have gone up so far so fast, the investors outside the industry haven't gotten the word yet."

Gibbs also pointed out that there are companies who have staked out large claims in basins, such as Mitchell Energy's Barnett Shale play in North Texas and the coalbed methane play in the Powder River Basin.

"There are a lot of plays that are tied up," he said.

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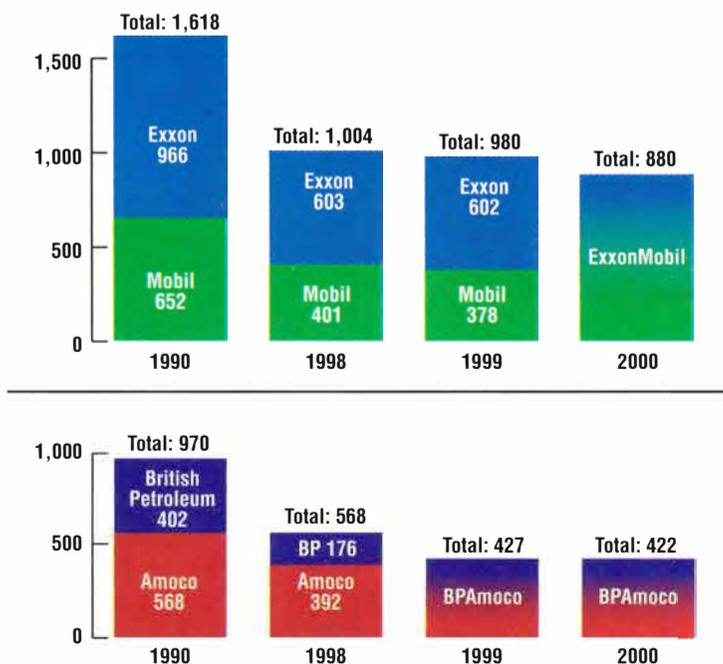


Figure 2 – Corporate mergers have had dramatic impacts on AAPG membership during the past decade. The tables here show the number of AAPG members who were employees of these companies through the merging and downsizing moves.

Two Sections Announce Levorsen Award Winners

Levorsen Award winners and other honors for technical presentations have been announced for two AAPG Section meetings held this fall.

Rocky Mountain Section

The Rocky Mountain Section Levorsen Award goes to Peter H. Hennings and L. B. Thompson, both with Mobil Technology, Dallas, for the paper "Calibrating 3-D Geometric Models for Fractured Reservoir Characterization."

Other technical awards given by the section include:

□ Champlin Best Poster Award – to V.J.S. Grauch, with the U.S.

Geological Survey, Denver, for the poster "Comparing Shallow Versus Deep Fault Patterns in the Albuquerque Basin Using Aeromagnetic and Gravity Data."

□ Runge (Student) Award – to Johanna J. Moutoux and Ronald J. Steel, both with the University of Wyoming, Laramie, for the paper "Sequence Stratigraphic Analysis and Paleoshoreline Trend Interpretation of the Coniacian to Santonian Merged Hosta-Dalton Sandstone, Hagan Basin, New Mexico."

Gulf Coast Association of Geological Societies

The GCAGS Levorsen Award goes

to Fuping Zhu, now with Shell Oil, Houston, for the paper "Distinguishing Water Saturation Changes from Porosity or Clay Content Changes Using Multicomponent Seismic Data."

Zhu's co-authors are Richard L. Gibson Jr., Joel S. Watkins and Sung H. Yuh, all with the Department of Geology and Geophysics, Texas A&M University, College Station, Texas.

Other technical awards given by the section include:

□ GCAGS Excellence of Presentation (first place) – to William C. Parcell, Department of Geological Sciences, University of Alabama, Tuscaloosa, Ala., for the paper

"Three-D Computer Simulation of Carbonate Depositional Facies Distribution and Productivity Rates Using Continuous Set Theory to Mimic Geologists' Reasoning."

□ Best Poster Award – to Grant D. Wach, Rome G. Lytton III and Douglass K. McCarty, all with Texaco Upstream Technology, Houston; Laura C. Korn, with Texaco E&P, New Orleans; and Sharon L. Moate, with Texaco Exploration, Houston, for the poster "Sequence Stratigraphy, Biostratigraphy, Depositional Environments and Reservoir Compartmentalization of the Mid-Miocene Queen Bess Field, Jefferson Parish, Louisiana." □

continued from previous page

William L. Fisher, also an AAPG past president and L.T. Barrows Professor of Geological Science at the University of Texas at Austin, concurs with Gibbs' assessment, with "mid-sized independents are gearing up to increase their mix of gas" in proportion to their oil reserves.

Fisher saw 2000 as a "mixed bag," with drilling rates 40 percent higher than in 1999.

"The outlook for gas is quite positive," Fisher said. "However, oil is more complex. There's much less confidence outside the industry as to where prices are likely to be, even at the end of 2001."

"The market doesn't think that \$35 oil could be back, and could even go to \$10, depending on the response to the market and the imprecise method to calibrate supply and demand."

Fisher said he sees the majors holding back, taking a conservative approach in trying to help maintain the price and bolster the profits and the share prices, which have not had nearly the jump a price environment in the mid-30s would suggest.

Fisher also sees companies looking to "hire a few young people."

"The companies know they are desperately behind in having young people in their mix," he said, "and the efforts to hire new young people have been fairly selective."

Fisher said that while the demand for geoscientists is conservative, the supply of geology and geophysics majors has shrunk tremendously as well.

"Students have a remarkable way to respond to the marketplace," Fisher said, "and they do so quickly."

With fewer geoscientists around, who is going to do all the work that is being required?

"The amount of prospect generation, from a practitioner aspect, is substantially greater than it has been before," Fisher said. "The new technology, where a geologist can sit in a Houston office and can monitor drilling amplitudes in real time on a well in Thailand, means a whole new manpower economy."

Add to that the way 3-D data can be downloaded onto a workstation – and the functions that can perform – and it's clear that fewer people are required to generate prospects.

Additionally, Fisher added, some are saying their new technology is providing a 35-50 percent new field discovery ratio.

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*Deep Water Sparks Starring Role***West Africa's Time to Shine Arrives**

By KATHY SHIRLEY
EXPLORER Correspondent

The relatively small, relatively sparsely populated countries along the West African coast are poised to become major players in the world oil arena in the next five years.

Giant deep water discoveries found in the region are beginning to come on line, and new deep water finds all along the coast are as sure a bet as there is in this risky business.

In fact, many experts believe – privately, but with a passion – that West Africa will likely emerge as the world leader in offshore exploration and production activities in the coming years.

Of the world's 120 deep water field discoveries identified for development in 2000-2005, West Africa accounts for 17 of those finds – just a fraction of the 75 found in North America, perhaps, but in terms of reserves West Africa tops the Gulf of Mexico and Brazil's Campos Basin.

The 17 fields, according to a report by Roger Knight with London-based Infield Systems and Dominic Harbinson with Douglas-Westwood in Canterbury, England, have combined reserves of over nine billion barrels of oil equivalent and an average field size of 535 million barrels of oil equivalent.

The only fields that come close to those numbers are found in the deep

Table 1: Deepwater Fields Off West Africa 2000-2005

Year	No. Onstream	No. Fields	Field Name	Operator	Location	Water Depth (m)	Status
2000	1	1	La Ceiba	Triton Energy	Equatorial Guinea – Block G	700	Under Development
2001	1	1	Girassol B	TotalFinaElf	Angola – Block 17	1,360	Under Development
2002	0	0					
2003	4	4	Bonga	Shell	Nigeria – OPL 212	1,015	Under Development
			Dalia I	TotalFinaElf	Angola – Block 17	1,360	Planned
			Agbami	Texaco	Nigeria – OPL 216	1,433	Planned
			Moho	TotalFinaElf	Congo – Haute Mer	800	Possible
2004	3	3	Plutonio	BP	Angola – Block 18	1,362	Possible
			Hungo	ExxonMobil	Angola – Block 15	1,202	Possible
			Ukot	TotalFinaElf	Nigeria – OPL 222	762	Possible
2005	8	8	Girassol C	TotalFinaElf	Angola – Block 17	1,375	Planned
			Xicomba	ExxonMobil	Angola – Block 15	1,355	Planned
			Lirio	TotalFinaElf	Angola – Block 17	1,365	Possible
			Rosa	TotalFinaElf	Angola – Block 17	1,405	Possible
			Chocalho	ExxonMobil	Angola – Block 15	1,147	Possible
			Erha	ExxonMobil	Nigeria – OPL 209	1,350	Planned
			Ikija	Texaco	Nigeria – OPL 216	1,849	Possible
			Nnwa	Statoil	Nigeria – OPL 218	1,282	Possible

Source: Offshore West Africa Report 2000-2005; Douglas-Westwood/Infield Systems

water Campos Basin, which geologically is a mirror image of West Africa (see related story, page 20).

“Liquids production of almost

three million barrels a day could be achieved by fields coming on stream in the region over the period to 2005,” according to the report.

Leading players are Angola and



Nigeria, both with 1.2 million barrels a day of potential additions.

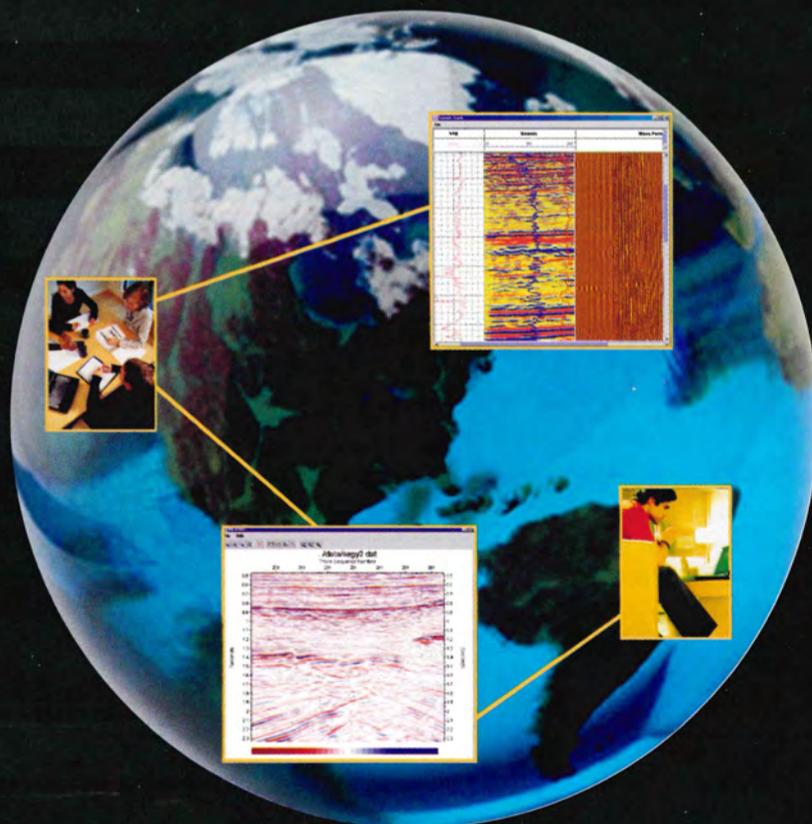
“Placing this in a global context,” the report continues, “over the next five years West Africa could account for 21 percent of global offshore liquids reserves brought on stream, second only to the Europe/Mediterranean region.”

The world's deep water fields identified for development over the 2000-2005 period will have average production rates of over 34,000 barrels a day of liquids, but West Africa's fields will far exceed that average with approximately 93,000 barrels daily – over five times the average expected productivity of deep water fields in the Gulf of Mexico identified for development during the same period.

The 17 deepwater fields could boost regional liquids production by almost 1.6 billion barrels a day, or about 40 percent of the deep water additions to global liquids production.

continued on next page

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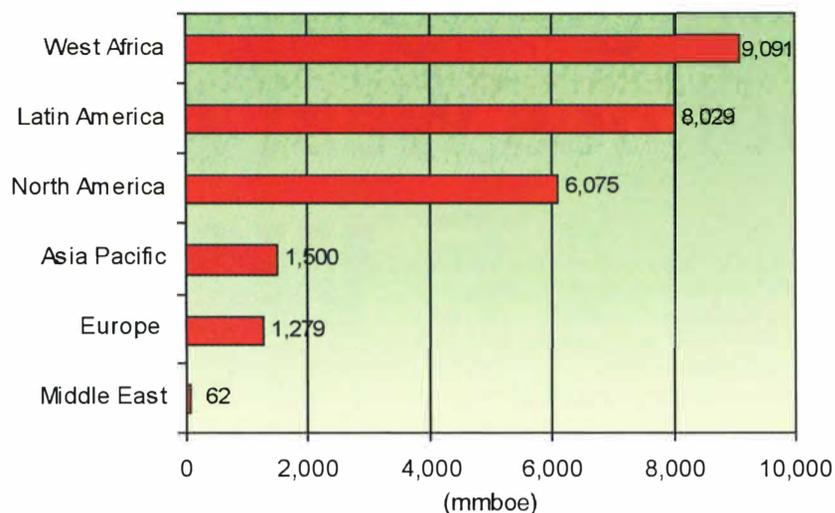


Figure 1 – Reserves in deep water fields identified for development 2000-2005.

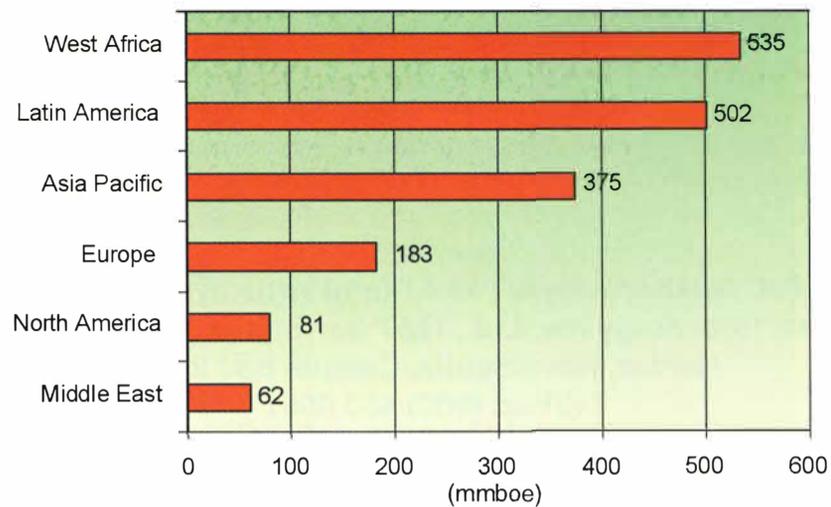


Figure 2 – Average size of deep water fields identified for development 2000-2005.

Source: The Offshore West Africa Report 2000-2005; Douglas-Westwood/Infield Systems

continued from previous page

Growing Expenditures

TotalFinaElf is the dominant player in the fields slated to come on line through 2005. The French operator holds over a third of the reserve base set for development in that period.

Four other majors, namely ExxonMobil, Texaco, Chevron and Shell, also have substantial positions. Their combined holdings amount to almost 50 percent of deep water reserves identified for development.

Since 1997, Infield Systems and Douglas-Westwood estimates indicate that West African offshore field development expenditures have been reasonably steady, averaging \$2.4 billion yearly.

But that will all change in the next five years.

The companies forecast field development expenditures to increase to \$3.8 billion this year and grow to potentially \$10.4 billion by 2005.

The bulk of these expenditures – 78 percent – will be offshore Angola and Nigeria.

The major components in these capital outlays are floating production systems, which, when added to costs of shallow water platforms, will result in surface or platform-based facilities accounting for 70 percent of the expenditures.

The report forecasts installation of 33 floating production systems in the next five years – some being extremely costly. Elf's Girasol unit offshore Angola, for example, is expected to exceed \$900 million.

Large deep water fields also will require considerable numbers of subsea well completions – 297 are likely to be installed by 2005, at costs that are estimated to exceed \$4.8 billion.

When the associated templates, control lines and systems are added that figure jumps to over \$6.9 billion.

A Few Concerns

While the reserve figures for West Africa's deep water province are impressive and headline-grabbing, some serious issues remain to be addressed.

Those, according to the report, include:

- Political and commercial corruption and instability.
- Unfamiliar and often inefficient commercial practices.

See **West Africa**, page 21

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Intriguing Geology Defines West Africa

Despite the political and sociological problems that exist for West Africa exploration, the region's geology is making the effort worthwhile – as is the prospect of future giant discoveries.

Today, more than 70 years after Alfred Wegener first proposed his theory of plate tectonics and the break up of a super continent, geologists are uncovering the secrets of the mirror geologic histories of Africa's West Coast and Brazil's offshore region – both at the time of



the separation and through subsequent developments.

Both coasts are yielding some of the world's greatest deep water oil fields.

"As the split between the continental landmasses developed from the Late Jurassic into the Early Cretaceous periods, contemporaneous pre- and syn-rift deposits were laid down on both sides of the South Atlantic," the Knight-Harbinson report reads (see accompanying story, page 18). "Thus were produced two very similar hydrocarbon provinces with regard to basin type, source rocks and salt deposits.

"The salt deposits were laid down in a region of poorly circulating waters lying north of the volcanic rocks that now constitute the Walvis Ridge in the eastern South Atlantic and the Rio Grande Rise in the west," it continued. "The location of these two volcanic ridges still effectively delineate the southern margins of the hydrocarbon bearing Lower Congo and Santos/Campos basins to the north."

Further rifting led to the opening of the South Atlantic and the deposition of a series of post-Aptian clastic post-rift sediments as the marginal shelves subsided, the report continues.

The salt deposits are of particular importance because of the effect they have on the post-depositional sediments that blanketed them as the ocean opened, and a massive basinward influx of turbidites and other closely related Tertiary clastic deposits occurred.

These turbidite fan deposits – particularly those of the Oligocene and Miocene age – now form the bulk of the reservoir rocks in the Congo Basin's deep water fields. They lie off the continental shelf, below the continental slope, and finds have been made in water depths of 300 to 1,893 meters.

"The recognition of the importance of these deep sea fan deposits over the shallow water progradational shelf deposits ... is one of the most important discoveries to come out of deepwater exploration," the report said.

Recent seismic surveys in the Angolan portion of the Lower Congo Basin and in the Campos Basin show that post-depositional salt movements have created various trap types in the overlying sediments.

The salt thickens toward the African shore, producing different structures in the basin's upper margin extensional tectonic environment, from those that occur in the area affected by compressional tectonics (western and deeper parts of the basin).

– KATHY SHIRLEY

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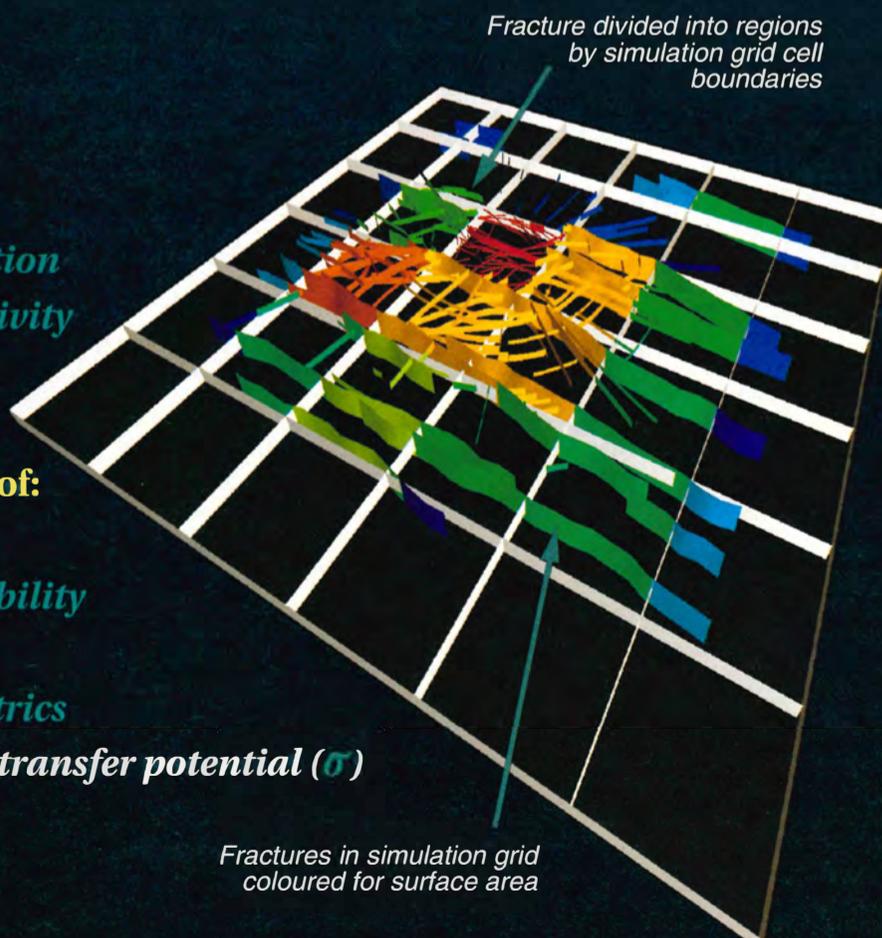
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Fracture volumetrics
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	No. Fields	Total Expected Production	Average Production
Asia Pacific	4	137,800	34,450
Europe	7	110,000	15,714
Latin America	16	887,800	55,488
Middle East	1	(all gas)	N/A
North America	75	1,390,850	18,545
West Africa	17	1,582,000	93,059
Total	120	4,108,450	34,237

Source: The Offshore West Africa Report 2000-2005; Douglas-Westwood/Infield Systems

Table 2: Productivity of deep water fields identified for development 2000-2005 (b/d liquids)

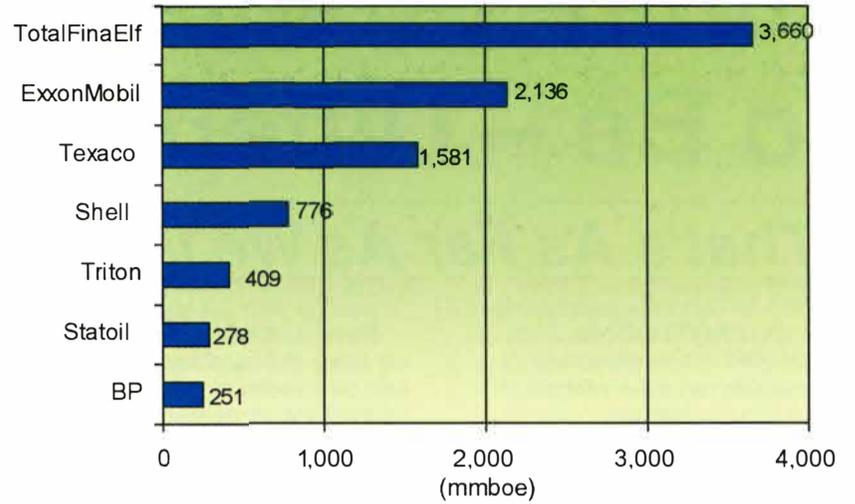


Figure 3: Operator share of reserves in West Africa deep water prospects due onstream 2000-2005.

West Africa

from page 19

- A dearth of adequate local service and supply facilities.
- Occasionally hostile local communities.

In Nigeria's Niger Delta, for example, popular agitation over the perceived inequities in the distribution of oil wealth has led to violence that may have cost Nigeria up to \$1 billion in lost oil revenues in 1999, according to the report.

Deep water discoveries, of course, should be less susceptible to local problems since they are too far from the coast to be easily disturbed.

Still, an issue companies must face is West African governments' demands for greater levels of involvement in the decision-making process toward field development.

Proving the Potential

The first giant deep water fields discovered offshore West Africa were Shell's Bonga on Nigerian block OPL 212 and Elf's Girassol in block 17 off Angola in the spring of 1996.

Since then, 44 fields have been discovered in water depths of 500 meters or more, with the deepest discovery to date being Elf's Andromede Marine field, found in early 2000 off the Congo in 1,893 meters of water.

According to the report, ExxonMobil's Topacio satellite off Equatorial Guinea in 579 meters of water is the only deep water field on production in the offshore West African deep water region.

Topacio, which is part of the firm's Zafiro project, came on line in 1997 and is currently flowing 6,000 barrels of oil a day to the Zafiro Producer floating production system.

Triton's La Ceiba Field in 700 meters of water offshore Equatorial Guinea's Rio Muni province was expected to come on-stream by early 2001.

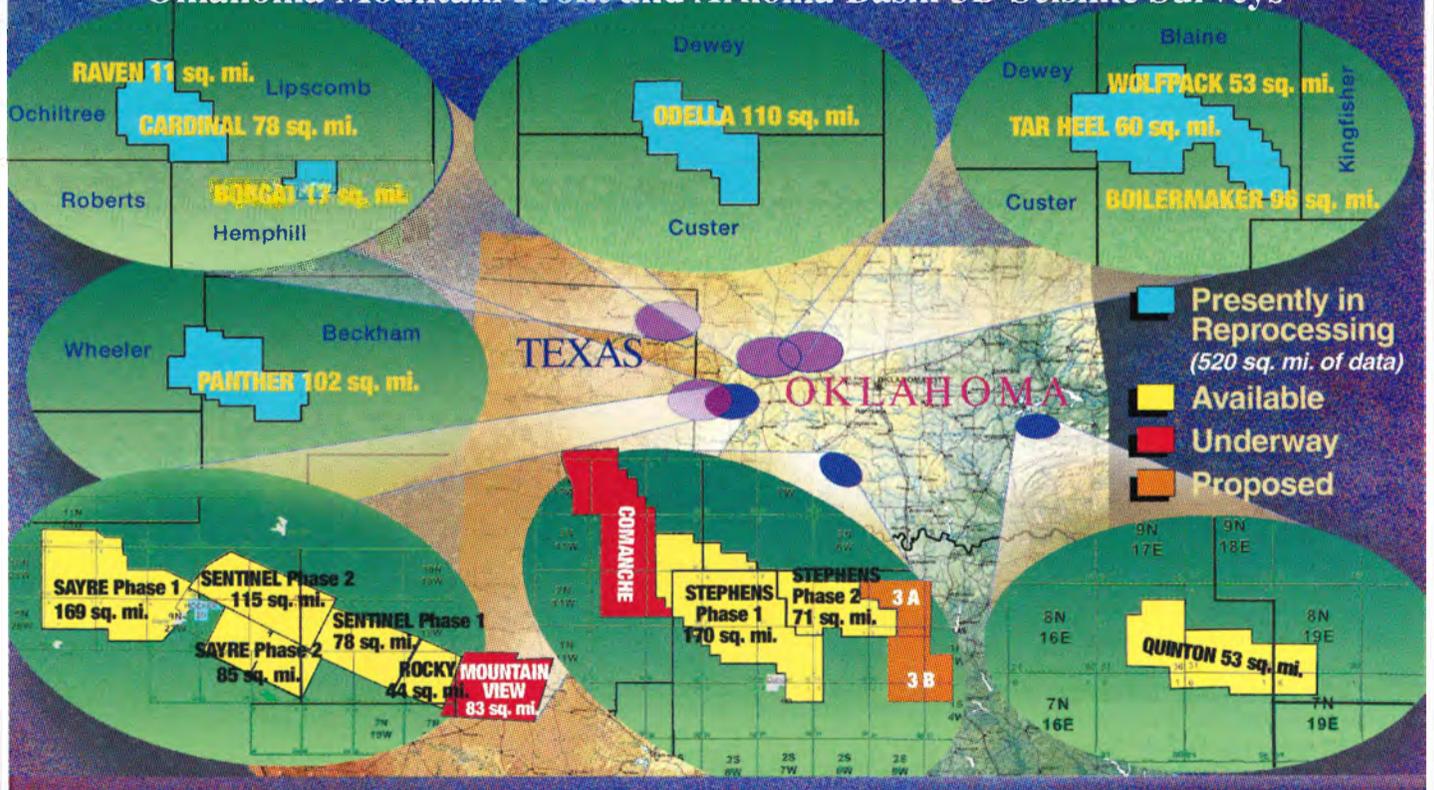
These two fields make the small nation of Equatorial Guinea (population – less than half a million) the current leader in the region's coming deep water production.

By 2005 Nigeria, Angola and the Congo will join their neighbor among the world's important oil and gas producing nations. □

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By DAVID BROWN
EXPLORER Correspondent
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Go back a couple of decades and look at predictions for the year 2001. Like most predictions, they would sound pretty silly – except for a few that turned out to be right on target.

"It's easier to look 10 years into the future than two years," said Dennis O'Brien. "In the short term, you have a lot of small things, small fixes that alone have no significant meaning."

O'Brien serves as director for the Institute of Energy Economics and Policy at the University of Oklahoma, where he also holds the John A. and Donnie Brock Chair of Energy Economics and Business. That gives him a great view of merging technology for the oil and gas industry.

"It's really neat being around a lot of fermenting ideas that have a chance of going out there and becoming commercial," he said – "and not only doing well, but also making some money."

What technologies and trends will have the greatest effect on the oil industry in the next 10 years?

Here are a dozen possibilities, based on responses from all over.

Which ones are most likely to be on target?

Please check back, in the year 2010.

Teeny Tiny Tools for Drilling.

Bob Hulse, a partner in Map Production Co. in Tyler, Texas, sees big savings from coiled-tubing deployed microdrilling. A new generation of tools will be able to work through one-inch tubing, he said.

Hulse looks forward to the day when he can invest in a \$15,000 microdrilled hole instead of a large-hole test at the same depth for more than \$100,000.

The catch: You might not be able to produce through a superslim hole. But you will have a very economic way to take a first look around.

Seismic for Sight and Sound.

G. Warfield "Skip" Hobbs is founder and managing partner of Ammonite Resources in New Canaan, Conn. His company of 25 consultants works with venture capitalists who want to invest in new petroleum technologies.

Hobbs likes a new technology – offered by Continuum Resources International in Houston – that displays seismic data and geological attributes using sound as well as visuals.

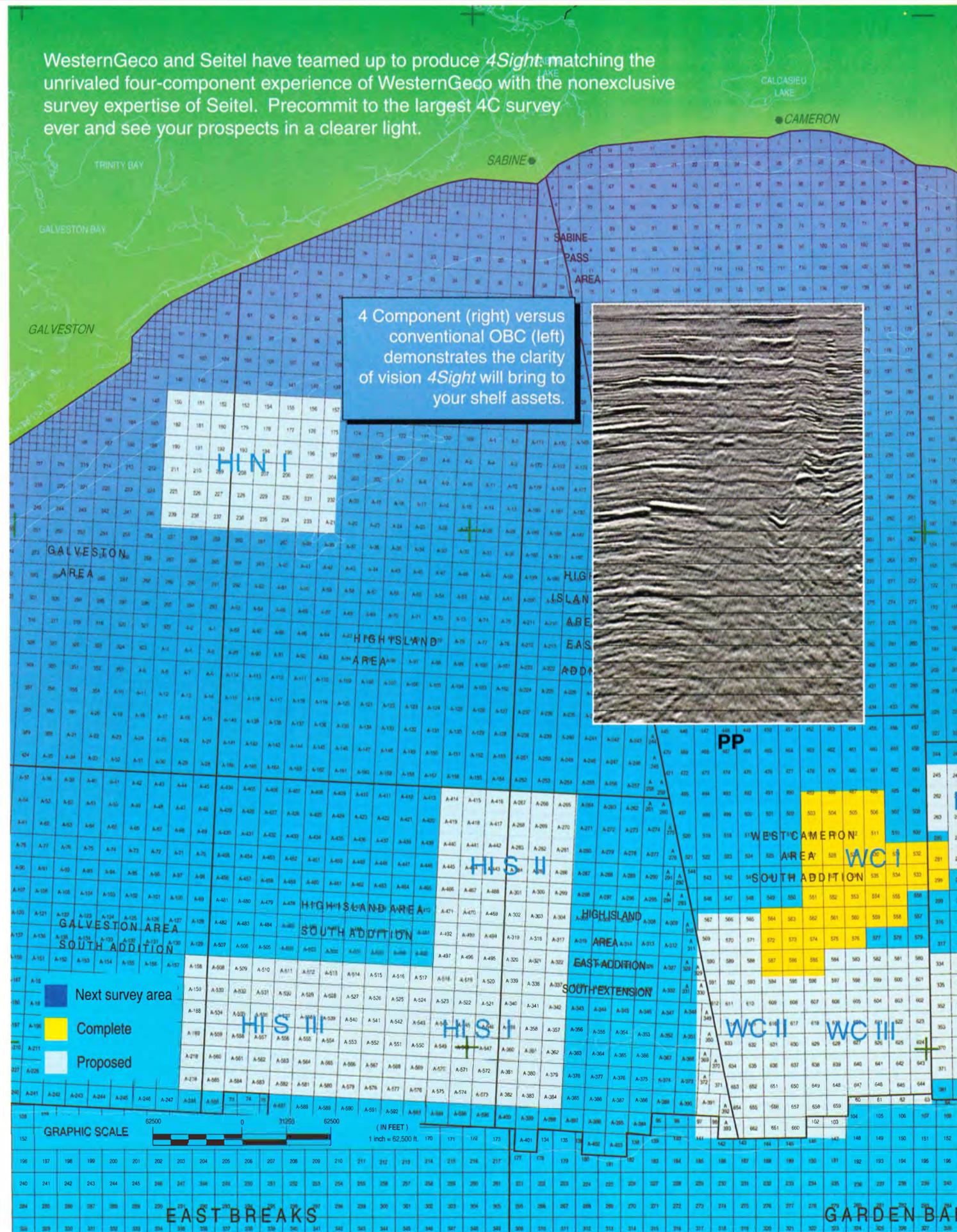
He calls it "a multidimensional visualization process involving the senses."

"It's a correlation," Hobbs explained. "If you've assigned a tone to a specific attribute, your ear can pick that up more quickly than your eye can."

Because their hearing is so sensitive, the blind will be part of the next generation of seismic interpreters, he said.

So, Where's the Plug?
"My sense is, within the next

continued on next page



continued from previous page

decade we will begin to see the application of fuel cells," O'Brien said.

Fuel cell technology could provide self-contained, portable energy units: Prolonged power sources that can be used anywhere.

"That raises some interesting questions," O'Brien observed.

"How do you market those things? Does the guy who uses one own it, or is he going to lease it?"

Steve Millett is manager of forecasts for Battelle, the science-management conglomerate in Columbus, Ohio. His actual title is "Thought Manager" for a company that employs more than 7,500 scientists and support staff.

According to Millett, in 20 years even our home appliances will be

powered by fuel cells.

You Are So Darn Sensitive.

Lance Cole, project manager in Tulsa for the Petroleum Technology Transfer Council, likes advanced measurement technology as a new application – especially in sensors that can "see through" metal.

"One area where they're seeing a lot of usage is when you punch a hole and put in a fluid sensor," he said. New-wave sensors give a much better reading of oil-gas-water in the production flow, Cole noted.

"My assessment is that the technology is going to work," he said. "My only question is timing. Will it be two years from now or five years from now?"

Baby, You Can Drive My Car.

Hybrid gas-electric vehicles might

"Watch out for the automobile companies. They are deadly serious about fuel cells and about not having to rely on other people to provide fuel for their cars."

be the most obvious sign of change in the auto industry, but they are only part of the story, Millett said. In the next 10 years, auto makers could compete with major energy companies as fuel suppliers.

"My advice to (AAPG members) is, 'Watch out for the automobile companies.' They are deadly serious about fuel cells and about not having to rely on other people to provide fuel for their cars," he said.

And the nature of gasoline retailing could change forever as nontraditional outlets begin selling fuel. Good-bye corner station. Hello filling up in the parking lot. A burger and a tank of unleaded, please.

"The big change there is going to be basically a process change," O'Brien said. "That's the entry of WalMart (or) KMart into the service station business – the entry of Albertsons (a grocery chain) into the business," said O'Brien.

Days of Miracles and Wonder.

"Some of the national labs are developing things that we've only dreamed about," Hulse said, "like being able to look at a density log through casing."

Government-funded research laboratories in the United States and other countries may produce breakthrough technology in the coming years. Commercializing their concepts is often a problem, but national labs "are doing some fundamental research, which companies don't like to do," Millett noted.

"One of the things they've got is a sort of epoxy that will bind to damn near anything," Hulse said. "They think it will replace Portland cement in wells, in cementing or in squeeze jobs.

"It's twice as expensive as Portland cement, but you can do anything to it," he continued. "It will bond to the pipe, bond to the rock, and there it is."

Laying the Offshore Groundwork.

Hobbs, who serves as president of AAPG's Division of Professional Affairs, believes this decade will be the time for establishing the necessity of exploration on the U.S. Pacific and Atlantic coastal margins, as well as coastal Alaska.

"We need to say, 'Hey, guys! We have a lot of gas. Let us go get it.' The Canadians are doing that quite well, and the public is behind them," he said.

"The Atlantic OCS has tremendous hydrocarbon potential, as we see from what they're doing off Nova Scotia," he continued. "The public has to be educated about the operational process of developing the coastal margins."

OK, Take a Really Deep Breath.

Some people in the industry wish that global warming and air quality issues would go away – but they're likely to become even bigger concerns during this decade, with big implications for fuel use.

"We have major air quality problems in most cities," O'Brien said. "The issue we really haven't addressed is: Is there a subsidy for something like CNG? On the basis that it's going to reduce health problems for people who breathe the air."

As an independent operator, Hulse said his number one concern is regulations pertaining to fugitive gas emissions.

"A lot of what I do falls under the

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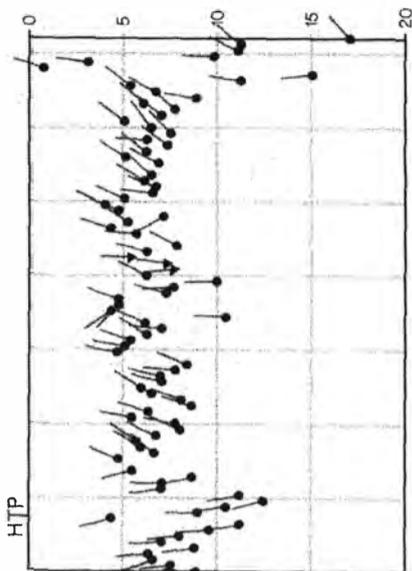
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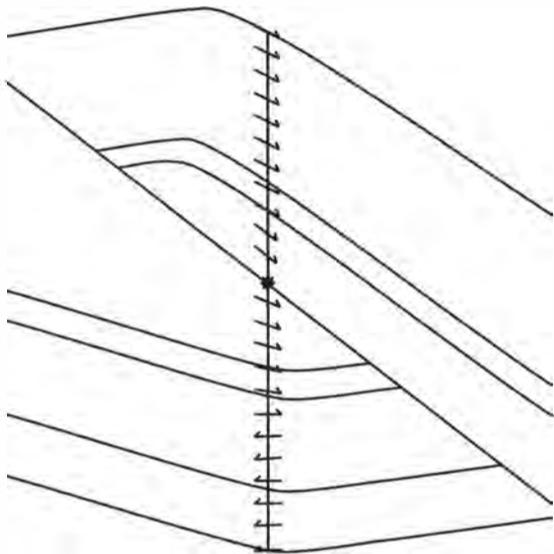
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See **Predictions**, page 25

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Bali Technical Awards Announced

The best paper and poster awards have been announced for the recent AAPG international conference in Bali.

The Gabriel Dengo Award for best paper goes to Alfredo E. Prelat, Alto Technology Resources, Houston, for "Hyperspectral Remote Sensing Project of Riau Province, Sumatra, Indonesia."

His co-authors are Anthoni Tang, Universitas Riau, Pekanbaru,

Indonesia, and Iwan Gunawan, BPP Teknologi, Jakarta, Indonesia.

The Ziad Beydoun Award for best poster goes to Richard R. Hillis, National Centre for Petroleum Geology and Geophysics, University of Adelaide, Australia, for "Coupled Changes in Pore Pressure and Stress in Oil Fields and Sedimentary Basins."

Awards will be presented at the AAPG annual meeting in Denver.

Discoveries

from page 9

PACIFIC RIM



Australia

Roti West 1, Roti West 1, 345 bcpd.
Wippo East 1, Wippo East 1, 370 mcf.

New Zealand

Pohokura 1, Pohokura 1, 17,000 mcf.

LATIN AMERICA



Mexico

Estrella 1, Estrella 1, 4,600 mcf.
Milenio 1-D, Milenio 1D, 2506 mcf.
Playuela 1, Playuela 1, 10,000 mcf.
Santero 1, Santero 1, 531 mcf.

MIDDLE EAST



Israel

Mari B1, 33,000 mcf.
Nir 1, 15,000 mcf.

Oman

Sakhiya 1, Sakhiya 1, 6,200 bopd.

Pakistan

Jhaberi 1, Jhaberi 1, 14,780 mcf & 122 bopd.
Junathi South 1, Junathi South 1 21,970 mcf & 245 bopd
Sadiq X1, Sadiq X1, 12,380 mcf.

Saudi Arabia

Al Gazal 1, Al Gazal 1, 40,000 mcf.
Al Manjoorah 1, Al Manjoorah 1, 7,000 mcf & 200 bopd.

Turkey

Gocerler 1, Gocerler 1, 23,000 mcf.

Yemen

An Naeem 01, An Naeem 01, 40,000 mcf.
An Naeem 01, An Naeem 02, 27,700 mcf & 880 bopd.
Harmel 1, Harmel 01, 500 bopd.
Sharyoof 1, Sharyoof 01, 4,900 bopd.
Sharyoof 1, Sharyoof 02, 5,100 bopd.

SOUTH AMERICA



Argentina

Alto dos Lagunas x-1, SCA SJ AdL x-1, 4,688.67 mcf.
Borde Colorado 1006, N Pi BC a-1006, 561.1 bopd.
Cerro Tres Hermanos x-1, SCA SJ CTH x-1, 16,635.74 mcf & 150.98 bcpd.
Cupen x-1, N Cu x-1, 3,795.47mcf.
El Cordon Oeste x-1, N ECoO x-1, 1,518.3 mcf.
El Mogotito, N Pi EM a-2, 125.8 bopd.
El Solitario Sur x-1, SJ RN ESS x-1, 283 bopd.
Loma Pedregosa 3, N LPe x-3, 1,230.8 mcf.
Puesto Oliverio x-1, SCA T PO x-1, 291.52 mcf.

Bolivia

Guayacan X-1, Guayacan X-1, 1,300 mcf.
Tajibos X-1, Tajibos X-1, 3,071.97 mcf.

Brazil

1-BAS-128, 1-BAS-128-BA, 17,650 mcf.

Colombia

Canacabare 1, Canacabare 01, 491 bopd.
Guando 1, Guando 1, 567 bopd.
Guando 1, Guando 2, 470 bopd.
Pirito 1, Pirito 01, 823 bopd.
Tambaqui 1, Tambaqui 01, 547 bopd.

Ecuador

Apaika 1X, Apaika 1X, 1,830.8 bopd.
Kapiwara 1, Kapiwara 01, 1,507 bopd.

Peru

Litoral Norte, LT-14 1X, 300 bopd.
Siches Oeste, Siches Oeste 1X, 490 bopd.

Trinidad and Tobago

Aripo 1, Aripo 01, 46,300 mcf.
Manakin 1, Manakin 1, 25,000 mcf.

DEG Proposes Bylaws Change

The DEG Executive Committee is recommending several key changes to the DEG Bylaws affecting certain roles of the elected DEG leadership. Members are asked to log on to the DEG Web site at www.aapg.org/deg to review the proposed changes.

Members will be asked to approve or reject these recommendations

when voting for new DEG officers. The election ballots will be mailed to the DEG membership in mid-February.

For questions or comments, contact Michael "Doc" Weathers, DEG president, at dweathers@utsystem.edu or (915) 688-0456. □

Predictions

from page 23

minimum emissions standards," he said. "If they lower those, they might put us out of business."

□ There Are Already Tank Farms.

Bio-engineering should allow us to begin raising crops for energy as well as for food, according to Millett. He sees energy farms as a way for the United States to "grow gasoline, so to speak, to lessen our dependence on imported oil.

"There's the possibility we can use DNA to grow crops for fuel, and not just with corn," Millett added. "I've been told there are chickweed and other plants that can be engineered to better produce ethanol or methanol."

□ Finally, the Fuel of Today.

Natural gas has been the fuel of the future for a long time. Millett believes that future may be now.

"I don't think natural gas is going to replace gasoline (as a vehicle fuel), but there's very serious interest in distributed power generation, and that's mainly natural gas," he said.

Distributed generation could gain popularity if national power grids can no longer meet growing demand for electricity.

Local power could be generated for neighborhoods or even individual businesses by gas-fired microturbines and engines.

"It looks to me like oil is going to fall away and we'll have an economy based on natural gas," Hulse said. "Our domestic U.S. oil industry is

basically shot. It's not gone, but it's going."

□ Hey Little Guys! Group Hug!

The past decade brought mega-mergers among the majors, and Hobbs predicted that the current decade will see a flood of mini-mergers among small independents.

"Small companies have to merge," he said. "Companies that are net asset value of less than \$5 million have to merge to form a critical mass - they have to consolidate in order to attract investment capital."

Tax law changes could spur investment, according to Hobbs.

"Restoration of intangible drilling cost tax relief for passive investors would bring billions of dollars into the

industry," he said.

"The oil and gas industry has had terrible return on investment for the past 15 years. Return on investment has been 7-8 percent and return on assets has been 4-5 percent.

Access to capital has been a real restraint for this industry."

□ Now, Natural Gas You Can Pour.

Improved gas-to-liquids methods may make a real splash within a few years, according to O'Brien, especially in producing liquids for direct fuel blending.

"I think it has very significant potential," he said. "When you turn that into a liquid you turn it into a blend stock. It goes right beyond the refinery to a point where it's blended into gasoline or middle distillate. And that could be a significant technology."

Millett expects major applications in two areas.

"One is at the wellhead," he said. "There's a whole bunch of companies, not to mention the Saudis, who would love to convert gas to liquids at the wellhead."

The second area is liquid conversion for storage and transportation purposes - a way to salvage remote gas that otherwise would be wasted.

* * *

For the record, Battelle has produced its own list of Top Ten Energy Innovations for 2010. Battelle, which has nearly \$1 billion in annual revenues, focuses on technology development and commercialization as well as laboratory management, including some of the U.S. national

labs.

Here is the company's projection of the Top Ten "economically impactful energy innovations" for the next 10 years:

1. A shifting energy industry structure.
2. Hybrid vehicles.
3. Smart energy management systems.
4. Distributed power generation.
5. Fuel cells.
6. Gas-to-liquid conversion.
7. Advanced batteries.
8. Energy farms.
9. Solar energy.
10. Methane hydrate crystal mining.

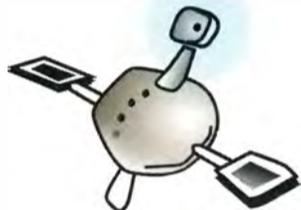
Millett said those are listed in rough order of most likely to have an effect to least likely. No matter what the industry does during the decade, he has the comforting thought that, eventually, we will all look like idiots.

"We have a tendency to look back 100 years or 200 years and say, 'What were those people thinking?' In 100 years, people will look back at 2010 and say, 'How ignorant were those people?'" he observed.

And no matter what happens, Hobbs said the most important concept is, "Keep up." Things will change, maybe radically, so be prepared to change along with them.

"I know some wonderful guys, even AAPG members, who don't have a computer," Hobbs said. "They don't have e-mail! And I've gotten to the point where I won't do business with people who don't have e-mail."

"A message we need to get to our membership is, unless you adapt to these technological changes, you go the way of the dinosaurs." □



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GEOPHYSICAL CORNER

Color Reveals Seismic Message

The Geophysical Corner is a regular column in the EXPLORER, produced cooperatively by the AAPG Geophysical Integration and SEG Interpretation committees, and edited by R. Randy Ray. This month's column is titled "Why We Need Color for Seismic Display."

By ALISTAIR R. BROWN

Everybody must have noticed that seismic data is more colorful than it used to be. This is not just to make the data pretty, nor because today color is cheap; it is to convey information.

Huge amounts of geology can be interpreted from seismic data today – especially reasonable quality 3-D – and color, used properly, is an essential tool.

Wiggle traces started in the field on paper records. The playback center of the 1950s added the variable area display to help the interpreter follow structure. But for interpretation of stratigraphy, hydrocarbons, porosity and reservoir properties we need something better.

Variable-intensity color is needed rather than variable-area wiggle (figure 1) for four reasons:

- ✓ Balanced appearance of positive and negative amplitudes.
- ✓ No overlap – and therefore, no clipping of higher amplitudes.

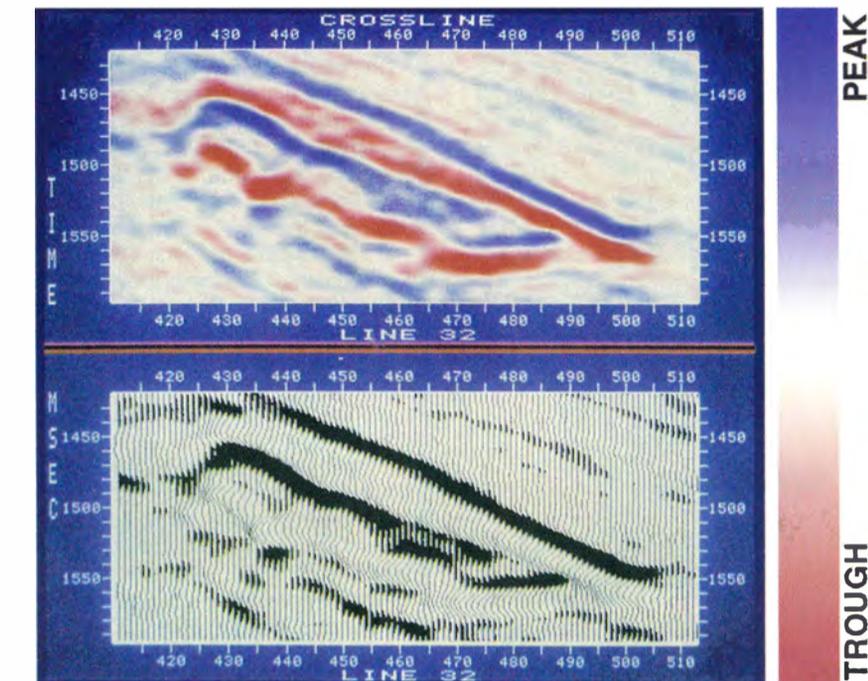


Figure 1 – Vertical seismic section displayed with gradational blue for peaks and gradational red for troughs, compared to same section (below), displayed in variable area/wiggle trace.

Figures courtesy of Chevron USA

- ✓ No mislocation of higher amplitudes.
 - ✓ Better visual dynamic range.
- All logic and intuition in color usage comes from the color cube, and good color schemes are based

closely on it. Contrasting color schemes are used for maps; gradational color schemes for data.

A double-gradational color scheme, such as seen in figure 1, enhances high amplitude events and

is particularly applicable to recognizing hydrocarbon effects and studying reservoir reflections.

A single-gradational color scheme, on the other hand, enhances low amplitude events and is particularly applicable to fault recognition and general structural interpretation. The best example here is variable intensity gray.

* * *

The most common double-gradational color scheme and the most universal color scheme overall is the well-known blue-white-red (figure 1).

The normal and conventional use of this has blue for positive amplitude, red for negative and white on zero. That makes it symmetrical with respect to the color cube and symmetrical with respect to amplitude numbers.

We can thus easily compare one amplitude that is positive with another one that is negative. We do not add any contrasting color boundaries, because they make those amplitude levels look special – so that they distract the eye from the study of amplitude trends, patterns and relationships.

This is the best data color scheme

continued on next page

From Seismic Data To Well Completion

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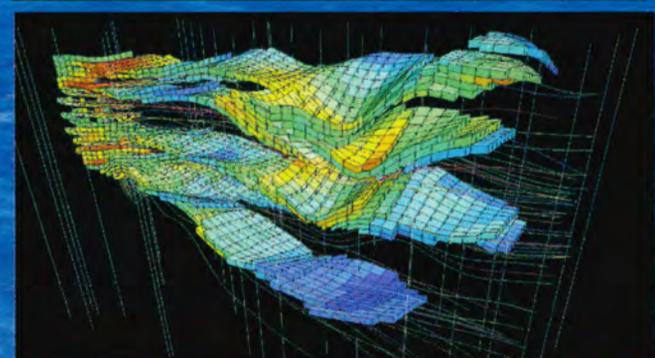
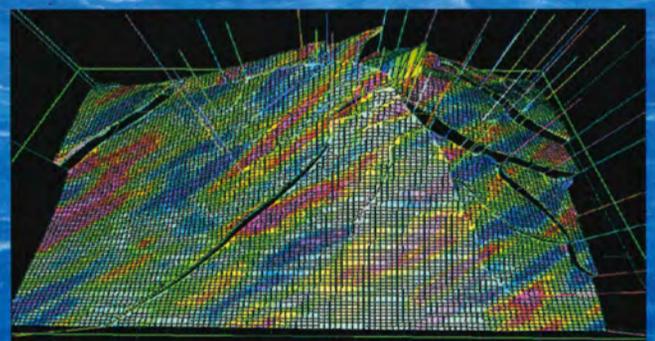
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New Column Editor Ready for Papers

R. Randy Ray is the new editor of the Geophysical Corner.

Ray, a consulting geophysicist/geologist in Lakewood, Colo., specializes in integrated seismic and geologic interpretation for petroleum and coal exploration. He received a B.S. in geology from the University of Texas at Austin in 1974 and a M.S. in geology from the Colorado School of Mines in Golden, Colo., in 1983.

He is a member of AAPG's Geophysical Integration Committee and is vice chairman of the 2001 AAPG annual meeting in Denver. Ray

also is active in the local geological and geophysical societies and is past president of the Rocky Mountain Association of Geologists.

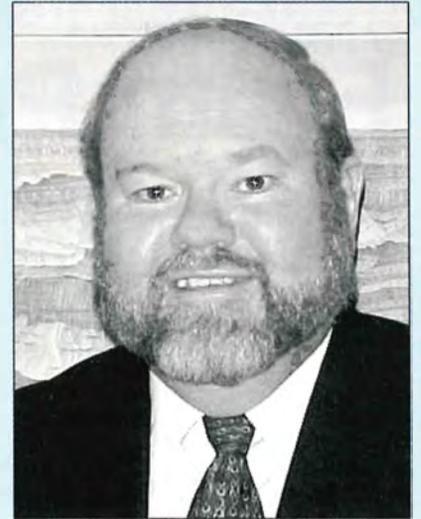
He is the founder and co-chair of the annual RMAG/DGS 3-D Seismic Symposium – now in its seventh year – and said he delights in seeing 3-D seismic reveal a greater understanding of subsurface geology.

Interested in writing for the Geophysical Corner? Ray is looking for outstanding practical examples of integrating geologic interpretation with seismic data. A short article of 500 to 1,000 words with two to five color

figures and captions is the preferred format. It should be targeted for an audience of geologists who want to learn more about using seismic data to understand subsurface geology.

A case history format that shows ties with well information is ideal and can include examples using seismic attributes, seismic inversion, amplitude analysis and AVO, reservoir characterization and visualization techniques.

Papers may be submitted by e-mail to rrandyray@aol.com. Send hardcopy to R. Randy Ray, 2248 S. Xenophon St., Lakewood, Colo. 80228. □



Ray

continued from previous page

for the novice user. Pure primary blue and pure primary red is normally best.

Natural pairing of adjacent reflections is a powerful interpretive observation that aids reflection identification and reservoir understanding. It is made possible only by the use of double-gradational color.

Look again at figure 1, and note how the upper high amplitude blue and red reflections very closely mimic each other. This helps us identify them as the reflections from the top and the base of one reservoir.

The lower high amplitude blue and red reflections also very closely mimic each other. These are the top and base of a separate lower reservoir.

* * *

Special enhanced dynamic range color schemes permit even better definition of stratigraphic detail.

A good example of this is the color scheme cyan-blue-white-red-yellow illustrated in figure 2 (page 29), which provides even more visual dynamic range than blue-white-red. Here, cyan and yellow highlight the maximum amplitudes.

Figure 2 shows a reservoir offshore Nigeria in which gas is over oil, which, in turn, is over water. You can easily see that the gas-oil contact is higher amplitude than the oil-water contact, and that the gas bright spot is higher amplitude than the oil bright spot.

An interpreter with a detailed objective will be looking for amplitude trends and patterns, low amplitude indications and high amplitude indications. He will be looking for character and lateral changes.

He will never see these important subtleties in wiggle trace displays.

He needs color for reflection identification using natural pairing. He needs color to help identify problems with data phase and polarity (an earlier EXPLORER article).

But habits are difficult to break, and we are certainly all products of our own experiences. Color is essential to modern interpretation, and all those who have been using wiggle traces for years – and understandably like them – need to make the transition so that they do not continue missing information.

Color is also valuable for other

See **Colors**, page 29

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BUSINESSIDE OF GEOLOGY

From Promoters to Professionals

(Editor's note: Peter R. Rose, Rose & Associates, Austin, Texas, has agreed to write the *Business Side of Geology* column for the *EXPLORER*. In his role of *EXPLORER* columnist, Rose will also coordinate invited columns from other experts.)

By PETER R. ROSE

Today, most petroleum explorationists acknowledge two professional responsibilities:

- ✓ Find opportunities (= prospects).
- ✓ Measure them objectively

(estimate chance, reserves and profitability).

But before about 1965, the assignment of risked economic value to drilling ventures mostly used "rules of thumb" that were based on individual experience. Expectably, such pragmatic measures varied widely among provinces and companies (and even between offices!).

Salesmanship thrived – but often the stakeholder suffered.

The subjective nature of geology and intuitive judgments involved in

prospect ranking together encouraged a prevailing attitude that, somehow, geoscientists just weren't supposed to know much about prospect economics.

Geoscientists were expected to be optimistic, whereas engineers became economic "gate-keepers" – both self-fulfilling prophecies.

Two pioneering geoscientists – Bob Megill and Ed Capen – were instrumental in changing all that. They disseminated and developed concepts and tools that laid the foundation by which geoscientists

could finally begin to take professional responsibility for objective representation of the value of their prospects as business ventures.

* * *

Robert E. Megill (BS degree in geological engineering from the University of Tulsa) worked for Carter, Humble and Exxon from 1941 to 1984, and early in his career he showed great talent for understanding petroleum economics and statistics and using them perceptively.

During the 1960s Bob began teaching Exxon's geotechnical staff about prospect economics, and later about risk analysis of exploration ventures.

In 1973, Exxon gave Megill permission to publish *An Introduction to Exploration Economics* (Pennwell 1973, 1978, 1988). Subsequently, Megill published a companion volume, *An Introduction to Exploration Risk Analysis* (1979, 1984). Both books became industry best-sellers.

Upon retirement from Exxon, Megill became a sought-after consultant – but he always made time for AAPG service, writing a very popular column for the *EXPLORER* for eight years, "The Business Side of Geology." He also wrote three key articles for AAPG's best-selling *The Business of Petroleum Exploration* (1992).

Beginning in 1984, Megill helped design and team-teach the popular AAPG school, "Managing and Assessing Exploration Risk," together with Ed Capen and myself. A gifted teacher and exceptionally clear writer, Bob Megill taught thousands of explorationists to value their prospects correctly, and to portray them in economic context.

Bob retired again in 1990. He and his lovely wife, Margie, live in Kingwood, north of Houston.

* * *

Ed C. Capen (BA in Math/Physics from the University of Texas at Austin) worked for Arco from 1957 to 1992. He started as a research geophysicist, where he soon sensed that the repeated trials and high uncertainty so characteristic of petroleum exploration made statistics an under-appreciated, but very powerful tool.

At Arco he took part in a series of highly original, insightful, applied research projects, on competitive bonus bidding, economic yardsticks, dealing with uncertainty, capital budgeting and probabilistic reserves estimating, among others. Many of these found their way into SPE publications.

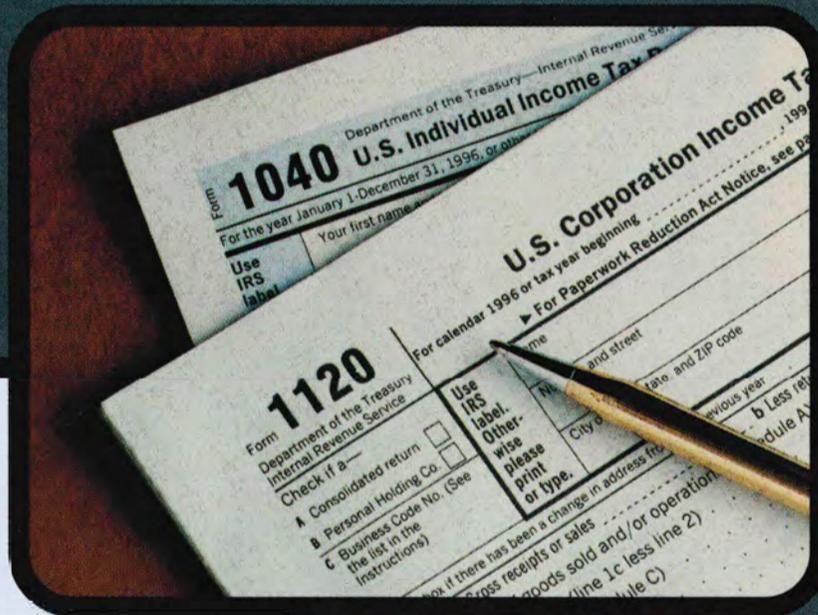
AAPG published one of Ed's very best in *The Business of Petroleum Exploration* (1992), where he presented all the statistical formulae involved with correctly estimating prospect reserves.

Capen's 14-year team-teaching of AAPG's "Managing and Assessing

continued on next page

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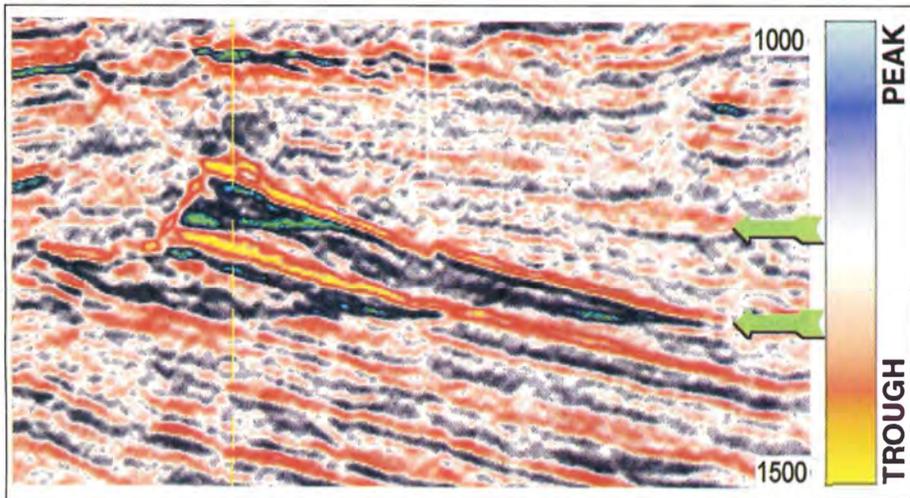


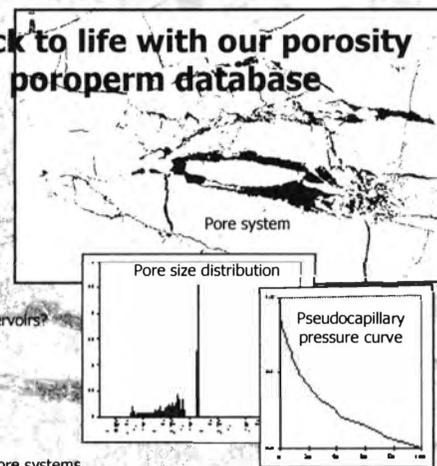
Figure 2 – Gas-oil contact reflection and oil-water contact reflection, both shown by green arrows, in a producing reservoir offshore Nigeria.

Figure courtesy of ExxonMobil Nigeria

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Scanned thin section

Colors

from page 27

types of display. Structure maps should use a contrasting color scheme. Horizon slices and most attribute maps, on the other hand, require a gradational color scheme – again, this helps the interpreter recognize important trends and patterns.

Remember:

✓ Color bars should be included when plots are made so that the reader knows for sure what the colors mean.

✓ Displays should always be clearly annotated, so that the reader knows exactly what he is looking at.

Please use color and select your color scheme with care.

(Editor's note: Alistair Brown is a consulting reservoir geophysicist based in Dallas. He was the first joint AAPG/SEG Distinguished Lecturer, and is the author of AAPG Memoir 42, Interpretation of Three-Dimensional Seismic Data, which is now in its fifth edition.) □

continued from previous page

Petroleum Risk" gave the school many insightful exercises illustrating uncertainty, risk, bid strategies and value of information. Recognizing that the course was about making money in the E&P business, it was his idea for students to use their own pocket money to participate.

An innovative, dynamic teacher, Ed made learning fun – and challenging, for he did not suffer fools gladly.

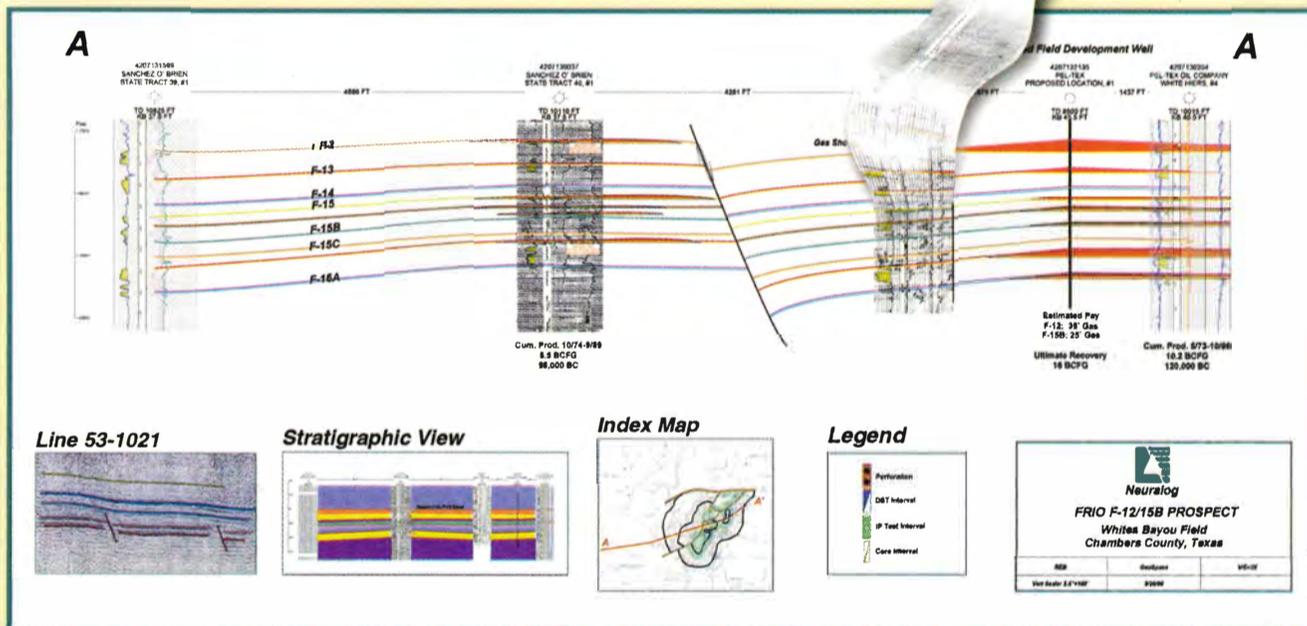
From this corner, Ed Capen has been the most original, rigorous, perceptive and influential authority in the burgeoning field of petroleum economics and risk analysis. In 1995, AIME-SPE recognized him with its coveted J.J. Arps Award, for Significant Contribution to Petroleum Evaluation.

Ed is now retired; he and his charming wife, Betty, divide their time between Telluride, Colo., and the Texas Hill Country.

It is no exaggeration to say that Bob Megill and Ed Capen laid the foundation that allowed the petroleum geoscientist to move from promoter to professional. We stand on the shoulders of the pioneers who have gone before, enriched and inspired by their gifts.

Thanks, Bob; thanks, Ed. □

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INTERNATIONAL BULLETIN BOARD

World Keeps Expanding for AAPG

I want to assure the membership that AAPG will continue its emphasis on international development. I will take a larger role in international activities, and Dana Patterson Free has been named international liaison and conferences manager.

AAPG is truly an international organization, and this is reflected in our membership. We recently had the largest increase in new applications and reinstatements for membership since the boom in the mid-1980s,

and nearly one-half of these were international.

Dana and I will be updating the EXPLORER's monthly International Bulletin Board column. News items, press releases and other information should be submitted to Dana Patterson Free, P.O. Box 979, Tulsa, Okla. 74101; telephone – (918) 560-2616; fax – (918) 560-2684; or e-mail – dfree@aapg.org.

– RICK FRITZ
AAPG Executive Director

(Editor's note: AAPG president-elect Robbie Gries was struck by her experiences in recent visits to Lagos, Nigeria, and Cairo, Egypt. Instead of us just relaying her experiences, we asked her to report directly. This is her report.)

Lagos and Abuja, Nigeria

"You're welcome," said the armed guard escort, as he closed the door of the van at the Lagos airport late at night last November 9.

Embarrassed that I had not said, "Thank you," and thinking that he must have been calling this discourtesy to my attention, I proceeded to say "thank you" at every comment, turn, gesture and move.

He responded with "you're welcome" every time.

However, for the next four days, everyone in Nigeria greeted me with "you're welcome," and I then realized the guard had only been greeting me in the typical Nigerian fashion!

(And never, ever would a Nigerian be so discourteous as to point out a social blunder – even if I had made one!)

Nigeria, a country of 100 million people, has a thriving geoscience community. Attending the recent Nigerian Association of Petroleum Geologist's annual meeting in Abuja, the capital, was an exceptional experience for me. The enthusiasm of NAPE/AAPG members will exhilarate visitors, and I cannot wait to go back.

There were well over 1,000 geoscientists attending the conference from all over west Africa, and I was especially excited about visiting with over 100 students one evening – all eager to participate in AAPG and working hard in a student chapter or working hard to develop one.

NAPE is very active in setting up AAPG student chapters, in helping students with currency problems in paying dues, in mentoring and in trying to acquire books and professional journals for the schools.

Textbook and reference book shortages are acute here, even with Chevron's contribution of the full AAPG library to several schools. One professor who teaches well logging analysis said he has no textbooks or books of his own – he teaches from photocopies that he made of Schlumberger manuals from an oil company office!

His students, of course, have no books at all on the subject.

Six (of about 40 universities) have now started student chapters, and Edie Bishop, wife of former AAPG president Dick Bishop, is sponsoring the chapter at the University of Ibadan as part of the "First Ladies Initiative." During my visit,

continued on next page

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continued from previous page

four other sponsors stepped up to sponsor other schools.

The students provided a lively discussion and were eager to know more about AAPG activities.

Chevron's staff, led by Bayo Akinpelu and Nahum Schneidemann, hosted me throughout the stay and contributed enormously to this being a very pleasant trip. Thanks to the persistence of Kunle Adesida of Shell Nigeria, I was already a card-carrying member of NAPE and had my own kaftan (or boubou, as some call it) that Kunle and his wife, Sola, had presented me with a few years ago!

Africa is the fastest growing region for AAPG, with a growth rate of about 100 percent last year. Nigerian enthusiasm is a significant part of this growth.

Cairo, Egypt

My early departure from Nigeria was a result of needing to attend an organizational meeting in Cairo for our next AAPG international meeting, which will be held in October 2002. This will be an historic event for AAPG in that we are doing the conference jointly with the SEG. The meeting will focus on all of Africa and the Middle East.

While in Cairo I was invited to several planning meetings set up by Pinar Yilmaz, chair of our International Liaison Committee, and Tim Marchant, AAPG's vice-chair of the conference.

The Egyptian Petroleum Exploration Society (EPEX) and the Egyptian Geophysical Society (EGS) will be our co-hosts for the meeting. Samir Abel Moaty has been instrumental in conducting two highly successful previous SEG meetings in Cairo – and as SEG's technical chair, will be a key to the success of this meeting. Experience really counts.

Discussions ensued and brainstorming dominated all of our meetings – and it is apparent that this will be a very strong technical meeting based on the ideas suggested regarding session possibilities for the "call for papers."

John Dolson, AAPG's Egyptian team leader, and others are already developing some field trips that I thought might provide us with tremendous dilemmas trying to choose which to attend!

Upon leaving Egypt (and the marvelous hospitality of BP), I am convinced Cairo 2002 could break some records for our international meeting attendance – but then, the way AAPG is growing, breaking records is to be expected!

– ROBBIE GRIES

Spindletop Celebration Features Bush, Halbouty

Former U.S. President George H.W. Bush will open the ceremonies for the centennial celebration of the discovery of Spindletop on Jan. 10 at the Spindletop-Gladys City Boomtown Museum.

The day-long festivities will include a replica gusher, re-enactments of the discovery with actors playing the roles of the principles, oral history, music, vintage crafts, memorabilia and original art exhibits.

Also speaking will be Michel T. Halbouty, author of the definitive book on the 1901 discovery near Houston that created a new economy for the world.

For information contact Spindletop 2001 – (409) 839-2977.



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EDUCATION CALENDAR**2001 SCHOOLS,
SHORT COURSES**

An Overview of Exploration Play Analysis
March 19-21, Houston

Introduction to Concepts and Techniques of Petroleum Geology
April 3-5, Houston

* Structural Styles and Hydrocarbon Traps in Compressive Basins
April 23-27, Houston

Reservoir Characterization: Principle Methods and Case Studies
May 7-8, Dallas

High-Resolution Well-Log Sequence Stratigraphy
May 14-18, Denver

How to Evaluate Carbonate Reservoirs from Well Logs
June 2-3, Denver
(with AAPG annual meeting)

* Deep Water Sands, Integrated Stratigraphic Analysis
June 2-3, Denver
(with AAPG annual meeting)

* Prospect Evaluation "Surgical Theater" and Workshop
June 2-3, Denver
(with AAPG annual meeting)

E&P Methods and Technologies
June 7-9, Denver
(with AAPG annual meeting)

Structural Telecourse Offered

A proven course taught by a proven instructor on a popular topic has been chosen for AAPG's first telecourse, which will be given simultaneously at three locations in early February.

"Basic Structural Geology for Petroleum Geoscientists and Engineers," taught by Charles F. Kluth, will be offered at:

- ☐ The University of Oklahoma Continuing Education Center, Norman, Okla.
- ☐ Ellison Miles Geotechnology Institute at Brookhaven College, Dallas.
- ☐ North Harris College, Houston.

AAPG Geoscience Director Robert Millspaugh said the telecourse is another effort by AAPG to provide high quality, low cost continuing professional education to the membership.

The telecourse, which will be held Feb. 7, will broadcast live from the LeCroy Center in Dallas, which is part of the Dallas County Community College District.

The interactive course allows for questions and comments BY the participants from any of the locations.

Millspaugh said a "test run" of the course, conducted last spring for the AAPG Education Committee, was

highly successful.

Those attending the AAPG telecourse at the Brookhaven site will be in the new Ellison Miles Geotechnology Institute building, named in honor of the AAPG member who made a major donation toward its construction. Miles, an AAPG member, has been actively exploring and producing in Texas since returning from World War II, where he served as a B-17 bomber pilot.

Formal dedication of the Miles building is planned Jan. 10.

For information about the telecourse, contact the AAPG education department. ☐

Applied Subsurface Mapping
July 9-13, Dallas

* Overpressure in Petroleum Systems in Deep Water Plays
July 14-15, St. Petersburg, Russia
(with AAPG regional international meeting : Register through AAPG convention department)

Well Log Analysis and Formation Evaluation
Aug. 7-10, Austin, Texas

Probability and Statistics for Exploration and Exploitation
Aug. 20-22, Dallas

Introduction to the Petroleum Geology of Deep-Water Clastic Depositional

Systems
Sept. 8-9, San Antonio
(with SEG annual meeting)

Terrigenous Clastic Depositional Systems and Sequences – Applications to Reservoir Prediction, Delineation and Characterization
Oct. 1-2, Dallas

Quantification of Risk – Petroleum Exploration and Production
Oct. 8-11, Houston

Practical Salt Tectonics
Oct. 29-31, Houston

* Advanced Risk Analysis for the Energy Industry
Nov. 12-13, Houston

2001 FIELD SEMINARS**Carbonates**

Carbonate Ramp and Reef Complexes: Depositional Sequence Development and Porosity Distribution
Jan. 7-12
Begins, ends in Almeria, Spain
Carbonate Sequence Stratigraphy, As Illustrated By Lower Cretaceous Platform Carbonates, Central Texas
April 16-20
Begins in San Antonio
Ends in Austin, Texas
Sequence Stratigraphy and Reservoir Distribution in a Modern Carbonate

continued on next page

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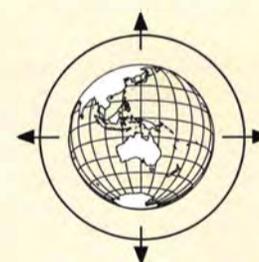
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continued from previous page

Platform, Bahamas

June 25-30
Begins, ends in Miami, Fla.

Arid Coastline Depositional Environments

Nov. 4-9
Begins, ends in Abu Dhabi, U.A.E

Clastics – Ancient

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

April 22-28
Begins, ends in Salt Lake City
Wave-Dominated Shoreline Deposits, Book Cliffs, Utah: Depositional Models for Hydrocarbon Exploration

May 14-22; Aug. 20-28
Begins, ends in Grand Junction, Colo.

*** Cretaceous Outcrops of the Western Interior, Ferron Sandstone, Fall River Formation and the Muddy Sandstone – Utah, Wyoming and South Dakota**

June 7-14
Begins in Wyoming
Ends in South Dakota
(following AAPG annual meeting)

Clastics – Modern

Modern Clastic Depositional Environments

April 18-24; May 18-24; Sept. 12-18
Begins in Columbia, S.C.
Ends in Charleston, S.C.

Modern Deltas

Sept. 10-14
Begins in Baton Rouge, La.
Ends in New Orleans

Sequence Stratigraphy

Sequence Stratigraphic Influence on Sandstone Reservoir Characteristics of Cretaceous Foreland Basin Deposits

June 24-29
Begins in Rock Springs, Wyo.
Ends in Steamboat Springs, Colo.

Sequence Stratigraphy Field Seminar: Sequences and Facies on an Active Margin

Oct. 14-19
Begins, ends in La Jolla, Calif.

Tectonics and Sedimentation

Exploration Potential, Tectonic Framework and Depositional Systems of Strike-Slip and Extensional Basins

March 31-April 6
Begins in Palm Springs, Calif.
Ends in Las Vegas, Nev.

Grand Canyon Geology via the Colorado River, Arizona (An AAPG Geotour)

June 10-18

Begins in Marble Canyon, Ariz.
Ends in Marble Canyon; South Rim, Ariz.; or Las Vegas, Nev.

(following AAPG annual meeting) Utah-Nevada Overthrust Belt and Eastern Great Basin Tectonics

June 18-22
Begins in Salt Lake City
Ends in Las Vegas, Nev.

E&P in Thrusted Terrains, Practical Applications of Structure and Stratigraphy in the Montana/Alberta Thrust

Aug. 5-10
Begins in Great Falls, Mont.
Ends in Calgary, Canada

Submarine Fan and Canyon Reservoirs, California

Sept. 17-21
Begins, ends in San Francisco

* New AAPG course or field seminar.

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Training Center Support Expands

Both Brookhaven and North Harris College are among the six mid-career technology centers that have received funds from both AAPG and the AAPG Foundation. AAPG has made gifts totaling \$309,000, and the AAPG Foundation has donated an additional \$246,500.

In November, Foundation Trustees approved \$25,000 as seed money toward a new mid-career training center in Canada. The "Canada Geoscience Technical Training Centre" will be located at the University of Calgary as part of its department of geology and geophysics.

The grants were instrumental in assisting in the creation and opening of the of the European Geoscience Technology Training Centre at Imperial College in London, England.

The funds are aimed at creating the centers that focus on state-of-the-art training for mid-career geoscientists, and in some instances provides financial assistance for attendees.

For information on the course offerings of the centers, contact:

Mid-Career Training Centers

☐ North Harris College
Geoscience Technology Training

Grants-in-Aid Fund

Julia Maria Davies
Kelly Lauren Opre
Harold James Fitzgeorge
In memory of Richard E. Rohn
Nedra Keller Hansen
In memory of Kenneth Keller

Center, Houston.

Director (Interim): Beni Patel, 250 N. Sam Houston Parkway East, Houston 77060-2000; telephone – (281) 260-3157; secretary – (281) 618-5626; fax – (281) 260-3159.

☐ Midland College Petroleum Geotechnical Training, Midland, Texas.

Director: Dale W. Beikrich, 3600 North Garfield, Midland, Texas 79705; telephone – (915) 686-4242; fax – (915) 685-6431; mobile telephone – (915) 528-1401; e-mail – dbeikrich@midland.cc.tx.us

☐ Ellison Miles Geotechnology Institute, Dallas.

Director: David Lane, 3939 Valley View Lane, Farmers Branch, Texas 75244-4997; telephone – (972) 860-4379; e-mail – Dave_Lane@dcccd.edu.

☐ Colorado School of Mines, Golden, Colo.

Director: Sandra Mark, Geology Department, Colorado School Mines, Golden, Colo. 80401; telephone – (303) 273-3107; fax – (303) 273-3859; e-mail – smark.95@alum.mines.edu.

☐ Cal State Univ-Bakersfield,

Bakersfield, Calif.

Director: Jan Gillespi, 9001 Stockdale Highway, Bakersfield, Calif. 93311; telephone – (661) 664-3940; fax – (661) 664-2040; e-mail – jan@cs.csubak.edu.

Bob Horton, Department of Geology, California State University, Bakersfield, Calif. 93311; telephone – (661) 664-3059; fax – (661) 664-2040.

☐ European Geoscience Technology Training Centre (EGTTC), London, England.

Director: Howard Johnson, Imperial College of Science, Technology and Medicine, Royal School of Mines, Prince Consort Road, London, SW 7 2BP UK; telephone – 44-(0) 207-594-6450; e-mail – h.d.johnson@ic.ac.uk.

☐ Canada Geoscience Training Centre, Calgary, Canada.

A director has not yet been named. The head of the geology department is Don C. Lawton, Department of Geology and Geophysics, University of Calgary, 2500 University Drive N.W., Calgary, Alberta, T2N 1N4; telephone – (403) 220-8863; e-mail – department@geo.ucalgary.ca.

**For the Bernold "Bruno" Hanson
Named Grant**

Richard S. Bishop
George Robert Bole
Edward K. David

continued on next page

TRAINING SEMINARS**Calgary, Canada**

NMR Logging March 26-30
Neural Network Synthetic Logs and Resistivity Inversion April 2-6

Dallas, Texas

Energy Risk Management Tools Including Derivatives March 19-21
Financing Energy Projects March 22-23

Dubai, UAE

Basic Well Log Interpretation April 14-18
Integration of Log, Core, and Test Data: A Workshop April 21-25
Reservoir Monitoring and Production Log Evaluation April 28-May 2

Houston, Texas

Petroleum Sedimentology: Modern Tools March 5-9
Basic Well Log Interpretation March 12-16
Coring and Core Analysis March 19-23
Reservoir Monitoring and Production Log Evaluation March 19-23
Mapping Subsurface Structures March 26-30
Applied Reservoir Engineering March 26-April 6
Biostratigraphy: Production and Exploration Applications April 2-6
Modern Geochemical Tools for Efficient Exploitation and Development April 9-13
NMR Logging April 16-20
Reservoir Characterization: A Multi-Disciplinary Team Approach April 16-20
Advanced NMR Interpretation April 23-25
Worldwide Basin Classification and New Play Evaluation April 23-27
Prospect and Play Assessment April 23-27
Basic Seismic Interpretation April 23-27
Basin Analysis Workshop: An Integrated Approach April 30-May 4
Seismic Survey Design, Data Acquisition, and Processing April 30-May 4

Kuala Lumpur, Malaysia

Basic Petroleum Economics March 12-16
Seismic Survey Design, Data Acquisition, and Processing March 12-16
3-D Seismic Interpretation and Applications March 19-23
Introduction to Exploration Geophysics April 2-6
Petroleum Finance and Accounting Principles April 23-27

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Richard Davies, ExxonMobil International Ltd, St. Catherine's House, 2 Kingsway, PO Box 393, London, WC2A 2EB,
Email: richard_davies@email.mobil.com; Tel: 0044 207 412 4298



Mark Lappin, ExxonMobil Exploration Company, 222 Benmar, Houston, Texas, 77060, USA
Email: mark_lappin@email.mobil.com; Tel: 001 281 423 5893

Michele O' Callaghan, Statoil (UK) Ltd, Statoil House, 11a Regent Street, London, SW1Y 4ST
Email: michele.o'callaghan@statoil.com; Tel: 0044 207 766 7742

Simon Stewart, BP Upstream Technology, Dyce, Aberdeen. AB21 7PB, UK
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John Underhill, Department of Geology and Geophysics, University of Edinburgh, West Mains Road, Edinburgh, EH9 3JW
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AAPG Site Offers Area for Resumes

By JANET BRISTER
AAPG Web Site Editor

Have you checked out the Job Bank AAPG has posted on the Web site?

It can be found via the site's "Careers" area – and it's an area that is proving valuable to many members.

The Job Bank is really an FTP site where members can upload their resumes in the area that reflects their experience and interest.

In some cases a person may want to post their resume more than once to get plenty of coverage.

To find it, start at the home page (www.aapg.org) and follow "About AAPG" to "Careers." At the top of this page is the Employment Forum and the Job Bank.

The Forum is a place for people to post jobs they have available in their company. To post here, AAPG asks that you contact John Wolff (jwolff@apag.org, or 918-560-9405) and arrange for a password.

The Job Bank is the FTP site for resumes. No password is required – but file names need to be unique, preferably displaying the first and last name of the job seeker.

If you have questions or need assistance, please contact Wolff.

* * *

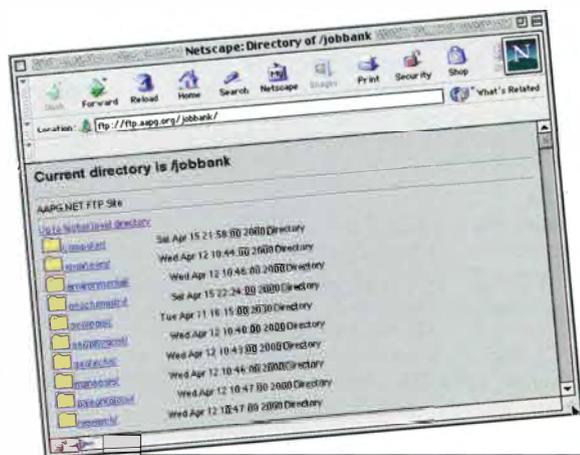
And remember, the AAPG Web site is a terrific place to get daily updates of the news and activities that matter most to you.

News stories that are linked to reporting services from around the world are posted daily by the EXPLORER staff on the page – along with updates and new information involving AAPG programs that directly impact the membership.

Also listed are the top stories from current and past copies of the EXPLORER.

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Good browsing! □



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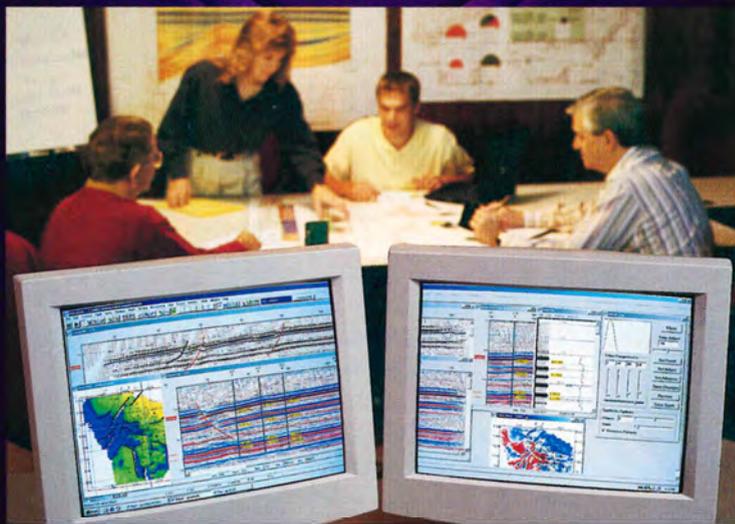
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MEMBERSHIP AND CERTIFICATION

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.)

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Abbott, Brian M., Institute of Petroleum, London (Reinstate); Clure, Valerie Sheila, Technical Outsourcing, Oxon (D.R. Wall, R.H. Bate, J.M. Christ); Tognini, Paolo, Amerada Hess International Exploration, London (R.F. Hardman, A.M. Harding, G.A. Olson)

India

Bastia, Rabi, Reliance Industries, Mumbai (Reinstate); Packianathan, D. Thomas, Oil & Natural Gas Commission, Gujarat (A. Husain, S.N. Mohanty, A.G. Desai); Prabakaran, S., Oil & Natural Gas Corp., Chennai (N. Ganesh, G.N. Rao, K.D. Ganesh); Ram, Jokhan, Oil & Natural Gas Corp., Assam (S. Mahapatra, D.R. Ghosh, K. Palakshi); Samanta, Mrinal Kanti, Oil & Natural Gas Corp., Rajahmundry (Reinstate); Srinivasan, S., Gas Authority of India, New Delhi

(Reinstate); Verma, Narendra Kumar, Oil & Natural Gas Corp., Dehra Dun (S. Mahapatra, K. Palakshi, D. R. Ghosh)

Indonesia

Dyer, Jeremy, Techno Guide/PT Opac Barata, Jakarta (Reinstate)

Japan

Sato, Ryuichi, Information Center for Petroleum E&P, Tokyo (S. Sasaki, N. Masaru, Y. Yaguchi); Sorkhabi, Rasoul B., Japan National Oil, Chiba (H. Ishida, U. Suzuki, O. Akihiko)

Mexico

Ramos Herrera, Gabriel, Pemex, Reynosa (J.K. Heckman Jr., S. Eguiluz de Antunano, R.M. Uribe-Cifuentes)

continued on next page

Certification

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

Petroleum Geologist**Alaska**

Dickey, Douglas B., Petroleum Resources Alaska, Anchorage (W. Breidar, D. Schafer, B. Voorhees)

Colorado

Jump, Connie J., BJ Services, Brighton (M. Silverman, R. Cluff, S. Landon)

Ohio

Kovach, Matthew John, Mutual Oil & Gas, Akron (W.J. Hlavin, R.W. Manus, T. Wood)

Pennsylvania

Boyer, Charles Morris II, Schlumberger, Bridgeville (R. MacDonald, W. Ayers, R.D. Fisher)

Texas

Wilson, Barry James, BW Petrophysics, Houston (W.G. Price, V.J. Lincecum, J. Dischinger Jr.)

Russia

Starichenkov, Vyacheslav V., Schlumberger, Moscow (C.F. Dommer, J.M. Glenn, G.M. Carnie)

Petroleum Geophysicist**Texas**

McCann, Robert D., Texaco, Houston (S.A. Glassman, J.P. Riola, M.W. Campbell)

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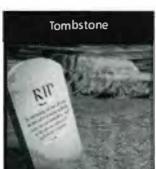
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Check Out New Articles Posted On 'Search and Discovery' Web Site

The following articles were recently posted to the Search & Discovery Web page (<http://www.searchanddiscovery.net>). Search and Discovery is a free Internet journal published by AAPG/Datapages, dedicated to the upstream petroleum industry.

- **Petroleum – A Global Industry From Its Beginning**, by Michel T. Halbouty.
- **Combining Surface Geochemistry and Axial Surface Map Analysis for Petroleum Exploration**, by Julio Perez-Infante, Enrique Novoa, Irene Romero, Marcias Gonzalez, Claudia Fintina, Carmen Zambrano, Marco Odenhal and Angel Gonzalez.
- **Little Creek Structure, T9N-R2E, La Salle Parish, Louisiana**, by John B. Echols

and Richard P. McCulloh.

- **Identification and Characterization of Reservoirs and Seals in the Vicksburg Formation, TCB Field, Kleberg County, Texas**, by Zuhair Al-Shaieb, Jim Puckette, Jay Patchett, Phebe Deyhim, Han Li, Amy Close and Ryan Birkenfeld.
- **Classifications of Syndepositional Systems and Tectonic Provinces of the Northern Gulf of Mexico**, by John F. Karlo, and Robert C. Shoup.
- **Tectonic Evolution of the Sanga Sanga Block, Mahakam Delta, Kalimantan, Indonesia**, by Ken McClay, Tim Dooley, Royal Holloway, Angus Ferguson and Josep Poblet.
- **Structural Framework of Southeastern Malay Basin**, By Khalid Ngah.

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INMEMORY

Joseph C. "Jay" Gallagher, a 2001 AAPG award winner who was to be honored this year for his vision and efforts in the successful development of the International Pavilion at AAPG meetings, died in Houston, Nov. 26 following a long illness.

Gallagher was recently named as a recipient of the AAPG Special Award, largely to honor his leadership in AAPG international activities. He would have received his award at the AAPG annual meeting this June in Denver.

- Austin, Ward Hunting Jr. (AC '50)
Coahoma, Texas
- Baysinger, Billy Lynn, 61
Oklahoma City, July 2, 2000
- Crow, Neil Byrne, 73
Pleasanton, Calif., Aug. 22, 2000
- Eaton, Eugene Clifton, 78
Casper, Wyo., Aug. 17, 2000
- Klemer, John Neal, 72
Bismarck, N.D., Nov. 16, 2000
- Magas, Istvan Oscar, 76
Calgary, Canada, Oct. 9, 2000
- Menzel, Ronald M., 65
Houston, Nov. 8, 2000
- Miles, Phil Middleton (EM '41)
Lexington, Ky.
- Montgomery, John Arnold Jr., 73
Houston, Oct. 14, 2000
- Neale, Reginald N., 66
Houston, Nov. 5, 2000
- Rector, Willis Edward, 65
Fort Worth, Oct. 18, 2000

(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 date are listed.)

continued from previous page

New Zealand

Stagpoole, Vaughan Martin, Institute of Geology & Nuclear Science, Lower Hutt (J.M. Beggs, R.H. Herzer, B.D. Field)

Nigeria

Nwajide, Cornelius Sunday, Shell Nigeria, Warri (F.R. Ebiwonjumi, A. Adesida, D.A. Omene); Olaleye, Babatope, Nigerian AGIP Oil, Port Harcourt (A.A. Carim, M.T. Duze, J.E. Addeh)

Turkey

Sengor, Ali Mehmet Celal, Istanbul Technical University, Istanbul (P.O. Yilmaz, A.R. Green, K.T. Biddle)

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Commentary

Discoveries Worthy of Royal Visit

By PHILIP BRENNAN

On New Year's Eve 1937, the Dammam-7 well on California-Arabian Standard's (Casoc) al-Hasa concession in eastern Saudi Arabia blew out from a depth of 4,500 feet, after drilling into gas-bearing section.

It could have spelled disaster, but the escaping gas did not catch fire, and was quickly brought under control. Drilling was continued to just below 4,700 feet, when it became clear that an oil reservoir had been penetrated.

By March 1938, Dammam-7 had been completed as an oil discovery, flowing light crude oil at a rate of 3,700 b/d.

* * *

This first commercial discovery on Casoc's concession had not been made easily and had not come cheap.

The well lay a few miles inland from the Arabian Gulf shore, on a surface geological structure of the "Bahrain type," given the name "Dammam dome" after an Arab fortress on the nearby Bay of Qatif.

Drilling had begun at Dammam in April 1935, under the most difficult of conditions: the local port facilities poor to non-existent, the local officials suspicious to the point of hostility, the available labor unskilled and intractable. There were the usual minor miseries of heat, dust and flies.

But Dammam-1 was spudded, and began to drill down in search of the

In addition to admiring the growing facilities, Princess Alice evidently grasped the significance of what had just occurred at Dammam-7.

Cretaceous "Bahrain zone," already producing oil on Bahrain Island, 40 miles or so to the southeast across the Gulf of Salwa. And the zone proved to be present at Dammam-1, at depth of about 2,000 feet, even shallower than at Bahrain itself.

The initial test results were promising. The first well flowed small amounts of oil before being abandoned for mechanical reasons; the second flowed oil at the good initial rate of 3,800 b/d.

Encouraged, the geologists staked locations for five more wells, Dammam-3 through -7, with the last of these programmed to drill down through the Bahrain zone to evaluate deeper horizons. The oil field camp was enlarged and given the new name of Dhahran.

A few intrepid families from the United States took up residence. An air of quiet triumph prevailed.

Then came the setback. Wells 3, 4 and 5 were dry holes, while Dammam-2 was rather clearly "going to water." The Cretaceous Bahrain zone at Dammam

was not a commercial oil reservoir. After more than two years of effort and the expenditure of millions of dollars, Casoc's hopes were suddenly riding on the Dammam-7 "deep test."

Dramatically, the well came through, confirming the presence of crude oil in commercial quantities on the mainland of Arabia; oil contained in geological strata older than the Tertiary zones that produced in Persia and Iraq, older than the Cretaceous producing zone at Bahrain.

With the completion of the Dammam-7 well, the prolific Arabian Jurassic oil play had been born.

* * *

For the long-suffering oil community of Dhahran, the excitement over the Jurassic oil discovery was heightened (perhaps even partially eclipsed) by the coincidental visit to the Dhahran camp of a British princess. This was Princess Alice, Countess of Athlone, a granddaughter of Queen Victoria.

Princess Alice was 55 when she

became the first British royal to visit the Kingdom of Saudi Arabia, and was to become the first European woman to achieve a complete crossing of the Arabian peninsula. She arrived with her husband and entourage at the Red Sea port of Jiddah in February 1938.

The royals traveled east to the Saudi capital of Riyadh, where they were entertained by King Ibn Saud. They then marched on to Hofuf, en route to the Arabian Gulf shore, and made a short diversion to visit the American oil camp at Dhahran, arriving there March 20, 1938, while the Dammam-7 Jurassic oil discovery well was still being tested.

Princess Alice was very well received by the American oil community at Dhahran, and she returned the compliment. In addition to admiring the growing facilities, the princess evidently grasped the significance of what had just occurred at Dammam-7. She was aware that Ibn Saud had once been a British client, and commented acidly over the failure of her own countrymen to have obtained any part of the Arabian oil concession, even though it might, at one time, have been theirs for the asking.

"We British are awful juggins," the princess is reported to have said - strong condemnation from such a pillar of the British establishment.

continued on next page



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● Geophysics for Geologists and Engineers Feb. 4-8, 2001 <i>Easton Wren, Ph.D.</i>	● Introduction to Applied Geostatistics for Oil & Gas. May 6-10, 2001 <i>Ricardo Olea, Ph.D.</i>
● Extensional & Inversion Tectonic Systems in Exp. & Dev. Feb. 18-22, 2001 <i>A Structure Seminar</i> <i>Robert Hickman, Ph.D.</i>	● Reservoir Characterization. A team Approach for Improving Oil Recovery Course & Computer Workshop May 20-24, 2001 <i>Godfried Wasser, MSc.</i>
● Formation Evaluation using Wireline Logs & Adv. Techniques March 18-22, 2001 <i>A Petrophysical Model Approach</i> <i>John Doveton, Ph.D.</i>	● Drilling Operations Technology Sep. 9-13, 2001 <i>Eng. Tony Wallace</i>
● Clastic Sedimentary Facies, Sequences and Reservoirs. Course & Field Seminar April 1-6, 2001 <i>Gary Nichols, Ph.D.</i>	● Application of Directional and Horizontal Drilling Operations Sep. 16-20, 2001 <i>Eng. Tony Wallace</i>
● Continental to Shallow Marine Depositional Systems - Corinth Rift. Field Seminar April 16-20, 2001 <i>Tor Nilsen, Ph.D.</i> <i>A. Zeliidis, Ph.D.</i>	● Deltaic and Shallow Marine Sequence Stratigraphy Application to Exp. & Dev. Sep. 30-Oct. 4, 2001 <i>Dag Nummedal, Ph.D.</i>
● Deep Water Reservoirs & Turbidites - Pindos Foreland Course & Field Seminar April 23-27, 2001 <i>Tor Nilsen, Ph.D.</i> <i>A. Zeliidis, Ph.D.</i>	● Practical Interpretation of Production Logs Oct. 7 - 11, 2001 <i>Bob Maute, Ph.D.</i>
	● Inversion Tectonics and Hydrocarbon Systems Oct. 21-26, 2001 <i>Ken McClay, Ph.D.</i>
	● Fluvial and Fluvio-marine Reservoirs - Exploration and Development Aspects Nov. 4-8, 2001 <i>Djin Nio, Ph.D.</i>

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READER'S FORUM

Dust in the Wind

I read Kathy Shirley's article, "Are Dust Clouds Killing the Corals?" (November EXPLORER) with great personal interest. I have been in a dust storm at sea in the Caribbean while sailing in the Windward Islands. On that trip, in 1990, two of the six people on our boat became ill with respiratory problems.

In my many years of sailing and diving in the Caribbean I too have witnessed the decline of the reef corals – and have heard many times that it was because of man's influence. However, I must agree with Mr. Shinn that there is probably a greater natural cause: The dust clouds with their associated fungi and bacteria are a more likely and a far more powerful influence than man.

There is another possible victim of the dust clouds in the Caribbean basin – that is, the coconut palm tree. In the past 10 years the coconut palm has been wiped out from Florida to the Yucatan.

I suggest to Mr. Shinn that there is a good control point to test his hypothesis, the island of Bermuda. On a recent trip to the island I learned that the reef corals are healthy and the islanders are growing coconut palms for export to the Caribbean. This is relevant to Mr. Shinn's hypothesis, because Bermuda is outside the influence of the easterly trade winds that carry the dust clouds from Africa to the Caribbean.

I enjoyed the article, and I offer my services as a field volunteer for research work in the Caribbean or in Bermuda.

Charles W. Wickstrom
Tulsa

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.

Disappointed

I was very disappointed that the December EXPLORER took on a partisan cast with the article about Don O'Nesky.

(The article) has absolutely no bearing on geology, exploration or petroleum. It was injecting partisan politics into an otherwise fine publication. Please refrain from that in the future. What about we Texans who supported the vice president?

David Rosen
Midland, Texas

(Editor's note: The EXPLORER occasionally reports on members' activities outside the realm of AAPG and petroleum geology when deemed of broad and unique interest. In this case, the intent wasn't partisan: O'Nesky is the only member we know of who appeared on the U.S. presidential ballot – ever. We thought it noteworthy.)

continued from previous page

* * *

Princess Alice was undoubtedly right to conclude that British oil interests had missed an enormous opportunity in eastern Saudi Arabia. But she might have been reassured had she known that 200 or so miles north along this same Arabian shore, her fellow-countrymen were enjoying their own measure of success, although even here in partnership with the Americans.

This was in Kuwait, where the Anglo-American Kuwait Oil Co. was exploring an oil concession negotiated jointly by Anglo-Iranian Oil Co. of Britain and Gulf Oil Corp. of America with the Kuwaiti Ruler, Shaikh (Sir) Ahmad al-Jabir as-Subah.

Kuwait Oil Co. already had drilled one dry hole in the northern part of the concession, to Shaikh Ahmad's enormous (and highly vocal) disappointment. Toward the end of 1937, the company began the drilling of a second well, on a prospect confirmed by geophysics on the plain of Burgan, about 30 miles south of the walled Arab town of Kuwait.

Extensive deposits of bitumen were known to exist on the Burgan plain, which was also the site of "Pascoe's dome", a nebulous surface structure mapped almost a quarter of a century earlier by a visiting geologist.

Burgan-1 was spudded during October 1937, and on February 23, 1938, at a depth of 3,671 feet, the drilling bit broke out of shale into a section of oil-bearing sandstone.

There was no free gas in the

reservoir, and by May 14, 1938,

Burgan-1 had been deepened to 3,692 feet and completed as a flowing oil well with an initial potential of 4,386 b/d.

Fossils in the shale cap-rock suggested that the producing zone might indeed be the equivalent of the Bahrain zone, as the geologists had predicted.

Although its magnitude was not fully appreciated at the time, Burgan was the first of the supergiant Cretaceous oil fields to be discovered along what would become known as the Kuwait arch.

So the Cretaceous oil discovery at Burgan in Kuwait really ran neck and neck with the Jurassic oil discovery at Dammam in Saudi Arabia, although Princess Alice had no way of knowing this when she visited the American oil camp at Dhahran.

* * *

1938 could fairly be described as a banner year for the oil industry in Arabia, although the outbreak of World War II the following year would inhibit the full flowering of the Jurassic and Cretaceous oil plays until after 1945.

Oil had been produced from Tertiary reservoirs in Persia (now Iran) since the discovery of Masjid-I-Sulaiman in 1908. And the 1932 discovery of oil in Cretaceous strata on Bahrain Island had provided the stepping stone from the Persian to the Arabian side of the Gulf.

But with the discovery of "big oil" in Saudi Arabia and Kuwait in 1938, nothing in the Middle East would ever be quite the same. □



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AAPG Education Offerings March & April, 2000

An Overview of Exploration Play Analysis

School Instructors: Peter R. Rose, Jeffrey Brown

Course focuses on the most difficult and pregnant decision in exploration: choosing which basins or plays to go into. Participants learn to translate subjective geological/geophysical knowledge into the "hard" numbers. The course employs a unique approach: A workshop is organized around a "time slice" in the exploration history of a real basin, using actual data as they existed at the beginning and end of the time analyzed. The key message is that, using the simple but powerful methods presented, plays can be quickly and objectively assessed for undiscovered volumes, values and chance — just like prospects. • March 19-21

See Education Calendar page 1 for details.

Exploration Potential, Tectonic Framework, and Depositional Systems of Strike-Slip and Extensional Basins

Leaders: Tor H. Nilsen, Arthur G. Sylvester

This field seminar is a seven-day excursion with related lectures and discussion sessions to three uniquely well-exposed basins in southern California that provide excellent models for global exploration and production in strike-slip and extensional basins. The sequence-stratigraphic framework and geometry of the facies in these basins will be studied from the perspective of hydrocarbon trapping mechanisms.

March 31-April 6

See Education Calendar page 9 for details

Introduction to Concepts and Techniques of Petroleum Geology

Instructor: Susan Landon

This course provides geological support personnel (landmen, geotechs, attorneys, secretaries) a beneficial introduction to petroleum geology. This understanding of the basics of petroleum geology will improve their effectiveness on exploration or development teams. This understanding of concepts and terminology will facilitate communication within the organization. A variety of workshops will provide new skills and place skills into the context of petroleum geology — why we do it, as well as how we do it. A one-day field trip will be held to relate field observations to subsurface geology so that participants gain an understanding of geologic scale and spatial relationships, emphasizing topics covered in classroom lecture.

April 3-5

See Education Calendar page 1 for details.

Carbonate Sequence Stratigraphy, as Illustrated by Lower Cretaceous Platform Carbonates, Central Texas

Field Seminar Leader: Clyde H. Moore, Jr.

This course will be useful for any geoscientist working in carbonate rock sequences and is a must for those working in Mesozoic carbonate terranes. • April 16-20

See Education Calendar page 6 for details

Modern Clastic Depositional Environments

Field Seminar Leader: Miles O. Hayes

Critical sedimentary features, including the 3-D character of the major sand bodies will be examined. Participants will walk on, sample, and examine trenches and/or cores of each of the environments present in the area. April 18-24, September 12-18

See Education Calendar page 7 for details.

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

Field Seminar Leader: Thomas A. Ryer

This field seminar focuses on the lithologic variations that characterize clastic reservoir facies and on development of models that can be used to predict these variations in the subsurface. • April 22-28

See Education Calendar page 7 for details.

Structural Styles and Hydrocarbon Traps in Compressive Basins

Instructor: Shankar Mitra

Compressive structural provinces contain complex trap forming structures, which are usually not well imaged on seismic data. The objective of the course is to discuss the 2-D and 3-D geometry and evolution of these structures and techniques for constructing balanced structural interpretations through them.

April 23-27

See Education Calendar page 1 for details

For complete details contact:

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PROFESSIONAL NEWS BRIEFS

Donna S. Anderson, to research assistant professor of geology, Slope and Basin Consortium, Colorado School of Mines, Golden, Colo. Previously consulting geologist, Golden.

Robert J. Berven, to director, Daytona Energy, Perth, Australia, and managing director of Daytona's subsidiary Flare Petroleum N.L. Previously consulting geologist, Berven Consultants, Perth.

James M. Edwards, to executive chairman and CEO, Daytona Energy and Equinox Energy, Dallas. Previously independent geologist, Dallas.

Syed Tariq Hasany has been named treasurer for the Pakistan Association of Petroleum Geoscientists. He is an exploration geologist with Pakistan Oilfields Ltd., Islamabad, Pakistan.

Steven J. Hendrick, to exploration manager, Dominion Exploration and Production, Houston. Previously offshore area exploration manager, Vastar Resources, Houston.

Robert L. Horine, to geophysicist, Rockies business unit, BP Amoco, Houston. Previously geophysicist, deepwater production business unit, BP Amoco, Houston.

Gary Jones, to president, WesternGeco, Houston. Previously president, Western Geophysical,

Houston.

Keith A. Kvenvolden was honored as the first Michel T. Halbouty Distinguished Lecturer at the recent GSA annual meeting in Reno, Nev. He is a senior scientist, U.S. Geological Survey, Menlo Park, Calif.

Edward D. LaFehr, to development manager, consolidated business unit, BP Alaska, Anchorage, Alaska. Previously manager, pre-projects, new development business unit, BP Alaska, Anchorage.

David T. McGee, to senior geological advisor/deepwater stratigrapher, Conoco, Houston. Previously geological advisor, Unocal Indonesia, Balikpapan, Indonesia.

Thomas F. Moslow, to vice president-exploration, Midnight Oil and Gas, and adjunct professor, Department of Geology and Geophysics, University of Calgary, both in Calgary, Canada. Previously, vice president-new ventures and technology, Ulster Petroleums, Calgary.

M. David Novak, to explorationist, Spinnaker Exploration, Houston. Previously principal geologist, Vastar and BP, Houston.

Daniel Oritsegbeyiwa Ogbe, to senior geologist, Petrobras, Lagos,

continued on next page

1st AAPG Telecourse at Three Locations Basic Structural Geology for Petroleum Geoscientists and Engineers

Instructor: Charles (Chuck) F. Kluth, Chevron
February 7, 2001

- Dallas, TX — Ellison Miles Geotechnology Institute at Brookhaven College
- Houston, TX — North Harris College
- Norman, OK — O.U. Continuing Education Center, University of Oklahoma

The short course is designed for earth scientists and engineers with some earth science background, but not necessarily in structural geology. This 1-day, interactive telecourse will cover basic structural geology nomenclature and concepts useful for hydrocarbon exploration and production.

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CLASSIFIED ADS

POSITION AVAILABLE

**Post-Doctoral Researcher
Petroleum Systems Modeling
University of Colorado-Boulder**

The Energy and Minerals Applied Research Center at the University of Colorado-Boulder is seeking candidates to fill a post-doc research position in petroleum systems modeling. The position will be for 2 years, beginning in early 2001. The job will be working on the deep Gulf of Mexico, specifically on the modeling of petroleum systems associated with deforming allochthonous salt and related fault systems, and a deep-water foldbelt in the Mississippi Canyon and Atwater Valley protraction areas. Researcher will be working in a large team-oriented research program that is funded by a large industrial research consortium. Petroleum systems modeling research will be integrated with sequence stratigraphic, biostratigraphic, and structural studies. Data sets include 2-D and 3-D seismic, and state-of-the-art modeling software. Candidate must have a strong background in modern concepts in petroleum systems modeling, source rock maturation, 2-D and 3-D multiphase fluid flow, and the development of overpressure. Specific experience in the Gulf of Mexico is not a pre-requisite. Salary will be commensurate with experience. Interested candidates should send vitae, plus three names of references to Paul Weimer at: Department of Geological Sciences, University of Colorado, Boulder, CO 80309-0399 or paul@emarc.colorado.edu.

**TENURE TRACK FACULTY POSITION
Reservoir Geosciences
Department of Geological Sciences
University of Colorado at Boulder**

The Department of Geological Sciences at the University of Colorado at Boulder invites applications for a tenure-track faculty position in reservoir geosciences, with consideration to those applying at the assistant or associate professor level. Candidates with research interests in any area of reservoir sedimentology, reservoir geophysics, and petrophysics will be considered. This applied position focuses on the integration and analysis of reservoir data bases, and/or modeling efforts. This includes, but is not limited to: reservoir and outcrop sedimentology, numerical modeling/simulation, use of statistics in reservoir modeling, interpretation of 3D and 4D seismic reflection data, reservoir monitoring, borehole geophysics, petrophysical interpretation. Additional information about the position and the local research environment can be obtained at: www.colorado.edu/GeolSci

Applications will be reviewed beginning January 8, 2001, and will be considered until the position is filled.

The University of Colorado at Boulder is committed to diversity and quality in education and employment.

**Ph.D. Candidate
Interested in geological computer modelling
Delft University of Technology**

The challenge is to participate in a large, EU sponsored project on the subject of turbidite reservoirs, bringing into focus the correlation between data and the reservoir. This involves careful analysis of the well data, such as cores and modern well logs, and interpretation in sedimentological and sequence-stratigraphic terms.

The project includes fieldwork, such as drilling and logging research wells, simulation of the reservoir's seismic response, and geological modelling of well-exposed outcrop analogue. Delft University of

Technology participates as one of five partners from industry and academia.

The results of the research will be used in the development of methodologies that can extrapolate from well-constrained data to the much larger field scale; a geological inversion problem that needs to be tackled from a very fundamental perspective. The outcome of the research may significantly improve the accuracy with which deepwater clastic reservoirs are modelled.

The candidate we are looking for has a keen interest in geological computer modelling and a Master's degree in geology or related earth sciences.

Applications can be sent to: Delft University of Technology, Faculty of Civil Engineering and Geosciences, Personnel Department, Stevinweg 1, 2628 CN Delft, The Netherlands. Please quote vacancy number CITG/0057.

For more information please contact Prof. Dr. Stefan M. Luthi, telephone: +31 15 278 6019 or e-mail: S.M.Luthi@ta.tudelft.nl. Visit our website at www.ta.tudelft.nl

PRESIDENT OF GSA FOUNDATION

The Foundation of the Geological Society of America seeks a geoscientist, preferably with national recognition for achievements in the geosciences and administration, to be its President. The individual should have a strong interest and experience in, or working knowledge of, fund raising and development. Primary responsibilities will include oversight and direct participation in fundraising for GSA programs and activities; identifying, cultivating and soliciting major donor prospects including individuals, corporations, and foundations; stewardship of funds; and staff administration. This person will be expected to have a major role in designing and implementing a strategic fundraising and development plan for the Foundation, and to closely and regularly interact with the Chief Executive Officer of the Geological Society of America and members of its staff, the GSA Foundation Board of Trustees, and the GSA Council. The President will report to the GSA Foundation Board of Trustees and be assisted in the Foundation

by a full-time Director of Operations and a Data Manager.

The position could range from three-quarter to full-time, with the bulk of the activities to be conducted from the Society's headquarters in Boulder, Colorado, although full-time relocation to the Boulder area may not be required. A range of compensation options exists, depending on experience and qualifications of the candidate, and the length of the appointment. Interested persons should send a letter of application, resume/vita, and the names, addresses and telephone numbers of three references to GSA Foundation Board of Trustees Search Committee, c/o Donna Russell, GSA Foundation, P.O. Box 9140, Boulder, CO 80301-9140. Nominations of potential candidates by members of the geoscience community also are encouraged. Effective closing date for the applications is March 15, 2001, with a target starting date of July 1, 2001. The GSA Foundation is a non-profit corporation and an Equal Opportunity, Affirmative Action Employer.

See **Classifieds**, next page

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continued from previous page

Nigeria. Previously technical manager, NAPE Secretariat, Lagos.

John M. "Jack" Parker has relocated his consulting office from Denver to Dana Point, Calif. He is a past AAPG president.

(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, rockwell@aapg.org; or submit directly from the AAPG Web site, www.aapg.org/explorer/pnb_forms.html)

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Requires a degree in Geosciences or Engineering with 10+ years of industry experience working directly with the diverse and wide range of processes and procedures of coring, core handling and core analysis. Must be capable of creative, innovative and original thinking; and must demonstrate the ability to lead a team of professionals with diverse training, levels of expertise, education, and seniority.

For a detailed description for the above position, please refer to our website www.jobsataramco.com. For consideration, please send a resume to **Aramco Services Company**, reference code **06E-AAPG**, in one of the following ways:

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Classifieds

from previous page

**Tulane University, Department of Geology
W. K. McWilliams, Jr. Graduate Fellowships**

The Department of Geology at Tulane University invites applications for three Ph.D. Fellowships (\$18K/yr) to be awarded in honor of W. K. McWilliams, Jr., a founding partner of McMoRan Oil Co. Successful applicants will receive tuition waivers and be expected to teach one laboratory course a year. Tulane faculty members are working on sedimentary and environmental problems of the Gulf Coast, faulting processes, Mexican volcanoes, and Precambrian and Paleozoic paleontology. Applicants should consult the department's web site (<http://tulane.edu/~geology>) and the Institute for Earth and Ecosystem Sciences web site (<http://tulane.edu/~iees>) for more information. Requests for application materials to Dr. George C. Flowers (flowers@tulane.edu), Chair, Department of Geology, Tulane University, New Orleans, Louisiana 70118.

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Books: Geology and History of Geology Used, out-of-print, and rare. Free catalog. Patricia L. Daniel, BS, MS Geology 618 W. Maple Independence, KS 67301 ph: (316) 331-0725 fax: (316) 331-0785 email: pldaniel@horizon.hit.net website: www.hit.net/~pldaniel

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You can reach about 30,000 petroleum geologists at the lowest per-reader cost in the world with a classified ad in the EXPLORER.

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

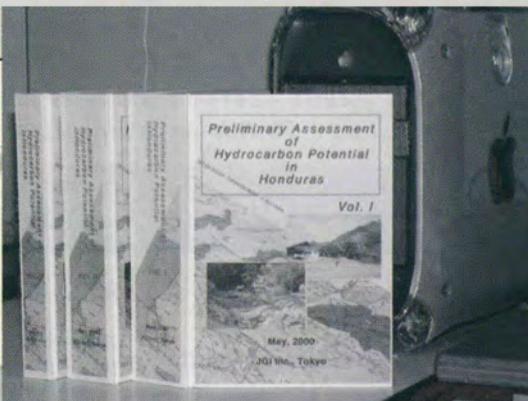
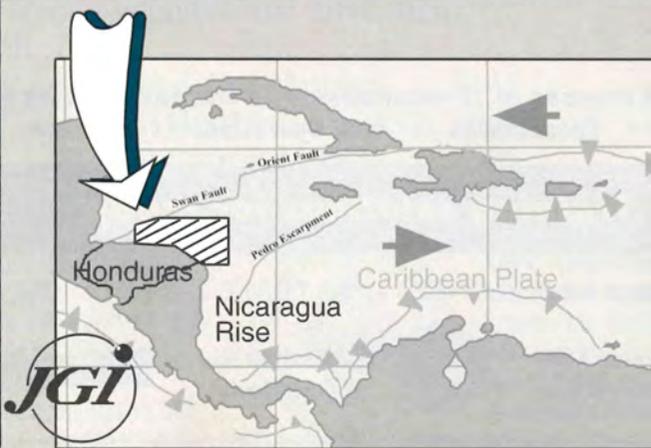
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DIRECTOR'S CORNER

Trustee Memberships Open Now

By RICK FRITZ

The Foundation is truly that for AAPG.

It provides rock solid support via funding for many of the association's most popular programs, such as the Distinguished Lecturer and Visiting Professional Geologists. The Foundation also supports some of the BULLETIN costs.

During the 1990s AAPG did not increase its dues, in part due to support by the Foundation of many of our scientific projects.

* * *

As most of you know, the Foundation was formed in 1966-67 by then-president Michel T. Halbouty. Since that time the Foundation has grown significantly and is now governed by the Trustees Larry Funkhouser (chairman), John Amoruso (vice chairman), Paul Dudley (secretary), Jack Threet (treasurer), James Gibbs and E. F. "Bud" Reid.

In other words, now is the time.

In the mid-1970s Dean McGee suggested creating an auxiliary organization, comprising members who would meet annually, provide input in the Foundation affairs, sponsor projects and enjoy each other's company through social activities. Merrill Haas proposed the name "Trustee Associates," and the group was formed by a resolution of the Foundation Trustees under then-chairman James Wilson.

The first meeting of the Trustee Associates was held on May 20, 1978, at Shangri-la on Grand Lake in Oklahoma, with 31 trustee associates in attendance.

Since then the group has been active supporting several key programs, including the Tectonic Map of North America project and

the Treatise of Petroleum Geology project.

I attended the most recent meeting of the Trustee Associates, held in November in Puerto Rico. Currently we have 240 members, and it is a great group. I joined the Trustee Associates program last year after I reflected on the importance of Foundation programs to the science, and realized what an interesting and fun group these members are.

The Foundation Trustees and Trustee Associates are currently considering new projects, primarily in the area of K-12 and digital data.

Coinciding with the new projects, we are starting a membership drive.

It is relatively easy to join – all you need is three references from other Trustee Associates and money (a

one-time minimum donation of \$7,500).

Yes, there's always a catch – but the cause is good, and the tax deductible donation required to join the Trustee Associates can be paid during a five-year period.

Still wondering if this is a good time to join? Consider this:

Total membership is limited to 300, so we only have 60 slots open. In addition, the Foundation Trustees are considering raising the minimum donation amount in 2001.

In other words, now is the time.

If you are interested in being part of a dynamic group and want to support some of our special projects, please contact me or any Trustee Associate. We need your support and ideas.



Programs Reflect Active Operation

DPA Continues Progress, Growth

By G. WARFIELD "Skip" HOBBS
DPA President

As we enter 2001, I am pleased to report that the AAPG Division of Professional Affairs continues to be a dynamic organization with numerous professional initiatives in progress, a growing membership and a very strong balance sheet.

Membership – DPA now has over 3,400 certified Petroleum Geologists, 15 Certified Coal Geologists and 27 Certified Petroleum Geophysicists. Thirty-one certification applications are pending.

Peer confirmation of one's professional competency and ethical conduct is relevant to all AAPG members. At a time when many geologists worldwide are becoming independent by choice, or through company mergers and downsizing, DPA membership is being recognized as the world's "gold standard" for professional certification.

Finances – The DPA balance sheet is strong. As of the FY ending June 30, 2000, the DPA had a treasury balance of \$514,715. Annual income was \$169,888; expenditures were \$106,602; and net gain for the year was \$63,278.

Government affairs – DPA, in cooperation with the Energy Minerals Division and the Division of Environmental Geosciences, recently drafted a policy statement that endorses the licensure of professional geologists in Texas. This position paper was approved by the AAPG Executive Committee in November.

The Divisions are presently finalizing a position paper on the environmental impact of frac fluids in coalbed methane completions (see December 2000 EXPLORER).

Energy Policy will be a major focus of the DPA during 2001. At the annual convention in Denver, DPA, together with the EMD and DEG, is sponsoring a forum on Mineral Access to Public Lands.

DPA is also organizing a "summit meeting" between the leadership of the major geoscience societies and members of Congress, for the purpose of discussing national energy policy. This landmark meeting will be held April 23 in Washington, D.C.

In order to provide AAPG members with statistics to support their arguments regarding energy policy, an "Energy Facts" page has been added to the AAPG Web site.

State registration and licensing matters – In addition to DPA's efforts on the Texas licensing issue, Rick Erickson, chairman of the DPA State Licensing and Registration Committee, is now the AAPG representative to the Association of State Boards of Geology (ASBOG). Rick is assisting in preparation of the

ASBOG-administered written examination for state licensure of professional geologists.

Constitutional Reform – At the mid-year meeting of the DPA Advisory Board and Executive Committee, revolutionary new changes in the DPA Constitution and Bylaws were approved.

Under the proposed bylaws revisions, the elected Advisory Board will be renamed the "Board of Councilors," and will now be truly empowered to represent the DPA membership in DPA governance. The DPA Executive Committee will report to the Board of Councilors, and will execute the policies established by the board.

Proposed bylaw changes will be voted upon by the DPA membership.

Guiding Your Career as a Professional Geologist – The immensely popular DPA booklet titled *Guiding Your Career as a Professional Geologist* is being reprinted by the AAPG.

* * *

Here is an ethical question submitted by Steve O'Connor of New Zealand:

A geologist has been "downsized" by his company, which happens to operate a large amount of the most prospective exploration acreage in his small country. He sets himself up as a consultant.

After a time, a major shareholder in acreage containing a new exploration discovery finds itself in dispute with this operator and undertakes legal action.

The geologist is approached by the shareholder and asked to provide a reserves assessment of the discovery and remaining potential of the acreage, utilizing both publicly available information and information obtained under a legal discovery process.

Remember, work is quite hard to come by – so should our geologist:

A. Refuse?
B. Provide an interpretation that can be totally justified by use of the provided information?

After choosing option B, the geologist receives a letter from his former company informing him that working on any acreage that is currently held by that company would amount to a breach of his former confidentiality agreement, as it would be impossible for him to not use insights gained during his employment. This would include refraining from advising clients on farmouts offered by his previous employer.

Now, our geologist's options are:

Pursue his business, ensuring that all interpretations can be supported by legally obtained information.

Look for employment in another country.

Leave the industry in order to remain in his home country.

How would you respond?

2001 DPA Slate Set

The AAPG Executive Committee has approved the 2001 slate of officers for the Division of Professional Affairs. The ballots will be mailed in late February.

Candidates are:

President-Elect

- Richard G. Green, LaRoche Petroleum Consulting, Dallas.
- Thomas Mairs, independent consultant, Dallas.

Vice President

- C. Michael Clayton, Texaco

USA, Bakersfield, Calif.

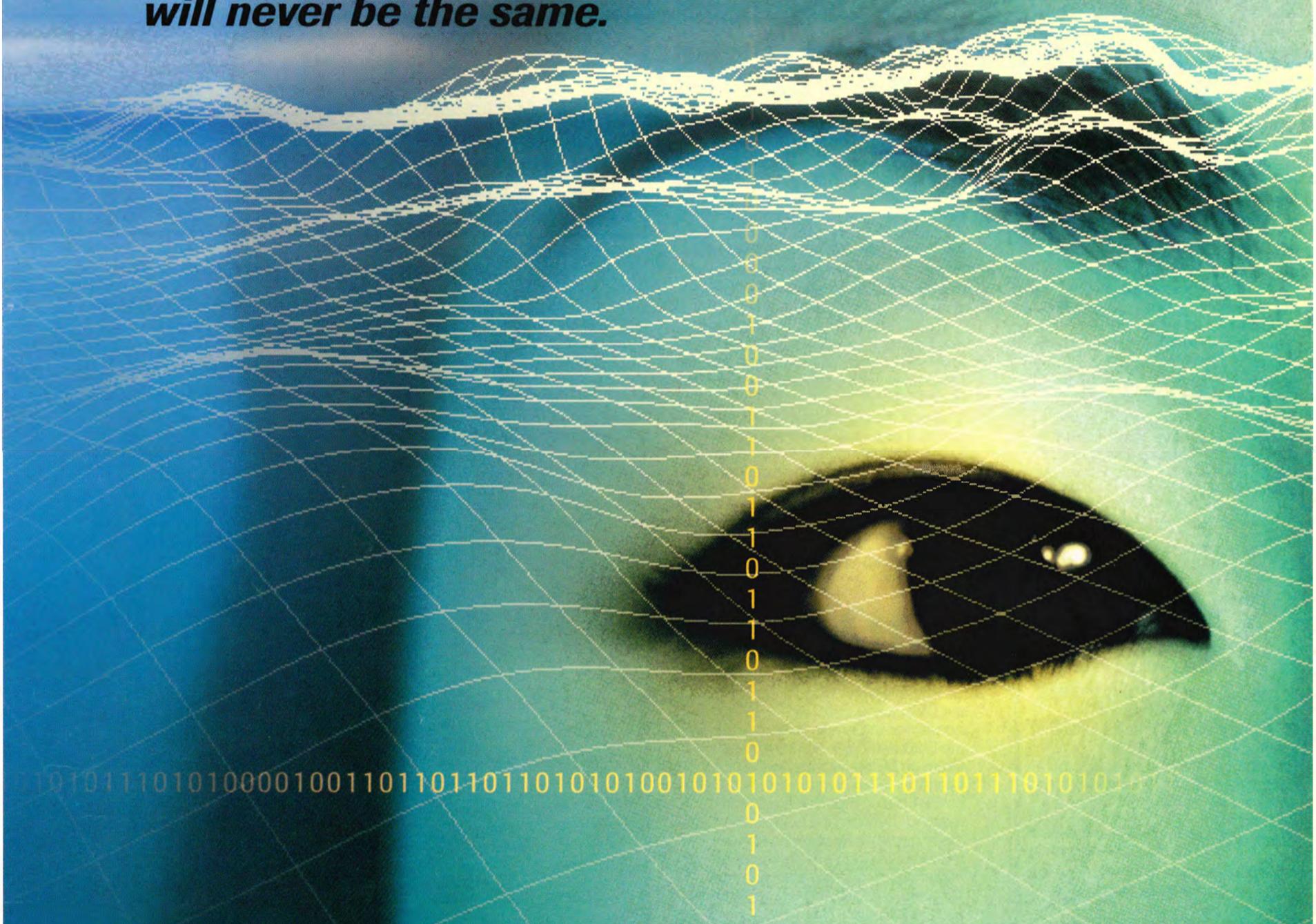
- Deborah K. Sacrey, Auburn Energy, Houston.

Secretary

- David M. Abbott Jr., consultant, Denver.
- Brenda Kay Cunningham, Arco Permian, Midland, Texas.

Those elected will take office on July 1, 2001.

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