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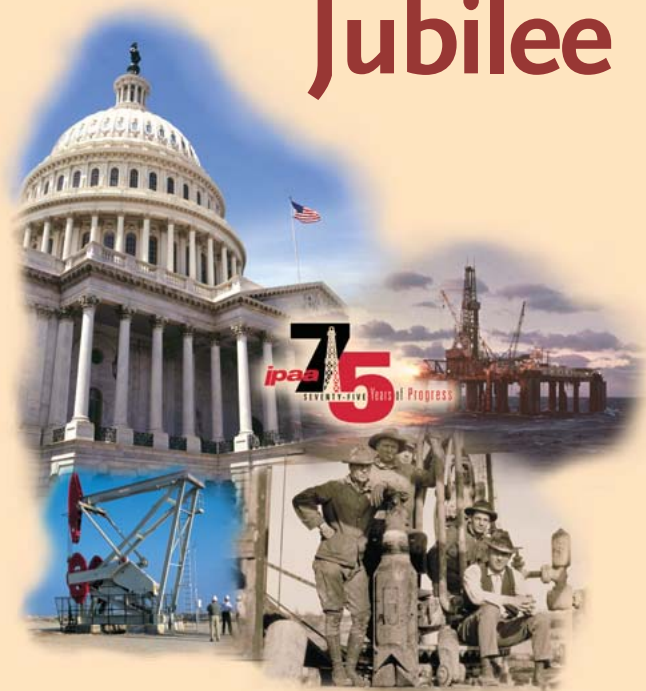
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# America's Independents: From Black Gold to Diamond Jubilee



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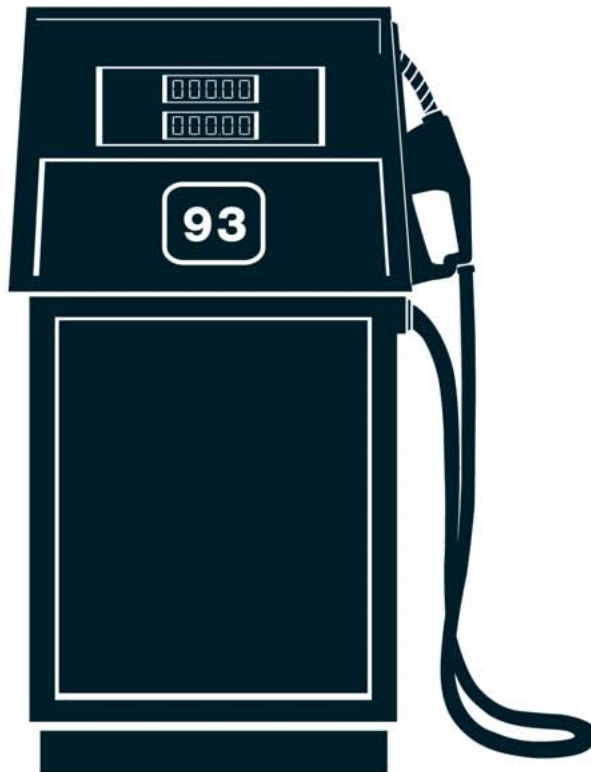
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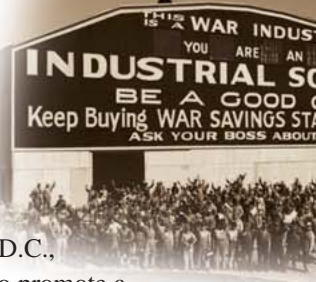
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**Director, Administration**

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In 1971, the Independent Petroleum Association of America – once based in Tulsa, Okla. – consolidated its staff in Washington, D.C., which the group thought was the best staging ground in its quest to promote a stable American oil and gas market.



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For most of its life, transforming new ideas into practical tools has been the key to solving the petroleum industry’s operating problems and keeping its products affordable. Advancing technology helped keep the oft-repeated prediction that “we’re running out of oil” from coming true.

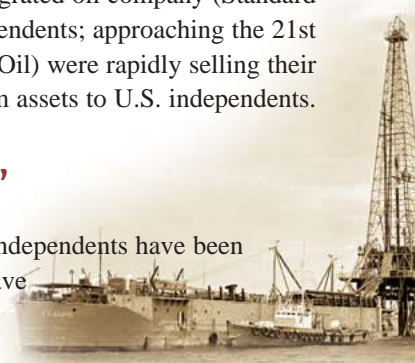


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U.S. independents saw their relationship to the U.S. major oil companies change dramatically as the 1990s unfolded. At the dawn of the 20th century, the integrated oil company (Standard Oil) was rapidly buying up independents; approaching the 21st century, the majors (including daughters of Standard Oil) were rapidly selling their upstream assets to U.S. independents.

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Although the Independent Petroleum Association of America is justifiably proud of its long history of service to the nation and the energy business, characteristically, the organization remains focused on tomorrow.



When the **energy source**  
is **unconventional,**

so is our **solution.**

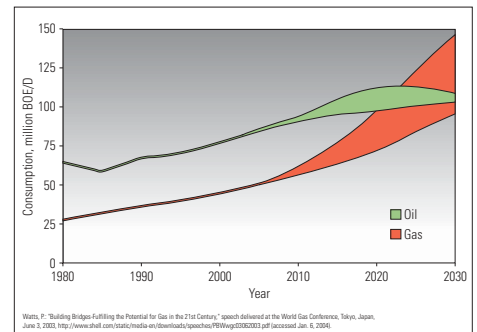
**NEW HYDROCARBON SOURCES** are typically locked in the Earth's most challenging environments. Yet, in an era of accelerating production decline and increasing demand, their long-term potential propels the demand for unconventional solutions.

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Technology is key. Schlumberger leads the way.

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For the full story on how Schlumberger is responding to the challenge of the unconventional gas industry, read the white paper at [www.slb.com/oilfield/uncongas](http://www.slb.com/oilfield/uncongas).

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Putting together the history of the independent oil and gas producer in the United States is a tough job. It takes dedication, time, research, interviews with the right people, a nationwide search for photographs and a plan that works.

But in the end, words can't tell the whole story of the independent. The editors can pick up anecdotes, turning points and key people and events, but the real stories of goats, heroes and fortunes made and lost are recorded in thousands of decisions and indecisions made late at night in offices and dog houses beside the rig floor.

Independents throughout history often bet the cost of the next 100ft of hole against the futures of their companies.

Against crushing odds, with an ever-present shortage of technology and money, and an inexhaustible supply of ideas, independents persevered and grew. They learned lessons the hard way and built themselves to survival size. On the way, they provided apprentice training for new generations of independents.

Independents got politically smarter, too. They learned that organization, numbers and votes gave them leverage in the government corridors of the nation.

The new independents no longer peer out from under oil-soaked hard hats. They are familiar with technology and take advantage of technology programs available through government agencies and universities. Those independents may have degrees in petroleum engineering hanging on the wall beside diplomas for masters' degrees in business administration.

The chief executive officer of an independent company will know Wall Street money managers by their first names and talk fluently in the language of bankers and analysts.

If that executive doesn't have the knowledge to handle legal and regulatory tasks a thousand times more complex than those faced by a pre-1920s predecessor, he or she had better have staff members that specialize in traversing the legal and financial potholes on the road to success.

Independents have survived a past marked by increasingly frequent cycles of high and low prices and apparently increasing public misunderstanding of their work and opposition to their activities, and they will find the

right ways to survive in the future, as well.

For the future, they can expect more of the same.

As domestic oil and gas gets harder to find, independents will find the people, service support, hardware and software tools they need to use the latest seismic surveys. They will use and invent better ways to control water and produce fields, and they'll learn to produce at a lower cost with fewer people and more and better computers. They also will do their jobs with a continuing respect for the environment.

Some independents will stay in North America, and others will look to different countries to make their fortunes, carving and exploiting their self-made niches.

Looking toward the future, independents will occupy the front lines carrying hope, resourcefulness and know-how to meet an increasing need for oil and gas. ■



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## LETTER FROM PRESIDENT GEORGE H.W. BUSH

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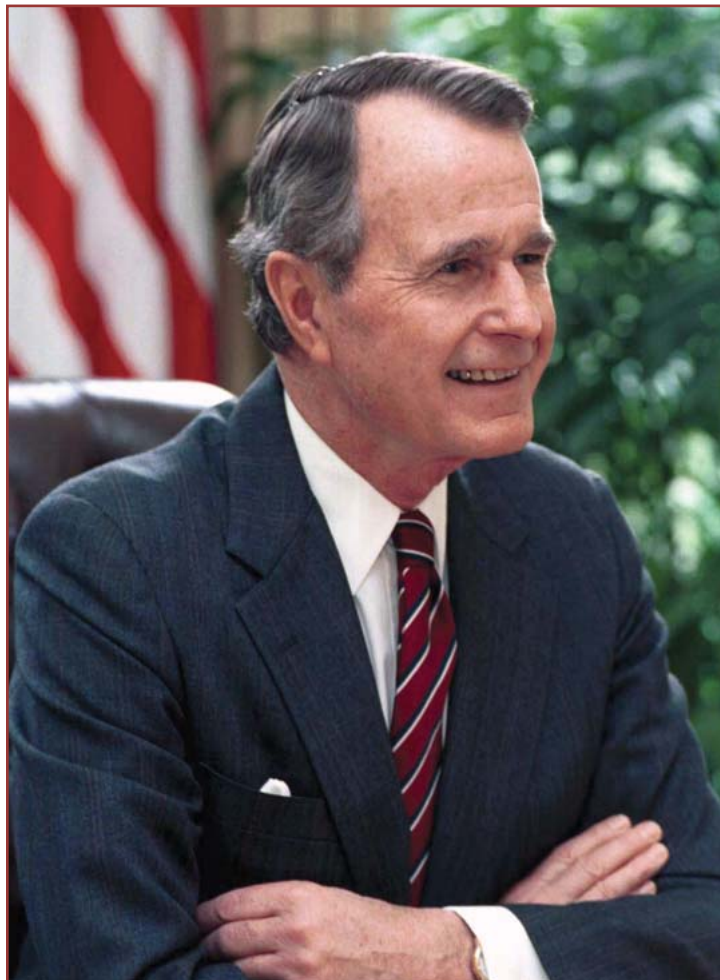


Photo courtesy of George Bush Presidential Library

*President George H.W. Bush*

**I**t is with great pleasure and pride that I congratulate the Independent Petroleum Association of America (IPAA) on 75 years of service to independent producers and to the nation. Over the years, the accomplishments of IPAA and its members have contributed significantly to the health of America's economy and national security.

As a former independent producer from Midland, Texas, I know firsthand the characteristics of the people who encompass this industry – hardworking, entrepreneurial, optimistic and patriotic. As a former Texas congressman and president of the United States, I have witnessed these same qualities at work in the IPAA's efforts in Washington.

The effectiveness of independent producers has played an important role in our nation. You have provided the country with fuel for our factories, schools, hospitals and homes. You have powered our economy through turbulence and disruptions. You have deployed technologies that protect our environment and provide safety around the world.

Indeed, the contributions of this industry are many. And too often, they are under-appreciated. You are a special breed of quiet American heroes, and I'm proud to have worked side-by-side with you as an independent producer, as a director of IPAA and as an elected official.

I offer my best wishes to IPAA on this important milestone, and I extend my thanks to the thousands of independent producers who have helped shape our country. Congratulations.

*Sincerely,*

**Dear Colleagues:**

Looking back at the challenges America's independent producers have faced during the past 75 years and the multitude of political barriers we have overcome, ours is the ultimate story of blood, sweat, tears, willpower, unity – and passion.

As independents – *wildcatters* – we know the oil and natural gas business is fraught with tremendous risk and carries extreme geological, commercial and financial exposure. These very challenges have defined the generations of America's independents – generations of our very own families – who have played and continue to play a vital role in meeting our nation's energy needs, despite formidable barriers.

As we celebrate 75 years of progress of the Independent Petroleum Association of America (IPAA), we can look back with pride at just how far we have come in our quest to produce the domestic oil and natural gas essential to satisfy America's will for freedom and prosperity.

IPAA was founded June 11, 1929, by a small but determined group of pioneering men and women, who participated in President Herbert Hoover's historic Oil Conservation Conference at The Broadmoor in Colorado Springs, Colo.

At that time, independents produced more than 50% of the petroleum in the United States and were confronted with more than just the rising oil imports. The Great Depression was affecting businesses all across America. Oil fields were being worked recklessly and the deepening price spiral made hard-luck operators desperate for even the smallest return. IPAA argued for a tariff on imports to help bolster the domestic economy – and was met with repeated rejections. Later, during World War II, IPAA sought to maintain the identity of the independent producer and to ensure that wartime price controls would remain only as long as necessary.

The politics of domestic oil and natural gas production always has been complicated, not just an issue for the wildcatters in the early part of the 20th century. Through the intervening decades, independents have



John B. Walker, IPAA Chairman 2001-2003

fought continuously for rational policies and a fair market.

Today, domestic production, imports, government regulation and constant litigation by environmentalist opponents are fundamental challenges to independent producers. Yet, independents simply will not give up. They never have, despite the challenges, because risk-taking is a way of life.

*America's Independents: From Black Gold to Diamond Jubilee* celebrates the rich history of this industry and its pioneers. They were united and passionate about their cause then – just as we must be today.

**Sincerely,**

A handwritten signature in black ink that reads "John B. Walker". The signature is written in a cursive, slightly slanted style.

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CONGRATULATE THE  
IPAA

FOR

75

*Years*

OF DEVOTED SERVICE  
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# Independent Petroleum Association of America: Leaders and Legends

By IPAA **President Barry Russell**

**D**uring my 25 years with the Independent Petroleum Association of America (IPAA), we have won many battles – lost a few – and faced many challenges, including price volatility, the windfall profits tax, natural gas decontrol, the flat tax, the BTU tax, public lands, royalties and the environment, to name a few. We have been successful and a formidable force when our industry has worked together.

My most rewarding experiences have been the opportunities to observe the association's leaders from a close vantage point. I have seen firsthand the tremendous impact these leaders have had on our industry and nation.

In the years since I was hired by C. John Miller and Lloyd Unsell, I have been fortunate enough to work with more than a dozen of our association's leaders. They set examples of dedication to the oil and natural gas industry and inspiring leadership. Each leader had his own distinctive style.



*Diemer True (left) welcomes Vice President Dick Cheney to IPAA's 2003 Midyear Meeting.*

Throughout these years, the association has dramatically grown and changed. When I started with the IPAA in 1980, we held three meetings a year. We now hold 17 meetings annually and have grown to a full service association.

My first lesson in industry analysis, taught by IPAA economist Mel Mesnard, reflects another example of how much the association has changed. Mel would tape 30 large pieces of graph paper to his office walls. Then, using colored pin tacks, he would chart the industry's statistics and trends. Blue pins would show rig utilization, while red might show prices. His system was a far cry from the Excel spreadsheets and computers we use today.

As a prelude to the following chapters, I would like to reflect on the IPAA's history, highlighting the past 75 years of growth, accomplishments and leadership.

What two dozen determined independent producers started in the summer of 1929 has grown to an organization of thousands today. For 75 years, the IPAA has been on the front lines in its service to and support of America's independent oil and natural gas producers. The association's volunteer leaders, past and present, skillfully married business savvy with political skills to keep the independent producing industry alive through boom and bust.

When the IPAA's founders returned to Ardmore, Okla., following their historic meeting in Colorado Springs, Colo., their first task was to find office space and hire a permanent



*IPAA President,  
Barry Russell*

staff. They decided one of the principal staff members should be someone who understood the oil-producing industry as well as one who knew law and governmental processes. Russell B. Brown was their choice; he became the IPAA's first executive manager in 1930.

Later that year, the association moved its headquarters and staff from Ardmore to Tulsa. There wasn't much or very many to move – Brown, counsel and executive manager, and Elinor Huss (later Elinor Bond, who retired as office manager in 1967 after 37 years of service) were the entire group to make the trip. Charles E. Bowles, retained as a statistician and public relations specialist in Tulsa, was the third person to join the staff in the IPAA's three-room headquarters in the Thompson Building.

Following the organization's second annual meeting in Tulsa during April 1931, Brown



*IPAA Chairman Eugene Ames Jr. awards President George H. W. Bush with a lifetime membership in the IPAA organization in January 1993.*

The IPAA also has enjoyed the membership of some uncharacteristic “oilmen” within its ranks, including colorful people like comedian Bob Hope, crooner Bing Crosby and jockey Eddie Arcaro. Arcaro became a member of the IPAA in 1950, because of his petroleum interests in New York.



*The Shamrock was a world class hotel built in 1949 by legendary wildcatter Glenn McCarthy. Regrettably, it was demolished in 1988. “Incredible how much has come and gone while I've been around,” joked Lloyd Unsell.*

Lloyd Unsell recalled it was the late W. A. (Monty) Moncrief, of Fort Worth, Texas, who signed on Hope and Crosby as partners in a 1949 joint venture that turned out to be a very lucrative oil discovery – a 100-bbl/hour producer – in Scurry County, Texas.

Unsell also recalled that Hope once brought the entire troupe of performers for his USO shows, including Jerry Colona, Marilyn Maxwell and the Les Brown Orchestra, to entertain the IPAA members during a meeting at the Shamrock Hotel in Houston. Unfortunately, there wasn't a room large enough to accommodate the entertainers and the audience, so the Houston membership pitched in and rented a Ringling Bros. Circus tent for Hope's show.



*New IPAA members Bing Crosby (left) and Bob Hope.*

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Lloyd Unsell (left) and U.S. Rep. Charles Stenholm (D-TX)

became general counsel and was authorized to move to Washington, D.C., to set up an office. He stayed there until his 1959 retirement.

A growing organization, the IPAA would change offices in Tulsa once more in 1949 before construction plans for a brand-new, modern office building took shape in 1953.

The association operated out of two offices – one in Tulsa, the other in Washington, D.C., – until 1971, when they were consolidated in Washington.

One of the IPAA's longest serving executives is Lloyd Unsell, who served the association for nearly 40 years. He joined the IPAA staff in 1948 and was put in charge of information programs. He was named vice president for public affairs in 1949, executive vice president in 1976 and president in 1985.

A former newspaperman, Unsell used his communicative skills in preparing hundreds of position papers, articles and speeches on U.S. energy policy.

When Unsell retired in 1987, Miller said, "He is a very hard-working and committed person with a warm heart and a genuine concern for individuals. Lloyd is a big man in many ways and certainly the biggest part of the man is his heart."

Following World War II, drilling progressed at an unprecedented rate. More than 20,000 wells and 75 million ft of hole were drilled



Charlie Seely (left) and Jon Rex Jones

during the first 6 months of 1950. By year-end, the industry was drilling at the rate of 165 million ft/year – a rate that produced more than 41,000 wells.

From 1956 to 1973, however, controlled natural gas prices, together with vicarious control of domestic oil prices through the regulation of imports, resulted in the virtual dismantling of the domestic oil industry.

Then came the 1970s and 1980s – some of the most demanding and turbulent decades for the oil and natural gas industry, as well as the IPAA. A period I'll call, "The Challenges of Leadership when You Have \$8 Oil!"

Owing to the actions of the Organization of



Rep. Steny Hoyer (D-MD) (left) and Jack Allen during a 1991 IPAA event.

the Petroleum Exporting Countries in 1973, the IPAA faced numerous problems. Yet, as always, our volunteer leaders were up to the task.

Unquestionably, Miller and Unsell faced some difficult challenges in the '70s and early '80s, but their eloquence, effectiveness, integrity and patriotism were a perfect combination.

"John Miller was unfortunate to have been elected chairman in the very week of the 1973 Israeli-Arab conflict, which led to the Arab embargoes on oil shipments. This led the late Sen. 'Scoop' Jackson to begin a seemingly endless tirade against the domestic oil industry, holding severely critical hearings for days, weeks and months on end. John was the only industry spokesman who stood up to him and refuted his distastefully phony and misguided statements, emerging as an industry leader appreciated not only by independents, but also the leaders of the major oil companies," said Unsell, when asked to reflect on that time.

The IPAA leaders who followed Miller built on his standard and each met new challenges



*C. John Miller testified before the Senate Energy Committee during the early 1970s. He was the only industry spokesman to refute some of the statements made by the late Sen. "Scoop" Jackson.*

in the succeeding decades.

A.V. Jones, Jr. has an easygoing style and believes the politics of oil and gas are as important, if not more so, as geology, seismic testing and land management.

Jack M. Allen often was called upon to address Congressional committees and agency hearings about unbelievable regulatory complexity and producer uncertainty.

Jon Rex Jones is an absolutely inspirational speaker, who believes that you lead by deed, as opposed to words. He sought a united front to press for natural gas decontrol.

Raymond H. Hefner Jr. was confronted with the challenge of managing the association while representing an industry torn apart by low oil prices.

Danny H. Conklin had a great leadership style that reflected his keen instincts about people and a savvy understanding of the complex issues facing the industry in the 1980s, like natural gas decontrol.



*A.V. Jones*



*Danny Conklin (left) and Ray Hefner (center) with Barry Russell*

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C. Paul Hilliard saw the impact on our industry of Canadian natural gas imports and pipeline rate design long before anyone else.

Eugene L. Ames Jr. also had keen insights about our industry and how it works, like comparing oil and natural gas to agriculture to help defeat the BTU tax.

George A. Alcorn founded the Natural Gas Council and shaped natural gas policy.

Lew O. Ward was, and continues to be, tenacious and persistent about the need for a public education program for the oil and natural gas industry.

George M. Yates faced the challenges of leadership under very low oil price conditions in the 1990s and formed the Environmental Issues Council.

Jerry D. Jordan also faced challenges of reorganizing the IPAA and leading it during a period of volatile natural gas prices at the dawn of the new century.

Diemer True was instrumental in advising Congress and The White House about formulating a national energy strategy. He also was key in increasing industry participation in the IPAA to make the organization much stronger.

It has been my pleasure and privilege to work side-by-side with these devoted leaders. They – and the IPAA membership – define what America is all about – self-reliance, initiative, tenacity and spirit.

As you continue your journey through the IPAA's history, you will understand and appreciate the exceptional investment that independent, entrepreneurial, and small business men and women have made – and continue to make – to better the IPAA and protect the vision of a bright future for the oil and natural gas industry. ■



C. Paul Hilliard



Lew Ward (left) with Chuck Watson



George Yates (left) welcomes Wildcatters' Ball special guest Sen. Pete Domenici (R-NM), during the 2003 gala.



Left to right: Sen. Kay Bailey Hutchinson (R-TX), Steve Layton and George Alcorn at the 2000 Wildcatters' Ball.



Jerry Jordan (left) and Sen. Frank Murkowski (R-AK)

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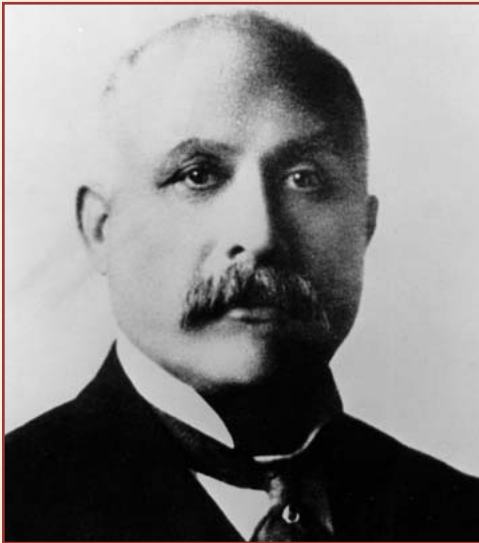
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## Chapter 1 - The 1920s

# Independents Build an Industry

*Oilfield pioneers took big chances to reap big rewards.*



*Capt. Anthony Lucas brought in the Spindletop gusher. (Photo courtesy of Texas Energy Museum, Beaumont, Texas)*

*The Spindletop bonanza began the oil boom in the early 1900s. (Photo courtesy of Texas Energy Museum, Beaumont, Texas)*

Timeline source: World oil timeline from Geo-Help Inc. [www.geohelp.ab.ca](http://www.geohelp.ab.ca); Hart's Western Oil Reporter Rocky Mountain Oil History

**1901** — Spindletop gusher occurred Jan. 10, 1901, near Beaumont in East Texas. It heralded the birth of the Texas oil industry — Gulf and Texaco.

**1902** — Ida Tarbell begins campaign against the monopoly and questionable practices of Standard Oil Trust.

**1903** — Wright Brothers first flight.

**1905** — Baku oil fields set on fire during Russian Revolution.

**1906** — Federal Government filed suit against Standard Oil under the Antitrust Act.

**1907** — Shell (British) and Royal Dutch merged to form Royal Dutch Shell.

**C**ol. Edwin Drake stood at the edge of a greasy oil seep on Oil Creek near Titusville, Pa., with the simple job of finding an alternative to whale oil for lamps. His solution set in motion a chain of events that would lead to the most important industry in the world and inspire technology beyond the dreams of the most advanced scientist in 1859.

Hired in 1857, he was sent to Pennsylvania the following year and started by digging for oil in the seeps, a technique that had worked for the Rathbone Brothers when they dug a salt well to 300ft in about 1840 and produced 36 b/d of oil on pump. Drake later decided if drilling worked for water, it ought to work of oil.

He probably had not heard that Chinese drilled for oil with bamboo drillpipe as early as 347 A.D. He probably was not familiar with Marco Polo's sighting of giant oil seeps in mod-

ern-day Azerbaijan in 1246, or that European independents had drilled for oil near Bend, Romania, northeast of Bucharest in 1857, according to an oil history timeline compiled by Geo-Help Inc. of Canada.

He might, however, have heard of an oil well drilled in Ontario, Canada, in 1858.

Drake's triumph came from organizing the Seneca Oil Co. in March 1858 and starting a drilling operation the following spring. The well took so long to drill, people in the area started calling it Drake's folly, but he brought in the first oil well in the United States from a depth of 69½ft Aug. 27, 1859. During the 5-month drilling operation, he shoved iron pipe down the hole to keep the shaft from caving in. Drake reaped 8 b/d to 10 b/d of oil at a price of \$20/bbl.

*The Baker factory at Coalinga, Calif., (below) provided key tools to the early oil industry. (Photo courtesy of Baker Hughes Inc.)*



**1908** – Oil discovered in Persia, Anglo Persian Oil company formed (Later BP).

**1914-1918** – World War I, the first conflict where control of oil supply really mattered. British Forces captured Baghdad in 1917.

**1926** – Colorado School of Mines opens the first geophysical department in the United States.

**1911** – Break up of Standard Oil Trust ordered by the Supreme Court.

**1924** – Teapot Dome scandal – political manipulation in setting up the U.S. Naval Oil Reserve.

**1929** – Independants form IPAA at Antlers Hotel in Clorado Springs, Colo. Start of the Great Depression.

It was a case of too much success. His well triggered imitations so successful, they drove the price of oil down to \$0.52/bbl within 2 years.

If those townspeople thought that well was folly, they could never have believed that 144 years later ChevronTexaco would drill a well in 10,011ft of water just to reach the seafloor, and it would finish drilling in much less time than Drake required.

## Industry begins

Drake's well was the beginning of an industry that would experience wild swings in price through its history. Drake left, went broke and returned to Titusville in 1870, where the townsfolk took up a collection to help him survive. The cycle drove Drake to a pauper's retirement pension of \$1,500 a year from the state of Pennsylvania. Many more independents after him would make and lose fortunes in this high-roller industry.

From that early start, and in spite of falling prices, the industry exploded. In 1860, Kentucky, Ohio, Tennessee and West Virginia recorded their first commercial production.

The eastern oilpatch began to move west, with mini-booms in southern Ohio kicking off experiments in Illinois. Sometimes the booms jumped, rather than moving slowly from state to state.

California came onstream in 1861. The race to a new energy base for the country had started and there were no brakes.

There was no shortage of oil. Early pioneers had greased the hubs of their covered wagons from oil seeps along the Popo Agie River in Wyoming on the way to California, and oil seeps were a semi-useful nuisance in dozens of other states.

## Rocky Mountains

In Colorado, the industry got its start from Maurice LeDoux, who began a business selling illuminating oil from seeps near Canon City about 1838, according to a history of the Rocky Mountain oilpatch written by Charles Henning for Hart's *Western Oil Reporter* magazine.

His success drew A. M. Cassidy to the area in 1862. Cassidy said he was a roustabout on the original Drake discovery in Pennsylvania. He bought a salt well drilling rig and drilled the first well in the Rockies about 5 miles

north of Canon City. Historians questioned whether he actually drilled the well, and they were skeptical about his claim that it contained "an inexhaustible supply of oil."

He was a little shaky on the technology, too. He started drilling in 1863, according to Henning's writings, and reached oil at 500ft after 2 years of drilling. During that time, the hole caved in, and he tried to shore it up with stovepipe instead of the iron pipe Drake had used. Of course, the thin-walled stovepipe caved in.

The official state record, as shown in the Independent Petroleum Association of America (IPAA) *Oil & Gas Industry in Your State*, reflects that Colorado's first production occurred in 1887, but some Coloradans stick by the Cassidy record. They also stand by the claim that, in 1984, the state had the oldest continuously producing field in the world (**Florence-Canon City**) with the **Florence Field No. 2** holding the title as the longest producing well.

Those early pioneers of the oilfield shared a gold-rush enthusiasm about their ability to succeed in the face of little or no experience in uncertain markets with little in the way of technology to help them.

The geological technique used by all independents called for operators to use creekology to find and drill seeps along waterways and then use closeology to expand outward until they could not find more oil. Some reportedly drilled near graveyards in Boot Hill locations near seeps. Occasionally, they were lucky enough to find that an anticline with four-way closure had formed the hill.

In 1866, shortly after the birth of an oil industry in Colorado, Lyne Toliaferro Barrett drilled the first successful well in Nacogdoches County, Texas. It was not a particularly momentous discovery, but other wells and fields would follow. Among them was **Corsicana** field, discovered in June 1894 by workers digging for water.

Unlike most of the independents before him, Mike Murphy actually listed his occupation as oil prospector when he discovered Wyoming's first commercial field at Dallas Dome in 1884. He sold the oil to the Union Pacific Railroad to lubricate trains. The Union Oil Co. of California later took control of the field and produced 10 million bbl of oil.



# Wells Fargo Salutes the IPAA on its 75th Anniversary



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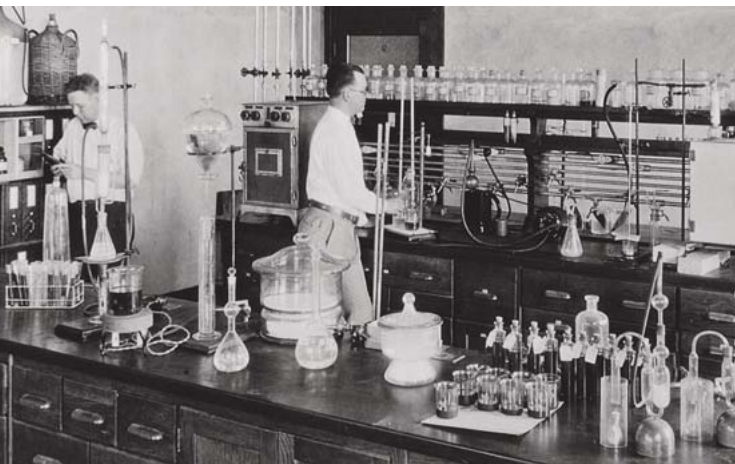
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E.W. Marland, founder of Conoco's predecessor, pioneered the use of laboratory work to understand reservoirs and maximize recoveries. This is the company's Ponca City, Okla., operation. (Photo courtesy of ConocoPhillips Corporate Archives)

## California

While Colorado was trying to write its history and the first big discoveries were establishing the Rocky Mountains as an oil province, significant events were taking place near Bakersfield in Kern County, Calif.

In 1864, Josiah Otis Lovejoy, a former ship's captain, sold 850 shares of stock to local residents to form the Buena Vista Petroleum Co., according to an article in the April 20, 1972, *Bakersfield Californian*, written with information from the *Historic Kern Quarterly Bulletin*. Lovejoy started work digging an open-pit well to produce lamp oil near McKittrick. If little else, one of the first oil companies in Kern County proved the area could produce oil, and it proved Lovejoy could do the job.

Fourteen years later, Solomon Jewett, president of the Kern Valley Bank, decided there was potential in the oil business and bought into J. O. Parke's Columbian Oil Co.

Apparently the enterprise did well, because Jewett later joined Hugh Blodgett in buying up much of the land in the area. In 1894, they put up the money and hired Lovejoy to put together the Sunset Oil Co., which discovered **Sunset** field (later **Midway Sunset**).

Although they did not know it at the time, that was the first billion-bbl field in the United States and the first of a string of billion-bbl fields in California. Midway Sunset, with 2.69 billion bbl of oil, has been surpassed only by

Alaska's **Prudhoe Bay** with 12.55 billion bbl, **East Texas** field with 5.38 billion bbl and **Wilmington** field in California with 2.79 billion bbl of oil.

Also in California, Edward L. Doheney drilled the first well in the Los Angeles area in 1892. Four years later, California producers were drilling the first wells offshore on specially built piers.

While the entrepreneurs were taking chances and building the industry their way, a businessman named John D. Rockefeller began putting his own brand on the oil business with the formation of Standard Oil Co. in 1868. His purchase and construction of refineries and subsequent purchase of local and regional oil companies to feed those refineries made him the first major oil magnate in the industry. By that time, the main surge in the oilpatch had moved into Ohio, and Rockefeller established his refinery center near Cleveland.

In 1890, Ohio and Azerbaijan fought for the title of most prolific oil-producing states.

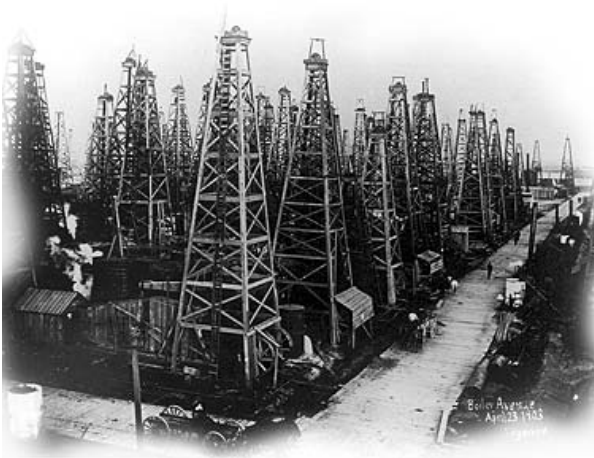
"Ohio was the Saudi Arabia of the world," said Jerry Jordan, 1999-2001 IPAA chairman. In his own way, Rockefeller created the independent oil and gas operator as the political clout of his Standard Oil Co., its dominant position in the industry and its monopolistic business tactics eventually forced independent operators to unite in groups just to make their voices heard by lawmakers.

Even after the breakup of Standard Oil in 1911, the huge offspring of the giant were dominant forces in their regions. They also gave the independent operators a rallying cry as they fought to hold their own against the new majors' buying power and pipeline transportation pressures.

As the 19th century drew to a close, the main thrust of the oilpatch was moving from Ohio to Illinois, with isolated pockets of production in other states and an almost separate industry forming on the West Coast. The eastern states accounted for 93% of the nation's oil output, and California accounted for most of the remaining 7%.

## Boom years

At the birth of the 20th century, oil was a growth industry, but it still was in the childhood stage. The next 30 years would take it



Some 1,000 wells on 200 acres of land shortened the productive life of Spindletop field. (Photo courtesy of Texas Energy Museum, Beaumont, Texas)

through adolescence and dazzle the world.

Fifteen states had some oil production, but it was mostly used for lubrication, lighting and heat. The internal combustion engine, invented in 1895, was about to change those priorities. A couple of inventors with the last name Wright used one of those engines to accomplish the world's first airplane test Dec. 17, 1903. By 1900, some 8,000 cars were on the road. That number, with a big push from Henry Ford's Model T in 1908, rose to 900,000 in 1911 and soared to more than 9 million in 1920.

As the new century opened, people who would shape the industry were starting to get oil on their boots.

An independent named Wirt Franklin drilled a 12-b/d non-commercial well near Pagosa Springs, Colo., in 1901, but hardly anyone paid attention to him. Later, they would hear him loud and clear.

From Great Britain, independent William Knox D'Arcy made a bigger impact in 1901 when he signed an agreement with a Persian general for the first foreign oil concession in Iran. The agreement covered three-quarters of the country for a term of 60 years.

## Spindletop

But the biggest impact came from a notable wildcatter named Patillo Higgins, with the help of Capt. Anthony F. Lucas. The range of opinions about self-taught geologist Higgins among

the people in Beaumont, Texas, ranged from "harmless fanatic" to "he may have a point there."

Higgins had been trying to get people interested in drilling for oil on Spindletop Hill, a 10-ft rise outside of town, since 1889. He did get a couple of people interested, and they drilled dry holes as deep as 418ft in 1893, 1895 and 1896.

Finally, an advertisement in a newspaper for an engineer brought Lucas to town in 1899. He did not know a lot about oil, but he did know salt domes caused rises in the otherwise-flat Gulf Coast terrain and oil seeps sometimes occurred on these rises. With financing from James Guffey (later Gulf Oil) and John Galey of Pittsburgh, Lucas hired the Hamill brothers, rotary-drilling experts from Corsicana, and began drilling Oct. 27, 1900. By 10:30 a.m. Jan. 19, 1901, they had reached 1,160ft and pulled the string to put on a new bit when the Lucas Gusher blew mud, rocks, 4-in. drillpipe and oil 100ft over the top of the derrick.



IPAA Chairman  
Wirt Franklin  
1929-1935

The resulting oil rush gave birth to 285 wells in 1902 and 600 chartered oil and gas companies. At the peak, more than 1,200 wells had been drilled on 200 acres of land. By 1904, only 100 producing wells remained, but the field gave birth to Gulf Oil, Magnolia Oil Co. (later Mobil Oil Co.), Sun Oil, Humble Oil & Refining and, indirectly, Texaco.

The field, also indirectly, started people thinking seriously about controlled, optimized production. When Lucas returned to **Spindletop** in 1904 after the field had produced more than 30 million bbl, he saw badly drilled wells and a damaged reservoir. Spindletop had been "punched too full of holes. The cow was milked too hard, and moreover, she was not milked intelligently," he said. He estimated a dozen wells would have produced more oil.

The Lucas gusher also ended, once and for all, the possibility that Standard Oil could ever create an absolute monopoly. It was, however, still an overpowering force.

"Spindletop stole the oilpatch from the east," Jordan said. From that time on, nobody but eastern producers regarded production

from the eastern states as a significant factor in the industry.

By 1922, Spindletop had only 2 years of production left, but it still had one more record to set. The first test of a torsion-balance geophysical survey was made in the field.

### Early technology

Meanwhile, independents were making names for themselves in other parts of the United States.

Reuben Carlton Baker moved to Coalinga, Calif., in 1899 as a more-than-typical independent trying to get a start in the oil business. He was moderately successful, drilling 20 wells in 1900 in the **Kern River** field, which had been discovered the previous year. By 1907, he was chief executive of several oil companies.

But Baker's real mark in the oil patch came from his 1903 invention of an offset bit, which allowed operators to drill holes larger than the casing to ensure they could set casing in California's hard rock.

Four years later, he invented the casing shoe, and he gave the oil field the cement retainer in 1912. He later joined another pioneer of downhole equipment to form Baker Hughes.

Howard Robard Hughes Sr. was making his mark during the same period. A displaced miner, he followed the Spindletop bonanza to Texas to seek his fortune in the oil business. While there, he joined with Walter Sharp to start a contract drilling business. He soon found the old "fishtail" bits turned to junk quickly in harder rock, and it was difficult to drill a straight hole with them.

In 1908, he found a solution by inventing the dual-roller-cone bit and gave it its first test run at **Goose Creek** field in the modern-day Houston suburb of Baytown. The new bits drilled faster and straighter than anything offered to independents or majors in the past. They made new wells better and cheaper and new discoveries more economically attractive.

Humble Oil's Goose Creek field claimed a number of firsts. At one point in the early 1920s, Humble President Ross Sterling told a vice president with Lufkin Foundry & Machine Co., W.C. Trout, about a rig that some roustabouts had set up in the **Orange** field near Beaumont. They used the worm-gear differential from a Ford tractor, put a crank on the



axle, drove the combination with an oil field electric motor, added a walking beam, sucker rods and a downhole pump and produced oil from a 2,600-ft well with a few failures.

*E.W. Marland poured money into the Ponca City, Okla., refinery and tank farm in 1918. (Photo courtesy of ConocoPhillips Corporate Archives)*

Sterling, who later became a Texas governor, asked Trout to build a similar setup that would work reliably on any single well, according to a Lufkin history written in 1982. That was the beginning of the pumpjack that formed the backbone of single-well production.

### Wildcatters

In that same time period, the team of Michael Benedum and Joseph C. Trees proved themselves to be among the most famous wildcatters in history. These innovative independents made a career out of finding big fields and selling them to asset-hungry Standard Oil affiliates.

From the Ohio oil patch, they followed the crowd into Illinois in 1905. By 1907, they had accumulated some 130,000 acres in leases in a promising area of northwestern Louisiana, according to *Trek of the Oil Finders; A History of Exploration for Petroleum* by Edgar Wesley Owen.

After some miscues, they discovered the 200-million-bbl **Caddo** field. They sold their shares of the field to Standard Oil Co. of Louisiana in cash and production and kept the gas rights, which went into their Arkansas Natural Gas Co.

Gas was becoming a big commodity by that time. The towns of Basin and Greybull in Wyoming were the first cities to use gas for light and heat.

# *Celebrating*

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The two-cone bit allowed independents and majors to drill straighter holes faster. (Photo courtesy of Baker Hughes Inc.)

Benedum and Trees also formed Mid-Kansas Oil & Gas Co., which included a large share of **El Dorado** field in Kansas, and sold that to The Ohio Co. in 1916. The Ohio Co. was one of the Standard affiliates formed after the breakup of the monopoly.

During the same period, they went international, with operations in the Mexican oil patch between 1911 and 1916. They first went to Colombia in 1915, and a year later Benedum organized a geological inspection trip to Colombia, formed an oil company, found oil in 1918 and sold the company to another

Standard Oil subsidiary in 1920.

Benedum and Trees helped put West Texas on the oil map with the discovery of **Big Lake** field and worked with The Ohio Co. to discov-

er giant **Yates** field in 1926. That 1.9-billion-bbl field, ninth largest in the United States, was a foundation asset for Marathon Oil Co. until it recently sold the field to Kinder Morgan Energy Partners.

Another wildcatting independent, Joseph S. (Buckskin Joe) Cullinan, moved south from the Corsicana area but barely missed the rush to Spindletop in 1901. That might have been a good thing. Instead of looking for oil, he helped form a consortium called The Texas Co. that built a pipeline to move the oil out of the area and built a refinery and tanker terminal on the coast to move the oil to the northeast.

When Spindletop's production sputtered a couple of years later, he discovered **Sour Lake** field on the Texas coast and put Texaco well on its way to becoming a major oil producer. After discoveries at Saratoga and Batson, Texas, and Jennings, La., his annual production grew to 5.5 million bbl in 1904 or 4.7% of total U.S. production.

Another independent destined to become a major was E.W. Marland, founder of Marland

*We wish to congratulate IPAA  
for its representation of the  
independent oil and gas producers in  
Washington, D.C. before Congress  
and regulatory agencies.*



Oil Co., which later became Conoco. From a start discovering several large fields in the Ponca City area of Oklahoma in 1909, he expanded into an integrated major.

One of his greatest contributions to the industry, however, was the use of the laboratory and a close analysis of the way oil fields behaved. For example, he was given credit for being the first to use core drills from the coal industry to determine the thickness of oil beds.

The Oklahoma oil push was strong in those days, but Tom Slick stood out and earned the nickname “King of the Wildcatters.” Born 25 miles from the Drake discovery in Pennsylvania, he joined his contract-driller father and his brother and settled in Kansas in 1903. From that time, he went through a series of unprofitable enterprises in Oklahoma in 1904 and moved back to Illinois and Kentucky in 1907. He later returned to Oklahoma with better results.

Among his credits was the discovery of the giant **Cushing** field in 1912. By 1970, that major field had produced 450 million bbl of oil.

By 1929, his successes had piled high enough that he sold out to Prairie Oil and Gas Co. for \$35 million, the largest sale of oil properties recorded in the United States to that time, according to *King of the Wildcatters: The Life and Times of Tom Slick* by Ray Miles.

Like Lucas before him and many others after him, he favored the orderly development of fields over the slash-and-burn boomtown development that drove Spindletop to an early end. The Oklahoma Corp. Commission issued its first regulatory orders at Cushing field in 1914.

After selling his interest in the field, he became the largest operator in the **Oklahoma City** field. When he died in 1930, he had 30 wells producing from that field with 200,000 b/d of productive capacity and 45 more wells drilling. The **No. 1 Campbell** was his largest well at 43,200 b/d; it came in the week after he died.

## Technology advances

As the independents expanded, they demanded better tools, and the fledgling service industry gave them the ability to see below the earth, understand what they saw and drill reliable wells to produce the hydrocarbons.

Among the contributors:

- 1919—Erle Halliburton started the New

Method Oil Well Cementing Co. in Wilson, Okla., to set a foundation for one of the world’s largest service companies.

—Frank J. Hinterliter, holder of more than 90 patents, resigned from the predecessor of National Oilwell to form the Hinterliter Tool Co., which would become an international drilling company and a fishing-tool pioneer.

- 1923—Myron M. Kinley announced he was on call 24-hours a day to kill blowouts with explosives.
- 1924—Alexander Deussen directed the first German seismograph party on the Gulf Coast.
- 1925—Olive Scott Petty established the Petty Geophysical Engineering Co. in San Antonio, Texas.

—John Clarence Karcher founded Geophysical Research Corp. with Everette DeGolyer and found more than 100 salt domes during the next 2 years.

- 1926—Conrad and Marcel Schlumberger logged their first well in France. Shell tested logging techniques in the United States through 1929.

—Colorado School of Mines opened the nation’s first geophysical department.

- 1929—H. John Eastman invented the whipstock for controlled directional drilling.

—George Ratcliff read a news account of a well in the Kettleman Hills area that caved in because of shale sloughing and started the research that resulted in using baroid (barium and a colloid) to create weighted mud.

Service companies have traditionally served as the independent’s technology department.

“By their very name, U.S. independent oil and gas companies have long conjured up an image of entrepreneurship, a willingness to buck the trend, to try something new, to innovate. Today, U.S. independents still embody this spirit, and their business models and tenacity has allowed many to spread beyond the U.S. Not only are they a key component of the U.S. energy scene – playing a crucial part in the security of supply – but some are truly global players, with exciting exploration portfolios and producing assets.

“The service industry has served the inde-



Phillips purchased the Alamo plant – the first Phillips refinery – in 1927. (Photo courtesy of ConocoPhillips Corporate Archives)

pendents well, and continues to strive to meet their current and future needs. Technology exists today to unlock significant production and reserves – what is needed is a willingness to jointly search for real solutions that create value and security for investors and the nation alike. The service companies – with their large technology platforms – are committed to making their intellectual capital available to all. The independents have a great heritage and have forged exciting futures. Harnessing the innovative spirit to deliver essential oil and gas has been the core of their success; it is possibly core to their futures,” said John Gibson, president and chief executive officer of Halliburton Energy Services.

### Independents arise

With fields developing across the country and tools emerging to help fuel the growth, independents had the elements of growth in place. The one element they lacked was enough control over their destinies to become financially secure.

Wirt Franklin’s experience typified those of many independents in the first two decades of the 20th century, but he had a law degree, the money and the will to make waves.

According to an article by Gilbert L. Robinson for *Chronicles of Oklahoma* on the Oklahoma State University Internet site, the **Franklin No. 1** started producing Aug. 10, 1913, as the discovery well for **Healdton** field in Carter County, Okla., some 28 miles west of Ardmore.

Franklin formed Crystal Oil Co. that same

year and sold it 3 years later for \$2 million. He remained an independent investor until 1927 when he formed Wirt Franklin Petroleum Corp.

The Healdton story could be told with different names and different faces in dozens of places around the world. The discovery drew hundreds of explorers who needed rigs, pipe and other supplies.

A handful of new towns grew up around the rapidly expanding field. Among them were Ragtown, which got its name because the houses were all tents. When it grew up, it was called Wirt, and like many of its neighbors, is now a ghost town with only a feed store remaining. At one time, it had a bank, a movie theater, a drug store, two gas stations, two churches, two grocery stores and a school, according to the [www.ghosttowns.com](http://www.ghosttowns.com) Internet site. During its short life, it burned a couple of times and was rebuilt.

Not far away, in Section 35-4s-5w, another oilfield village emerged and later disappeared. It was called Joiner City after Columbus Marion (Dad) Joiner. He made and lost two fortunes after coming to Oklahoma in 1897 and before leaving in 1929 to look at the oil field potential of East Texas.

Former IPAA President Jordan’s father was a contract driller during that boom period, serving the oilpatch with two steam-powered rigs.

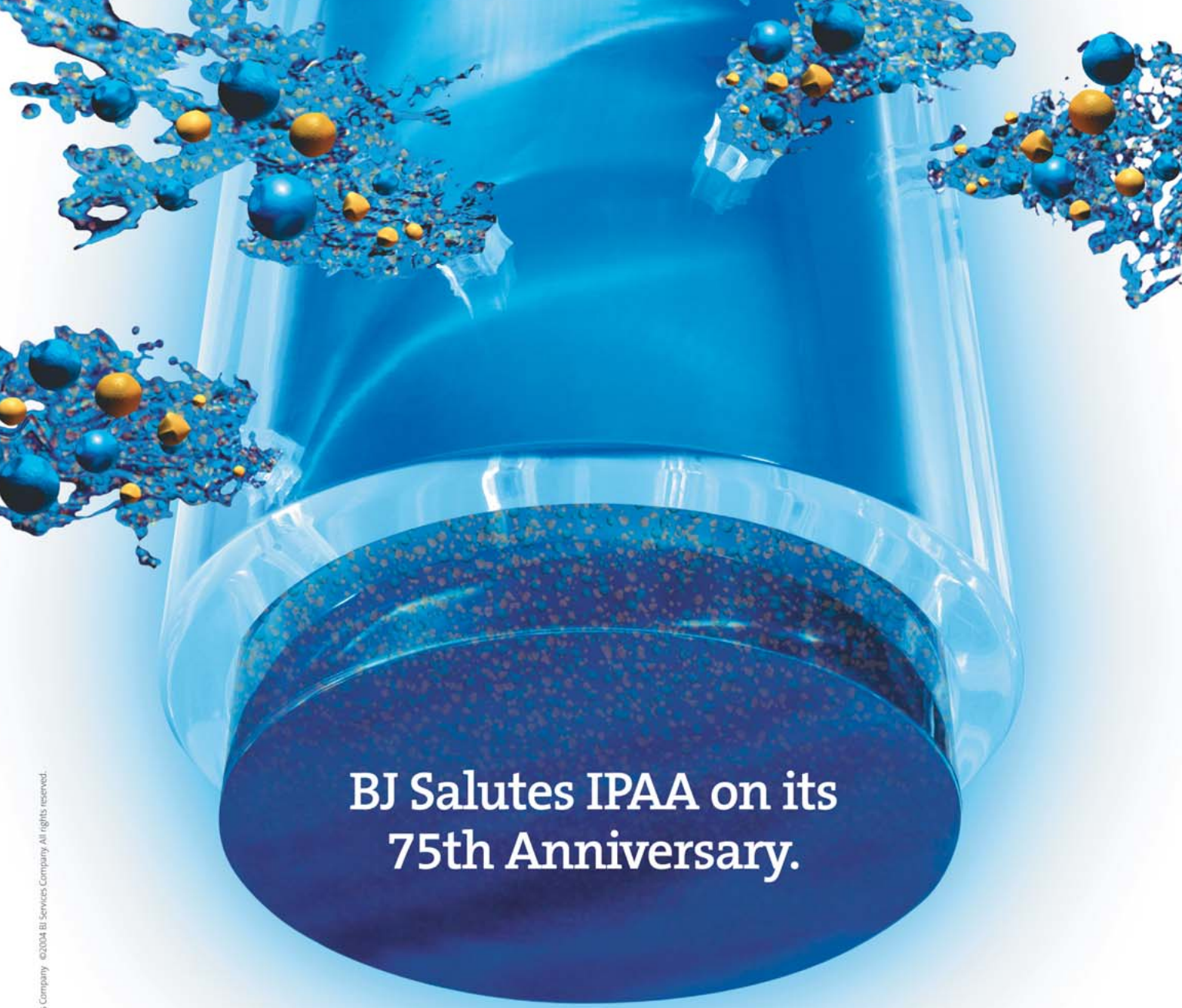
His mother often would accompany her husband on trips to the oilfield. She told Jordan about one trip in which she had a choice of staying overnight in a room over a town store or in a tent at the field location. She chose the field location, because the towns were so wild, Jordan said. And, he added, it was a nice tent – it had a floor.

At one point, 150 wagons a day traveled the roads to Ringling, the closest larger town to the oilfield. When it rained, the roads turned to quagmires.

“My father worked primarily for the majors, because he said he liked to get paid,” Jordan said. His father also used to say the big oil companies controlled the transportation and caused the low prices that were putting him out of business.

Those monopolistic practices on the part of the majors forced Franklin and some of his fellow operators to form the Independent Development League – his first recorded foray into organizing





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a group to create a voice loud enough to be heard by government decision makers. That organization evolved into the Ardmore Producers Association, and by the late 1920s, the Southern Oklahoma Producers Association.

The *Chronicles of Oklahoma* reported that Franklin's discovery of Healdton field led to a railroad spur from Ardmore and a 6-in. pipeline from the field to Addington, Okla., where it joined a line to Fort Worth, Texas.

That pipeline, finished March 7, 1914, had a capacity of 10,000 b/d of oil when the field had a production potential of 6,500 b/d. By March 23, field production had climbed to 10,000 b/d.

Magnolia Pipe Line Co., a division of Mobil, one of the companies formed by the Standard Oil breakup, built the pipeline. It cut pipeline runs to 4,000 b/d, and the pressure to sell by operators drove the price of oil down to \$0.50/bbl in April. The protesting operators formed the Independent Development League the following month.

Protesting against "Standard Oil and its henchmen," the organization's first resolution read:

"Resolved that we urge the president and the Congress of the United States the pressing necessity and importance of immediate legislation to protect the oil industry from the monopoly which now controls prices to both the consumer and the producer."

Among the recommendations was the creation of a government pipeline from Oklahoma to the Gulf of Mexico to allow producers to sell oil at reasonable prices and for the purpose "of competing with and thereby compelling the monopolistic pipeline companies to carry and transport oil at reasonable prices."

They never got that government pipeline, but by Feb. 25, 1917, six pipelines had been built to the field to carry away 60,000 b/d of oil to support the United States and its allies in World War I.

By 1929, the independents had played a major role in producing oil for the United States and its allies for that war, an effort that drained stores, squeezed U.S. production and established a mindset that the United States was running out of oil. One highly placed government official stated categorically that the nation would run out of oil in a decade.

That was the situation as President Herbert

Hoover assumed his post March 4, 1929, partially on a campaign of conservation of domestic oil. After all, Mexico and Venezuela were furnishing the nation with plenty of oil, and no one wanted the nation to run out of the energy that spelled security.

Numerous attempts at conservation had been previously proposed. The oilpatch had learned the hard way that self-control among operators in a field did not work in the face of a new-field boom.

Independent operators also had seen the majors' brand of conservation, which consisted of strangling transportation to force them to sell cheap. Probably the most successful efforts came from the Oklahoma Corporation Commission.

Far from being short of oil, the market was glutted, even with 26 million cars and trucks on the road, wrote Lawrence E. Smith, research director of IPAA, in his history of the organization for its 25th anniversary.

The roaring '20s were drawing to a close. The stock market soared. Prohibition was a joke, and nobody foresaw Black Thursday on Oct. 24, 1929, when the value of stocks plunged by \$4 billion, marking the start of the Great Depression.

Still, on March 12, 1929, 8 days after assuming office, Hoover ordered a halt to oil and gas leasing on all federal lands, a devastating blow to independents working in the western states.

"Right now, we're being encouraged to conserve and increase production, but the Rockies are essentially locked up. That's an irony that's keeping a lot of people from going out there and discovering new reserves," said 1995-1997 IPAA Chairman Lew Ward of Enid, Okla. He was talking about conditions today, but he just as easily could have been making the same statement in 1929.

Now, technology is helping independents find new reserves, he added. Ward was talking about advanced 3-D seismic, but if he had been talking in 1929, he could just as easily have been talking about the new technology of 2-D seismology.

Numerous attempts had been made to control bonanza production that had plagued the oil industry long before Spindletop. Texas had formed its Railroad Commission that was making an attempt at control, and the

**Pre-1930 billion-bbl oilfields**

Discovery Field	Location	Est. total recovery year	(million bbl)
<b>Midway Sunset</b>	California	1894	2,692
<b>Kern River</b>	California	1899	1,947
<b>South Belridge</b>	California	1911	1,380
<b>Elk Hills</b>	California	1919	1,407
<b>Ventura</b>	California	1919	1,011
<b>Sho-Vel-Tum</b>	Oklahoma	1919	1,350
<b>Huntington Beach</b>	California	1920	1,138
<b>Panhandle</b>	Texas	1921	1,506
<b>Yates</b>	Texas	1926	1,954

| Nine of the United States' 17 billion-bbl fields were discovered before 1930.

Oklahoma Corporation Commission was exercising some control in Cushing, **Seminole** and Healdton fields.

In March 1929, R.C. Holmes, president of The Texas Co., headed the Holmes Committee in a meeting in Dallas and proposed a conservation method, but it was turned down at the federal level, Smith wrote.

Hoover apparently was unaware of the

potential of the independent to find and produce oil. He called a meeting June 10, 1929, at The Broadmoor in Colorado Springs, Colo., ostensibly to form a compact of oil-producing states to exercise conservation of domestic oil, but with no similar effort to conserve imports.

A later survey showed the average cost of domestic crude from Oklahoma, Kansas, Texas, Arkansas, Louisiana and New Mexico was \$1.10/bbl. After pipeline costs to eastern refineries, the delivered price was \$1.98/bbl, Smith wrote. At the same time, Venezuelan oil cost \$0.79/bbl at

the refinery inlet.

The meeting was supposed to be a free and open discussion with delegates appointed by governors. Among the appointees were 24 independents.

Franklin was one of those independents, and he came prepared to talk about a tariff on imports as a conservation measure and to protect independent producers.



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Paul S. Hedrick, then oil editor at the *Tulsa World*, was at that 1929 meeting, and he described the feelings surrounding the meeting in an interview for IPAA's 40th anniversary.

"There was terrible over-production of oil, and the same time imports of foreign oil were pouring in from Mexico and Venezuela. The market was glutted, and the independent was powerless. There were no market-demand laws and no state prorationing programs to bring order out of the chaos. There appeared little or no chance of anything being done about it, because the top men in government and top men in many of the major companies had come up with their solution to the problem, which was simply to cut back domestic drilling and production and bring in more imported oil," he said.

Franklin and the independents immediately found the deck was stacked against them when Franklin's attempt to argue against the presumption that the nation would run out of energy was ruled out of order. Soon afterward, a protest against the lockout from federal lands by the Colorado delegation was ruled out of order. The independents walked out of the conference, convinced the only way to fight was by forming a national association. IPAA was formed by that group of frustrated independents at the Antlers Hotel in Colorado Springs the next day.

"We expected fair treatment but the president's advisers on oil have sold us down the river. We're going to fight. Tell the newspapers and the wire services that we are going to organize to tell the public that we are being squeezed to death," Franklin told Hedrick.

The following day, Franklin made a historic speech (see sidebar, Wirt Franklin's Speech). In the words of the historian who wrote IPAA's 40th anniversary history, "His speech packed the wallop that kayoed the plan to form a compact of states to restrict production in the U.S. without accompanying limitations on foreign oil."

That meeting 75 years ago marked the beginning of the U.S. independent producer as part of a cohesive unit with a loud enough voice to get a hearing in Congressional halls. It also could well have saved the independent as a viable contributor to the country's history.

"America's great effort in World War II could not have been supported without the vast sup-

plies of crude oil discovered in the 12 years from 1929 to 1941.

"This is the record. What history would have recorded if the reservation policy of the importers and federal leaders had been put in effect is impossible to determine. But we do know what the domestic oil industry did in the period of America's greatest peril," Franklin said in a 1962 interview in *Independent Petroleum Monthly*.

Asked 40 years later about the oil and gas producers of that era, Hedrick said, "The men back in the '20s were more direct and more hard-hitting. If they didn't like something, they'd tell you.

"One of the things they would find hard to live with today would be red tape, both in government and in business. On the state level and on the federal level, they would be doing a lot of cussing. And I think that industry red tape would shock them. I saw Tom Slick and T.N. Barnsdall consummate a multi-million dollar deal in the lobby of the Hotel Tulsa, and the only paperwork I saw was Tom jotting a few words on an envelope that he carried in his coat. It'd be awful hard for men like that to get used to lawyers quarrelling over commas and debating and weighing this phrase and that phrase.

"Another thing. I don't believe the oil industry is as much an oil fraternity as it used to be. . . For one thing, they were united against the majors. I think, though, that the industry has been made by the fact that independents and majors are working together today and not at each other's throats."

Asked if those 1920s independents could get along in the 1970s oilpatch, Hedrick said, ". . . you couldn't be a dummy 40 years ago and do anything in the oil business. The independent now still has to be versatile, but he has to call more and more on specialists. He needs a lawyer, or an accountant, or a geologist, or an engineer, and he'll contract to have a well drilled. His counterpart in the '20s often had enough law, enough bookkeeping, enough geology, and enough drilling savvy to get the job done himself.

"If by some miracle, the men of the '20s could be transported in their prime to the present, they'd be in there pitching, college graduates or not." ■

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## Wirt Franklin's Speech



Wirt Franklin  
IPAA Chairman  
1929-1935

Wirt Franklin's historic address established the independent oil and gas producer as a political force in the United States.

Excerpts from that speech at The Broadmoor in Colorado Springs on June 11, 1929, illustrate the plight and the stand of independent producers at that time.

"I represent, and speak in behalf of the small operators of Southern Oklahoma, engaged in the production of oil, sometimes erroneously referred to as independent producers, a misnomer, because there is no class engaged in productive enterprise more dependent than the small oil producer; dependent because he must of necessity drill his wells to prevent his land from drainage and sell his oil at the posted price, whatever it may be at the time, whether remunerative or not, to the

major purchasing companies.

"As President [Calvin] Coolidge has well said, a low price for crude oil tends to encourage the uneconomic and wasteful use thereof. Therefore, the consideration of this problem (conservation) cannot be divorced from a consideration of the price at which crude oil is sold.

"How then may conservation of crude oil be accomplished? It must be admitted that a proper utilization of the oil produced cannot be considered as waste and that we are entitled to produce as much oil as market demands require; and when it appears, from time to time, that the production of oil in any given area exceeds the reasonable market demand, therefore, the production thereof should be controlled. In my opinion, by far the best method of controlling production is by securing an agreement among operators in any given pool, immediately after discovery of oil, for an orderly development of the pool by the proper spacing of wells over the supposed geological structure in such a manner as to produce the oil from that pool over a long period of time, instead of, as in the past, allowing a wild orgy of drilling to be brought about to bring the oil from that pool to the surface in a few months.

"If orderly development cannot thus be had by cooperative agreement, the next best method is proration of production from flush fields, reducing the amount of oil allowed to be taken from the ground to the reasonable market demand within the given area.

"The representatives of the Southern Oklahoma Oil and Gas Association have come to this conference in a spirit of cooperation with a desire to lend their support and influence to any reasonable method which may be worked out looking to the production of oil in a sane orderly manner, under conditions that will not constitute waste, actual or economic, but any plan agreed upon must contain safeguards which will make it impossible for tyranny, oppression and confiscation to be practiced.

"In view of what has been said in this conference by preceding speakers, we are fearful that in the name of conser-

vation, a compact may be initiated and presented for adoption vesting such absolute authority in a commission, which might fall under the domination of the major factors of the industry, and which commission, once established, could restrict domestic production to any extent it might desire . . . allowing the domestic demand to be satisfied and filled by the importation of foreign oil. If this condition should be brought about, it would mean the annihilation and destruction of the small producer of crude oil. His property would become valueless and he would be compelled to sell his property at any price that it might bring in a market thus demoralized.

"I wish . . . to say that the very first measure of conservation which should be adopted is the restriction of the importation of oil by the adoption by Congress of a tariff on crude oil, and the refined products thereof, of not less than \$0.50 nor more than \$1 per barrel, leaving it discretionary with the president upon recommendation of the tariff commission as to what such tariff should be . . ."

" . . . there are now 250,000 wells in the United States producing an average of one barrel per day. It is certain that these wells have been operated for the last three years at a loss, but nevertheless operated by the owners in hope that the overproduction menace might soon cease and these wells again become profitable. . . Their abandonment because they are unprofitable would be the most serious blow to conservation, which could be imagined. Once abandoned, it would never be profitable in the future to again drill wells in the same sand from which they are producing. A tariff of \$1 a barrel on oil will save these wells for their owners and save 250,000 barrels of oil a day for the domestic consumers of the United States.

" . . . the burden has fallen on fuel oil, the price of which has been reduced in the Midcontinent area to as low as \$0.50 per barrel. . . The beneficiaries of this cheap oil have been the manufacturing industries of the east and of New England, which are very loud in their protest against a tariff on oil . . .

"I cannot close without extending to the producers of the Rocky Mountain states the sympathy of the producers of southern Oklahoma in the predicament in which they find themselves, by reason of the blanket cancellation of permits, which has been so forcibly presented to the conference . . . It appears that this blanket cancellation of permits in the Rocky Mountain area is the most convincing argument against the adoption of a compact among the states creating a commission with full authority to control the business of producing oil."

Franklin presented resolutions that said, in part, "that we desire it called to the attention of the conference that there is no other industry operating in as many states (18) that does not receive protection from foreign competition.

" . . . we are in favor of compulsory regulation of the rate of drilling and the spacing of wells, but not in favor of unit development, which is virtual confiscation of the individual producer's property.

" . . . we recommend and request that, in the future, proration be confined to these flush fields, which have caused the over-production. We do not believe it fair or equitable to penalize the older producing fields by proration under any circumstances.

"In conclusion, we recommend that the representatives from Southern Oklahoma to the conservation conference shall refuse to agree to any measure that may be adopted at the meeting on June 10th that does not provide for a tariff on foreign crude oil and its refined products."



## Organization Meeting Independent Petroleum Association of America

Antlers Hotel, Colorado Springs, Colo.  
Tuesday, June 11, 1929

### Names of Those Present at the Organization Meeting

Mrs. A. L. Ludden, Amarillo, Texas  
Margie Montgomery, Amarillo, Texas  
Wirt Franklin, Ardmore, Okla.—Producer, Refiner and Marketer  
H. B. Fell, Ardmore, Okla.—Producer  
Will H. Smith, Ardmore, Okla.—Producer  
G. W. Strawn, Ardmore, Okla.—Producer  
J. N. Bullard, Duncan, Okla.—Drilling and Producer  
R. D. Pine, Okmulgee, Okla.—Producer  
Joe N. Croom, Okmulgee, Okla.—Newspaper  
M. C. French, Okmulgee, Okla.—Producer  
John H. Rebold, Okmulgee, Okla.—Producer  
M. B. Blakeley, Okmulgee, Okla.—Producer  
Guy H. Woodward, Mid-Continent Royalty Owners Association, Tulsa, Okla.  
William R. Kavanaugh, Mid-Continent Royalty Owners Association, Tulsa, Okla.  
Wade H. James, Accumulative Royalties Corp., Tulsa, Okla.  
Paul Hedrick, Oil Editor, *Tulsa World*, Tulsa, Okla.  
W. E. Grisso, Seminole, Okla.—Royalties  
C. C. Richards, Loveland, Colo.—Producer  
Scott Heywood, Jennings, La.—Producer  
B. A. LaSalle, Ada, Okla.—Producer and Royalties  
O. G. Murphy, Marine Oil Co., El Dorado, Ark.— Producer  
J. W. Olvey, Eldorado, Ark.—Producer and Contractor  
E. G. Bedford, Midland, Texas—Royalties  
J. I. Cromwell, Muskogee, Okla.—Producer and Royalties  
A. W. Green, Denver, Colo.—Producer and Contractor  
H. C. Conley, Green River, Utah—Royalties and Leases  
W. H. Gray, Tulsa, Okla.—Producer

### Officers of the Independent Petroleum Association of America

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**Executive Vice President**—H. B. Fell, Ardmore, Okla.  
**Treasurer**—Will H. Smith, Ardmore, Okla.  
**Executive Secretary**—F. E. Tucker, Ardmore, Okla.  
**Executive Committee**—Wade H. James, Tulsa, Okla.;  
R. D. Pine, Okmulgee, Okla; Wirt Franklin, Ardmore, Okla.  
**Vice President for Oklahoma**—R. D. Pine, Okmulgee, Okla.  
**Vice President for Texas**—E. G. Bedford of Midland, Texas  
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**Vice President for Louisiana**—W. Scott Heywood, Jennings, La.  
**Vice President for Utah**— H. C. Conley, Green River, Utah  
**Vice President for Colorado**—A. W. Green, Denver, Colo.  
**Vice President for Montana**—C. J. Dousman, Baker, Mont.  
**Vice President at Large**—Margie Montgomery, Amarillo, Texas

## Chapter 2 - The 1930s & 1940s

# Trials and Triumph

*The 1930s and 1940s were tumultuous years in the American oil industry, as the country coped first with the Great Depression and then World War II.*

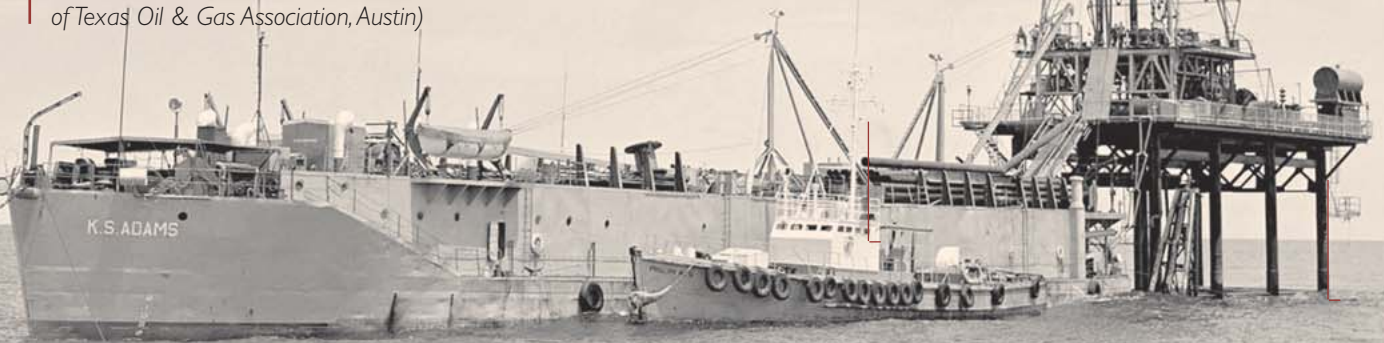


IPAA Chairman  
Charles F. Roeser  
1935-1939



Columbus "Dad" Joiner, front left, shakes hands with his geologist, A.D. "Doc" Lloyd in front of the Daisy Bradford No. 3, the well that first struck oil in East Texas field. (Photo courtesy of Texas Oil & Gas Association, Austin)

Offshore oil production was kicked off in the Gulf of Mexico in the late 1940s. (Photo courtesy of ConocoPhillips Corporate Archives)



- 1930** – East Texas field is discovered.
- 1933** – Harold Ickes becomes Secretary of the Interior.
- 1935** – U.S. proved reserves total 12 billion bbl, mainly in Texas and California.

- 1936** – Jesse Owens wins four Olympic gold medals; *Gone with the Wind* is published and sells 1 million copies at \$3 each in its first 6 months.

- 1938** – First Gulf of Mexico well drilled at Creole field.
- 1941** – Pearl Harbor is attacked; United States enters World War II.
- 1945** – The Allies win World War II.



The Great Depression engulfed the world toward the end of 1929. Soon, the United States was awash in failed banks and businesses. Massive unemployment and widespread poverty circulated throughout the country.

The 1930s were a time of shortages: shortages of money, jobs, food and confidence. Oil, however, was incredibly abundant, particularly because of the discovery of super-giant oil fields, starting with **East Texas** field in 1931. Crude was so cheap as to border on worthless, and independents struggled to stay financially afloat.

### A flood of oil

East Texas field was discovered in an impoverished part of the Lone Star State in October 1930. A 5.6-billion-bbl giant, it still ranks today as the one of the largest and most prolific oil reservoirs in the Lower 48.

Columbus Marion “Dad” Joiner had been hunting for oil in East Texas since the summer of 1927. The 67-year-old promoter had drifted south from Ardmore, Okla., to East Texas, buying thousands of acres of mineral rights and selling interests in the leases. A 1-acre share in a syndicate holding 500 acres could be had from Joiner for \$25.



IPAA Chairman  
Frank Buttram  
1939-1943

Rusk County was the site of Joiner’s prospect, which had been put together by Doc Lloyd, a geologist with questionable credentials. Joiner contracted a rickety drilling rig and took his first test, the **Daisy Bradford No. 1**, to a depth of 1,098ft before abandoning the hole because of a stuck pipe. A second well was drilled, the **Bradford No. 2**, just 100ft north of the No. 1. The second test reached 2,518ft before the drill pipe twisted off.

The third time was the charm: Joiner’s **Bradford No. 3**, drilled 375ft from the No. 2, reached a depth of 3,592ft and flowed oil and gas on a drillstem test. It was completed for 300 b/d of oil.

What Joiner found was an immense strati-



Bill Lane and Walt Wells staked their future on the performance of a perforating gun in 1932 at Union Oil Co.’s La Merced No. 17. (Photo courtesy of *From an Idea to an Industry: Fifty Years with Dresser Atlas—1932-1982*)

graphic trap covering 140,000 acres in Cretaceous Woodbine sands. Nothing like it had been seen before, and it took several wells before people grasped its true size. A mile west of the discovery, Deep Rock Oil Co. drilled a well that came in during December 1930 at 3,000 b/d. At the same time, H.L. Hunt purchased Joiner’s interests in the field, a buy that would prove to be one of the premier business deals ever made.

Within a short time, the immense size of the field became apparent. Independents and major oil companies quickly moved into the area. Hundreds rushed into East Texas, and Kilgore became a wild boomtown. The rule of capture was in full force, and derricks sprouted up everywhere.

Prior to the discovery of East Texas field, oil sold for about \$1/bbl, and daily U.S. production amounted to some 2.9 million bbl. The most pressing concern for independent operators was imported oil, mainly from Venezuela, which accounted for some 6% of domestic supply.

The Independent Petroleum Association of America (IPAA) and its members were pressing hard for a tariff on imported oil, maintaining

**1946** – Onset of nuclear testing on Bikini Atoll.

**1947** – Kerr-McGee Corp. drills the **Kermac No. 16** from a fixed platform in the Ship Shoal area, offshore Terrebonne

Parish, La., in the Gulf of Mexico. Chuck Yeager breaks the sound barrier.

**1948** – **Ghawar**, the largest oil field in the world, is discovered in Saudi Arabia.

**1949** – Forty-four exploratory wells have been drilled in the Gulf of Mexico, discovering 11 fields.



IPAA Chairman  
B.A. Hardey  
1945-1947

that cheap foreign crude was depressing prices and making U.S. production marginally economic. The nascent organization, formed just the prior year in Colorado Springs, launched a concerted lobbying effort to push a tariff.

As it turned out, Venezuelan oil was far from the only problem. As East Texas wells proliferated and crude poured from the ground, prices went

into freefall. The Texas Railroad Commission issued its first proration order in the spring of 1931, cutting the burgeoning field's production back from 200,000 b/d to 50,000 b/d.

The proration order was not a success. Operators felt free to ignore it because the Railroad Commission had few enforcement powers. Oil was selling for \$0.13/bbl in July 1931, the reservoir pressure in the field was dropping precipitously and water production was rapidly rising.

The price drop was killing independents throughout the country. Prior to the discovery of East Texas field, production costs averaged \$1.10/bbl in the United States, and the vast volumes of oil now flowing into the market meant much of that older production was uneconomic.

Texas Gov. Ross Sterling stepped into the East Texas mess. He convened a special session of the Texas legislature to address the problem. Before a law could be drafted, however, a federal court struck down the Railroad Commission's proration order. In August 1931, Sterling declared martial law and sent the National Guard and Texas Rangers to shut in East Texas field.

Proration was forcibly instituted. Legal challenges and illegal production continued for some time, and prices seesawed – depending on the outcome of various court decisions and attempts to legislate production levels.

In 1931, the IPAA established an office in Washington D.C. and stepped up its lobbying efforts in support of a tariff on foreign oil. The organization's efforts paid off in 1932, when Congress drafted legislation that levied an excise tax on imported crude oil, fuel oil and gasoline. President Herbert Hoover that June signed the bill, which set tariffs of \$0.21/bbl

on crude and fuel oil and \$1.05/bbl on gasoline. Independents had succeeded in stemming the tide of imported oil for a while.

According to the IPAA, this was the first time in history Congress had, in any type of legislation, put its endorsement upon the domestic industry. Nonetheless, many oil companies teetered on the verge of collapse. Demand was down, dropping from an average of nearly 2.9 million b/d in 1929, prior to the Great Depression, to 2.3 million b/d in 1932. Nationally, unemployment was 25% and industries were at a standstill. Prices were in the basement, and more and more oil was being discovered. In 1932, 2.9-billion-bbl **Wilmington** field was found in the Los Angeles Basin. In 1933, the tremendous East Texas field produced more than 200 million bbl and 7.8 Bcf of gas from nearly 12,000 wells. The average price for a barrel of oil was \$0.67.

Federal and state attempts to limit production and prevent the sale of "hot" oil – the volumes of oil produced above allowables – continued unabated. Independents were vigorously interceding with the federal government to take control of a rapidly deteriorating situation. In 1933, as part of the National Recovery Act, the interstate transportation of hot oil was made illegal. Secretary of the Interior Harold Ickes sent federal inspectors to East Texas field to gauge and monitor every aspect of production.

However, in 1935, the U.S. Supreme Court declared the National Recovery Act invalid. That same year, the Interstate Oil Compact Commission (IOCC) was formed. The organization was intended to foster cooperation among oil-producing states. A voluntary quota system gradually evolved, as the member states allied to keep production levels in check. Congress continued to draft new laws. Eventually, the appropriate legislation survived judicial review and regulatory agencies were given enforcement power. The battle to restrict production was won.

It was just in time, as giant discoveries proliferated. **Katy** field, containing 1 billion bbl, was found outside of Houston in 1934, and in 1936, **Carthage** field, a 3.1-billion bbl monster,



IPAA Chairman  
Ralph T. Zook  
1943-1945

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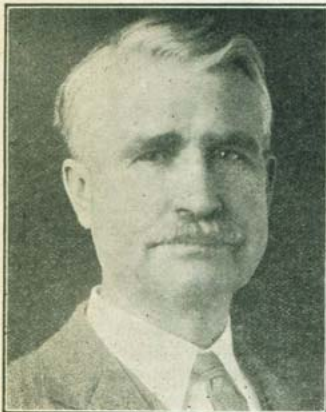
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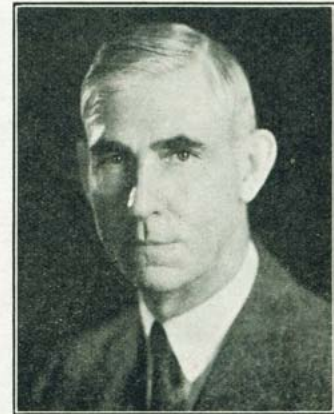
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was discovered. Huge finds were made in West Texas, as **Wasson** and **Slaughter** fields, both 2-billion-bbl accumulations, were added to a host of smaller discoveries.

The Illinois Basin also was coming on strong as an oil-producing area. Explorers were busy surveying the state with seismic and were successfully finding hundreds of new fields. The state was not a member of the IOCC, but the states in that organization cut back their production to make room for the new oil.

Prorating and allowables were now accepted throughout the industry as necessary components of a stable business. Oil prices stood at \$1.10/bbl at the end of 1938.

### War clouds the horizon

War broke out in Europe in 1939, and the American industry was immediately affected. Foreign demand rose then fell again as the European countries stopped importing American oil.

In 1940, 30,000 wells were drilled in the United States, mainly in the Gulf Coast and mid-continent regions – 78% of which were successful. Proved oil reserves in the United States stood at 18.4 billion bbl, and the country produced an average of 3.6 million b/d. Its productive capacity, however, thanks to prorating,



Wartime workers assembled in front of a refinery in Ponca City, Okla. (photo courtesy of ConocoPhillips Corporate Archives)

was 1 million b/d higher. This was to prove a vital factor in the upcoming war.

The normal oil transportation routes were severely disrupted in 1941 when the United States sent 80 tankers to Great Britain under President Franklin D. Roosevelt's lend-lease program. Crude began to be shipped in railroad cars from the oil-producing states to the East Coast markets.

### New Concepts Change Industry

The discovery of **East Texas** field in 1930 marked a turning point in oil exploration – it was the first giant stratigraphic trap that was discovered, and it opened the eyes of many prospectors to a new type of target.

Indeed, when Columbus Marion "Dad" Joiner found East Texas field, he inadvertently ushered in the modern era of petroleum geology. The vast stratigraphic accumulation was quite different than the domes and anticlines that people had prospected for in the past. East Texas field is formed as a truncated wedge of massive Woodbine sand crosses the Sabine Uplift. Prospectors realized they must look closely at the reservoir rocks to discern pinchouts, truncations and porosity variations that might cause another similar trap. The fields of sedimentation and stratigraphy grew from this new understanding.

Exploration techniques also continued to evolve throughout these years. Geologic mapping, core drilling, micropaleontology, cuttings logs and examinations, and gravity and magnetic surveys were all in the industry's arsenal. Aerial photographs were used as well.

Geophysical prospecting also turned a new page with the shift to the reflection method from the refraction method. The technique was pioneered in central Oklahoma, where Paleozoic limestones reflected back signals that could be correlated for miles. Dip methods soon evolved in the Gulf Coast and California, in which the dips of the reflecting beds could be computed.

Indeed, although a severe shortage of steel depressed drilling levels throughout the war years, geophysical prospecting boomed. Oil exploration was deemed essential to the war effort, and it didn't require casing. The number of seismic crews expanded from 200 in 1941, to 350 at the end of 1945, to more than 500 at the end of 1948.

Drilling and production technologies also advanced. At the beginning of the 1930s, wells began to flirt with the 10,000-ft mark. Tests to this remarkable depth were drilled in Caddo County, Okla., and in Ventura and Kern counties, Calif. Blowout prevention techniques were developed.

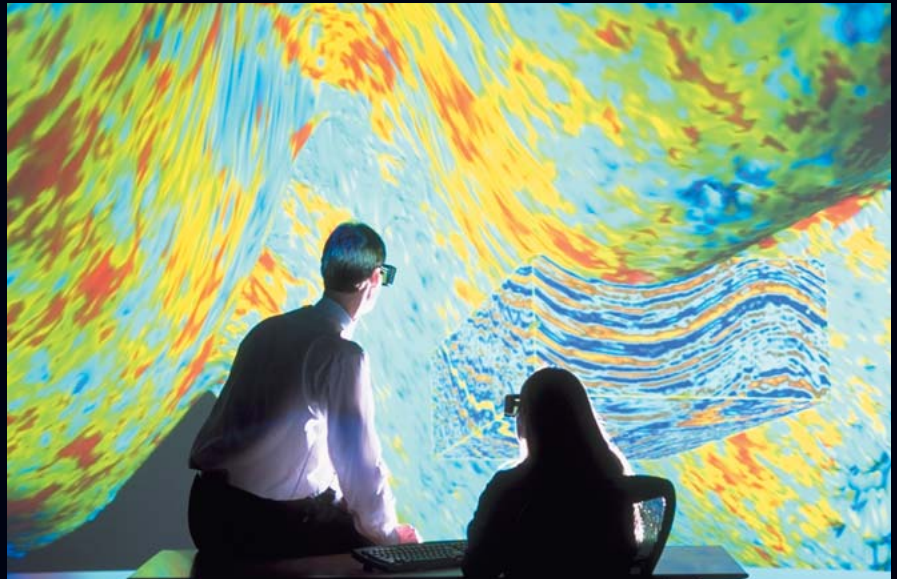
Directional drilling also was deliberately tried at this time. Holes had always been crooked, but new survey tools allowed drillers to measure directions and deviations. Now, wells could be intentionally angled to tap a neighboring lease or drill from a more accessible surface site. (The famous slant-hole scandal in East Texas is a prime example of a not-so-ethical use of this technology.)

Cementing procedures advanced as well, and operators were able to isolate gas, oil and water zones from each other in a wellbore. Selective perforating was developed.

At the same time, the industry was gaining an understanding of the importance of pressure maintenance in production, as well as the efficacy of waterflooding.

# THINK RED

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After the Japanese attacked Pearl Harbor in December 1941, the United States entered the global struggle. The industry was soon coping with material shortages, tremendous disruptions of its transportation infrastructure and an increased effort to manufacture war products.

Transportation problems loomed in 1942, as the military required even more tanker support, and German submarine attacks along the Atlantic coast badly disrupted supplies. Tankers were being sunk at alarming rates by the U-boats, and tanker deliveries to the East Coast

from the Gulf Coast and South America dropped dramatically. Even California had problems with Japanese submarines targeting its tankers on the Pacific Coast. Gasoline was rationed.

Pipelines were answers to the shipping problems, and projects such as the 24-in. War Emergency Line were proposed. That line, dubbed the “Big Inch,” carried 300,000 b/d of oil about 1,250



IPAA Chairman  
Merle Becker  
1947-1948

## A Statesman of Oil



L. Frank Pitts

In 1943, L. Frank Pitts made his first investment in oil, participating in several wildcats in Indiana and Illinois. For the then-32-year-old paint executive, it was the beginning of a passionate immersion in the oil and gas business that continues to this day. The wells were dry holes, but that lack of success didn't dampen his entrepreneurial spirit.

A native of Mississippi, Pitts put himself through junior college selling automobile paint. After graduation in 1931, he continued to work for the same firm, opening paint stores throughout the United States and Europe. In 1939, he was named president of the Chicago-based company.

Pitts invested again in oil, buying interests in prospects in Menard, Grimes and Montague counties in Texas. The first and second tests were dry, but the third hit oil.

“That was the beginning of my drilling for oil and gas,” Pitts said. He continued to participate in wells, formed his own company and opened an office in Bowie, Texas.

In 1948, Pitts left the paint business and moved to Dallas to concentrate on looking for oil. He joined the Independent Petroleum Association of America (IPAA) in the name of Star Oil Co., and remains a member today.

“IPAA fit in very well with what I believed, which was to promote cooperation between producers,” he said.

At the time, many independents were vociferous in their criticisms of major oil companies and government regulators.

“To me, that was not a proper way of getting cooperation from other people in the industry,” he said.

Working through IPAA, Pitts successfully strove for a more conciliatory tone among independents.

“Over a period of time, we began to accomplish more in our dealings with state regulatory agencies and with the federal government,” he said.

Indeed, Pitts has been a tireless advocate for the industry. He understands and enjoys politics, a legacy from his father, who was a successful county politician in Mississippi. In the 1960s and 1970s, Pitts spearheaded the drive to deregulate the natural gas sector. In

1974, he and his brother Shelby formed the Speakers Bureau, a group of producers who gave interviews and speeches to the public on the benefits of natural gas deregulation.

“I realized that the only way the price of natural gas could be deregulated was to get voters to put pressure on legislators to change the law,” he said.

By the end of 1975, members of the Speakers Bureau had given more than 1,100 interviews and speeches with newspapers and television and radio stations in more than 40 states in support of natural gas deregulation. An accomplished public speaker, Pitts made many presentations himself.

During his long career, Pitts has participated in thousands of wells in 11 states. His favorite area is North Texas, site of his first commercial well and still an active area for Pitts Oil Co.

“I like North Texas,” he said. “I’ve got interests in more than 50,000 acres that are held by production in the basin. We had substantial success in drilling Barnett Shale wells in the Denton County area, and now we are expanding our exploration/development drilling into the surrounding counties. So far, it appears quite encouraging.”

Opportunity still exists in the business for today's independents, he said.

“I’ve made more money in the last 10 years than in any previous 10-year period in the business,” Pitts said.

His advice for a new independent: “Join IPAA and your state organization. Get acquainted with the people spending their money drilling wells, and get involved.”

He also advocates keeping clear of debt. Throughout his career, Pitts has often sold off some of the production he has found to finance his upcoming drilling plans.

“The biggest challenge for an independent is finding production. After that, the biggest challenge is to work with organizations like the IPAA to keep the government from passing rules and regulations that make it too difficult to make money,” he said.

In his early nineties, Pitts has yet to have his fill of oil and gas, and continues to work a full schedule.

“I love this industry,” he said. “It’s a great group of people who are finding and producing a product that the consumers want.”

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IPAA Chairman  
Fred W. Shield  
1948-1949

miles from East Texas field to the East Coast. Construction began in August 1942. The Big Inch was joined by the Little Inch, a companion line that shipped refined products.

Refineries also responded rapidly to the demands of war. The need for aviation fuel and lubricants skyrocketed, along with that for toluene for explosives and the ingredients to manufacture synthetic rubber. At the same time,

the demand for gasoline dropped in response to the rubber shortage and rationing.

All this was happening under price controls for oil, which were fixed at \$1.19/bbl throughout the war years. Well completions plummeted to 18,000 wells in 1942, a decrease of 44% from the prior year. The industry also suffered a rise in dry holes, plugging and abandoning nearly one-third of the wells drilled in the country.

The IPAA participated fully in the war effort, centering its efforts on the collection of scrap metal in the oil-producing regions. Many tons of steel were rounded up and sent to mills. The organization also strove to maintain the identity of the independent and ensure the wartime controls on oil prices would remain in place only as long as necessary.

The price controls led to numerous problems. The pool of oilfield workers was depleted by the demands of the military, and available employees were often lured to higher-paying industries. The price of steel was so high and its availability so tight, that the casing in stripper wells was often more valuable than the oil production. Gasoline was in short supply as well, and pumpers sometimes couldn't make their rounds in the oilfields.

Still, the United States was an oil powerhouse, and it fed fuel to the Allied armies at a prodigious rate. At the beginning of 1943, the United States had 20 billion bbl of oil reserves. It is estimated that the country supplied the Allies with 6 billion bbl of oil during the war. The industry produced oil flat out, making 4.7 million b/d of oil in 1945.

## Post-war years

Independent producers were in a curious posi-

tion at the end of World War II. Demand for oil surged at the same time the industry had to realign itself from a wartime supplier of military fuels to a peacetime supplier of domestic fuels. Price controls were lifted at last.

Still, a shortage of steel dogged operators. U.S. operators could not get pipe while steel was being shipped overseas. The IPAA urged legislators and regulators to address the problems of too little steel allocated for tubular goods and of fast-increasing exports of the tubular goods that were manufactured. Several years passed before adequate supplies were available to domestic companies.

Offshore drilling became a new focus of the domestic industry. Although the first offshore oil production in the United States dated from 1896, when a well was drilled on a wooden pier in Summerland just south of Santa Barbara, Calif., the age of offshore production didn't begin in earnest until after World War II.

According to the U.S. Minerals Management Service, the first wildcat well in federal waters was drilled by Magnolia Petroleum Co. in 1946 about 10 miles south of Eugene Island. The next year, Kerr-McGee Corp. drilled the first well from a fixed platform, opening the offshore to concerted exploration efforts. By 1949, 44 wildcats had been drilled in federal waters in the Gulf of Mexico and 11 fields had been discovered.

Now, though, a glut of foreign oil was poised to drown the U.S. independent. The tremendous tanker fleet that had supplied the war effort was available for private purchase, and many fields of astonishing size had been discovered in foreign lands. Kuwait's **Burgan** field, with its 87 billion bbl and Saudi Arabia's 87.5-billion-bbl **Ghawar**, the largest oil accumulations in the world, were found in 1938 and 1948, respectively. Furthermore, excise taxes for foreign imports, although still in effect, were halved in 1947 to \$0.105/bbl on crude and \$0.525/bbl on gasoline.

Imports swelled, and in 1948 the United States became a net importer of oil. At the same time, allowables in oil-producing states were being drastically cut. A foreign oil industry was being built up – using U.S. resources – that directly competed with home-grown producers. ■

## Chapter 3 - The 1950s & 1960s

# Ushering in the Modern Era

*The 1950s and 1960s were an era of comparative prosperity for the domestic oil and gas industry. But by 1969, the industry bore little resemblance to what existed in 1950.*



*In the 1940s and 1950s, Conoco deployed several seismic crews to map potential structures. Dynamite provided the source of energy directed into the earth, and the returning waves were recorded to produce the basis of geological maps. (Photo courtesy of ConocoPhillips Corporate Archives)*

**1950** – North Korea invades South Korea, initiating the Korean War.

**1954** – The Supreme Court decision in *Brown v. Board of Education* ends the “separate but equal” style of education in the United States.

**1957** – The Soviet Union launches Sputnik 1, starting the space race.

**B**y the end of World War II, the U.S. oil and gas industry was in a fairly happy state. Consumers had a seemingly insatiable appetite for its products, and according to Daniel Yergin's *The Prize*, oil was meeting more of the country's energy needs than coal by 1950.

With its major challenge one of meeting the country's demand for energy (and hopefully from domestic sources), the industry had a green light for growth and change. But domestic supplies were no match for America's thirst for oil. The subsequent shift to reliance on foreign supplies has had an incredible impact on the shape of world affairs and has dominated world politics.

### Supply and demand

According to data from the Energy Information Administration, it was during the 1950s that demand first began to outpace supply. As early as 1948, the Independent Petroleum Association of America (IPAA) was fighting a proposal from the National Security Resources Board recommending a reserve-producing capacity in the United States be created by cutting back production in states having conservation agencies and using imported oil to make up the difference.

Information from IPAA's Web site indicates that by 1949 that organization was already concerned about imports eventually outpacing domestic production.

"Soon after the Small Business Committee of the House [of Representatives] took up the petroleum imports question, the words 'supplement' and 'supplant' began to appear in discussions," one notation reads. "In all statements of proper oil policy, it had been stated the imports should 'supplement' domestic supply; it was the contention of IPAA that domestic oil was being 'supplanted' in domestic markets. The evidence of this was the heavy reductions in allowable production."

Those companies that could afford to increasingly traveled to international arenas, partly to avoid the prorationing that limited their production at home.

"Governments in producing and would-be



*Shell Oil Co.'s I N.P. contributed to increased Williston Basin production, but as the 1960s wore on, it became evident the petroleum industry was headed for another down cycle. (Photo courtesy of Western Oil Reporter, May 1984)*

producing countries adopted concessionary policies that favored the entry of independents and new players," Yergin wrote. "Improvements in travel, communications and information made Latin America, the Middle East and Africa all less remote and more accessible. The high rate of return on international oil investment, at least up until the middle 1950s, provided a great appeal."

The result was an infusion of American technology, money and expertise. Yergin reported that nine oil companies operated in the



*IPAA Chairman  
J.E. Warren  
1949-1951*

**1959** – A plane carrying Buddy Holly, Ritchie Valens and the Big Bopper (J.P. Richardson) crashes in Iowa.

**1961** – The Berlin Wall is constructed, separating West Berlin from Soviet-controlled East Berlin.

**1962** – The world narrowly avoids full-scale nuclear war during the Cuban Missile Crisis. Meanwhile, Astronaut John Glenn completes a successful three-orbit mission around the Earth, marking the country's first manned orbital mission.

**1963** – U.S. President John F. Kennedy is assassinated in Dallas, Texas.

**1964** – In what is later dubbed rock 'n' roll's biggest TV moment, the Beatles make their first appearance on the Ed Sullivan Show.



IPAA Chairman  
Charlton Lyons  
1951-1953

Middle East during 1946. Ten years later there were 19, and by 1970 there were 81.

“Between 1953 and 1972, by one estimate, more than 350 companies either entered the foreign (that is, non-U.S.) oil industry or significantly expanded their participation,” he wrote. “... In 1953, no private oil company anywhere in the world, other than the seven largest, had as much as 200 million

bbl of proven foreign reserves; by 1972, at least 13 of the ‘new internationals’ each owned more than 2 billion bbl of foreign reserves.”

By 1955, the government was beginning to revisit the import situation. Congress authorized President Dwight D. Eisenhower to adjust imports when they threatened national security. In 1957, Eisenhower appointed a special cabinet committee to study the effect of imports on national security. By 1959, a presidential proclamation established mandatory limitations on imports, checking the rapid growth at least temporarily.

According to *The Mirage of Oil Protection* by Robert L. Bradley, Eisenhower’s proclamation was not made without some doubt.

“In a cabinet meeting where he made his decision, Eisenhower expressed concern about the ‘tendencies of special interests in the United States to press almost irresistibly for special programs,’ which were ‘in conflict with the basic requirement on the United States to promote increased trade in the world.’ The unfolding turns and consequences of this decision...would be cause for regret,” Bradley wrote.

One of the ruling’s many oddities was a decision to exempt imports from Western Hemisphere countries from the quotas because of a “lack of national defense justification.” The end result was that imports from Canada and Mexico rose well above the levels established before the Mandatory Oil Import Program (MOIP) went into place.

Mexico, in particular, was able to increase its imports six-fold despite the lack of overland transportation facilities, a requirement



IPAA Chairman  
W.M. Vaughey  
1954-1955

for the exemption.

“In 1961, a routine began whereby Mexican residual oil was shipped by tankers to Brownsville, Texas, unloaded for export (thus making it exempt from the quota), trucked across the Mexican border, trucked back after a U-turn and reloaded on tankers for East Coast delivery,” Bradley wrote. “The ‘Brownsville shuffle’ was tolerated by U.S. authorities who feared that without exploitation of the overland exemption, Pemex oil would go to communist Cuba.”

Lloyd Unsell, an oilfield journalist who joined IPAA in 1948, was named executive vice president in 1976 and president in 1985, said his strongest memory from this era was “the total belief among independent producers that America had limitless oil supplies. This optimism was reflected in the conviction of every independent I knew that ‘we have only scratched the surface’ of our oil and gas resources.”

### Price controls and taxation

The MOIP was eventually dismantled as quotas were scrapped in favor of an increase in tariffs. Nixon determined in 1973 that the MOIP “has the very real potential of aggravating our supply problems, and it denies us the flexibility we need to deal quickly and efficiently with our import requirements,” despite arguments from IPAA and the Texas Independent Producers and Royalty Owners Association that protectionism was essential for the survival of the domestic industry.

But taxation, price controls and other forms of regulation were nothing new to the oil and gas industry, and they took a particularly severe toll on the independents.

“Controlled gas prices, together with vicarious control of domestic oil prices through regulation of import levels, resulted in the virtual dismantling of the domestic oil industry between 1956 and 1973,” according to the IPAA.

Natural gas was a particular victim of price controls in the 1950s. In 1954, the Supreme Court ruled on the case of *Phillips Petroleum Co. v. Wisconsin*. In that ruling, the court decided independents selling natural gas in interstate commerce are subject to the Federal Power Commission (FPC) rate and

certificate jurisdiction.

“This ruling made instant federal public utilities of 30,000 independent natural gas producers, leading to 30 years of unworkable wellhead price controls in which IPAA was involved continuously,” Unsell said.

David Glasner in *Politics, Prices and Petroleum*, wrote, “Responding to the Phillips decision, independent producers again sought an unequivocal expression of Congressional intent that producers were not to be subject to price regulations. With a Republican president in office, it was expected that a bill restoring the exemption would be signed if passed by Congress.

“Such a bill was indeed passed by Congress. Although supporting the bill on its merits, President Eisenhower nevertheless felt obliged to veto the bill because improper lobbying techniques (allegedly including direct payments to a senator in return for a favorable vote on the bill) had been used to secure support for the bill in Congress.

“The Phillips decision thus remained the con-

trolling interpretation of [the Natural Gas Act], and FPC was obliged to regulate the terms of the sale of natural gas at the wellhead.”

Price controls already had near-disastrous effects during the war years, yet the FPC was given the arduous task of regulating wellhead prices. The Supreme Court handed down several additional rulings requiring the commission to review contracts to be sure their pricing structure was similar to existing prices for gas under similar conditions. “In effect, the Court required that FPC impose a virtual freeze on natural gas prices in new contracts,” Glasner wrote.

In 1960, the FPC divided the nation into five producing areas and began proceedings to determine price ceilings for each region. But during the following decade, it was only able to establish price ceilings in two of those five areas.

Glasner concluded that the price ceilings took their toll on exploration, development and production during the 1960s.

“As early as 1964, the ratio of new reserves to

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IPAA Chairman  
Robert L. Wood  
1956-1957

increased production was insufficient to provide the 14<sup>1</sup>/<sub>2</sub>-year inventory of reserves that purchasers of natural gas seem to have been demanding during the '50s," he wrote.

Another result was an increasing regionalization of the natural gas market, since intrastate pipelines were not subject to the price ceilings of interstate pipelines.

"Because of a growing price disparity between the interstate and the intrastate markets, whatever new reserves were being found went almost exclusively into the intrastate market," Glasner wrote. "From 1969 to 1976, additions (including revisions) to reserves committed to the interstate market in the lower 48 states oscillated around zero."

Yet another result, long term, was the departure of major industries from the Northeast to the Sunbelt states, where active intrastate gas markets suffered few curtailments.

"Thus the attempt of the large industrial states to continue consuming natural gas produced in other states at less than market prices was ultimately self-defeating, because it led to a departure of major industries in search of more secure, even if higher-priced, supplies of gas," Glasner wrote.

Commented Unsell, "These two decades are most remembered for continuous efforts by some in Congress to hamstring the domestic oil industry with one disastrous legislative act after another, the most troublesome consisting of ingenious vindictive tax proposals."

### Going high-tech

Despite the strangulation imposed by price controls, the industry didn't completely stagnate during this time. In fact, some of the most enabling exploration, drilling and production technologies were either invented or became commonplace during the 1950s and '60s. And some of the world's biggest elephants produced their first oil and natural gas.

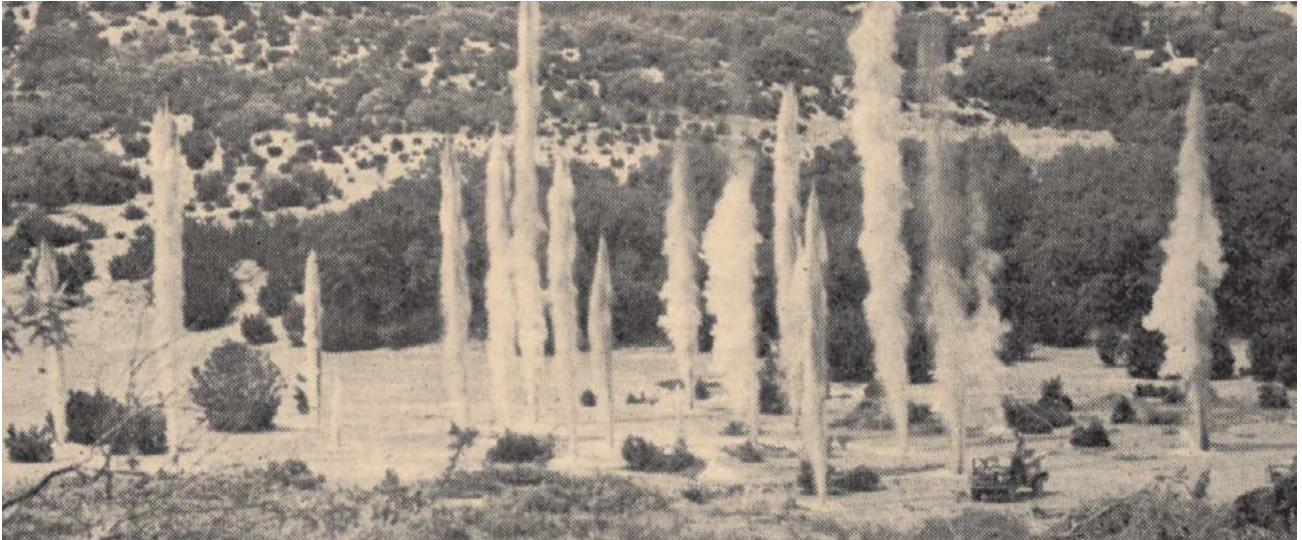
Arlen Edgar, who has spent most of his career in the Permian Basin, said that the '50s and '60s were characterized by a move away from the way things had traditionally been done and toward a more consistent application of new technology.

"This was reflected to a large degree by the people I worked with at the Odessa office (PanAmerican, later Amoco)," Edgar recalled. "There was a superintendent who oversaw a number of field foremen and supervisors, and if I remember right, only one of them had a college degree. In fact, I doubt a lot of them even fin-



Phillips Petroleum was the first U.S. oil company approved by the U.S. Department of the Interior to drill in Alaska (then a territory) in 1952, but that state's riches wouldn't be fully tapped until the Prudhoe Bay discovery 17 years later. (Photo courtesy of ConocoPhillips Corporate Archives)





Smoke and dirt blow high into the air as Shell Oil Co. detonates 250 pounds of explosives in what was, in 1954, one of the newer methods of exploring for oil. (Photo courtesy of Western Oil Reporter)

ished high school. They were products of the Depression and World War II, and their educational opportunities were limited.

“They really knew the oil business. They

grew up with it, they knew how to work hard, and they were very loyal to the company because they knew the value of a job that paid them regularly. They were great oilmen. But



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Houston, Texas  
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IPAA Chairman  
Alvin C. Hope  
1960-1961

they were not grounded in new technology because the technology was just evolving.”

An area that began to see even more lively activity than before was the offshore arena. With Kerr-McGee’s **Kermac 16**, the first well drilled out of sight of land, spudded in 1947, the federal and state governments began to realize that permitting boundaries would need to extend well beyond the beach.

“[Offshore] development was slowed by an intense struggle between the federal government and the states over who actually owned the continental shelf,” Yergin wrote. “Of course, what they were really fighting about was who would get the tax revenues, and that matter would not be resolved until 1953.”

Once the dispute was settled, Congress passed the Outer Continental Shelf Leasing Act. It held its first offshore lease sale the following year. The year 1955 saw the first production from water deeper than 100ft, and in

1956 the first drillship, the *Cuss I*, began work in the Santa Barbara Channel.

In 1961, the first subsea well was drilled, and in 1963, the first Pacific Outer Continental Shelf well was drilled.

New technologies were developing on land as well. Wireline logging, in particular, seems to have been the focus of numerous improvements, with Schlumberger refining the resistivity tool in the early 1950s and beginning research on density logging. By 1960, that company was testing its Sidewall Neutron Porosity tool and creating a prototype of a Thermal Decay Time tool for measuring formation saturation through casing using neutron population decay.

Sun Oil Co., meanwhile, developed a drill stem electric logging tool that allowed electric logs to be made without the necessity of drawing the drillpipe.



IPAA Chairman  
Gordon Simpson  
1958-1959

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Jean and David True (center) with Martha Hansen (left) and Wyoming Sen. Clifford P. Hansen

Drilling advances included wells reaching depths that would have been staggering just a decade or two earlier. During 1954, exploration wells drilled to depths below 10,000ft accounted for 80% of California's new discoveries, according to *Industrial Activity and its Socioeconomic Impacts: Oil and Three Coastal California Counties* by R.J. Schmidt, J.E. Dugan and M.R. Adamson (MMS OCS Study 2002-049).

But deep wells required deep pockets, so operators during this time developed several approaches to cut costs and increase efficiency, the report states. "Slant drilling" or "whipstocking," in which six or more wells were drilled from a single drilling site, became common during the 1940s and 1950s and was particularly useful in offshore wells. Drilling muds and casing programs saw continuous improvement.

"Drilling technology, such as the ability to complete wells in 5 miles of water, has surpassed any of the most magnanimous expectations of anyone I knew in my many years of association with the great optimists in the independent oil industry," Unsell said.

Edgar recalled that the first commercial hydraulic fracturing job in the Permian Basin took place in about 1954.

"By the late '50s, it was just coming into its own, and it was really turning things around," he said. "Today, that would not be viewed as high technology, but back then it was quite important. It led to some interesting drilling opportunities that would not have been there if the old stimulation methods were all that were available."

Production technology made huge strides during these decades as well, with some of the most innovative ideas coming out of the giant but maturing fields in California. With operators shifting their exploration attention to the newly available offshore leases, onshore producers began to experiment with secondary recovery methods.

Waterflooding, steam cycling, steamflooding and gas injection all became widely used during this period to maintain production in maturing fields. According to the U.S. Minerals Management Service (MMS) study, the Shiells Canyon waterflood project began in 1949 and was still active in the 1970s. Gas injection was used in the **Newhall-Potrero** field between 1946 and 1952, and by 1957, one operator active in the area was involved in 35 secondary recovery projects. The report notes that these techniques remained "experimental" until the 1960s.

In the **Kern River** field, meanwhile, steamflooding came into its own in 1961, according to an article by oil columnist Bill Rintoul posted on *www.bakersfield.com*. The field was discovered when James and Jonathan Elwood drilled 75ft into the earth with a hand auger in 1899. In 1904, the field produced 17.2 million bbl of oil, about 47,100 b/d. It wouldn't produce that much again until 1966.

After encouraging lab tests, operator Tidewater Oil Co. initiated a two-well hot-water injection test



IPAA Chairman  
Harold Decker  
1962-1963

## President George H.W. Bush

### Biographical Notes for IPAA Director, 1955–1956

**Title:**

President

**Company:**

Zapata Offshore

**City of Residence:**

Midland

**State:**

Texas

**Place of birth:**

Milton, Mass.

**Date:**

June 12, 1924

**Education:**

Yale University, 1948, Bachelor of Arts,

Economics

Phi Beta Kappa

**Business****Background:**

Dresser Industries

3 years sales;

Zapata Petroleum

Corp. And Affiliates,

3 years

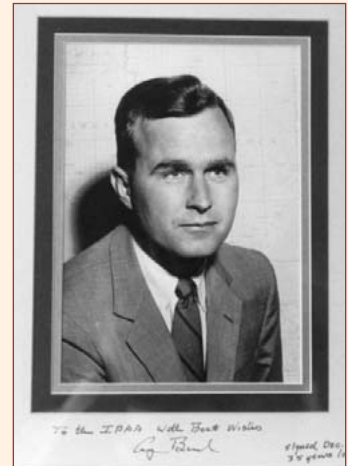
Walker-Bush Corp.

**Civic, Business &****Professional Organizations:**

Midland Country Unit-American Cancer Society

Director; Gov: Bush and trust W., Midland

Deacon – First Presbyterian Church



in August 1961. A year later “Project HORSE,” a highly secret five-well project, began pumping 300°F water into four corner wells at a rate of 2,000 b/d. During a period of about 8 months, the company injected almost 2 million bbl of hot water, increasing production from the center well to as much as 100 b/d of oil.

At the same time, Tidewater began experimenting with steam, injecting the steam into individual wells and allowing them to soak. Shell Oil Co. was trying similar experiments on its nearby fields at the same time.

Despite these companies’ efforts at secrecy, the Kern River field saw an almost immediate resurgence in interest, Rintoul reported, with 300 wells changing hands in a 10-month period.

“Though details were lacking, it was obvious there had been a breakthrough in thermal recovery techniques that would add value not previously present,” he wrote.

Edgar said that waterflooding projects were veiled with similar secrecy in the Permian Basin.

“One of the first jobs I had in Odessa was monitoring a pilot waterflood in a carbonate reservoir,” he said. “It was really cutting-edge at that time because we were going against conventional wis-

dom, which said that carbonate reservoirs were not candidates for waterflooding.

“Forest Oil Co. had a similar pilot going about 10 miles south of us. We were both very jealous and very secretive, and I used to take the pick-up and go down and spy on what they were doing. I’m sure they were doing the same thing to us.”

Major discoveries abounded during this time, which many older geologists will probably recall fondly as the “low-hanging fruit.” The **Clarence Iverson** well became the discovery well of the Williston Basin, the first major discovery in a new geologic basin since before World War II. In a leasing frenzy typical of the oil industry at its wildest, 30 million acres were leased in 45 days, about two-thirds of the entire state.

Major discoveries took place overseas as well, with hydrocarbons discovered in Algeria and Nigeria in 1956 and in The Netherlands in 1959. During 1967, Great Canadian Oil Sands Ltd. (later Suncor) began producing tar sands in Alberta, Canada, marking the first commercial production of the largest oil resource in the world.

But one of this country’s last great onshore elephants awaited discovery until 1969. Alaska sparked some interest in the 1950s, but in 1959, the year it became the 49th state, it earned the



IPAA Chairman  
H.A. “Dave” True  
1963-1965

dubious distinction of being home to the most expensive dry hole in history, drilled by Shell and Standard Oil of New Jersey, Yergin wrote. BP, interested in reducing its dependence on the Middle East after the Suez Canal crisis, turned its attention to Western Hemisphere prospects, particularly Alaska. Six dry holes later, BP and partner Sinclair Oil lost their enthusiasm. Then in 1965, Richfield, a California independent, joined forces with Standard Oil of New Jersey's subsidiary Humble and won about two-thirds of the exploration leases on the North Slope's Prudhoe Bay structure, Yergin wrote.

The first well, drilled 60 miles south of Alaska's north coast in 1966, was a duster. Robert O. Anderson, head of the newly merged Atlantic-Richfield Co. (later Arco) and, according to Yergin's writings, "one of the last of the great wildcatters," made the decision to go ahead with the second well. Doubters became believers after the well spouted a natural gas flare that rose 30ft into the air. A later step-out 7 miles away

helped define the size of the huge structure.

"However grudgingly Anderson had given the go-ahead, it was the most important decision he would ever make as an oil man," Yergin wrote. "Prudhoe Bay was the largest oil field ever discovered in North America, 1½ times larger than [Columbus Marion] 'Dad' Joiner's East Texas field."



IPAA Chairman  
F. Allen Calvert Jr.  
1965-1967

### Major changes afoot

One of the most significant changes to occur during the 1950s and '60s was a realignment of majors and independents. With the "seven sisters" so prominent up until this time, it's perhaps no surprise that the evolutions outlined above paved the way for significant reorganizations and restructurings.

"The history of international oil in the 20th century was one in which 'newcomers' continually broke in on the established order," Yergin wrote. "But, for the most part, up until the 1950s,



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IPAA Chairman  
Harold M. McClure  
1967-1969

there always seemed a way that they could be accommodated; they, too, could, more or less, become part of the establishment.”

Of course, some of the biggest companies simply got bigger during this time, becoming truly integrated, multinational companies similar to what exist today. But opportunities at home and abroad, spurred by better technology and more openness of host governments, helped small companies like Richfield become giants like Arco and put companies like Conoco (now ConocoPhillips) and Occidental Petroleum in the upper echelon.

Cheap imports caused the Continental Oil Co.’s new president, Leonard McCollum, to examine opportunities overseas in the late 1940s and early 1950s, Yergin reported. Entering Libya in the 1950s, the company formed the Oasis Group with Marathon Oil Co. and Amerada. Unfortunately, the group’s subsequent success coincided with the import quotas of the time, and it was forced to sell its Libyan production into the highly competitive European market.

“At the turn of the century, William Mellon had turned Gulf into an integrated company, with its own refining and distribution, so that he would not have to say ‘by your leave’ to



Seismic technology began to be more widely used in the 1950s and 1960s and was credited for Occidental’s oil discovery in Libya, one of the largest oil reservoirs in the world. Conoco scientists developed and patented the Vibroseis method of seismic oil exploration in 1956. (Photo courtesy of ConocoPhillips Corporate Archives)

Standard Oil or anyone else,” Yergin wrote. “Now, 60 years later, McCollum would do the same.”

The company established a downstream refining and distribution system in Western Europe and Britain and found it had a competitive advantage with its higher-quality Libyan oil, which was well suited to making gasoline. Going on to become Conoco, then ConocoPhillips, it is now one of the largest oil companies in the world.

By the time Armand Hammer, chairman of Occidental Petroleum, came to Libya, the company already had almost \$700 million in annual sales through its operations in California, Yergin wrote. Participating in the second round of bidding, “Oxy’s thick bid stood out midst the 119 others because it had been done up, under Hammer’s personal supervision, on sheepskin manuscripts and was wrapped in red, black and green ribbons - the colors of the Libyan flag,” Yergin wrote.

After a few costly dry holes, Occidental found oil on its **No. 102** block and a great deal more oil on **No. 103**, drilled right under the site of Mobil Oil’s former base camp. “Occidental had struck one of the most prolific deposits of oil in the world,” Yergin wrote. “It was the use of newly developed seismic technology that had enabled this puny California producer to find what giant Mobil had missed.

“With the discovery, said Hammer, ‘All hell broke loose. We became one of the big boys.’”

At the same time, the trend was already emerging where major companies would exit a mature basin in favor of more virgin territory, leaving their scraps to the independents. “When I came to the Permian Basin, every major company was represented here with a presence in one of the towns in this region,” Edgar said. “That has certainly changed over the years. You could see it coming a long time ago.

“This is absolutely inevitable for any mature producing province; it’s just going to happen because there aren’t enough opportunities for big companies to live on.”

Ironically, several of the major oil companies that helped earn Midland the moniker “the Tall City” are not even in existence anymore, at least under the names so familiar at the time. According to *Legacy: The Story of the Permian Basin Region of West Texas and Southeast New*

*Mexico*, Union, Magnolia, Honolulu, Humble, Pan American and Superior constructed buildings between 1946 and 1959. The book goes on to point out that federal regulation of domestic oil prices and a sharp rise in imported oil caused a slump in Midland that lasted most of the 1960s.

California also had its share of independents competing with the majors. The MMS study outlines the case of tiny Lloyd Corp., which pursued its interest in the **Oxnard** field after the majors had all but abandoned the play. Proving itself equal to its larger competitors in securing leases, "Lloyd was second only to Standard in terms of developing the field, which by 1956 was one of the most active in the state."

The years following the 1950s and 1960s would post a new set of challenges, starting with the Arab Oil Embargo and including several devastating industry downturns. These decades helped pave the way, through the discovery of new fields and new technology, for the strong to survive. ■

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IPAA Chairman  
Robert E. Mead  
1969-1971

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## Chapter 4 - The 1970s

# Global Events Trigger Domestic Instability

*In 1971, the Independent Petroleum Association of America – once based in Tulsa, Okla. – consolidated its staff in Washington, D.C., which the group thought was the best staging ground in its quest to promote a stable American oil and gas market.*



Workers oversee pipe installation on the Trans-Alaska oil pipeline.

The Trans-Alaska oil pipeline in Alaska's Prudhoe Bay was a milestone in the 1970s.

\*unless otherwise noted, all photos courtesy of Alyeska Pipeline Services Co.

Timeline sources: [eia.doe.gov](http://eia.doe.gov); [mydisneyworld.com](http://mydisneyworld.com); [energyquest.ca.gov](http://energyquest.ca.gov); [crimelibrary.com](http://crimelibrary.com); [gymnastica.com](http://gymnastica.com); [sportgames4u.com](http://sportgames4u.com)

- **1970** – Petroleum production in the Lower 48 reaches 9.4 million b/d.
- **1971** – Disney World opens in Orlando, Fla.

- **1972** – U.S. oil well productivity reaches 18.6 b/d per well.
- **1973** – Vietnam War cease-fire signed.

- **1974** – President Richard Nixon passes 55 mph speed limit on U.S. freeways.
- **1975** – Teamster leader Jimmy Hoffa disappears.



The next 9 years, however, were anything but stable. This was the decade of the Arab oil embargo, which forced the country for the first time to examine its reliance on foreign oil. The aftermath, which was felt during the 1970s, resulted in oil price controls, fuel-efficiency standards and the U.S. Strategic Petroleum Reserve.

On the natural gas side of the business, the 1970s brought progress in the fight against gas price controls in the form of the Natural Gas Policy Act of 1978. However, those controls would not be fully revoked until the 1980s.

Against the backdrop of these political machinations, the industry continued to do what it has always done – find and produce oil and gas. As several developing nations moved to nationalize oil companies' concessions during this time, much of the industry's expenditures were directed close to home.

The 1970s marked the full-scale development of **Prudhoe Bay** in Alaska and the construction of the Trans-Alaska oil pipeline, which enabled that oil to reach consumers. The industry continued to rack up success stories in the North Sea and maintained its progression into the Gulf of Mexico.

"It really was a heady time in the business," recalled 1975-77 Independent Petroleum Association of America (IPAA) Chairman A.V. Jones. The organization's meetings were packed wall-to-wall, as the industry sought to understand the issues of the day.

"People wanted to be around what was going on," he said.

In 1973, several Arab nations instituted an oil embargo against the United States and Holland

in retaliation for their support of Israel during the Arab-Israeli War, which began when Egypt and Syria attacked Israel on Yom Kippur, the holiest of Jewish holidays. Six months later, when the embargo was lifted, world crude prices had tripled from the 1973 average to about \$12/bbl, according to the U.S. Energy Information Administration (EIA).



IPAA Chairman  
A.V. Jones Jr.  
1975-1977



This crossing at the Tonsina River in the spring of 1975 was the first installation of pipe for the Trans-Alaska pipeline. The pipe was weighted with concrete anchors for burial below the river bed.

C. John Miller, IPAA chairman from 1973-75, said the embargo – and the resulting fuel shortages – marked a huge change for the entire oil and gas industry. At the gasoline stations that actually had gas to sell, lines of cars snaked around the block. Never before – with the exception of wartime – had drivers needed to wait in line to fill up their cars with gasoline. Sometimes, it seemed as if the idling cars were burning more gas than was being purchased.

Temper flared among the general public, and domestic producers were seen as part of the problem, not as the solution. On Capitol Hill, members of Congress devised various plans to deal with the situation.

"When the embargo hit in '73, Congress went absolutely nuts," Miller said. "They talked about trying to make a federal oil and gas company." The acronym for that would have been Fog Co. – an appropriate name for an endeavor with such limited vision, Miller said.

A federal oil company was never formed. However, in reaction to the skyrocketing prices, Congress did pass the Emergency Petroleum

**1976** – At the Montreal Olympics, Nadia Comaneci becomes the first gymnast to score a perfect 10.

**1977** – First shipment of oil arrives at the Strategic Petroleum Reserve.

**1978** – Dallas Cowboys beat the Denver Broncos in Superbowl XII.

**1979** – Partial core meltdown at Three Mile Island.



IPAA Chairman  
C. John Miller  
1973-1975

Allocation Act of 1973, which established a two-tiered pricing system for domestic oil. The industry already was operating under price controls set by President Richard Nixon's inflation-fearing administration in 1971, but the new act authorized further price, production, allocation and marketing controls on oil companies.

These price controls were modified again under President Gerald Ford's Energy Policy and Conservation Act of 1975. This was the same act that created the U.S. Strategic Petroleum Reserve and established the Corporate Average Fuel Economy standards, which ordered the average fuel efficiency of a new car to more than double, from 13 miles to 27.5 miles per gallon by 1985.

Under the 1975 act, "old" oil – from properties producing at or below their 1972 production levels – was to be priced at the May 15, 1973, price, plus \$1.35/bbl. Prices for "new" oil and stripper oil production were set at the Sept. 30, 1975, price less \$1.32/bbl, according to the EIA.

"You can imagine the gyrations that happened with people classifying and moving oil from one denomination to another. It was a bad deal," Miller said. "[The government] got into everything except letting the market work."

Miller did his part to try and convince Congress that domestic producers should be seen as part of the solution to the problem. He testified on Capitol Hill about 25 times in his first 2 years as IPAA chairman.

And the industry did its part as well, responding to IPAA "call-ups." Oil executives would travel to Washington to take their message to the Hill.

"The industry as a whole became much more aware of what the associations were trying to do," Miller said. "We realized in the industry that nobody was going to carry our water for us."

Despite his best efforts, Miller's administration was unable to do anything about the oil price controls. When Jones took over as IPAA chairman in 1975, he immediately picked up the battle.

"These were issues for companies big and small, so we had a pretty united front," Jones said.

Politicians hoped the oil price system would encourage domestic exploration and production. But in reality, it had the opposite effect. Production in the 48 contiguous states fell from 8.2 million b/d in 1975 to 7 million b/d in 1980, according to the EIA. And imports more than doubled from 1973 to 1977, reaching 6.6 million b/d.

*"The industry as a whole became much more aware of what the associations were trying to do. We realized in the industry that nobody was going to carry our water for us."*

—C. John Miller  
IPAA Chairman  
1973-1975

In 1977, Jimmy Carter became president and promoted a culture of conservation, addressing the nation while bundled in a sweater. In that year, the government began filling the Strategic Petroleum Reserve, and it merged the energy-related functions of several federal agencies into the U.S. Department of Energy.

Carter also called for the decontrol of oil prices, which began in 1979 on a phased basis.

Despite the government's quest for an answer to the nation's growing dependence on imported oil, the domestic production declines of the past several years had set the United

States up for yet another crisis: The Iranian Revolution resulted in a drop of 3.9 million b/d of oil production from Iran from 1978 to 1981. Nations associated with the Organization of the Petroleum Exporting Countries covered this shortfall at first. But the 1980 Iran-Iraq War caused many Persian Gulf countries to slice output. Oil prices skyrocketed from about \$14/bbl at the beginning of 1979 to more than \$35/bbl in January 1981, according to the EIA.

The public was outraged as the gasoline lines began to form yet again. But Miller felt this would not be an exact replay of 1973.

“This was the advent of the [President Ronald] Reagan administration, and we felt there were some things that could be accomplished,” Miller said. “We saw a free-market situation coming. We had some battles, but it was a different thing from 1973.”

Indeed, under Reagan in January 1981, the government responded to the latest price increases by completely removing remaining price controls, which were set to expire that September. For the first time in 10 years, market forces again dictated oil prices.

The politics of oil in the 1970s may have been highly dramatic, but the politics of natural gas at this time required much of the IPAA’s attention as well.

Through The Natural Gas Act of 1938, the federal government became involved for the first time in the rates charged by interstate gas transmission companies. But the act left well-head prices unregulated. In 1954, however, the Supreme Court ruled in the case of *Phillips Petroleum Co. v. Wisconsin* that natural gas producers selling gas into interstate pipelines were subject to oversight under the 1938 act. And wellhead prices came under government control.

During the oil shortages of the 1970s, natural gas became an attractive alternative to consumers. But because of price controls, there was little incentive for producers to explore for and produce gas. And, because the Natural Gas Act impacted only interstate – not intrastate – markets, the gas being produced was mainly sold within its home state, where the producers could receive market prices. Shortages occurred in the consuming states.

During his term as IPAA chairman, Jones took to the airwaves – appearing on *Today*



Pipe is shown below ground in this Alaska trench prior to burial.

and *Good Morning America* to debate Ralph Nader on the issue of decontrolling natural gas prices.

“The media was hungry for any energy story, so it was very easy to get national publicity,” Jones said.

Jack Allen, who followed Jones as IPAA chairman from 1977–79, called natural gas price controls the “primary problem” of his term.

“We spent an awful lot of political capital on that,” he said.

Pipeline companies, however, did not want gas prices decontrolled.

“Pipelines were probably the most powerful lobby in Washington at that time,” Allen said.

During Allen's term, Congress passed the Natural Gas Policy Act of 1978, which marked the first steps toward breaking down the regulatory system in the natural gas markets. However, wellhead prices were not completely deregulated until 1989, with the passage of the Natural Gas Wellhead Decontrol Act.

Another huge issue affecting gas producers during Allen's term as IPAA chairman was access to federal lands in the Western states. The national association made a concentrated effort to join forces with the state and local groups in the area, and with the agencies that had jurisdiction on those lands.

"We made a push to work better" with them, he said.

Of course, land access is still an issue that IPAA is fighting today, but Allen is proud of the ties that were formed in the late 1970s.

"We put IPAA in a more prominent position" with the Western groups, he said.

There were times in the 1970s when federal politics worked in the industry's favor. One such time was in 1973, when Congress approved the Trans-Alaska Pipeline Authorization Act, which paved the way for the North Slope's massive supplies to reach markets in the Lower 48.

Atlantic Richfield Co. (now Arco) discovered oil at Prudhoe Bay in 1968, and joined BP Oil and Humble Oil to propose the Trans-Alaska Pipeline System (TAPS). TAPS was designed to ship oil 800 miles from the North Slope to the ice-free seaport of Valdez, where the oil could be loaded onto tankers and shipped to refineries in the lower 48 states.

Environmental studies were started and permit applications submitted, but not without controversy. In 1970, environmental groups and others filed lawsuits to block pipeline construction. Several native villages also filed a suit claiming the pipeline would cross their land.

Nixon resolved the land claim issues in 1971 with the signing of the Alaska Native Claims Settlement Act. Other issues were put to rest in 1973, with the signing of the Trans-Alaska Pipeline Authorization Act. Though oil supply issues loomed large throughout the country at this time, the passage of this act was not a sure thing – Vice President Spiro Agnew cast the deciding vote to break a tie in the Senate.

This legislation paved the way for the con-



*The pipeline above is shown being put on vertical support members.*

struction of the pipeline, which at the time, with its \$8 billion price tag, was the largest privately funded construction project in history. About 2,000 contractors and subcontractors, and about 70,000 workers were hired to build the pipeline, which crosses three mountain ranges and more than 800 rivers and streams.

The first pipe was laid in 1975, and the final pipeline weld was finished in 1977. While typical pipeline construction at that time involved burying most lines, the permafrost of Alaska posed a technical challenge. To keep the heat from the pipeline from melting the permafrost, 420 miles of the pipeline were elevated 5ft to 15ft off the ground.

The first tanker carrying North Slope crude left Valdez in August 1977. To date, more than 14 billion bbl of oil have been transported via TAPS, according to the system's operator, Alyeska Pipeline Service Co.

During the 1970s, the industry also attempted to construct a gas pipeline that would deliver Arctic supplies to the Lower 48. In the latter part of the decade, Northwest Energy Corp. received permission from Canadian and U.S. authorities to build a land pipeline along the Alaska Highway, dubbed the Alaska Natural

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All major Ekofisk facilities were completed in 1978 in the North Sea.  
(Photo courtesy of ConocoPhillips Corporate Archives)

Gas Transportation System. However, after low gas prices plagued the project, the consortium dissolved, leaving some “prebuild” sections standing in southern Alberta and Saskatchewan.

Today, with gas prices at high levels and talk of a gas crisis pervading the industry, the oil majors have renewed their interest in an Arctic gas pipeline. Experts estimate such a project likely would not be constructed until early next decade and could carry a price tag approaching \$20 billion.

While the development of Prudhoe Bay was taking off, another legendary oil basin – the North Sea – was in its fledgling stages. Oil companies had money to spend on exploration and were looking for stable areas of the world in which to spend it.

The sea’s first finds were drilled in the 1960s – most notably, perhaps, was Phillips’ **Ekofisk** well in 1969. But a string of major, basin-making discoveries was found in the 1970s: BP’s **Forties** field in 1970, Shell’s **Brent** field in 1971, Mobil’s **Beryl** field in 1972, Occidental’s **Piper** field in 1973 and Standard Oil Co. of California’s **Ninian** field in 1974. (That company would change its name in 1977 to Chevron USA Inc.)

In 1971, the first North Sea oil production

began flowing from Ekofisk, in the Norwegian sector of the sea. The first U.K. production began in 1975 from the **Argyll** field, which was brought on stream by the Hamilton Brothers of Canada.

All this was no small feat for the industry. The North Sea was – and continues to be – one of the roughest areas of the world in which to work. Harsh winds and high seas call for strong drilling rigs and production platforms.

Today, the North Sea is considered a very mature play, and some of the oil majors are leaving – to the benefit of the independents. In January 2003, Apache agreed to buy the Forties field, along with 61 Gulf of Mexico fields, from BP for \$1.3 billion. About \$630 million of that was earmarked for the North Sea asset.

Apache estimated the deal would bring it net proved reserves of 233.2 million boe —about two-thirds of that from Forties. At the time of the deal, the field had already produced about 2.5 billion bbl of oil for BP.

Start-up companies, too, believe their future lies in what used to be the playground of the majors. For example, Endeavour International Corp., Houston, was formed in 2004 by two well-known oilmen to try its luck in the North Sea. John Seitz, former president and chief executive officer of Anadarko, and William Transier, former chief financial officer of Ocean Energy, are the co-chief executives.

And, in a case of coming full circle, one of the fields that has been recently rejuvenated was the one that started it all in the United Kingdom – Argyll. Shut-in in 1992, the field – now called **Ardmore** – was restarted in 2003 by Britain’s Tuscan Energy and Acorn Oil and Gas.

Closer to home, in the Gulf of Mexico, the 1970s brought major progress in deepwater operations. In July 1975, Shell drilled its discovery well in the **Cognac** field in 1,025ft of water in the Mississippi Canyon area. J. Ray McDermott installed the production platform in July 1978. At the time, Cognac was the world’s deepest water platform, as well as the world’s tallest and heaviest steel

offshore structure. First production started in September 1979.

Today, subsea technology has allowed for production in much deeper water. Currently, the record for Gulf of Mexico production is from Marathon Oil's **Camden Hills**, in 7,200ft of water in Mississippi Canyon **Block 348**. ChevronTexaco currently holds the record for the deepest Gulf well (at the **Toledo** field in Alaminos Canyon **951**) drilled, in 10,011ft of water.

The industry in the 1970s poured most of its money into the North Sea and North America because exploration in developing countries was increasingly becoming prohibitive. In this decade, the governments of Algeria, Venezuela, Libya, Nigeria and Kuwait all took a larger share of the oil operations in their countries, either through participation agreements or outright nationalization.

"After 1973 and nationalization, you had to go hunt your rabbits in a different field, and we went to places where we could still obtain equity interests, ownership, in oil," one Exxon executive was quoted as saying in Daniel Yergin's Pulitzer Prize-winning book on the industry, *The Prize*. Yergin noted that by 1976, Royal Dutch/Shell was focusing 80% of its worldwide, non-U.S. production expenditures in the North Sea.

Perhaps most dramatically, Libya nationalized an entire oil concession held by British Petroleum and Bunker Hunt, and took 51% of several companies' concessions in the early 1970s. That included Occidental Petroleum, which held significant concessions in the country.

In the 1980s, U.S. sanctions against Libya kept oil companies out of the country altogether. But today, the U.S.-Libya relationship is changing, and oil companies are looking forward to resuming operations there after an almost two-decade absence. In March 2004, Occidental Chairman and Chief Executive Officer Ray R. Irani met with Libyan leader Col. Moammar al-Gadhafi and other high-ranking officials in Libya to discuss the resump-



IPAA Chairman  
Jack M. Allen  
1977-1979

**“The industry expanded rapidly, and IPAA was able to expand with it and offer more services to the industry. [IPAA] stayed very much involved in the total picture and did it in a very positive way.”**

**—A.V. Jones Jr.  
IPAA Chairman  
1975-1977**

tion of the company's operations that were suspended in 1986.

"We're excited about the significant improvement in U.S.-Libyan relations that will allow Occidental to return to Libya," Irani said in a statement. "We presented specific project proposals involving the application of modern oil reservoir management practices and technology that we successfully employ throughout our worldwide operations. We plan to open an office in Tripoli as soon as possible."

Certainly, the 1970s were an exciting time to be in the oil and gas industry – in ways both good and bad.

Jones said he was proud of the way IPAA was able to represent the needs of oil and gas producers from its new home in Washington, D.C.

"The industry expanded rapidly, and IPAA was able to expand with it and offer more services to the industry," he said. "[IPAA] stayed very much involved in the total picture and did it in a very positive way." ■

## Chapter 5 - The 1980s

# Out of a Market Bust, a Technology Boom

*For most of its life, transforming new ideas into practical tools has been the key to solving the petroleum industry's operating problems and keeping its products affordable. Advancing technology helped keep the oft-repeated prediction that "we're running out of oil" from coming true.*



IPAA Chairman  
T. P. McAdams Jr.  
1979-1981

*On test, the placement first extended reach horizontal well in Alaska's Prudhoe Bay yielded a four-fold increase in production rate compared with vertical wells.  
(Source: Petroleum Engineer International, April 1986)*

**1980** – Buy-Sell Program allocations drop to average of 120,000 b/d for period April to September. Iraq invades Iran. Mutual bombing of installations.

**1981** – Iraq repels first major Iranian offensive. President Ronald Reagan lifts remaining domestic petroleum price and allocation controls originally scheduled to expire in September.

**1982** – Indications of a world oil glut lead to a rapid decline in world oil prices early in 1982. Organization of the Petroleum Exporting Countries (OPEC) appears to lose control over world oil prices. United States boycotts Libyan crude.



There is still much oil and gas that remains to be found. And more than half of what has been found remains to be recovered. While demand continues to grow at a healthy pace, many fields are nearing the end of their productive life.

Those challenges show that despite an impressive record of innovation, the industry's need for new capabilities is as critical as ever.

It was during the 1980s that what proved to be especially important concepts were rapidly commercialized. New computation and communication capabilities began to leverage those technologies.

Some of the concepts were decades old. A horizontal well, for instance, was drilled in the late 1930s, a multilateral well in the early 1950s, and 3-D seismic was developed in the 1960s.

Though it would be awhile before they were widely used by the independents that survived the decade's market crash, these technologies were fast becoming affordable as the decade ended. In a few years, emerging technology would help drive down the oil price "that we can live with" from the mid-\$20s/bbl to the mid-teens.

### It changed the business

Opening with almost irrational optimism, the first few years of the 1980s set records for the number of operators, active rigs, seismic crews, wells drilled, oil and gas prices, and employment. Drilling costs also peaked in the early years of the decade. But as prices slumped in the last half of the 1990s, an important reality had to be faced: oil and gas prices were not on a long-term upward trend.

"The decade ended with irrational pessimism," said 1989-1991 Independent Petroleum Association of America (IPAA) Chairman C. Paul Hilliard of Badger Oil Corp. "During my term, it was just about the bottom – in IPAA membership, revenue, even morale. Independents were trying to pay back \$30/bbl debt with \$12/bbl oil."



IPAA Chairman  
Kye Trout Jr.  
1981-1983



Early steerable downhole motor for "navigation drilling system."

(Source: *Petroleum Engineer International*, September 1987)

Twenty years later, it is a completely different business. In 1984, Hilliard said, independents had plenty of prospects but no risk capital. "Now we have risk capital, but we need prospects," he said.

In the late 1980s, much of the emerging technology still was too expensive for most independents; they were just trying to make ends meet, said 1983-1985 IPAA Chairman Jon Rex Jones of Jones Energy.

"But new technology has been a wonderful thing," he said. "Technology developed during the 1980s has made independents more competitive. It has given us opportunities that we wouldn't otherwise have."

**1983** – Iran attacks northern Iraq, threatening Kirkuk pipeline.

**1984** – OPEC cuts production to 16 million b/d, but cheating and price discounting negate agreement.

**1985** – Exploratory well in Ranger, Texas,

blows out, spilling 150,000 bbl of crude oil.

**1986** – Average world oil prices fall by more than 50% in 1986. There is wide use of netback pricing in 1986.

**1987** – OPEC majors stick to fixed prices.

Gulf war escalates.

**1988** – Wide use of crude formula pricing in 1988. OPEC price meeting set.

**1989** – Exxon tanker Valdez runs aground spilling 11 million gal of crude oil in the waters of Price William Sound.



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Jones Energy is an example of how 1980s technology advances became part of an independent's operating toolbox less than 20 years later. In its current gas exploration and exploitation program in the Texas Panhandle, Jones Energy drills 20 wells to 25 wells per year.

"We implemented horizontal drilling in that program and have done a lot of (wells)," Jones said.

"Technology changed the business," said C. Jon Miller of Miller Energy. "After the late 1980s, independents began to embrace technology and become more innovative. The decade was a transition time to a higher tech approach.

"Those independents that were able to mobilize capital could begin to do things in a different way," Miller said.

As key technologies developed, they opened up reserves that were not accessible, he said. Though the decline in drilling from an average of almost 4,000 active rigs in 1981 was primarily because of a price slump, "with today's technology, we probably could drill the same footage with one-third that number of rigs," Miller said.

What would independents like now in the way of technology?

"Access to information," Jones said.

"Independents have a thirst for new technology that can help them compete."

Without research capabilities, it's important smaller operators keep pace with emerging technology and be able to learn from the experience of others.

"IPAA plays an important role in that," Jones said.

A major need is a way to lower the cost of offshore platform abandonment, Hilliard said. There are opportunities around old platforms that new technology can exploit, but if the cost of abandonment is part of a deal, then it often won't be viable.

"Significantly lowering the cost of abandonment would improve access to reserves," he said.

New technology under development in the 1980s could not reverse the U.S. production decline. But throughout several decades, it will help reach more complex and difficult zones, boost success ratios, lower development costs, increase recovery and enhance economic performance.

### And non-technical challenges

Unlike technology, political issues that marked the 1980s have advanced little, Miller said.

"We still seem to be talking about the same things – access to western lands, ANWR [Alaska National Wildlife Refuge] and offshore, for example – but nothing has been done," Miller said.

In the 1980s as today, most independents operated primarily in the United States, the world's most mature oil and gas province, where production was declining and new opportunities were limited.

During the "crunch time" of the late 1980s, even small companies began to look outside the United States for opportunity. In the early 1990s, for example, Miller was chairman of Global Exploration, a partnership of U.S. independents engaged in foreign exploration and development.

And during the 1980s, independents had to adapt to fundamental change in the way their products were bought and sold. After the New York Mercantile Exchange



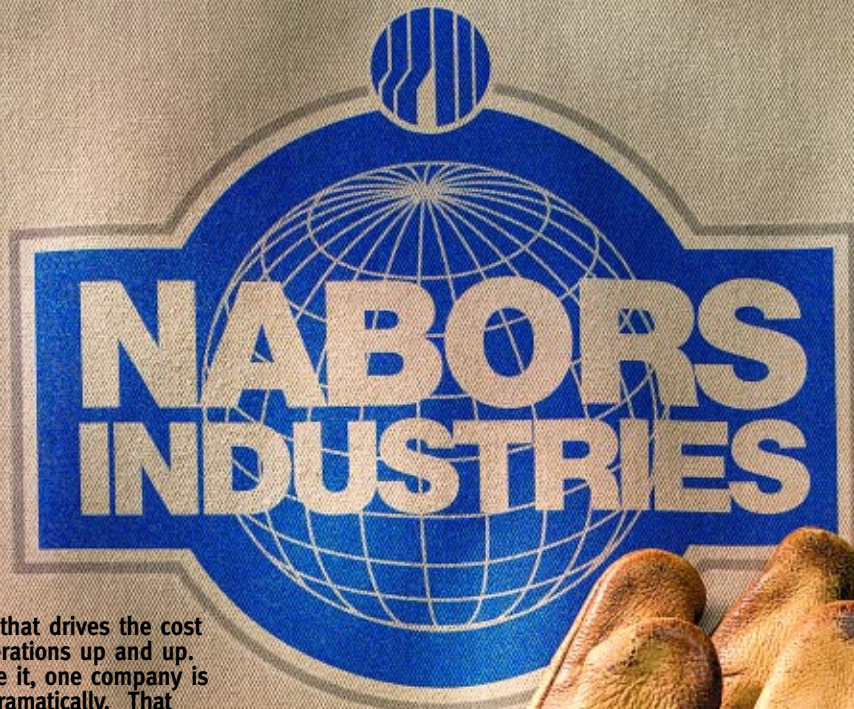
IPAA Chairman  
Jon Rex Jones  
1983-1985

### Exploration and Production peaks of the early 1980s

	Peak Year	Milestone
Operators of Record	1982	13,014
Seismic Crew Count	1981	8,172
Rotary Rigs Active	1981	3,970
Exploratory Wells Drilled	1981	17,430
Oil Wells Drilled	1984	44,472
Dry Holes Drilled	1981	26,972
Total Wells Drilled	1981	89,234
Producing Oil Wells	1985	646,626
Drilling Costs, \$billion	1982	\$39.4
Stripper Well Production, b/d	1983	441,501
Oil Wellhead Price, \$/bbl	1981	\$31.77
Industry Employment, million	1981	1.9

Source: Independent Petroleum Association of America

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launched its crude oil futures contract in 1983, energy futures – not long-term fixed price contracts – soon became the way to sell production, secure loans and hedge market swings.

The way technology was to be developed also was beginning to change in the 1980s. The decade's market upheaval helped drive a shift in research and development (R&D) efforts and responsibilities. According to a U.S. Department of Energy (DOE) report, petroleum industry R&D spending peaked in 1985, much of it being spent on oil and gas recovery research. Ten years later, the 24 largest exploration and production companies were spending only about 45% of their 1985 level.

By the end of the 1990s, service and supply companies had taken up much of the slack in R&D.

## Two high profile leaders

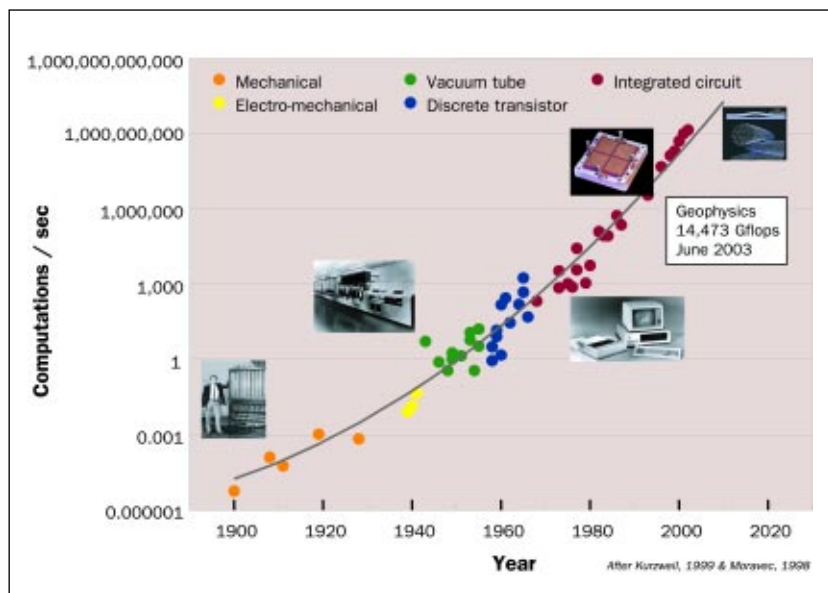
In terms of broad and long-term impact, the advancement of seismic and horizontal drilling technologies were highlights of the 1980s. Together, they have dramatically improved exploration success, lowered development costs and reduced the environmental impact of petroleum operations.

Each also has spawned related capabilities. Three-dimensional seismic – as 4-D – is now an important reservoir management tool; horizontal drilling technology helped lead to multilateral completion capability.

By the end of the 1990s, advanced exploration, drilling and other technologies, many of which were coming together in the 1980s, would double the amount of oil or gas developed per well, according to the DOE.

## More exploration bang for the buck

Seismic signals were used successfully to “picture” the subsurface more than 80 years ago when the first successful seismic reflections



*Integrated circuit helped fuel the technology boom in the 1980s.  
(Source: Hart's E&P, December 2003).*

were made of Vine's Branch dome in Oklahoma's Arbuckle Mountains. A dropped weight instead of explosives was first used as an energy source in 1955, and 3-D seismic surveying was first field tested in 1964.

But it was not until enough computer power was available to process and interpret large amounts of data in a reasonable amount of time that 3-D seismic became practical and affordable.

In a way, advancing the use of 3-D seismic was easier than gaining acceptance for other technologies.

“We had been using seismic technology – 2-D – for years, so everyone understood the value of more data points. Although you needed more data and acquisition was more expensive, we could see that 3-D was an improved science,” Jones said. “Independents got into 3-D seismic quicker than some other emerging technologies of the time because it was evident that it was an improved science.”

Miller Energy learned the value of advancing seismic interpretation capabilities in Michigan's Niagara Reef play. As an active operator there, Miller Energy had the best seismic, Miller said. “But



*IPAA Chairman  
Raymond H. Hefner  
1985-1987*

### Some technology highlights of the 1980s

Year	Milestone
1980	3-D post-time depth migration seismic survey, 50 sq miles, costs \$8 million
1981	First offshore horizontal well, Rospo Mare, Italy
1983	Horizontal wells from vertical shaft, Kern River, California
1984	First steerable drilling system
1984	New resistivity measurement devices
1985	3D vertical seismic profiling developed
1986	Metal sealed bearing roller cone bits
1986	Neutron porosity measurement added to measurement-while-drilling.
1987	First logging-while-drilling tool
1988	Extended reach drilling exceeds 60° radius
1988	First horizontal well drilled from semisubmersible
1989	Only 5% of Gulf of Mexico wells based on 3-D seismic data

Source: U.S. Department of Energy

we drilled five dry holes and were about ready to pull out,” he added. After reprocessing the seismic it had, however, Miller Energy completed 13 wells of the next 15 wells.

Until 1980, only 100 3-D seismic surveys had been done in the United States, according to the DOE. But by the mid-1990s, between 200 and 300 were being done each year. In 1989, only 5% of the wells drilled in the Gulf of Mexico were based on 3-D seismic and by 1996, nearly 86% used 3-D technology.

There was a good reason more operators were using the technology. The DOE reported that U.S. exploration success jumped from 17% in 1970 to 48% in 1997, largely because of the rapidly expanding use of 3-D seismic surveys.

There also was an indirect benefit for independents from the growth of 3-D seismic in the 1980s, Hilliard said. As majors used it to evaluate properties, they began to dispose of those that did not meet their economic criteria, providing opportunities for smaller operators.

Merging advances in oil and gas exploration technology – 3-D

seismic, remote sensing, other imaging techniques – with increasing interpretation capabilities has paid big dividends. An equivalent barrel of new oil or gas that cost \$12 to \$16 to find in 1977 when the U.S. Energy Information Administration (EIA) began to collect such data, cost \$4 to \$8 to find by 2000, adjusted for inflation.

Using 3-D seismic and advancing processing capabilities, operators also began to take a new look at existing fields to search for bypassed zones, deeper horizons and stepout opportunities.

Currently, Jones Energy invests in production, reworking old seismic data using new interpretation techniques to further develop existing reserves.

“It’s a very competitive business,” Jones said, “but there is a lot of opportunity in improving production from existing fields.”

Offshore, 3-D made it possible to “see” below salt layers that are thought to cover 60% of the continental shelf in the Gulf of Mexico. The Gulf of Mexico subsalt play of the early 1990s was one result.

In the mid 1990s, the Foenhaven field offshore the United Kingdom served as one example of how much the value of seismic technology had already increased. At that time, it was estimated that recovery of oil in place in this field would be 25% to 30% with 2-D seismic, 40% to 50% with 3-D and 65% to 70% with 4-D.

### Seeing more for less

Seismic technology also began to come of age economically during the 1980s, making it affordable for more companies and viable for more prospects. At the beginning of the decade, a 3-D post time depth migration survey cost \$8 million for 50 sq miles, according to the DOE. By the early 1990s, the cost was \$1 million.

Visualization of seismic data was possible in the early 1980s but unsophisticated by today’s standards and expensive. Though 3-D seismic and computer power were coming together, the result of combining these two tools still was displayed on a flat workstation screen.

But the foundation was being laid for today’s ability to integrate geological, geophysical, production and other data and



IPAA Chairman  
Danny H. Conklin  
1987-1989

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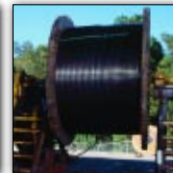
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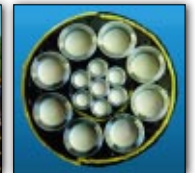
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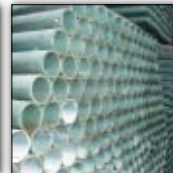
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“immerse” the viewer in the reservoir to see it from any angle at any point in time.

At the end of the 1980s, 3-D still was expensive. But improved graphics capability help add to its value and expanding computer power was increasingly affordable. A workstation that might have cost \$200,000 at the time now costs \$25,000, Hilliard said.

**“We don’t do anything without 3-D.”**

—C. Paul Hilliard  
IPAA Chairman  
1989-1991

“Without 3-D, the industry would not be able to do a lot of what it is doing,” he said.

As large reserves become increasingly difficult to find, 3-D makes it possible to pursue smaller targets and produce them faster. Badger Oil’s batting average in the Gulf Coast and offshore is about 80% now, Hilliard said. “We don’t do anything without 3-D,” he explained.

### Drilling in new directions

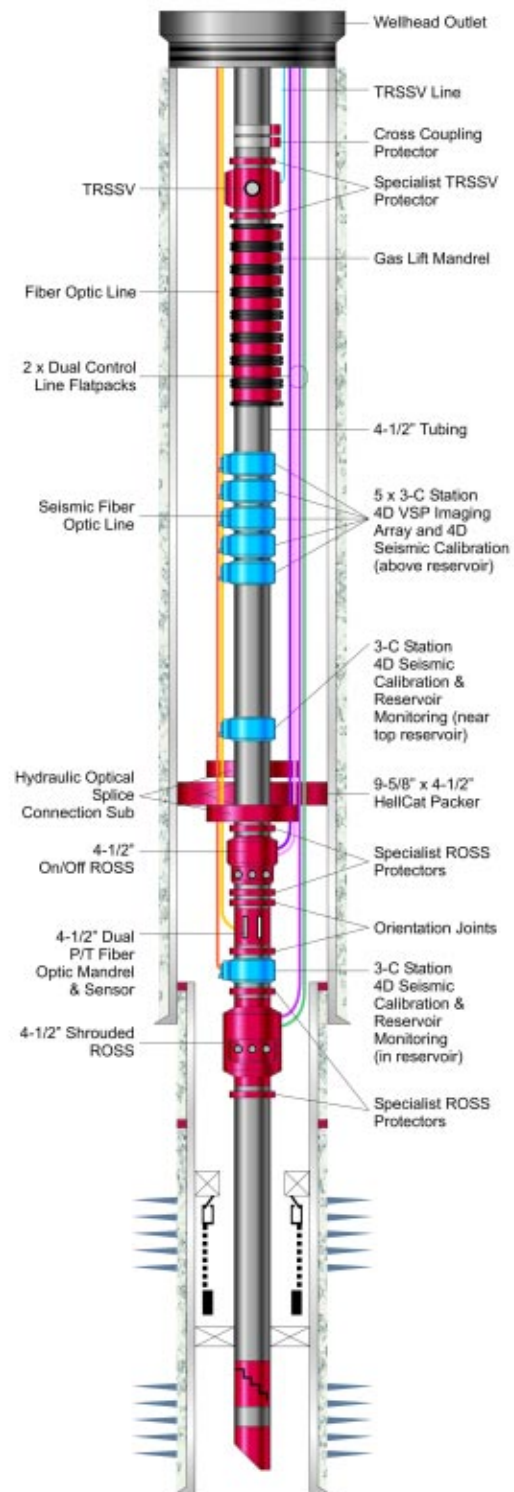
Although horizontal drilling gained followers during the 1980s, it was some time before its use among independents began to grow. Everyone knew about horizontal drilling in the 1980s, Jones said, but not everyone knew how to use it.

“And it was very expensive. Most independents just couldn’t afford it,” he added.

In the late 1980s, many independents were focused on surviving. It took a recovery in oil and gas prices for them to begin to be able to afford such advances, Jones said.

But some independents were early adopters. In 1989, *Petroleum Engineer International* reported that independent Meridian Oil was the world leader in horizontal drilling and production with 43 horizontal wells.

Only a few horizontal wells had been drilled by the mid-1980s. The first offshore horizontal well was drilled in 1981 in **Rospo**



Permanent in-well 4-D seismic sensor for production optimization is a direct descendant of 1980s advances in seismic technology.  
(Source: Hart’s E&P, January 2004)



## Horizontal Drilling and 3-D Seismic

A long list of today's drilling tools and reservoir management capabilities have important roots in the decade of commercialization known as the 1980s. But two technologies – horizontal drilling and 3-D seismic – arguably have had the most impact on the industry's ability to find new oil and gas reserves and exploit those discoveries more efficiently.

Exploding computing power and advances such as bit steering, measurement-while-drilling and logging-while-drilling helped develop these two key technologies. Together, application of technologies that became practical during the 1980s would double the amount of oil or gas produced per well by the end of the 1990s, according to the U.S. Department of Energy (DOE). Exploration success increased significantly, and finding and development costs were reduced by roughly

half, according to the DOE.

As they recovered at the end of the decade from the depths of the market slump, independents could not immediately afford these tools. But as they faced a decline in opportunities, the independents increasingly put these new tools to work to improve exploration success ratios and gain access to undeveloped reserves.

By the end of the 1990s, the typical independent operator was routinely drilling horizontal wells and would not think of evaluating a prospect without 3-D seismic.

As the new century begins, extended reach drilling can stretch a well 7 miles from its surface location. Life-of-field-seismic can record 3-D seismic images during time. High-resolution reservoir imaging is even available on demand.

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**Mare** field, offshore Italy. Two years later, horizontal wells were drilled from a vertical shaft in Kern River, Calif.

By the mid-1990s, about 2,500 were being drilled each year worldwide. Elf Aquitaine and Institut Francais du Petrole drilled the first European horizontal hole in **Lacq** field in southwest France in early 1980. The well was spudded conventionally then deviated, becoming horizontal at 2,198ft vertical depth. An interval of more than 300ft was drilled at deviations between 89° and 92°.

Now, the “reach” of extended reach drilling has been stretched to a displacement of more than 35,000ft.

Horizontal completions now account for as much as 8% of U.S. land drilling, according to the DOE. A 1995 study by the agency concluded horizontal drilling might have increased U.S. oil reserves by 10 billion bbl up until that time, nearly 2% of original oil in place.

Horizontal drilling also helped pave the way for the commercialization of multilateral completion technology. A retrievable anchor for

sidetracking, developed in the mid-1980s, accelerated the spread of multilateral wells.

First tried in the early 1950s, by the mid-1990s, multilateral completions promised to be another step-change in productivity, cost reduction and reduced surface footprint. In 1997, more than 700 multilateral wells were planned around the world during a 2-year period, according to the Drilling Engineering Association.

### Bottomhole data and top drives

Arguably the most important drilling advance of the 1980s was the expanding use of horizontal drilling. But there were other critical drilling tools that had important roots in that decade of commercialization.

*Measurement-while-drilling*—Developed in the late 1970s, measurement-while-drilling (MWD) advanced rapidly during the 1980s. It gets credit for much of the improvement in drilling speed, accuracy, safety and cost that took place during the next two decades. With the help of new sensor technology, it was pos-



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 Mark Miller, President, Merlin Oil & Gas, Inc.*



Early measurement-while-drilling tools, gaining acceptance in the 1980s, were too expensive for many independents. (Source: *Petroleum Engineer International*, February 1986; courtesy of Teleco)

sible to gather real-time drilling data, and eventually, to link it with other information in an earth model for visualization.

*Logging-while-drilling*—Also begun in the late 1970s, by the early 1980s, logging-while-drilling (LWD) was becoming a practical tool. The so-called triple combo log now includes resistivity, porosity by bulk density and neutron measurements, and a gamma ray log.

“We now use LWD fairly regularly,” said David Etienne, vice president of exploration for Badger Oil Corp. “On some wells – especially those that we are convinced are dry – those may be the only logs we run.”

Expected hole conditions are an important criterion in deciding whether to log while drilling, he said. The cost of leaving an LWD tool in the hole, even with insurance coverage, can be \$1 million.

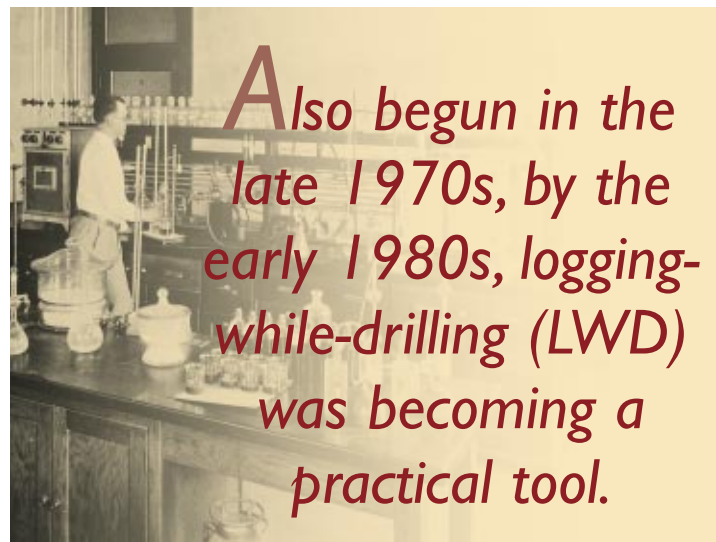
*New bits, more options*—By the mid-1980s, the average footage drilled per bit was increasing rapidly, and that drilled by diamond bits had increased from 1% to 10%. By the end of the decade, bit life had been extended and new bit choices added. Polycrystalline diamond compact (PDC) bits, in combination with downhole motors and MWD capability, were becoming an important way to lower drilling costs. Improved materials and design

have continued to expand the application range of PDC bits; by the late 1990s, bit optimization became an important contributor to drilling efficiency.

*Steering becomes possible*—In 1984, the first “completely steerable” bottomhole assembly combined a high performance bit, a proprietary navigation sub, high performance downhole motor, MWD and stabilization. Less than 20 years later, drilling engineers talked of “drilling with the mouse” – and doing it from half way around the world. It was estimated that rotary steerable systems would drill about 7 million ft of hole in 2003.

*Faster and safer*—Top drives, pipe racking systems and iron roughnecks developed during the early and mid-1980s began to boost rig efficiency and crew safety. By 2003, the state-of-the-science was an anti-collision system that prevented pipe-handling assemblies from colliding with each other. And the location on the rig floor of a crewmember equipped with special footwear could be tracked to prevent moving machinery from entering the crewmember’s space.

*Better fluids*—Driven by new environmental rules and a growing concern about the long-term effect of formation damage, drilling fluid design became more sophisticated during the 1980s. The focus was on developing low-solids, easy-to-break drilling and completion fluids, and non-toxic oil muds. The carbon dioxide (CO<sub>2</sub>) sand frac, for example, first used in 1981, blended proppants with liquid CO<sub>2</sub>, which evaporated, leaving a dry, dam-



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BOREHOLE ANGLE
X ACCEL:0.0000

Y ACCEL:3.1820

Z ACCEL:3.1820

X MAG:0.8485

Y MAG:-0.9910

Z MAG:2.1910
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INC ANGLE = 45.00 DEG
AZ ANGLE = 45.00 DEG
GTF ANGLE = 0.00 DEG
MTF ANGLE = 139.43 DEG
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Many program listings for programmable calculators were published in the early 1980s before the desktop computer era.

(Source: *Petroleum Engineer International*, July 1982)

age free proppant pack.

*A beginning for coiled tubing*—Three decades after the first coiled tubing units were built, the technology received renewed attention in the 1980s as a way to rig up and drill faster, reduce drilling cost and lower the environmental impact of drilling operations. Though growth in the use of coiled tubing technology did not accelerate till the 1990s, the seeds of the expansion were sown with the development of job design computer software that became operational in 1982. Two decades later, the coiled tubing fleet had grown to 1,000 units.

### **New production goals: monitor, manage, optimize**

As Moore's Law continued in effect – computing power doubled every 18 months and its cost was cut in half – it became possible to analyze complex production operations, and fine-tune equipment to optimize current production and ultimate recovery.

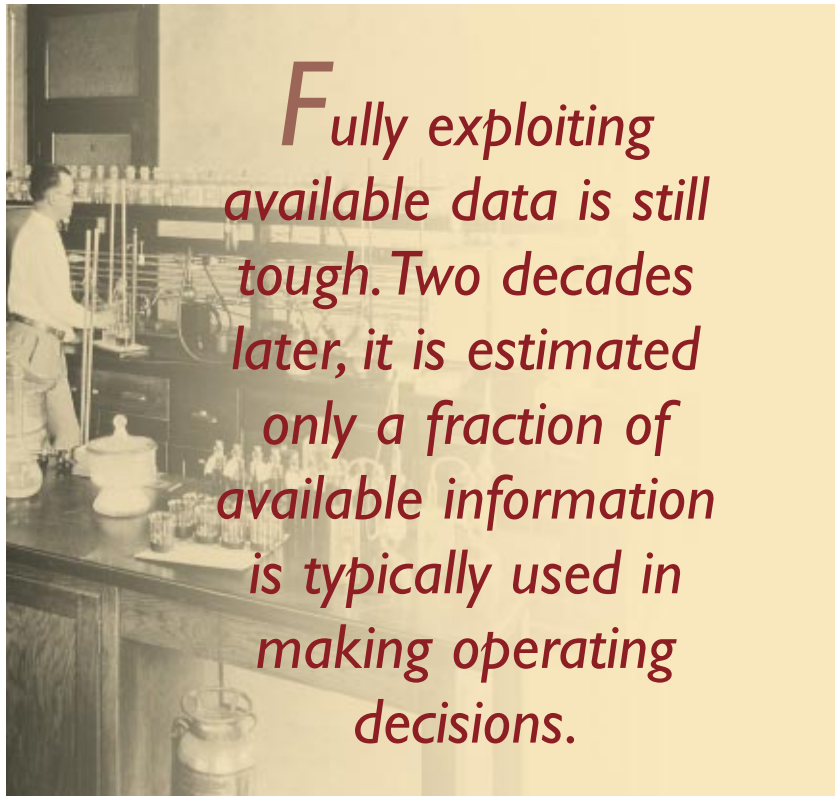
With new sensors and more powerful computers, the challenge was to use an explosion of data to make each well more productive and to optimize recovery and financial performance.

Fully exploiting available data is still tough. Two decades later, it is estimated only a fraction of available information is typically used in making operating decisions.

In the 1970s, mainframe computers were used for most of the technical applications. In the early 1980s, the field engineer's computational tool of choice was the programmable calculator. Industry publications featured detailed programs on a regular basis.

During the late 1980s and early 1990s, the personal computer put affordable computing power directly into the hands of individual users. Then client/server connections began to link all those computers with larger ones that provided each user access to vast amounts of data and sophisticated applications.

By the beginning of the new century, the “e-field” promised to link the reservoir, producing facilities and process control for



real-time asset management.

In 2003, BP announced plans for life-of-field seismic, using a network of permanently buried cables in its **Valhall** field in the North Sea to record 3-D seismic data during time for reservoir management. And a seismic tool is now available that provides high-resolution on-demand reservoir imaging.

The attention paid to reservoir management in the 1980s began to pay off in the next decade. Technology being proven in the 1980s would lead to the ability to produce the same amount of hydrocarbons with one well in 1998 that required four wells in 1985, according to a DOE report. The agency reported that technology improvements lowered the average cost from between \$9/boe and \$15/boe in the 1980s to between \$5/boe and \$9/boe by the end of the 1990s.

### Other lessons learned

Not every effort to develop new technology in the 1980s was dramatically successful.

When the number of completions reached record levels in the early years of the decade, for example, a variety of new pumping concepts hit the market. Though improvements continued to be made, artificial lift concepts have not changed significantly in recent decades.

Two-phase pumping also got new attention in the 1980s, but practical multiphase pumping and processing — especially down-hole — remains a challenge.

Nor did the concept of atmospheric subsea facilities prove to be the most practical solution to increasingly deeper water. Dry subsea production systems were developed in the 1970s; by the early 1980s, atmospheric subsea production systems had been designed and pilot tested.

But it was not the right concept. Instead, early in the decade, Brazil's Petrobras demonstrated that subsea wells tied to a floating production system was the best way to achieve what would be, during the next two decades, a dramatic expansion in deepwater

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producing capability. In 1979, Petrobras set its first wet tree in 620ft of water. By the mid-1980s, 30 to 40 subsea completions were being made each year.

### EOR and CBM

The enduring lure of unrecovered oil remains, along with the challenge of finding economically viable enhanced oil recovery (EOR) processes. High oil prices at the beginning of the 1980s encouraged efforts to increase recovery from existing fields. Research focused on a number of techniques, from already-proven steam flooding, to polymers, to microbes.

Oil output from all U.S. EOR projects still is modest. After a spurt of production from test projects in the mid-1980s, polymer floods eventually disappeared. And microbial techniques have never made a significant contribution to EOR production. Throughout recent history, thermal methods have dominated EOR.

But hydrocarbon/miscible/immiscible and CO<sub>2</sub> miscible techniques developed during the 1980s were important contributions. Carbon dioxide flooding expanded quickly beginning at mid-decade, eventually becoming a strong



Diverless tree is shown at Hughes-WKM plant in Brazil in 1986.

(Source: *Petroleum Engineer International*, September 1986)

contributor to EOR production.

Coal was another source of gas that was being noticed in the 1980s. The world's most abundant hydrocarbon has large amounts of methane associated with it, but as long as natural gas was plentiful and cheap, coalbed methane (CBM) was considered a mining hazard rather than an energy source.

By the mid-1980s, however, the potential of CBM was beginning to be recognized. Though U.S. production was only 6 Bcf in 1983, it had grown to 1 Tcf by 1997. And the EIA has projected production will reach 2 Tcf by 2020.

Several reasons for the high expectation are the step-changes in drilling, completion and producing technology born in the 1980s that can boost recovery, reduce cost and minimize surface impact. ■

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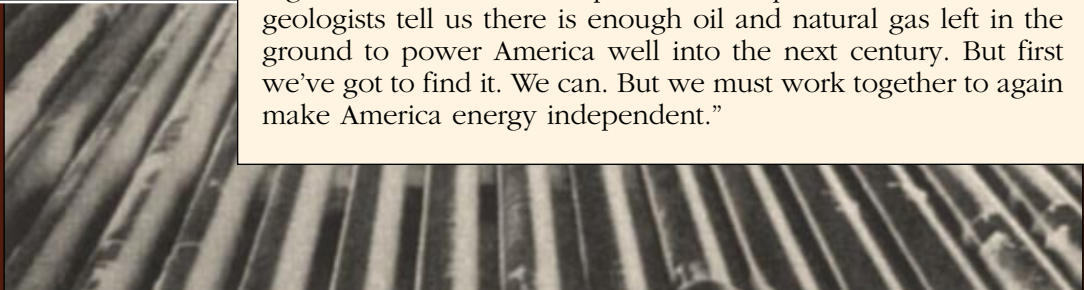
By the beginning of the new century, the "e-field" promised to link the reservoir, producing facilities and process control for real-time asset management.



### **Jimmy Stewart**

Actor Jimmy Stewart was an effective spokesman for the Independent Petroleum Association of America throughout the 1980s in a series of televised public service announcements (PSA) that aired in 124 cities in 30 states.

The audio for the PSA was as follows: "I'm Jimmy Stewart. Like you, I want an America with the energy to meet all our needs. But we can't reach that goal unless we understand the high risks involved in petroleum exploration...Government geologists tell us there is enough oil and natural gas left in the ground to power America well into the next century. But first we've got to find it. We can. But we must work together to again make America energy independent."





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## Chapter 6 - The 1990s

# Handing Over the Oil and Gas Reins: A Change in Crew

*U.S. independents exited the 20th century on a path 180° from the way they entered it: buying assets from, rather than being consolidated by, majors.*



Public-equity markets welcomed independents, beginning in the early 1990s.

The development of the Britannia field in the U.K. North Sea was one of the most important natural gas projects during the 1990s. (photo courtesy of ConocoPhillips Corporate Archives)

\* Unless otherwise noted, all photos by Lowell Georgia

**1990-1991** – Iraq invades Kuwait; United States intercedes, and begins Strategic Petroleum Reserve drawdown. Iraqis destroy Kuwaiti oil fields upon retreat. Iraq put under “oil-for-food”

sanctions. Output begins to decline.  
**1992-93** – Dozens of U.S. independents launch initial public offerings.  
**1993** – First World Trade Center bombing.  
**1995** – Oklahoma City federal building

bombing; 168 adults and children are killed.  
**1996** – Atlanta hosts the Summer Olympics  
**1997** – China resumes control of Hong Kong; Princess Diana dies in a Paris car crash.

U.S. independents saw their relationship to the U.S. major oil companies change dramatically as the 1990s unfolded. At the dawn of the 20th century, the integrated oil company (Standard Oil) was rapidly buying up independents; approaching the 21st century, the majors (including daughters of Standard Oil) were rapidly selling their upstream assets to U.S. independents. With this sea change, hundreds of new independents were born, merger and acquisition advisory firms were formed, public-equity markets were tapped, and private-equity providers were launched.

“During the late 1980s and early 1990s, there was a significant drive by the major oil companies to reduce their unit costs,” said Joe Foster, founder and chairman of Houston-based Newfield Exploration Co. Foster was among founders of start-up independents in the late 1980s and early 1990s. Using private-equity funding, Newfield began to explore and exploit the offshore United States, went public and eventually expanded to the onshore United States and overseas.

“This drive to cut costs led to the disposition of many properties that were burdened with very high DD&A [depreciation, depletion and amortization] expenses. This opened a world of opportunity for independents like Newfield,” Foster said.

The company was able to buy properties with remaining exploration potential and had opportunities for reduced costs and extended lives.

“Further, workforce downsizing by the majors made many highly qualified technical people available to work for independents, often on properties where they had ideas that did not get implemented by their previous employers,” he said.

The independents also were the beneficiaries of personnel from the majors – talented



IPAA Chairman  
C. Paul Hilliard  
1989-1991

*U.S. natural gas prices improved during the 1990s, and became more volatile.*



Oct 1997-mid-1999 – Organization of the Petroleum Exporting Countries increases output in face of declining global demand; world oil prices decline; West Texas Intermediate falls to as low as

\$11/bbl on Nymex for several months.  
1998 – BP announces plans to merge with Amoco commencement of consolidation of publicly held major oil companies that eventually involves Exxon, Mobil,

Arco, Chevron, Texaco, Conoco, Phillips, Total, Elf, Fina, YPF, Repsol, Nippon Oil, Mitsubishi, et al.  
1999 – President Bill Clinton impeached and acquitted in case related to the Monica Lewinsky affair.

oil-finders with corporate workstyles that made the new MBA-led independent productive and lean.

Pam Pierce, president of Huber Energy, Houston, was among the talent unleashed by majors' portfolio optimization and consolidation. Pierce was with Arco in the 1980s and the major's Lower 48 spinout, Vastar Resources, in the 1990s until the company was reined in by BP when it purchased Arco at the decade's end.

"An important event in the 1990s was the number of people in this business who worked for major oil companies and were laid off as properties were sold or as the majors consolidated," Pierce said. "Many of these people learned how to be independents. There was a flow of assets and of skilled and knowledgeable people from the majors."

Many of these ex-major employees also were more focused on finding oil and gas than on controlling costs, she said.

"I look at Vastar as an example. We were an entire team of people pulled from a major oil company. We went from a culture of 'making oil and gas' and developed a culture of 'making money in the oil and gas business' for our shareholders," she said. "It's a subtle difference, but it is a very different approach to the business."

Until the 1990s, when the majors began to focus increasingly on the value of their production vs. volume, that business mantra was the domain of the independents, which showed the majors even into the next decade that they could still beat the averages.

The majors' highly skilled personnel flowed there.

"The majors trained us all very well," Pierce said. "They gave us the best tools and the ability to try new ideas, to use technology, to learn."

### Technology

Technology in the oilfield and in the back office improved so that an MBA and a geologist, combined with quality 3-D seismic, one asset from a major and an outsourced administrative office, could build a multimillion-dollar oil company



*U.S. independents went abroad in the 1990s, such as the Caspian Sea where this Parker rig drilled for Oryx Energy.*

with private equity, sell it within a few years and start again.

"The success of advanced geotechnical and completion technologies in the development of heretofore noncommercial or economically marginal unconventional gas sources; i.e., coalbed methane, Barnett Shale or Deep Cotton Valley Sands in East Texas and Louisiana, increased the prospect for economic reward for the independent oil and gas exploration and production company," said Eugene Ames Jr., 1991-1993 Independent Petroleum Association of America chairman.

1990's technology was critical to the wildest-dreams success Jim Flores and Billy Rucks made at Ocean Energy Inc. The company, which is now part of Devon Energy Corp. (another success story), was started in the late 1980s as Flores & Rucks, and had a chance in 1990 to buy one of Shell Oil's shallow Gulf of Mexico producing properties.

With volumetric production payment financing from newly minted energy financier Enron Capital & Trade, which provided capital to numerous 1990s start-ups before its parent collapsed in 2001, Flores & Rucks bought the



*IPAA Chairman  
Eugene L. Ames Jr.  
1991-1993*



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IPAA Chairman  
George A. Alcorn  
1993-1995

Shell property. Afterward, others went public, made purchases, merged with other independents (United Meridian and Seagull Energy) and grew its few-property shop into a \$5.3-billion multinational company when it was sold in 2003 to Devon.

“A half-dozen things went right,” said Flores, who is now chairman, president and chief executive officer

(CEO) of another newly public independent, Plains Exploration & Production Co. (Plains E&P). “Coming off the oil crash of the 1980s, the majors were restructuring their business and an abundance of high-quality properties were available.

“Then, new technologies – 3-D seismic and lateral drilling – brought the risk of oil and gas operations down, and we started attracting capital. That equation was a perfect storm for independents to be able to make money. Prior to that, we didn’t have technology, we had tons of risk, and we didn’t have any good properties. That’s why so many independents went broke in the 1980s.”

Flores and partner Rucks, who is a director of independent Lafayette, La.-based PetroQuest Energy Inc., believed they could make a company from buying and working majors’ assets. It was initially a commodity-price play: even if nothing were done to the assets, profitability would come with eventual, higher commodity prices.

The technology that became available was a bonus, Flores said.

“Without the technology, we would have never created the value. We had no idea the technology was on its way. We just knew we were buying high-quality properties and that at some point in time, we would be able to enjoy the fruits of higher commodity prices,” he said.

Ironically, the technology that made rapid growth possible for U.S. independents in terms of their reserves and production posed a problem for profit margins.

“Technology resulted in higher productivity, which actually prolonged the mundane prices,” Flores said.

U.S. gas production began to decline in the 1970s, and oil production began to decline in the 1980s, but U.S. productive basins’ decline curve became most apparent in the 1990s, exacerbated by technology that helped producers bring more reserves to the surface in a shorter period of time.

“With technology, we were able to accelerate the productivity of properties,” Flores said. Shorter well lives made production-replacement a dangerously fast-moving treadmill for some producers. The resulting just-in-time inventory made producers more suscep-



Fracture stimulation improved with computer controls and better proppants in the 1990s. Here, Schlumberger completes a multi-stage frac in Wyoming.



3-D seismic, shown being shot here, helped independents see bright spots of oil and gas in the Gulf of Mexico.

tible to price volatility. For example, a prolific shallow Gulf of Mexico gas well brought online in 1998 as gas prices collapsed would be nearly produced out in 2000 as gas prices began to peak.

“Everything happened faster,” Flores said of the 1990s. “We could drill wells faster and produce faster, but we had to replicate this faster. The Gulf of Mexico hasn’t gotten out of this cycle. Therefore, the Gulf is very dependent on volatile price and cost.”

Flores has, however. Plains E&P’s operations are onshore the United States, predominantly oil production in California.

“The path for me was the shallow Shelf to the deepwater Shelf to 15 countries internationally to [a brief] retirement to investments in the oil midstream business to California oil production,” he said.

### Oil, gas demand

Meanwhile, Americans fell in love with energy consumption all over again, as lower U.S. energy prices, higher U.S. wages and lower inflation resulted in less than 10% of American household spending going to energy – without much or any conservation. The sport utility vehicle was born and had a firm grip on the American vehicle market as the decade closed.

*Gas*—In response to improved natural gas prices, U.S. gas production grew from 21.5 Tcf in 1990 to 24.2 Tcf in 2000 – higher than the U.S. record of 24.0 Tcf from 1971 to 1973, according to data from the U.S. Energy Information Administration (EIA).

And the record production in 2000 came from a record number of gas-producing wells: 342,000, compared with 91,000 in 1960 and 269,000 in 1990.

But average well productivity declined sharply, from the still-record-holding 434,000 cu ft per well per day in 1971 steadily down to 163,000 in 1990 to 141,000 in 2000.

Meanwhile, the growing use of natural gas in electricity generation contributed to record U.S. production alone not being enough. To help, imports from Canada grew to 3.5 Tcf in 2000 from 1.4 Tcf in 1990.

Nevertheless, the pressure on supply and demand resulted in 2000 in the highest one-year average U.S. natural gas prices ever recorded: \$3.69/Mcf. (Prices have since averaged higher.)

Traditional U.S. gas-producing states and the Gulf of Mexico had trouble keeping up. Production declined during the 1990s in Texas, Oklahoma, Louisiana and the federal waters of the Gulf of Mexico. Stepping up to the plate were other states, which were turning out 47% more gas in 2000 than in 1990.



IPAA Chairman  
Lew O. Ward  
1995-1997



IPAA Chairman  
George Yates  
1997-1999

*Oil*—U.S. oil production declined during the 1990s in Alaska (from 1.8 million b/d in 1990 to less than 1 million b/d in 2000) and in the Lower 48, including the Gulf of Mexico (from 5.6 million b/d to 4.9 million b/d). In the Gulf of Mexico specifically, however, output improved to an all-time high of 1.8 million b/d in 2000 from 1.1 million in 1990. (The Gulf record has since been topped.)

Yet, total U.S. output fell from 7.4 million b/d in 1990 (down from the record-holding 9.6 million b/d in 1970) to 5.8 million b/d in 2000 (and possibly less today).

The number of U.S. oil-producing wells declined from a record 647,000 in 1985 to 602,000 in 1990 and 534,000 in 2000. Average production fell from a record 18.6 bbl per well per day in 1972 to 12.2 in 1990 to 10.9 in 2000.

Despite declining domestic supply, it wasn't until 2000 that U.S. oil prices nearly approached that of the record one-year aver-

age of \$31.77/bbl in 1981 in real dollars. During most of the decade, one-year average prices averaged less than \$20/bbl and fell as low as \$10.87/bbl in 1998. (Since 2000, oil prices have ranged from \$25/bbl to \$32/bbl).

To be comparable, however, the record-holding 1981 average oil price was \$50.94/bbl when viewed in 1996 dollars, compared with \$25/bbl (1996 dollars) in 2000.

So imports were up during the 1990s, and up and up. Across the board, imports from every country grew, except supply from Iraq, the United Kingdom, Nigeria and Saudi Arabia was mostly as much in 2000 as in 1990. Contributing the largest increased supply were Venezuela, Mexico and Canada.

Total imports from all sources grew to 11.5 million b/d in 2000, from 8.0 million b/d in 1990.

### Variable assets

The nascent acquire-and-exploit business model of the late-1980s was fully adopted by many independents during the 1990s.

Ken Dewey, a founder of Houston-based



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asset-transaction advisory firm Randall & Dewey Inc., was among those who took knowledge from a major oil company and transferred it into entrepreneurial business. He and partner Jack Randall were with Amoco. The firm they founded was a play on the majors' coming asset-rationalization programs.

"The majors' decisions to trim their own portfolios was a key to the growth of many independents. What has emerged is a new set of very aggressive independents that have been able to grow at a rate no one would have been able to foresee, due to acquisition opportunities," Dewey said.

High-risk wildcatting is pretty much all that would have been left for independents after the 1980s, and most of the capital providers weren't financing these.

The assets the majors put on the market varied in quality.

"If you talk to the majors about what they did in the late 1980s and early 1990s, they will say they cleaned up the lower end of their portfolios. They did end up later in the 1990s selling some really good high-quality assets too, as they focused on trying to improve their return-on-capital measures. That forced them to sell some properties they had invested a lot in but weren't generating the book returns they needed," Dewey said.

Some of the assets that came onto the market had huge potential.

"The majors acknowledged they had some properties they hadn't looked at. With staffing constraints, they had chosen to neglect certain assets," he said.

Flores noted that deep-water technology aided U.S.

independents during the 1990s – indirectly, except for those that had a chance to have a deepwater program.

"Many of the majors moved into deep water, which allowed them to sell more of their assets on the Gulf of Mexico shelf," he said.

Keith Fite, executive vice president of Future Petroleum Corp., was an independent landman in the early 1990s and joined property auction-house Ebco and then asset-divestment advisory firm Madison Energy Advisors.

"The A&D [acquisition and divestiture] mar-



When President George H. W. Bush (second from left) visited his home state of Texas in 1991, IPAA member T. Boone Pickens (left) took the opportunity to do some first-hand lobbying for natural gas vehicles. Current President George W. Bush is seen next to his father.

(Photo courtesy of the Independent Petroleum Association of America)

ket was very new in the early 1990s, and there were a lot of properties on the market,” Fite said. “The sellers weren’t quite as sophisticated in the sales process as they are today, so there were probably better deals to do then than there are today. The majors didn’t always know what they had.”

### Trading assets

Another phenomenon occurred in the 1990s, Dewey noted.

“This was the realization by the independents that their assets were a means to trade in oil and gas. They could resell those assets or the company after a few years at a huge profit.

“There was a trader mentality at work in the private sector. And then there were some very good public companies that were born that demonstrated that even in a public environment, with buying the right long-lived properties, there was potential.”

Randy Foutch, founder, chairman and chief executive of Tulsa-based Latigo Petroleum Inc.,

did this. He founded Colt Resources in the early 1990s, sold it, founded Lariat Petroleum, sold it and is currently building Latigo.

“Working for us in the 1990s was the attractiveness of this industry to the private-equity markets,” Foutch said.

With Lariat in particular, he used some divestments by major oil companies in Oklahoma to add to his exploration plans.

“Lariat was principally a 3-D exploration company, but we saw acquisitions we could make where we could add significant upside through the drillbit,” he said.

Three-dimensional exploration is no panacea, however, he added.

“But 3-D is very helpful in identifying smaller prospects that 2-D doesn’t have the resolution to see. And we saw through the 1990s that using 3-D extensively was beneficial in delineating smaller prospects,” he said.

Also helpful were advancements in fracture-stimulation.

“We know a lot more about how to frac now, as a result of better chemicals, under-



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standing how they interact in the rock face and using real-time computer controls. We can do them larger and better,” he said.

Pierce had positive feedback to give regarding 3-D as well.

“The application of 3-D seismic was huge. Directional, steerable drilling technology, where you could steer the bit into smaller targets, was huge too. These contributed to becoming much more accurate in our ability to target objectives, therefore reducing risk, which enabled us to drill more wells,” she said.

The 3-D seismic boon cut the other way, too, said Glynn Roberts, president of Houston-based Northstar Interests Inc. The company is among the newest U.S. independents. Roberts started it with producing-property purchases, mostly financed with bank debt. In fewer than 10 years, it has grown into \$130 million of assets.

“Three-dimensional seismic put a lot of pressure on companies to find reserves where they didn’t find them before. This meant not as many properties became available to acquisi-

tion-minded companies - owners were holding onto their properties, whereas they had been dumping reserves they didn’t know they had.

“The liquidity of the reserves market allowed many companies to grow. Without it, the bigger companies would have been restricted to looking for international assets and holding onto their U.S. assets. Because they were willing to sell while they looked overseas and in deep water, it spawned a whole group of independents.”

### Price risk

An increasing use of price-risk management smoothed commodity-price ups and downs, helping to avert 1980s-style disaster when prices collapsed in 1998-99. But these didn’t always work out as well as hoped.

“There were several time periods when prices fell when we didn’t think they really could, and we didn’t understand hedging products,” Roberts said. “Some of us got into situations where we lost some money because we didn’t understand them as well as we





*Anti-development groups reduced independents' access to lands in the 1990s, such as here in Colorado's D-J Basin.*

should have.”

Scott Schroeder, chief financial officer of Houston-based Cabot Oil & Gas Corp., noted that use of price risk-management tools was not even supported by Wall Street.

“There was a lot of criticism of companies that would hedge and guess wrong,” Schroeder said. “You had Wall Street saying that hedging was always a lose-lose bet. If you guessed right and commodity prices fell, the whole sector was down anyway, so your stock wasn’t being rewarded. If you guessed wrong, you got whacked because you hedged away the upside.”

Hedging has since become more common-

place, however, and investors have stopped complaining, as their investments in exploration and production (E&P) companies today have real assets, rather than as a play on commodity prices. (For more on investor flight to assets, see the next chapter.)

“Speculation in E&P stocks still occurs today, but probably not as much as 10 years ago. The E&P sector gives you the opportunity to invest in companies that have assets. Those who invested in the late 1990s in the boom in tech stocks got wiped out financially,” Schroeder said.

Arthur “Buzz” Gralla, managing director of oil and gas banking with Guaranty Bank in Houston has been in energy lending since the 1970s.

“There were a number of lessons in the 1980s that were not repeated in the 1990s,” he said of the way independents and energy lenders operated. “One aspect of the 1990s was a strong financial discipline within the borrower fraternity.”

And, increasingly, independents were being led by management teams with MBAs and/or degrees in finance.

“The days when oil and gas companies were run by the seat of the pants and/or from an explorationist’s viewpoint were over,” Gralla said. “In the 1990s, you could have a CEO who was an explorationist, but he would need to also have a strong financial background or focus, or have a strong CFO [chief financial officer]. That was a big change.”

Pierce added, “The philosophical approach in the oil and gas business changed dramatically in the 1990s, as we went from being engineers and technical people worried about producing oil and gas to being business people worried about making money and adding value for our shareholders.

“The 1980s showed us we couldn’t depend on prices. You have to be smart at what you do, and you have to be low-cost and invest capital efficiently.”

Energy lenders, who had been more engineering-oriented, became more finance-and-engineering-oriented in the 1990s, Gralla said.

“In the 1970s, we calculated loan values but we did not do the type of detailed financial analysis that we do today.”

A focus on price-risk grew.

“In the early 1980s, we really didn’t examine the what-ifs on price as we do today. Into the 1990s, there became a much heavier emphasis on hedging as a risk mitigant for companies that have any significant degree of leverage,” Gralla said.

Hedging took a significant risk element out of the equation for independent oil and gas producers.

“It’s an insurance policy against low prices. We and the borrower sleep better at night,” he said.

Oil and gas prices collapsed in the late 1990s – oil in particular fell to nearly \$10/bbl, worse than the 1980s low.

“Money became a bit scarce in the late 1990s and hard to get,” Roberts said.

Besides low prices, price volatility makes business difficult. “Our business is driven by price,” said Rod Mellott, vice president, land and business development, for Denver-based Tom Brown Inc.

“It’s hard to plan a company around \$1 gas. Now we have a different issue - \$10 and \$6 gas,” Mellott said.

Foutch said, “The amplitude of price swings has gotten stronger and the frequency has gotten shorter. We used to get excited about a \$0.20 change in the price per Mcf over 2 or 3 months. Now, we can see a \$1 change in a day or two. The price goes up and down much more violently than we’ve seen before.”

“It has always been challenging to be an independent. But just as the industry has continually undergone change and evolution, the challenges to the industry have changed and evolved. In the '90s, the volatility of oil and gas markets and prices increased the difficulty of access to capital for independents,” Ames said. “Conventional capital sources dried up during the decade and became increasingly more risk averse by the end of the decade as capital sources were diverted from energy to the high-tech, dot.com industries in the high tech boom of '97-'99. The subsequent bust of the high-tech market left the capital providers in such disarray that they remained closed for energy until late 2003 and 2004. The collapse of Enron Corp. in 2001 and the 9/11/01 terrorist attack continued the shutdown of the energy capital markets. However, today, in 2004, the energy capital markets are reopening for the first time

in many years because of the perception that a higher level of oil and gas prices can be expected for several years.”

Capital markets became interested in U.S. independents again in the early 1990s.

“Private equity has always been there and tends to be there whether prices are high or low. Then, in the best of times, you actually have the equity markets open up, and they really bought into a growth story among the



Coalbed-methane wells, made profitable by 1990s economics and technology, produce water for months before gas.

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– Margaret Mead

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independents,” Dewey said.

“That was a great time for the independents. Their economics became something different than present value-driven or rate of return-driven. It was pretty simple – if we could buy properties at four or five times cash flow and the market will capitalize them at seven or nine times cash flow, why not do that? It was a frothy market in 1996.”

Foster drew upon private equity and then public equity to finance the start-up and growth of Newfield.

“For any start-up, access to capital is a challenge,” he said. “Fortunately, we had some early equity investors, including our own founders, who put up the capital we needed to get started. This got us to where we needed to be to enter the public markets in late 1993.”

Other financing available to independents included the mezzanine marketplace. Enron Capital & Trade provided some of this, contributing to the start-up of Flores & Rucks, for example.

“It was very important in the early 1990s and then fell out of favor when it couldn’t compete with public equity and high-yield debt, which has been a big source of funds for some independents,” Dewey said.


### Gas focus

Anti-development forces grew strength in the Rockies, frustrating independents there, while prices for the natural gas these and other producers were seeking soared, turning many “oil companies” into “gas companies” and more companies’ reserves and production measured in billion cubic feet equivalent rather than barrels of oil equivalent. Independents began tapping unconventional gas sources, such as coalbed methane, that were supported by new economics and technology.

Phil DeLozier, vice president of business development for Houston-based EOG Resources Inc., said the growth of anti-development forces in the United States in the 1990s played a major role in limiting independents’ full potential.

“The heightened sensitivity on environmental matters and the access of lands made it a much more challenging business,” DeLozier said. “Much of the sensitivity really started in the 1990s, and companies became more sensitive.”

Several U.S. independents were founded with a gas-production focus, and the advent of Section 29 tax credits aided that.



*“The heightened sensitivity on environmental matters and the access of lands made it a much more challenging business.”*

—Paul DeLozier  
Vice President, Business  
Development  
EOG Resources Inc.

“Some tax incentives in the 1990s were really key to gas. Coalbed-methane production came about because of that and a lot of tight-gas sands. From my perspective, Section 29 tax credits might have been one of the most important occurrences in the early 1990s,” Mellott said.

More independents were focusing on gas in Oklahoma in the 1990s, in part because most of the easy oil had already been produced, Foutch said.

“At the end of the 1980s in the Mid-continent, we were seeing gas not only take the lead in the state as a source of revenue, but also where operators were spending a majority of their activity. Part of that was because the depths we were drilling were principally gas plays. The early shallow oil was already drilled. So it was a combination of opportunity and what the investors wanted. It came together very nicely,” he said.

*“We haven’t penetrated half the depths in any meaningful way. Costs are an issue, but we are a long ways, from my opinion, from having drilled-out the U.S. gas basins.”*

—Randy Fouch  
 Founder, Chairman, CEO  
 Latigo Petroleum, Inc.

As the decade closed, fewer U.S. assets were becoming available from the majors, and independents that had already turned their sights abroad for exploration opportunities in the 1990s began to look for acquire-and-exploit opportunities overseas.

Gralla concluded that U.S. independents left the 1990s in much better shape than the way they entered the decade.

“I didn’t know how many independents would be left just a couple of years into the 1990s, much less by the end of the 1990s. As time moved on, it became obvious this was a much more resilient business with entrepreneurial spirit,” he said.

There is still tremendous potential remaining in U.S. basins for independents, Fouch said. For example, in the Anadarko and other basins of the Mid-continent, “we haven’t penetrated half the depths in any meaningful way. Costs are an issue, but we are a long ways, from my opinion, from having drilled-out the U.S. gas basins,” he said. ■

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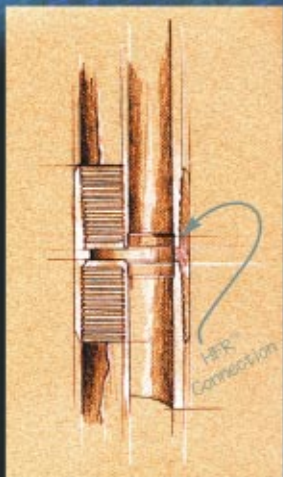
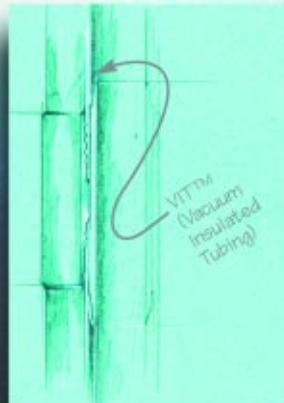
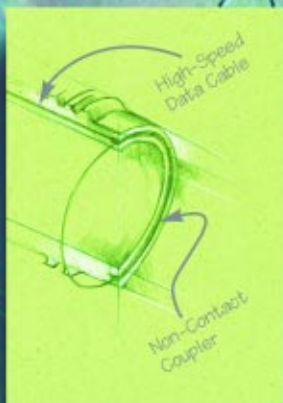
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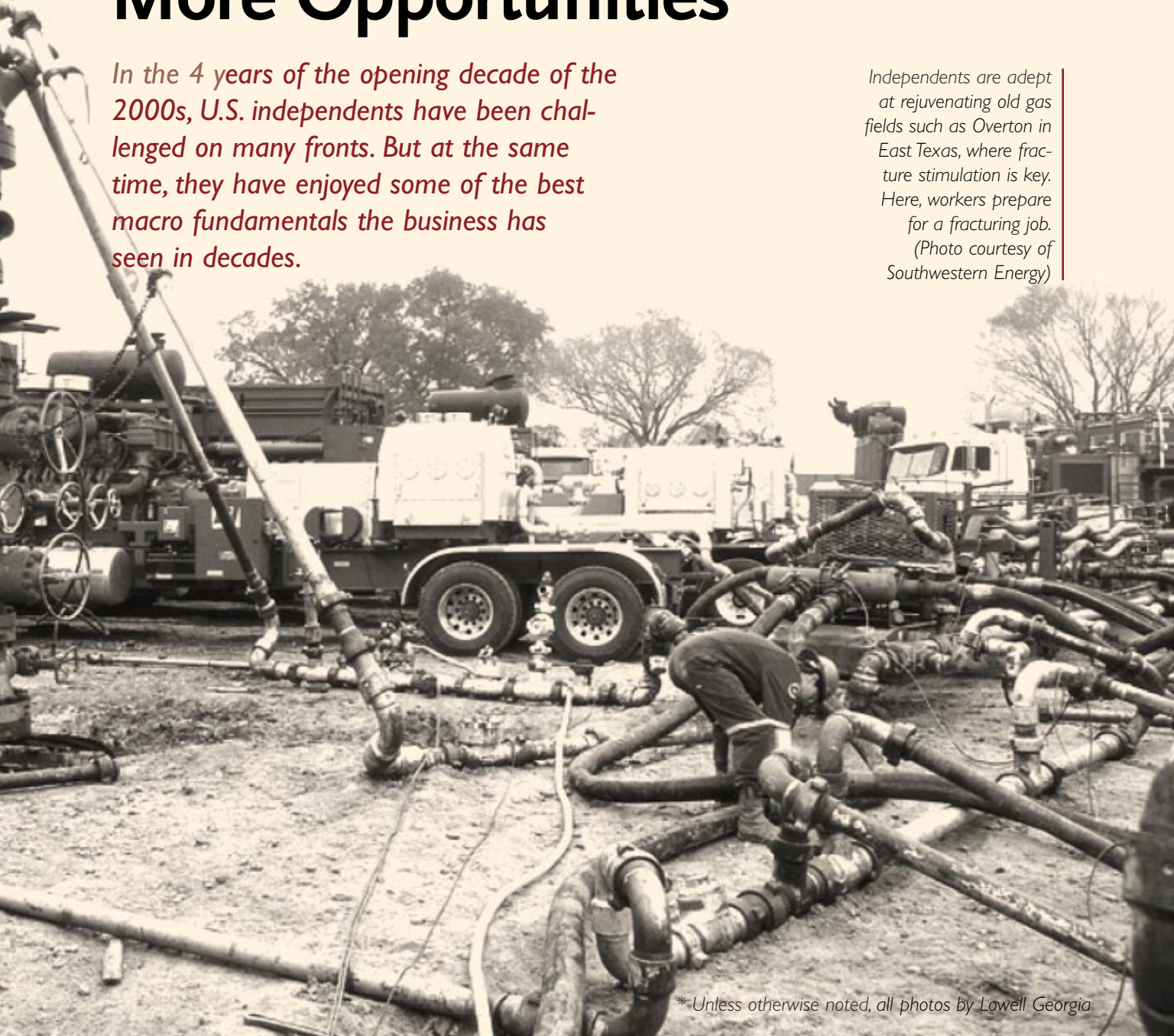


## Chapter 7 - The 2000s

# New Challenges, More Opportunities

*In the 4 years of the opening decade of the 2000s, U.S. independents have been challenged on many fronts. But at the same time, they have enjoyed some of the best macro fundamentals the business has seen in decades.*

*Independents are adept at rejuvenating old gas fields such as Overton in East Texas, where fracture stimulation is key. Here, workers prepare for a fracturing job. (Photo courtesy of Southwestern Energy)*



*\* Unless otherwise noted, all photos by Lowell Georgia*

**2000** – Former oilmen George W. Bush and Dick Cheney are elected U.S. president and vice president, respectively. A wave of mega-mergers kicks off with BP's purchase of Arco and Vastar Resources.

**2001** – Vice President Dick Cheney heads up a comprehensive task force to study U.S. energy needs.

**On Sept. 11**, Islamic terrorists attack the United States. Oil soars and the stock market

falls to pre-1999 levels.

**2002** – The United States invades Afghanistan. Energy Secretary Spencer Abraham asks the National Petroleum Council to study U.S. gas supply. Devon Energy

Independents say it is getting more difficult and more expensive to find hydrocarbons economically in the Lower 48, with per-well reserves declining in many of the mature basins. This is despite their widespread application of technology and the Internet, which have revolutionized the way they do business.

Today, several fundamentals have converged to justify the legendary optimism that is a prerequisite for being independent. Oil and gas prices, while always volatile, keep exhibiting an upward trend, as does U.S. demand for the commodities. Major institutional investors, who acknowledge these trends, are plowing literally billions of dollars into private oil and gas equity funds that are, in turn, backing many start-up exploration and production (E&P) companies.

The future looks good, said John B. Walker, president of EnerVest Management Partners Ltd. and chairman of the Independent Petroleum Association of America (IPAA).

“The majors have really ceded the U.S. to the independents. Even ExxonMobil has said 80% of the wells to be drilled will be drilled by independents.

“Because of our technical capabilities and creativity, independents have gone to the bypassed zones, smaller formations, deeper drilling, the Deep Shelf – so we are moving into more difficult situations, but in areas where we can compete. If you have the capital it’s a matter of finding the opportunity.”

Since Walker started EnerVest 12 years ago, it has grown to 150 employees and interests in 6,000 U.S. wells – remarkable growth, but a track record that has been duplicated by many other independents during the past 20 years.

“Today, it’s not access to capital; it’s not access to technology; it’s not fundamentals (oil and gas prices are exceptional). It’s access to good opportunities,” said long-term industry observer Art Smith, chairman and chief executive officer (CEO) for research firm John S. Herold Inc. in Norwalk, Conn.

Those opportunities have changed. Independents primarily chased crude oil at the turn of the 20th century, but they are pursuing natural gas in the 21st century.



More mid-sized independents are finding reserves overseas to augment their U.S. activity. Here, Swift Energy's Rimu production station in New Zealand has capacity for 3,500 bbl of oil and 10 Mcfd of gas.

They are up to the challenge, though. Independents are moving into deeper, tighter formations onshore; pursuing unconventional plays such as coalbed methane in the Rockies, drilling in ever-deeper water offshore; and even going abroad in pursuit of reserves.

“We’re looking for smaller needles in smaller haystacks,” said Carter Overton, president and CEO of JMI Energy, a private Houston independent. Like many of his colleagues, he recently sold a major chunk of his producing properties and will redeploy the capital in new E&P opportunities. This recycling of skills and capital is another industry trend.

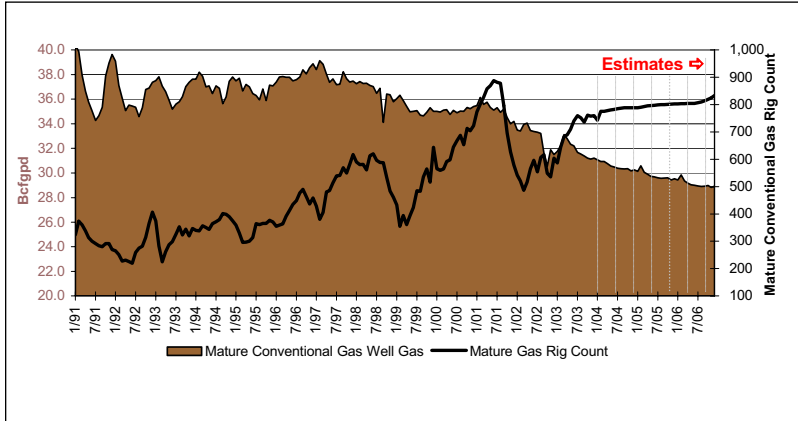
“Smaller independents can find things profitably but from a shrinking set of prospects, and the larger independents will take on the larger projects,” he said.

The variety among independent styles makes a lot possible. There are plenty of identified niches in which to grow a company.

“You are talking about mega-independents with market caps of



IPAA Chairman  
Jerry D. Jordan  
1999-2001



Independents face a challenge because conventional gas well drilling has increased, yet gas production is flat to down.  
(Source: Jefferies & Co. and government reports)

\$15 billion, on down to small ones with market caps under \$100 million,” said Charles Swanson, a Houston-based partner with Ernst & Young, and Americas director of oil and gas.

“The largest companies on the spectrum have the strength to do what the majors do,


pretty much anywhere in the world, while the smaller independents will continue to focus on North America.

“In any case, independents are on the cutting-edge in that they’re the ones who reap the most when commodity prices rise – and they’re the first to suffer when they fall. They have quite a survivor mentality and have had throughout the history of this industry,” he said.

But compared with 20 years ago, there are fewer independents, and they are trying to find reserves in mature basins – a challenge Walker, Swanson and Overton think the United States needs to admit and address.

Oil and gas equity analyst Steve Smith of Stephen Smith Energy Associates in Natchez, Miss., agreed it is getting more difficult to replace reserves in the United States, a land of heavily drilled basins.

“The analogous challenge for a homerun hitter would be that the outfield fence gets moved back by 10ft each year....Approaching



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**HAPPY 75TH ANNIVERSARY TO IPAA**



*In the 2000s, independents are drilling deeper to find new gas reserves. Here, a Nabors Drilling rig works for Chesapeake Energy in western Oklahoma's deep Anadarko Basin, drilling gas wells to 20,000ft.*

2010, the most obvious challenge facing most independent producers will continue to be difficulty in maintaining indigenous gas production....” Smith said.

Michael Linn, a second-generation oilman who is serving as IPAA vice chairman, heads

one such company pursuing gas reserves. He started a new E&P company, Linn Energy LLC, in 2002. This year he plans to drill 125 wells in the Appalachian Basin.

“An independent’s greatest strength is his ability to adapt quickly and act on it,” he said. Walker added, “That’s the nice thing about being an independent – you can move fast, like a commando unit, if you have the capital. Every once in a while, someone gets on a rocketship and really soars.”

### Year 2000

Independents welcomed the new millennium with Y2K fears abating as New Year’s Day dawned without a worldwide computer meltdown as some had predicted. This gave way to a dot-com, high-tech boom that propelled the Dow Jones Industrial Average above 11,000 for the first time. The economic boom from 1995 to 2001 caused real estate values and housing starts, car sales and investments to soar, but the oil industry felt left behind as frenzied investors flocked to dot-com and telecom stocks that promised to revolutionize American business.

Indeed, computers and the Internet were transforming the offices of U.S. independents too, creating new efficiencies in communication, collaboration and exploration techniques. By 2003, people were talking about the digital oilfield, smart wells and the virtual oil company. Others scoffed, claiming the oil and gas industry was a dinosaur, part of the economy that was dead or dying.

But it wasn’t true. Oil and gas still powered the U.S. economy.

The new decade began with ever-volatile oil and gas prices coming out of their swoon of 1998-1999 that had crippled many producers or caused them to merge with larger companies. The natural gas price recovery was so pronounced that by the summer of 2000, the U.S. Department of



*IPAA Chairman  
Diemer True  
2001-2003*

Energy was predicting that homeowners in the coming winter would see heating bills rise to new heights, given the most expensive gas prices seen in 15 years. Utilities warned gas prices would double from the previous year.

Independents responded to these strong price signals as they always do, with more drilling. The U.S. gas rig count was climbing that summer to about 775, a double from the abnormal lows of the prior year. The 12-month futures strip price hovered between \$3.85 and \$4.05 through the summer – well above the price range of \$2.25 to \$2.45 recorded in the summer of 1998 – giving independents lots of encouragement.

As the 2000 presidential election approached,

the stock markets began to slow down and the dot-com business models that underpinned stocks crashed back to reality.

In November, oil prices reached a 10-year high and gas had surpassed \$5/MMBTU. By the end of 2000, 307 publicly held producers showed a median total return of 48%, led by the natural gas-rich producers. This achievement swamped the high-tech stocks.

From 2002 on, increased worldwide demand for oil and natural gas, coupled with flat or declining production in the United States and Canada, has again turned the tide. Oil and gas companies were in the news again.

Congress struggled to pass a comprehensive energy bill in 2002, 2003 and 2004. But it was

### The Next Wave

Mergers and the acquire-and-exploit business model will continue to be viable strategies for independents, some of which have built billion-dollar companies through these approaches.

In the years leading to 2010 or 2015, many baby-boomers will be heading up their own exploration and production (E&P) companies for what is likely to be the last hurrah before they retire. The unyielding demographics of the oil industry show the median age of employees and managers is about 50. Few young people in their twenties and thirties are entering the industry to replace people who have made oil and gas their career since the 1960s.

A string of prominent chief executive officers (CEO) and other executives, who successfully sold their public companies to even larger firms in the late 1990s and early 2000s, have resurfaced to start new, entrepreneurial independent firms and keep the cycle going. These well-funded start-ups aim for a last run at the brass ring and are reinvigorating the independent scene.

One is Independent Petroleum Association of America Vice Chairman Michael Linn of Pittsburgh, Pa. A second-generation oil man, he remembers his father being an oil employee from 1949 to 1962, when he went out on his own. The younger Linn and his brother bought their father's company in 1985, built it up and eventually sold it to a much larger firm in 2000.

But Linn returned to the industry in 2002 to form Linn Energy LLC with \$25 million of seed capital, mainly from a private equity fund. He started with five acquisitions, each with proved undeveloped locations to drill, in West Virginia, Pennsylvania and western New York.

"I like the people, the challenges you face, the opportunity that makes it fun," Linn said. He plans to drill 125 wells this year and 100 annually after that for the next 3 years.

Nick Sutton, former president and CEO of HS Resources in Denver, announced in early 2004 that he had received equity funding to start a new E&P company, Resolute Natural Resources, an acquire-and-exploit firm. Jack Hightower and Bill White, formerly number one and two at Pure Resources in Midland, have each formed new companies. Hightower's Celero Energy and White's Amado Energy will also pursue acquire-and-exploit models.

But, White said, that time-honored strategy is getting tough to implement in a time of high commodity prices, when buyers and sellers can't agree on a price for producing assets.

"I believe that in the future, independents and start-ups may not be able to buy producing properties with upside as easily, so much as they will farm in to owners who don't want to sell, and form a joint venture for drilling," he said.

not to see fruition. Twice, the House passed a bill, but mired in partisan politics and being more rightly engaged in the war on terrorism, the Senate still had not passed an energy bill by the middle of 2004.

In the 2000s, independents have continued their quest for oil and gas by operating in more countries around the world. The trend seen in the 1990s of majors divesting key assets to independents also continued, and was marked by Apache's entry into the North Sea in 2003 when it acquired the legendary **Forties** field from BP. But small-cap companies such as ATP Oil & Gas and Newfield Exploration made forays into the North Sea, also seeing it as the next province in which to grow.

### Geopolitics

After a near virtual tie between Republican George W. Bush and Democrat Al Gore in November 2000, the U.S. electorate was deadlocked. For weeks after the election, it was still not clear who had won the Oval Office.

Finally in December, the U.S. Supreme Court stepped in and declared Bush the 43rd president of the United States. Independents everywhere took great encouragement from the election of one of their own, Bush having been an independent in Midland, Texas, the heart of the Permian Basin, in the late 1970s and early 1980s. What's more, the new vice president, Dick Cheney, was once the CEO of oilfield services giant Halliburton.

The new administration immediately ordered a major study of America's oil and gas needs in preparation for introducing an energy policy bill to Congress. The study advocated more drilling, more generous access to federal lands in the West and on Alaska's North Slope and a balanced approach between drilling, conservation, and research and development into alternatives such as hydrogen fuel cells.

After the attacks on New York and



IPAA Chairman  
John B. Walker  
2003-2005



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*In the 2000s, unconventional gas resources such as coalbed methane will play an increased role in U.S. supply. Here, Burlington Resources of Houston drills for coalbed methane in New Mexico's San Juan Basin.*

Washington, D.C., on Sept. 11, 2001, the world geopolitical scene changed drastically as the war on terrorism began. Per-barrel crude oil prices soared into the mid-\$30s during the

buildup to the war in Iraq, which began March 2003. At the same time, as drilling for natural gas in the United States and Canada increased to all-time highs in 2003, gas production remained flat. This sounded an alarm among companies, their investors and within the federal government.

With the election of former oilmen Bush and Cheney, energy security came to the forefront. This was heightened in 2000 when California electricity prices sky-rocketed, and again in August 2003 when a massive electricity failure plunged the entire Northeast and parts of eastern Canada into darkness. More than once, Congress tried – and failed – to pass a comprehensive energy bill to address the nation's need for secure oil, gas and electricity.

To a large degree, exploration for oil had shifted to international venues offering a better chance of low finding costs and big reserves. Certainly this was true for the majors, whose U.S. rig counts steadily declined in the 1990s and early 2000s. In the Gulf of Mexico alone, the majors' rig count fell from 70 in 2001 to less than 20 in 2003. But this trend has paved the way for independents, which have become the most active drillers offshore. And, they are pushing into deeper water.

But many more independents, from multi-billion-dollar companies to small start-ups, also began pursuing more overseas opportunities as foreign governments opened up their lands to concessions and production-sharing contracts.

IPAA member companies that have gone abroad with success now have operations that stretch into every time zone in every political climate. By 2002, 16 of the top 20 public independents had significant operations in Canada.

Many also ventured further afield. They include Kerr-McGee in the North Sea, Vintage Petroleum in Argentina, Devon Energy offshore West Africa, Noble Energy (formerly Noble Affiliates) offshore Israel, Burlington Resources in Tunisia, Pioneer Natural Resources in South Africa, Teton Petroleum in Russia, Swift Energy in New Zealand and Ultra Petroleum in Bohai Bay, offshore China.

## Prices

It appears companies and investors have begun to believe a new and higher oil and



gas price floor is sustainable. But at the same time, a new capital discipline has emerged in the 2000s. Instead of an unfettered drilling boom, E&P companies are focused on returns as well as production growth. In effect, they are drilling smarter, not harder.

Armed with the latest technologies, they are pushing further into the Gulf of Mexico deep waters and into coalbed methane and tight-gas plays onshore.

Looking to the future, independents are fighting the U.S. production decline curve and pending retirement of a majority of the seasoned workforce by applying new technologies and drilling in more challenging, more expensive environments.

Although some public independents have merged and are now as big and sophisticated as a major in terms of oil or gas production and business practices, many smaller concerns are still going strong and new start-ups are announced weekly.

<b>Basin/region</b>	<b>Proven Reserves (Tcf)</b>	<b>Marketed production (Tcf)</b>
Gulf Coast onshore*	44.05	5.79
Rocky Mt. Area	36.40	2.42
Gulf Coast offshore	26.50	5.07
Mid-continent Basin	24.23	2.75
San Juan Basin	13.90	1.05
Permian Basin	13.43	1.45
Appalachian Basin	9.35	0.71
California**	3.22	0.38

\* Includes resources and reserves in five states onshore and in their state waters.

\*\* Includes entire Pacific resource base and reserves.

*Independants will focus on remaining gas potential in these U.S. regions.*

Source: Pace Global Energy, EIA

It is expected that smaller firms will continue to wring the last drop of oil or gas out of mature fields and plays by using innovative



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technologies to produce previously bypassed pays. And they will also be the ones to do true wildcatting, to explore new ideas.

Through the early 2000s, finding and development costs in the United States rose, as independent operators drilled deeper, hotter, more highly pressured wells, especially offshore, or focused on unconventional tight gas sands such as the Barnett Shale of northeast Texas and the Pinedale Anticline of Wyoming.

### The independent of the future

In coming years, the United States will need more exploration drilling, even though lately, wildcatting has received a smaller and smaller slice of U.S. capital spending. In 2002 and 2003, some 51,000 wells were drilled in the United States, according to IHS Energy, yet only 3,500 were exploratory. The super-independents spend only 13% of their drilling budgets on exploration, vs. 22% 5 years ago, said Anadarko Petroleum Senior Vice President Dick Sharples.

As companies focus on more disciplined spending in proven basins, to create returns on capital as well as reserve growth, their drilling habits have grown more conservative and cost-conscious. Some independents complain the amount of quality drilling prospects has declined. Others claim investors are too intolerant of failures that inevitably occur when a company is exploring as opposed to developing and exploiting known reserves.

But all agree that any renewed exploration activity in the United States will be the special province of the independent – just as it always has been.

Bud Brigham has focused his Austin-based public company, Brigham Exploration, solely on exploration for the past decade and has only lately made significant discoveries that will require his budget to shift to development. But he isn't sure a small-cap public company can do this anymore.

"It is almost intolerable for even well-managed, ethically and legally diligent exploration entrepreneurs to operate in the public domain," he said "I think it is very likely that the private arena is where you'll see the exploration entrepreneurs of the future."

"We do expect to see a greater share of total E&P spending focused on exploration in the

next few years, but would describe the change as more of a moderate shift than a sea change," analyst Steve Smith said. "One reason for the slowness of the change is that acquisitions [which are becoming harder to do] often provide the 'raw material' for exploration as well as exploitation drilling. A second reason for moderation might be the visions of [competing gas supply from] LNG [liquefied natural gas] on the horizon.

"A critical issue is this: how much can reasonably be spent on unit finding and development costs for North American gas when foreign gas finding and development costs allow economic delivery of LNG to the U.S. at \$3.50 per Mcf?"

If, at the turn of the 20th century, most independents were focused on finding crude oil, the turn of the 21st century saw them looking for natural gas, and that will continue.

Throughout the IPAA's 75 years, and in the future, the wish list of an independent has been and will likely remain the same. Oil and gas executives want decent and stable commodity prices that cover the ever-rising costs of safely finding and developing reserves. They want access to state and federal lands on a timely and reasonably economic basis. And they hope governing agencies will cooperate, if not steer clear of industry interference.

"The government is never there to help independents when they're in the valley, but it often steps in when prices enable them to reach the peak, to lop off the top. It's a tough picture I paint for the country, but a good picture for independents right now," said Ernst & Young's Swanson. "I think they are looking at tremendous cash flows...so ultimately they'll start drilling more."

"E&P is a wonderful business and a few talented individuals can generate great fortunes in short periods of time," Art Smith said. "But managing risks and staying at the table long enough to have successes are real challenges. Also, avoiding 'herd mentality' thinking is tough..."

"Today, the opportunities for growth are simply amazing. If we can execute our drilling program in this window of high commodity prices, we have a remarkable, golden opportunity to compound meaningful value for our shareholders," Brigham said.

That is the aim of all independents. ■

The exploration and production company took a risk searching for oil.

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## Chapter 8 - The Future

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# What's Next? A Look to the Future

*Although the Independent Petroleum Association of America is justifiably proud of its long history of service to the nation and the energy business, characteristically, the organization remains focused on tomorrow.*



**D**uty, Honor, Country – the motto of the United States Military Academy can be equally applied to the Independent Petroleum Association of America (IPAA). Few industries are as vital to the nation’s future well-being as America’s oil and gas industry. As the energy-thirsty world consumes 400 quadrillion BTU of energy each year, 62% coming from oil and gas, it’s appropriate for IPAA’s leaders to reflect on the past, but more importantly, to look to the future.

The editors of this publication talked with several industry friends who have long histories of service to IPAA. Their perspectives and clear insights shine a light on the days and years to come. They were only asked three questions. In some cases, the answers were predictable, but others reflect creative and innovative ideas to position IPAA for its next 75 years of service. Together, they provide a rich resource of concepts and opportunities that can shape tomorrow’s IPAA.

Contributors to this chapter include: George A. Alcorn, chairman and president, Alcorn Exploration, Inc.; Eugene L. Ames Jr., chairman and chief executive officer of Ames Energy Corp.; Jon Rex Jones, president, Jones Management Corp.; Jerry D. Jordan, president, Jordan Energy, Inc.; Diemer D. True, partner with True Oil LLC; John B. Walker, president, EnerVest Management Partners, Inc. and current IPAA chairman; and George M. Yates, president, HEYCO Energy Group. All have long histories of service in leadership roles in IPAA and various state associations. Three questions, several answers — what did they have to say?

**Q: What future legislative or regulatory actions will provide the greatest benefit to independent oil and gas operators?**

Unsurprisingly, the near-unanimous response was access.

“Our industry continues to prove that it can conduct extensive exploration and development operations without significant environmental damage,” Jordan said. “This is best illustrated in parts of the country where operations are regularly conducted on private lands under state regulatory systems.”

Access was cited as the most critical issue facing the oil and gas industry in general, and independents in particular.

Policy and regulation placed a close second.

“Congress needs to pass the overall provisions of HR6,” Walker said. “Rather than getting bogged down in ethanol credits that add no BTUs [British thermal units] to energy production or MTBE [methyl tertiary butyl ether] liability limits, Congress needs to address the critical issues of domestic oil and gas supply.”

Walker called for independents to support Vice President Dick Cheney’s Energy Task Force recommendations, or the so-called “Balanced Future” requirements of government in the September 2004 National Petroleum Council study of natural gas.

“Important also, as much for the country as for independents, is mitigating government sponsorship and wholesale expansion through subsidy of the ethanol industry – at much sacrifice to basic economics and energy efficiency,” Yates added.

“We constantly find ourselves asking Congress to clarify and sanctify existing rules and regulations,” Jones added.

Alcorn agreed, adding, “Free markets make this industry work, meaning obviously, less regulation.”

Ames pointed out that despite record high product prices, we still do not drill enough exploratory wells.

“If it is economical to transport LNG [liquefied natural gas] and North Slope gas to the Lower 48, then our high-cost, ultra-deep onshore gas resource base must also become economically feasible,” he said.

Ames called for federally sponsored tax incentives to help drive the exploitation of deep onshore gas.

**Q: What new technologies, existing or as yet undeveloped, will be most beneficial to independents?**

“The technologies of the future will be evolutions of progress to date,” Walker said. “Independents will continue to benefit, since these technological innovations are made readily available to all operators, regardless of size.”

Jordan agreed.

“Tight sands or low permeability technological developments will be most beneficial to the greatest number of independent producers,” he said.

Alcorn and Jones cited 3-D seismic, horizontal drilling and hydraulic fracturing as key enabling technologies of the last decade.

“We need to continue to develop and improve these techniques,” they said.

“The further development of information technology solutions, such as reservoir characterization and simulation that allow wells to be ‘drilled on the desktop’ with appropriate adjustment of drilling and completion variables before drilling actually commences, is key,” Yates added.

“Technology is an area where our industry has excelled,” True said. “One of the great success stories is the development of coalbed natural gas (CBNG) in the Powder River Basin. It took a small, determined group of independents to apply practical technologies to economically de-water the coal seams and put that acreage into play. “Ten to 15 years ago,


Powder River CBNG was not even considered in the Natural Gas Reserves Study, but now, we’re talking about an additional 35 Tcf of recoverable reserves.”

Many IPAA leaders credited tax incentives with helping to spur practical applied technology development, particularly in the areas of unconventional gas and tight sands plays. More such incentives are needed.

**Q: How can IPAA, through actions or organization, improve its ability to represent the interests of independents?**

This final question elicited the most passionate response. Interestingly, the overall consensus of the panel did not raise traditional issues, such as specific tax relief, evolving regulations or increased lobbying. While these were mentioned in a general sense, the No. 1 initiative IPAA could launch addresses public education.

“The typical consumer has a huge stake in the future of energy, but they don’t understand



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the complexity of providing 20 MMb/d of oil and 65 Bcf/d to 70 Bcf/d of natural gas,” True said. “It is a tremendous success story that the American public is unaware of. The media only report the bad news or stories critical of our industry. We need to take the initiative to tell the positive side of the story.”

Jones pointed out the pioneering work of former IPAA Chairman Lew Ward, working toward a national check-off program.

“The Oklahoma Energy Resources Board has proved that public good will towards the oil industry can be positively and cost-effectively affected by an organized effort. The IPAA, working with the other producer associations, can develop such a successful program on a nationwide basis,” he said.

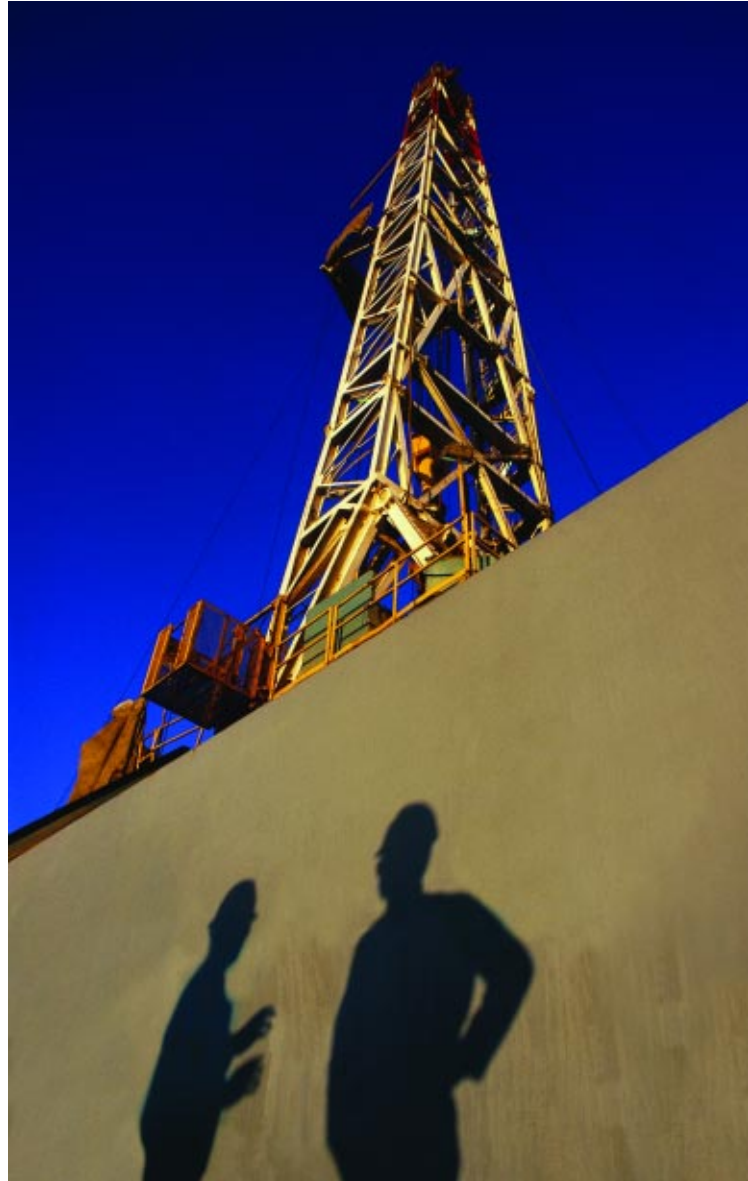
Educating the public requires a concentrated effort and lots of patience. Several initiatives have been launched and are making positive inroads. The American Association of Drilling Engineers sponsors the popular “Knowledge Box” program that provides resources to teachers across America in the form of energy-related lesson plans, materials and science experiments they can use to enrich their curricula. Nationally, the NEED program helps teach teachers about oil and gas, and holds summer workshops designed to launch grass-roots energy awareness among young people. While acknowledging the value of these programs, IPAA leaders believe better inter-organizational cooperation and communication is needed to make a concentrated impact on Washington.

“One way we can cooperate is to enlist like-minded organizations to collectively sell the message,” Jordan said. “We can start in the producing states, then extend to consumer areas.”

Yates agreed.

“Increasingly, we should work our larger issues through partnerships and coalitions with other trade organizations and foundations, as well as intellectual and policy organizations,” he said. “These may not be specifically energy-related, but could deliver genuine policy success on issues of major importance.”

According to many, access to public areas is a hot issue for the timber, mining, ranching and fishing industries for example. A collective effort to sell the concept could ultimately benefit many stakeholders.



Ames agreed.

“Consolidation of the various functions related to exercising much needed federal advocacy efforts among trade organizations should be led by IPAA,” he said. “Perhaps the oft hoped-for goal of ‘speaking with one voice’ could be achieved by forming one ‘Exploration & Production Council’ to be comprised of representatives of all the E&P trade associations, with IPAA taking a leadership role.”

Alcorn said he recently attended a conference in the Northeast where oil and gas prices were discussed.

“Surprisingly, the big issue with those folks wasn’t the cost of energy, but the reliability of



the supply chain," he said.

IPAA could do some good work by sponsoring communication initiatives designed to reassure consumers on this issue.

Walker called for greater participation by all stakeholders.

"All companies and personnel in the upstream industry should be associate members of IPAA, whether they pay dues or not," he said. "Washington understands two things – money and votes. We need to harness the power of our 300,000 to 400,000 participants." Walker said that IPAA can use its Web site to provide important legislative or regulatory notices, they can send e-mails to the greater upstream industry and use other techniques to focus the power of the people on issues of importance.

"It's time all of us worked together for the benefit of our nation to deliver the needed domestic supply of oil and gas," he said.

How powerful is our message?

"Plenty!" Jordan said. "After all, we're selling the truth about products everyone needs." ■

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Left to right: James C. Thompson Jr., Linda Thompson Gordon, Christy Thompson.



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