

## **HISTORICAL TOUR OF OKLAHOMA'S OIL and GAS INDUSTRY**

The first recorded oil well in what is now Oklahoma was completed in 1859, the same year that Colonel Edwin Drake ushered in the age of oil at Titusville, Pennsylvania. Although Oklahoma's first oil find was accidental – the driller was seeking saltwater – other oilmen quickly invaded the Indian Territory in search of “black gold.” Their efforts were hampered severely by governmental regulation, inadequate transportation facilities and the lack of a readily accessible market. Nevertheless, on April 15, 1897, a shot of nitroglycerin brought in the Nellie Johnstone No. 1 – the first commercial oil well in Oklahoma. Just before Indian Territory and Oklahoma Territory were united in single statehood in 1907, a fantastic oil-boom era began in the region. It's immersed oil riches ignited a mineral rush that would ebb and flow across the twin territories and the state for more than thirty years and would rival all previous quests for hidden wealth in the American West.

The Oklahoma oil fields were part of the huge Mid-Continent Oil Region that stretched from central Texas across Oklahoma to eastern Kansas. Within this vast reservoir of crude oil were some of the nations greatest oil finds. Texas boasted of Desdemona, Eastland, Ranger, Breckenridge, Electra and Burkburnett; Kansas has Neodesha, Augusta, Eldorado and Paola; and Oklahoma claimed Cleveland, Red Fork, Glenn Pool, the Osage, Burbank, Cushing, Healdton, Three Sands, Garber, the Greater Seminole, Oklahoma City, and many others.

More than 8,804,000,000 barrels of crude were pumped from the various pools of the Mid-Continent Region from 1900 to 1935. In twenty-seven years of these thirty-five years, this region ranked first among the nation's major producing areas. Moreover, in the years between 1918 and 1922 and between 1924 and 1935, the Mid-Continent Oil Region poured forth more than half of all the crude produced in the United States. Oklahoma was consistently a leader in production within the Mid-Continent Region. For twenty-two of the years between 1900 and 1935 it ranked first among the Mid-Continent Region states in production, and for nine years it was second.

Oil made Oklahoma. It ushered the state into the twentieth century and gave it an economic base that for decades allowed continued development. Moreover, the state's petroleum industry had influence far beyond Oklahoma's borders. Technological innovations first tried in the Oklahoma oil fields revolutionized the industry, and the oil fortunes made within the state laid the foundations for some of the world's greatest energy companies, which went on to develop the petroleum industry in dozens of other countries (*Early Oklahoma Oil and Gas, Dr. Kenny Franks*).

### **1. OKLAHOMA'S FIRST COMMERCIAL OIL WELL**

Nellie Johnstone No. 1, first commercial oil well in Indian Territory, completed April 15, 1897, by the Cudahy Oil Company, on the south bank of the Caney River. Site is 3.1 miles northwest of this marker.

Oklahoma City oil and gas field discovery well brought in December 4, 1928 is approximately six miles southeast of this marker.

From such beginnings, the sprawling Oklahoma City oil and gas field became one of the world's major oil producing areas, ranking eighth in the nation during the first 40 years of existence. In this time the field yielded 733,543,000 barrels of oil and still continues to produce today.

Discovery and development of Oklahoma City oil field added great stability to the economy of both Oklahoma City and the State of Oklahoma – providing financial incentive for cultural and industrial progress. In tapping the prolific Wilcox producing zone on March 25, 1930, the Mary Sudik No. 1 well blew “wild” for more than 11 days, thereby distinguishing itself as the “most publicized oil well in the world.” Rapid development of the oil field, and problems created thereby, sparked passage of first comprehensive state legislation for conservation of oil and gas, thus providing model statutes for other states to follow.

To reach oil reserves underlying the Oklahoma State Capitol Building, one well was slant-drilled from across the street to oil sands beneath the Capitol. This well is known as the “Petunia No. 1” because of the fact that the well was drilled in the middle of a Petunia flowerbed. This well is located on the south side of the State Capitol building.

The discovery well and the “Wild Mary Sudik” were both drilled by Indian Territory Illuminating Oil Company, an affiliate of Cities Service Oil Company, and by Foster Petroleum Company.

Oklahoma Historical Society 1968

*Granite monument near the steps of the State Capitol in Oklahoma*

Tulsa has long been known as the Oil Capital of the World and the city that oil built. The rise of Tulsa to a place of preeminence in the petroleum industry began on June 25, 1901, when a well was brought in at Red Fork across the Arkansas River to the southwest. Tulsa leaders caused a bridge to be built between the two points and national publicity focused attention on Tulsa as a center of a new oil region.

When a major oil strike took place at the nearby Glenn Pool, on November 22, 1905, the production of oil in the area became so great that the term “Oil Capital of the World” was universally applied to Tulsa. Other fields were discovered and developed in adjacent areas to a point where, for a time, it was the largest oil-producing center on earth.

Tulsa remained in the forefront of exploration and development, financing, equipment manufacturing, and provided skills and executive direction for a growing, worldwide industry – hence continued to hold the title “Oil Capital of the World.”

Oklahoma Historical Society 1969

*Horizontal granite monument in Tulsa's Civic Center*

## **2. OIL IN THE OSAGE INDIAN NATION AND THE “MILLION DOLLAR ELM”**

Symbolic of the impact oil had on the people of the Osage Indian Nation is the so-called “Million Dollar Elm.” It was given this name because in its shade millions of dollars worth of Osage oil leases were auctioned. It was planted at this site sometime during the latter part of the 19<sup>th</sup> Century as an ornament and for shade.

The story of oil and the Osages is one of the most glamorous facets of the oil industry in American. It began with the drilling for the first well in the Osage in October 1897.

On March 2, 1922, the first 160-acre tract to bring a million dollars or more was in the NE 25-27N-05E. Skelly Oil Company and Phillips Petroleum Company bid jointly on this tract. Highest bonus paid for a 160 acre tract was by Midland Oil Company, March 29, 1924 - \$1,990,000 for a tract in the NW 14-27N-05E.

A total of 18 tracts brought bonuses of \$1,000 000 or more.

By November 1969, the Osage lands had produced a billion barrels of oil, and was estimated that two billion barrels remained in the area.

Oklahoma Historical Society and Oklahoma Petroleum Council 1970  
*Granite monument on campus of Osage Indian Agency in Pawhuska*

### **3. FIRST GAS PROCESSING PLANT WEST OF THE MISSISSIPPI RIVER**

The gas processing industry west of the Mississippi River had its beginnings near here in 1909. At the D.W. Franchot and Company plant three miles west of this marker, liquid hydrocarbons were extracted from gas produced with oil in the surrounding Glenn Pool. This pool was discovered on November 22, 1905, and provided raw material for the first gas processing plant. By 1920, 315 plants had been built in Oklahoma.

Expansion of the gas processing industry grew out of conservation of liquids contained in natural gas. This natural gasoline, as it was called, initially was used to fuel the increasing numbers of automobiles. Residue gas was used to fuel oil field operations and was piped to nearby towns for heating and lighting.

With the rapid growth of gas processing in Oklahoma and surrounding oil states, gas processing became a major United States industry. By 1970, natural gas and the products of gas processing constituted 58 percent of the nation's total petroleum energy production. Oklahoma plants had processed 30 trillion cubic feet of gas and recovered 1.5 billion barrels of liquids by 1970.

Within a few years after gas processing had spread to Oklahoma, it spawned two other petroleum-related processing entities – the petrochemical and the LP-Gas or “bottled gas” industries.

Oklahoma Historical Society and Oklahoma Petroleum Council 1972  
*Granite monument at U.S. Highway 75 and 141<sup>st</sup> Street, Tulsa*

### **4. OKLAHOMA'S FIRST WATERFLOOD**

Injection of water into an oil reservoir to increase recovery was first attempted in Oklahoma on an oil lease 5.8 miles east of this location.

From that effort, a recovery method previously used in eastern fields was adapted to conditions found in the area. Since then, waterflooding to obtain greater oil recovery has spread to adjoining states and around the world.

Bert Collins developed the initial waterflood, experimental in nature, on a shallow producing property in Rogers County in May 1931 on a Carter Oil Company lease. The test was encouraging and the method was applied to other oil reservoirs.

Water for modern flooding projects, treated to a purity often exceeding city requirements, is injected under high pressure into oil-bearing formations to force the oil through the strata to nearby producing wells from which it is pumped. On the average, 10 barrels of water is injected for each barrel of crude oil recovered.

The City of Nowata became the hub of waterflooding for the area with most of the field activity being in Rogers County where vast oil reserves had been proven.

Billions of barrels of crude oil have been recovered by waterflooding to provide man with increased supplies of energy and fuel that could still be locked in the earth without the industry's constant effort to improve its recovery methods.

Oklahoma Historical Society and Oklahoma Petroleum Council 1973  
*Granite monument at U.S. Highway 169 and Winganon Road, South of Nowata and West of Chelsea.*

## **5. HEALDTON: OKLAHOMA'S FIRST STATE-REGULATED OIL FIELD**

Production of crude oil from the newly discovered Healdton field surrounding this marker site flooded the market with an oversupply of petroleum. Protesting that pipeline purchases were inadequate, producers claimed they were being deprived of individual rights to produce and sell their share of the field's production.

In response, the Oklahoma Corporation Commission, in May 1914, ordered the pipeline carrier to increase purchases of produced oil, provide facilities for rail shipment and build field tankage. The pipeline was further ordered to purchase oil ratably and equitably from Healdton producers.

This order resulting in prorations of oil purchasing, nine months after the field's discovery in August 1913, made Healdton the first field in the state to be regulated by a state commission. This early-day proration was a forerunner of petroleum conservation laws to prevent physical and economic waste of petroleum energy in most states.

By late 1915, prolific production at Healdton and other Oklahoma oil fields supplied energy for a burgeoning automotive age in the United States and the Allied war machine of World War I. As the Healdton field boomed, the influx of oilmen overtaxed the community's facilities.

Oklahoma Historical Society and Oklahoma Petroleum Council 1975  
*Granite monument in front of Gould Hall on the University of Oklahoma campus, Norman*

## **6. WORLD'S FIRST SCHOOL OF PETROLEUM GEOLOGY**

Charles Newton Gould, known as the "Father of Oklahoma Geology," established in 1900 at the University of Oklahoma what is now the School of Geology and Geophysics. It became the first school of petroleum geology in the world.

Gould's covered-wagon geological field work added significantly to the energy and water-related geology of Oklahoma and the Southwest.

As a result of his pioneering faith in the scientific approach to oil and gas exploration, he, his professor associates and students established as a science the use of both surface and subsurface

geology in the search for oil and gas. It was not until the early 1920's that geology, and later geophysics, gained acceptance and wider use as oil-finding techniques.

As our nation entered its Bicentennial year, the school's geology and geophysics graduates outnumbered those of any other university in the world. Its graduates are among the world's foremost petroleum geologists and geophysicists – having discovered significant oil and gas reserves throughout the world.

Today, these graduates and those of other universities make up the membership of the American Association of Petroleum Geologists, an association of scientists founded by Gould and others on the University of Oklahoma campus.

## **7. OKLAHOMA'S OIL PIONEERS**

Oklahoma's rise to prominence as a leading producer of oil, natural gas, and refined products can be attributed in great measure to the determination and hardy spirit of its pioneers in the industry. These were wildcatters, the roughnecks, drillers, pipeliners, the operators of primitive processing plants, and those who provided the risk capital.

As the industry evolved, innovators, geologists, engineers, scientists and management people joined these oil pioneers.

Through successes and frequent failures, there developed the sciences, the techniques, processes, and conservation approaches that earned for Oklahoma the title "the State that oil built." These developments show the way to economic benefits for all of Oklahoma and influenced technological progress in our nation and world.

As a result of these pioneering efforts, Oklahoma was ranked as fourth largest crude oil producing state and was third in natural gas production in 1976, the Bicentennial year of the United States.

Oklahoma Historical Society and Oklahoma Petroleum Council 1976  
*Granite monument on grounds of Oklahoma Historical Society Building in the State Capitol Complex in Oklahoma City*

The Greater Seminole oil field was one of several fields discovered in the mid-1920's that swung the United States' oil inventory from scarcity to surplus.

Discovery of five prolific Seminole area oil pools in 1926 and 1927 glutted the market, resulting in voluntary reductions in oil production and a slow-down in field development.

The Seminole City pool led the discovery race with the Hunton lime discovery by Indian Territory Illuminating Oil Company on Marcy 7, 1926. It was followed on July 6, 1926 by discovery of the Wilcox sand production by Amerada Petroleum Company nearby. The Fixico well of R.F. Garland and Independent Oil Company penetrated the Wilcox sand on July 16<sup>th</sup>, flowing 1,500 barrels of oil daily. This well revealed the potential of Wilcox production in the area and started the Greater Seminole oil boom.

In rapid succession came the Searight, Earlsboro, Bowlegs and Little River pools.

Peak production of the Greater Seminole was 527,400 barrels on July 30, 1927. Production has continued for more than 50 years and totaled 201,246,000 barrels by the start of 1977.

Oil discoveries brought an estimated 20,000 oil field workers to the area, transforming Seminole into the last of the oil boomtowns – with several satellite tent and shack towns nearby.

Oklahoma Historical Society and Oklahoma Petroleum Council 1977  
*Granite monument near the entrance to the Seminole Municipal Park, on the north edge of Seminole on Highway 99*

## **8. BARTLESVILLE ENERGY TECHNOLOGY CENTER**

Petroleum technology in the United States, as it is known today, began in Bartlesville on March 28, 1918, with the designation by the United States Government of this city as the site for what is now known as the Bartlesville Energy Technology Center. Known first as the Petroleum Experiment Station, the Center provided pioneering scientific and engineering research to industry. With research targeted on oil and gas field problems, the Center developed specialists in petroleum engineering and technology – pointing to the need for these specialists within the oil companies.

Conservation has been the keynote of the Center's work. Its research has contributed to orderly oil and gas field development, secondary and tertiary methods of recovery and more efficient methods of use.

Cooperative efforts of the petroleum industry and the Center have resulted in findings that have been useful in long range planning for the benefit of the public.

When the energy insufficiency surfaced in the 1970s, the Center provided enhanced recovery processes for producing a potential 40 billion more barrels of petroleum.

In addition to establishing the Center, the Bartlesville community has seen pioneering work by Cities Services, Phillips Petroleum and TRW-Reda companies that has helped bring the petroleum industry to its present scientific level.

Oklahoma Historical Society and Oklahoma Petroleum Council 1978  
*Granite monument on the grounds of the Bartlesville Energy Technology Center in Bartlesville*

## **9. OIL IN THE CUSHING-DRUMRIGHT AREA**

Discovered in March 1912 by Tom Slick and C.B. Shaffer, the Cushing field became one of the greatest oil discoveries of the early 1900's – ranking as the nation's largest oil province for the next eight years.

Production peaked in May 1915 at 300,000 barrels daily. This glut of oil...

- Played havoc with domestic and international oil markets,
- Led to above ground storage exceeding 1.75 million barrels of unsold oil with resultant loss of valuable volatiles,
- Helped bring maturity to Oklahoma's oil industry and an awareness of conservation needs,
- Turned Cushing into a boomtown and vital supply center for area oil operations, Made the Cushing area a major processing center with 23 refineries,
- Brought into being a new town, Drumright, located near the discovery well,
- Provided much of the increased U.S. oil supply during World War I that prompted Britain's Lord Curzon to state, "The Allies floated to victory on a sea of oil!"

In 1919, the Cushing-Drumright area accounted for 17 percent of the United States and 3 percent of the World's production of oil. Cumulative production exceeded 450,000,000 barrels by the end of 1979.

Cushing retains its role in oil history as "the pipeline crossroads of the world." Here in 1979, is the greatest concentration of major carriers in the world, with 23 pipeline systems and totally capacity of over 30,000,000 barrels.

Oklahoma Historical Society and Oklahoma Petroleum Council 1997  
*Granite monument on the grounds of the City Hall in Cushing*

## **10. THE ANADARKO BASIN**

The Deep Anadarko Basin of Western Oklahoma is one of the most prolific gas provinces in North America. Well drilled here have been among the world's deepest.

The Bertha Rogers No. 1 in Washita County, drilled in 1971 to 31,441 feet, was at the time the world's deepest well. In 1979, the No. 1 Sanders well near Sayre became Oklahoma's deepest gas producer at 24,996 feet. When controls on gas prices were lifted, Anadarko justified the faith and perseverance of the GHK Company and other operators who pioneered in deep drilling.

The shallow horizons of Greater Anadarko account for much of this nation's proved gas reserves. Deeper sediments below 15,000 feet remain virtually unexplored. Renewed assessment of some 22,000 cubic miles of deep sediments may carry over into the 21<sup>st</sup> century.

For the 20<sup>th</sup> Century's final quarter the Basin remains the frontier of deep drilling technology centered on Elk City, "Deep Gas Capital of the World." As gas prices equate more closely to value, the nation's needs may be met increasingly from this massive sedimentary basin, a focal point in drilling innovation and geological interpretation.

In re-energizing America, Anadarko will not yield its gas easily or briefly. Promised rewards lying beyond the threshold of drilling techniques demand massive investment. In challenging the inventive enterprise of America's energy industry, this Basin will remain the heartland of technology in penetrating the earth's crust.

Oklahoma Historical Society and Oklahoma Petroleum Council 1981  
*Granite monument on the grounds of Elk City's Old Town Museum in Elk City*

## **11. PANHANDLE AREA NATURAL GAS**

The largest individual gas reserve in the United States covers much of the Oklahoma Panhandle, extending northward from Texas through this area and into Kansas. This sprawling Hugoton-Panhandle field provides gas to comfort mankind, fire the boilers of industry and undergirds the nation's economy.

Hugoton-Panhandle gas provides the world's largest source of helium, from which the U.S. Government has drawn a 40-year supply stockpile, and spacecraft and other industries obtain current needs.

The Texas part of the field was discovered in 1918, based on the surface survey and recommendations of Oklahoma's "Covered Wagon Geologist," Charles N. Gould, in 1904-1905.

Gas from the deep formation was discovered in southwestern Kansas in 1922. Step-out drilling northward from Texas and southward from Kansas revealed one huge tri-state field covering five million productive acres in parts of 20 counties. Development of these gas reserves was hampered by lack of market outlet.

This huge undeveloped reserve was to figure mightily in the “birthing” of the natural gas industry of the world. Completion of a 24-inch, high-pressure line from the field to Chicago area markets in 1931 ushered in the age of long-distant pipeline transportation of energy and the widespread use of gas at points distant from gas source.

Oklahoma Historical Society and Oklahoma-Kansas Oil and Gas Association 1982  
*Granite monument on the grounds of No Man’s Land Regional Park in Guymon*

## **12. OKLAHOMA: WHERE REFLECTION SEISMOGRAPH WAS BORN**

Oklahoma is the birthplace of the reflection seismic technique of oil exploration. This geophysical method records reflected seismic waves as they travel through the earth, helping to find oil-bearing formations. It has been responsible for discovery of many of the world’s largest oil and gas fields, containing billions of barrels of oil and trillions of cubic feet of natural gas.

Dr. J.C. Karcher, an Oklahoma physicist, led pioneering research and development. The Arbuckle Mountains of Oklahoma were selected for a pilot survey of the technique and equipment, because an entire geologic section from the basal Permian to the basement mass of granite is exposed here. This survey followed limited testing in June 1921 in the outskirts of Oklahoma City.

Verification and confirmation testing was conducted in the Arbuckles beginning July 4, 1921 by Dr. Karcher and Dr. W.P. Haseman, Dr. D.W. Ohern and Dr. Irving Perrine, of the University of Oklahoma. Results were promising.

The world’s first reflection seismograph geologic section was measured on August 9, 1921 along Vines Branch, a few miles north of Dougherty.

The reflection technique has become the major method of energy exploration throughout the world. By 1983, more than 70 percent of the 18,600 members of the Society of Exploration Geophysicists in 112 countries were involved in reflection seismography.

Oklahoma Historical Society and Oklahoma-Kansas Oil and Gas Association 1983  
*Granite monument at first seismic outlook on southbound Interstate 35 south of Exit 51, about 20 miles north of Ardmore.*

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