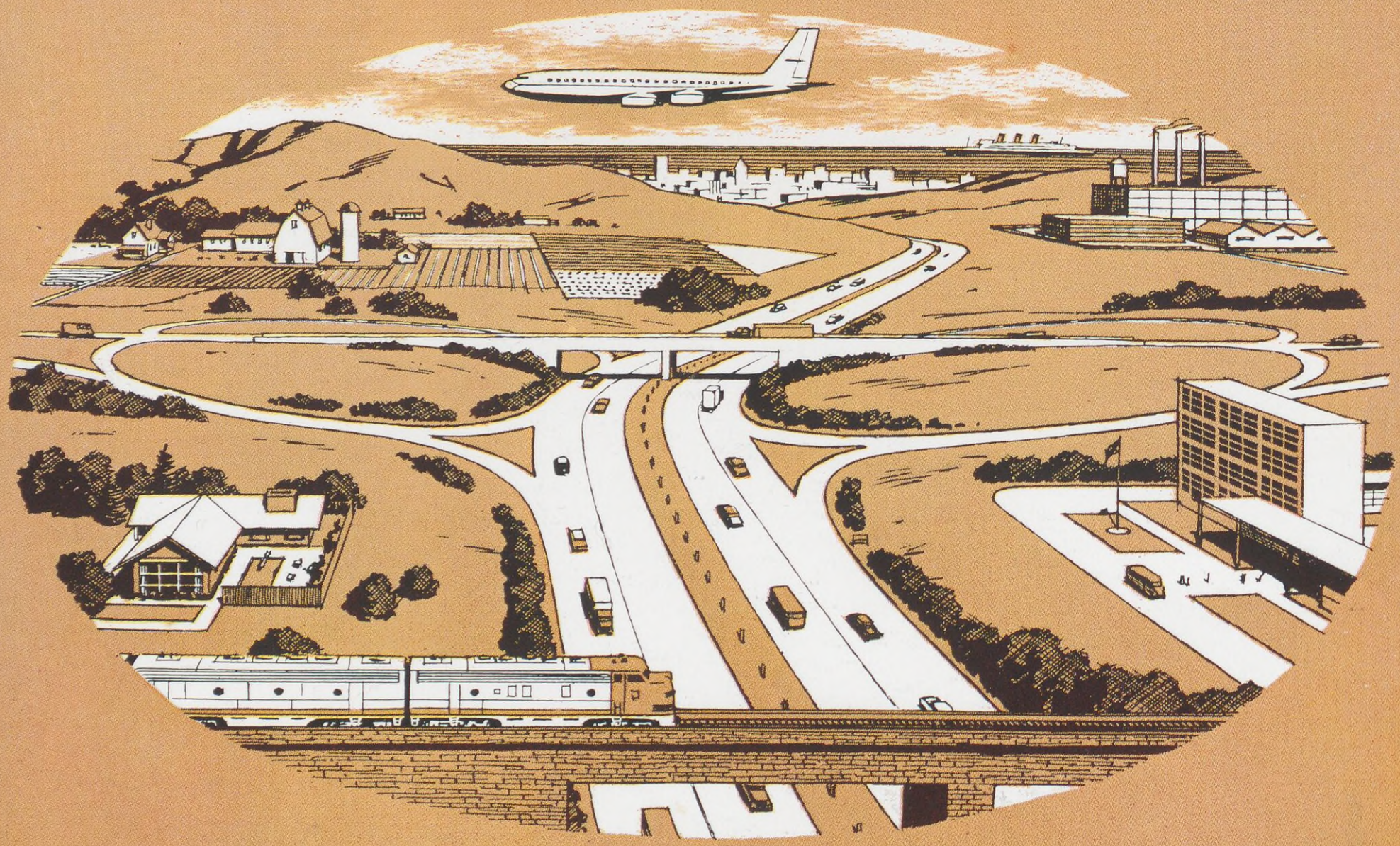
SHELL NEWS

AUGUST 1959

1859 WORKING FOR PROGRESS 1959

Oil's Centennial



By H. S. M. BURNS
President, Shell Oil Company

A HUNDRED YEARS BEHIND US— A BRIGHT FUTURE AHEAD

ANNIVERSARIES are times for remembering the past and wondering about the future. In this centennial year, all of us are exposed to these thoughts. My personal recollections cover about one-third of oil's history—not the *whole* of it, as some of my acquaintances may believe. From my experience I have learned certain basic facts about our business which I think are worthy of consideration because they have dominated its growth and, I believe, will equally dominate its future.

The first fact is this: Oil is an industry, and not a series of industries. Our business is essentially integrated. No one can afford to produce oil unless there is a market for it, and crude oil serves no purpose unless it is refined and delivered. All of these activities are segments of one continuous operation which starts at the wellhead and finishes only when the customer buys and uses the finished product. The oil industry is, in one sense, very like a chain reaction. Every time the trigger is pulled on a gasoline hose in any part of the United States it sets in motion a movement of liquid that may reach 1,500 or 2,000 miles back to an oil field. The economics of crude oil production are inextricably tied to the economics of manufacturing and marketing. Progress in any one activity is reflected in the others. Problems in one are reflected in the others.

All of which brings me to the second fact worthy of consideration. We, as oil men, deal with one of the world's most

SHELL NEWS

VOL. 27—No. 8 **AUGUST, 1959**

Dedicated to the principle that the interests of employees and employer are mutual and inseparable

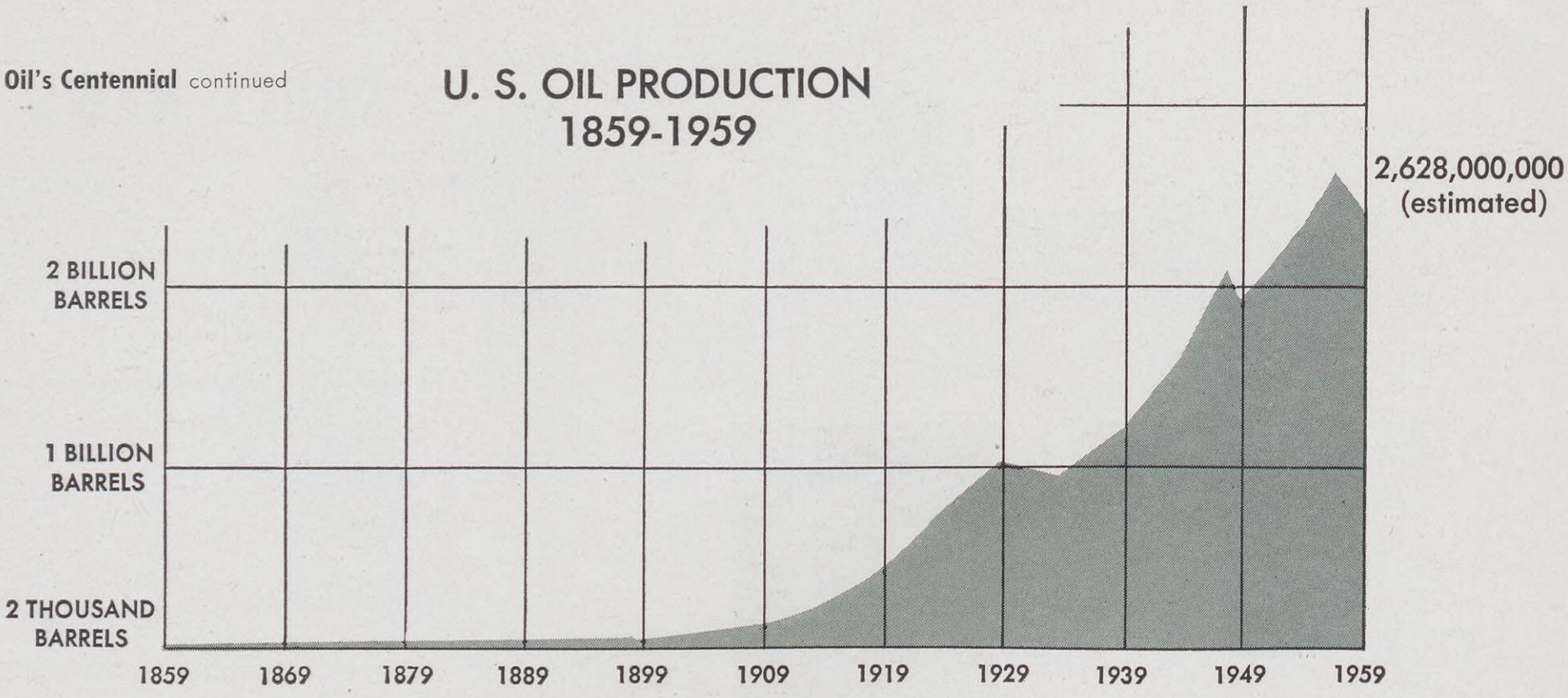
Employee Communications Department
New York, N. Y.

contents

Published by Shell Oil Company (H. S. M. Burns, President; C. C. Combs, Treasurer; J. A. Horner, Secretary) for its employees and those of Shell Chemical Corporation, Shell Development Company and Shell Pipe Line Corporation. Address communications to Employee Communications Department, Shell Oil Company, 50 W. 50th St., New York 20, N. Y.

ABOUT THE COVER

The three men on the front cover of this Centennial Issue exemplify oilmen everywhere. This Norman Rockwell painting is being used throughout the United States to commemorate oil's centennial.



valuable and versatile natural resources. Petroleum is the most useful form of portable energy in existence. It is also an abundant and convenient source of chemical compounds. As custodians of this amazing material, we have certain obligations, and the first of these is to be efficient. Lack of efficiency means waste, and waste is unprofitable to all concerned: the industry, its customers and, because we are dealing with a natural resource, society as a whole.

HOW efficient have we been? The early record was tainted on this score, and the industry's reputation today still suffers on account of it. There was waste and plenty of it in the first half of oil's history. Some of it can be excused on the grounds that the technical problems involved were beyond the knowledge of the day. But there were too many gamblers trying to make a "fast buck" out of oil, without any thought to the future of the industry. I have no objection to people making money. In fact, I favor it highly. Of all the motivations to which humans (and corporations) respond best, few have proved so powerful as financial gain.

The second half of oil's century tells a different story. The business developed into a highly competitive, well-organized industry whose impact on the American economy has been profound. After 50 years of aggressive and dynamic development, our severest critics do not accuse us of inefficiency. Here are the reasons:

IN this short span of time, petroleum has made it possible for man to multiply his physical strength—his capacity to provide for himself. The evidence is all around us: Petroleum powers the machines which make almost everything we use and everything we own.

There is no one short of food in the United States today, except by his own, his wife's, or his doctor's choice. Fifty years ago there were 12 million farmers, most of whom spent 80-90 hours a week of back-breaking toil raising the bare staples for the table. Today, there are only five million farmers who raise more than twice as much food as their predecessors. Five million tractors fueled and lubricated by petroleum have taken the load from the farmers' backs and given us energy to raise food in abundance.

Prior to the advent of power-driven machines, a large percentage of the people everywhere were doomed for life to the job of moving earth — in agriculture and in all kinds of construction. Today, about $7 worth of diesel fuel in a bulldozer can move as much earth as a man can with a shovel in his entire lifetime.

HERE in the United States, machines now wear out from hard work—but not human beings. Life expectancy in the United States today is over 70 years at birth. In some countries not so blessed with abundant energy, those who live to maturity can expect to die at an early age from malnutrition, overwork and disease. Two-thirds of the human race go hungry much of the time, and more than half are chronically sick because they cannot afford a proper diet or medicine to keep them healthy.

We in the United States live today surrounded with comforts and conveniences that are still luxuries in most countries. This high standard of living is largely a result of our abundant, low-cost supplies of energy of which oil and natural gas supply 70 per cent.

Another fact worthy of consideration is this: The oil industry has

served the nation well because it is a profitable industry. The word "profit" has been much maligned of late. We need to remind ourselves that reward for accomplishment is a basic precept of a free society. The strides that have been made by American business in the twentieth century are due principally to the fact that there is a reward for effort in the form of profit.

IT is not as easy to make profit in the oil business as some people seem to think. Oil is difficult to locate, expensive to produce and refine, and competition is constantly increasing. Domestic oil industry profits stated in terms of dollar return on the stockholders' investment have consistently run behind the average for all manufacturing industries. For example, the average rate of return on the stockholders' investment of the 16 largest domestic oil companies (including Shell) over the last five years was 9.7 per cent, compared with 10.9 per cent for all manufacturing industries.

IN spite of this, prices of petroleum products have been declining while prices generally have risen. Today, gasoline is selling at about a cent-and-a-half less than it was two years ago—and gasoline is our bread-and-butter product. There is little likelihood of improved gasoline prices in the next few months. I am not happy with this prospect, but it does demonstrate the vigor of competition. When competition wanes in the oil or any other industry, so does growth and efficiency. The spur of competition has been sticking in the hides of oil men for generations. It goads them to accomplishments which they would not otherwise make. I am concerned, for example, when I see attempts being made to control prices by legislation because such legislation cannot but dull competition.

Another important fact about the oil industry is the free rein that it gives to initiative, ingenuity and technology. Hydrocarbons can be re-formed into literally thousands of combinations, and the U. S. industry supports a research effort in the neighborhood of $300 million a year to investigate these combinations, as well as to develop better ways of finding oil and gas reserves. Some of these combinations have resulted in lubricants that function within extreme temperature ranges, hydraulic fluids that won't burn, synthetic rubber equal to natural rubber, plastics that won't break, glycerine in steady supply, and asphalt roads superior to Portland cement.

We have been in the chemical business less than 35 years, but chemicals from petroleum represent 57 per cent of the total value of the chemical industry's production.

EGGED on by competition in oil and chemical research, each company must move forward, or retrogress. There is no standing still.

One last fact worth our consideration is that from its beginning the future of the oil industry has always been considered to be in jeopardy. Throughout my lifetime we have always been "running out of oil." As a businessman I have learned not to make long-term predictions. However, I can and must make projections of known facts about our business. I don't know what the oil industry will look like a generation from now, but I can project certain data based on today's knowledge and come up with conclusions which seem reasonable.

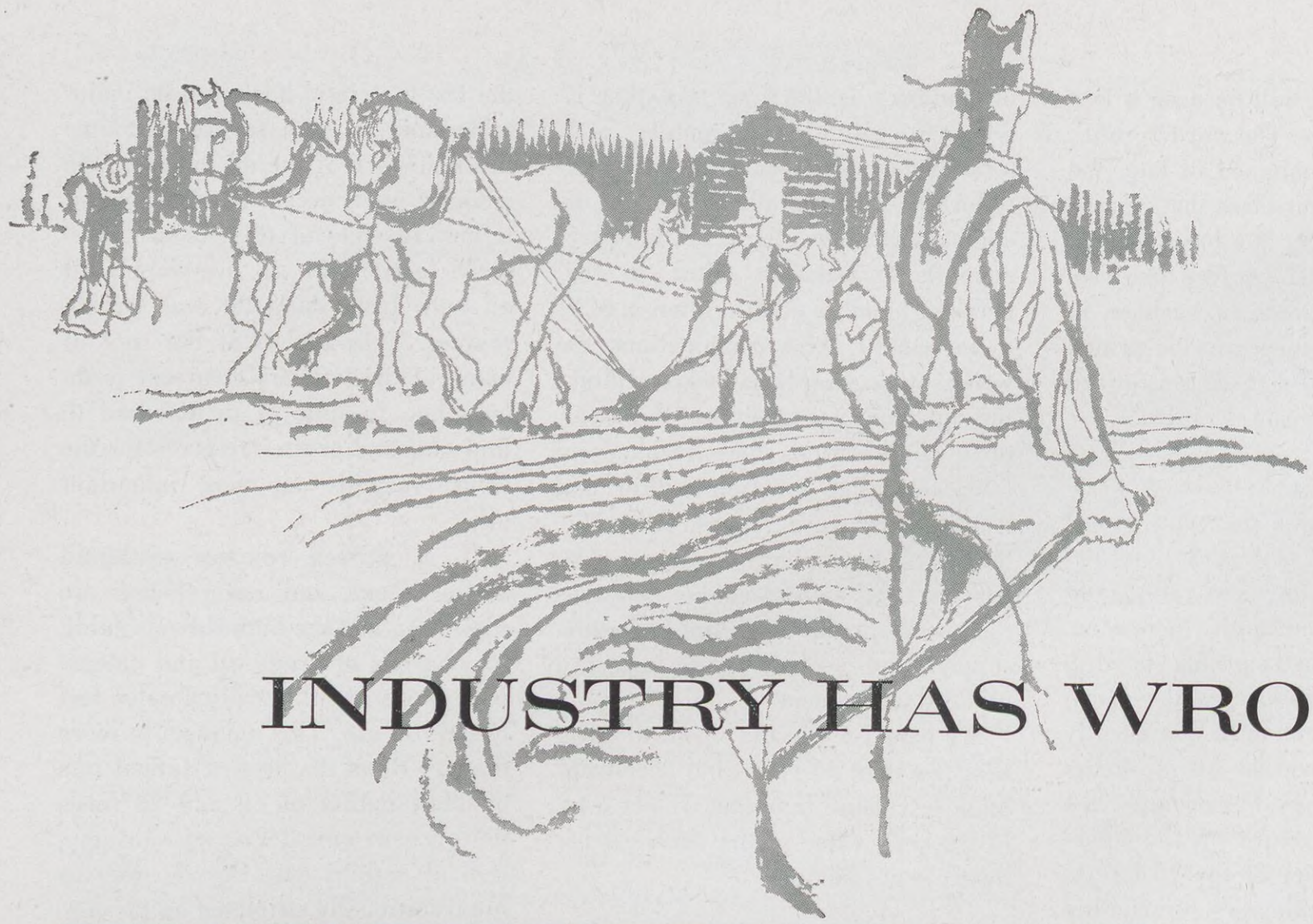
Up to and including 1951 we had been finding oil at nearly one-and-a-half times the rate at which we had been using it. Our industry consistently out-performed predictions as to our ability to find oil and maintain producibility. Since 1951, however, the 1½ to 1 ratio has not been maintained and in 1957, for the first time in the history of the oil industry, the amount used exceeded the amount found. In spite of this we are presently faced with an over-supply of oil both from domestic and foreign sources. This glut is at the root of many of the industry's current problems but, in spite of it, the need to find new and greater reserves for the future remains our most important task.

U. S. proven reserves of liquid hydrocarbons and natural gas are now at an all-time high—about 36 billion barrels of crude oil and natural gas liquids and 250 trillion cubic feet of natural gas. This amounts to more than 14 times the present annual rate of consumption of oil and 22 times the present annual rate of consumption of natural gas. Proven reserves are traditionally estimated on the conservative side, and I am quite sure the crude oil that can be counted on from U. S. fields already discovered and from acreage already under lease will exceed 70 billion barrels.

Total U. S. future recoverable oil in the ground has been estimated at 200 billion barrels, with at least another 300 billion barrels which could be processed from oil shale. These last figures, however, fall into the area of prediction rather than projection and are subject to challenge.

THE finding and recovery of these billions of barrels are going to be extremely costly and will tax the inventiveness and ingenuity of the industry.

As Shell employees, we have an important stake in the future of the petroleum industry. As citizens, we should stay ever alert to see that it does not become fettered by unnecessary artificial restraints, whatever the source ●



INDUSTRY HAS WROUGHT VA

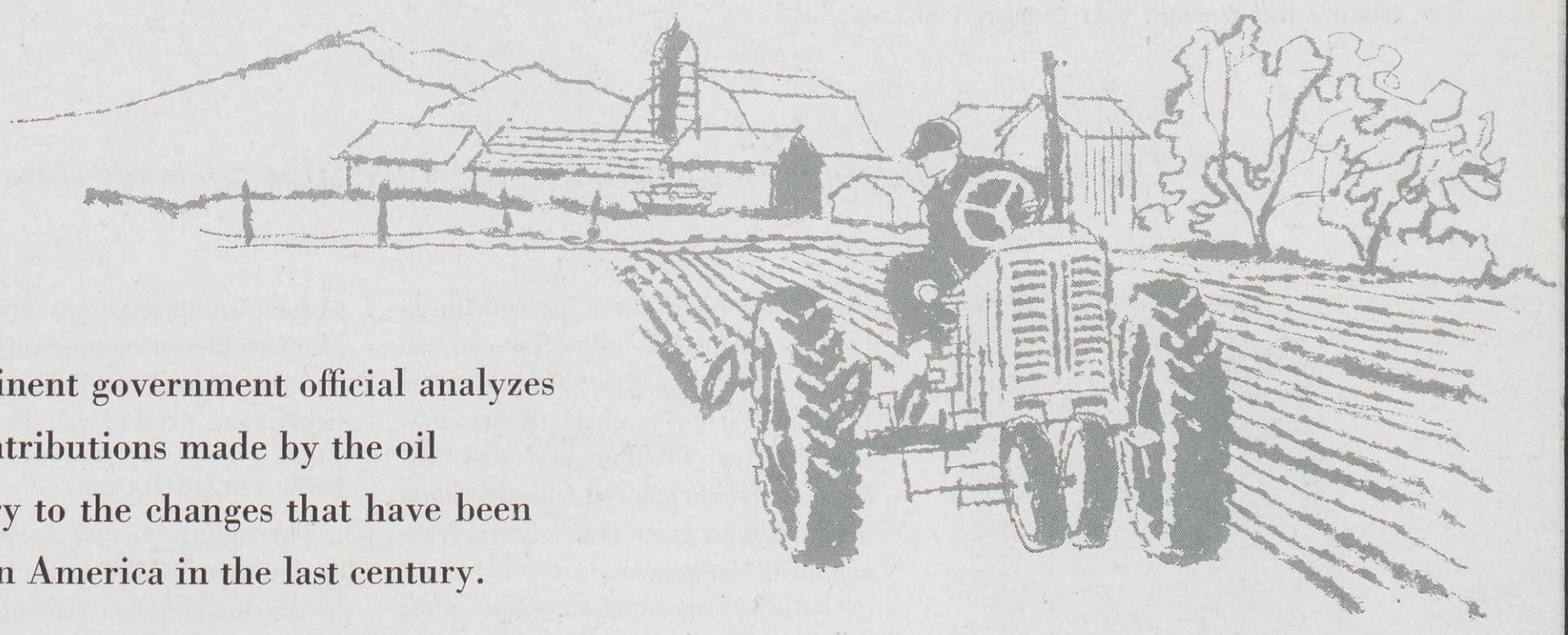
Vast changes made possible by oil are pointed up in the field of transportation. The hardships of travel by covered wagon, an important mode of transportation 100 years ago across the western plains, are difficult to realize in this jet age, despite TV western reminders.

JUST one century ago, on the afternoon of Saturday, August 27, 1859, Uncle Billy Smith and his two sons, working for "Colonel" Edwin L. Drake, struck oil at Titusville in northwest Pennsylvania. It had taken Drake, a former train conductor, more than a year to dig his well, just 69½ feet deep. With his discovery that afternoon, the history of the American petroleum industry began.

Drake's well produced daily twenty barrels of oil. Now the United States every day pumps out 7,000,000 barrels and consumes more than 9,000,000. In the past hundred years, our oil appetite has thus increased in ravenousness nearly a half-million times.

Why is 1959 different from 1859? Part of the answer is surely oil. For as America has used oil in ever-increasing quantity, oil has changed America.

First it gave the American some-



An eminent government official analyzes the contributions made by the oil industry to the changes that have been made in America in the last century.

HT VAST CHANGES

By FRED A. SEATON, *Secretary of the Interior*

thing better than whale oil or coal oil to read by. Then it gave him something better to grease his wagon wheels with than lard. Then, as a fuel for the Model T and its contemporaries, oil contributed to the demise of the buggy, the virtual retirement of the horse and the proliferation of black and white hard-surface roads across the face of this land.

Oil has worked its revolutionary way in many other areas. As fuel for vehicles and machines, it is at the root of the vast mechanization that has transformed American agriculture and industry. Oil brought the revolution in transportation of goods that is reflected by the truck and the diesel locomotive. And oil has made possible the airplane, with its profound impact on travel and international relations.

SYNTHETICS INDUSTRY

And finally, through petrochemi-

Mr. Seaton, author of this article, reprinted from THE NEW YORK TIMES, has been Secretary of the Interior since 1956. Previously he was Assistant Secretary of Defense and Deputy Assistant to President Eisenhower. Mr. Seaton has been a newspaper and radio executive and a United States Senator from Nebraska. His home is in Hastings, Neb., where he has published the HASTINGS DAILY TRIBUNE since 1937. He served two terms in the Nebraska State Legislature from 1945 to 1949 and was chairman of the Nebraska Legislative Council 1947-1949.

"It is national policy to provide the incentive to keep the oil industry strong

cals produced from oil, it gave Americans a cornucopia of usefulness and beauty, including new things to wear fashioned from synthetic fibers, new utensils for the nursery and the kitchen from colored plastics, and news ways to grow better crops from chemical fertilizers.

Consider one characteristic after another of life in the United States in the mid-twentieth century: the spread of suburbs, the increase in leisure time, the abundance of automobiles and the scarcity of space for parking them, the mobility of our population at vacation time and all around the year—each of these, the flow from Drake's well has in some way touched.

It was inevitable that so important an agent in the lives of all of us should became the object of public policies and activities affecting its production and its use. While we have continued to learn new ways to use oil, we have also continued to learn new ways to conserve it and find more of it.

State agencies and oil companies and operators throughout the land have worked diligently to bring about orderly production from United States oil and gas fields. Cooperating with them during the past quarter-century, the Interstate Oil Compact Commission has done much to help eliminate the gushing of wells and the flaring of gas, to conserve gas pressure and promote advanced recovery methods and thus to make individual wells and fields more productive.

NEW TECHNOLOGY

Through the Geological Survey and the Bureau of Mines, the Department of the Interior has also made major contributions to petroleum engineering and conservation. Since 1910 departmental studies in oil technology have included work in all phases of drilling, producing, transporting and storing petroleum. Using water flooding and fluid injection techniques devised by the department, for example, oil operators supplement natural pressures to drive otherwise unobtainable crude oil out of the ground.

Such wise conservation practices as these have, in effect, enormously extended our nation's oil resources.

Government and industry are working to extend them even further. There is more oil waiting to be discovered. There are also wide open opportunities to augment our ability to recover what is in fact discovered. In modern practice less than half the oil in the rock is recovered. As a result of research now going on the oil industry will some day be able to recover twice as much, and then each new barrel found will be twice as significant.

Early oil wells usually produced only a few barrels of oil a day. But when there were "gushers," much of the oil was wasted and primitive production methods generally recovered from the ground only a fraction of the oil available. Oil companies and government agencies have worked together to eliminate "gushers" and flaring of gas, to conserve well pressures, and to promote advanced recovery methods.

dustry strong against the coming of a national emergency"—Fred A. Seaton

In addition to petroleum and natural gas themselves, tremendous reserves of oil shale—located principally in Colorado, Utah and Wyoming—long have interested scientists in industry and the Department of the Interior. These deposits, estimated to contain a trillion barrels or more of oil, are one of the United States' great potential fuel resources.

Since 1926, the department has conducted research in the treatment of oil shale. Since World War II private industry has increased its investigations in the field, working with the Government toward the day when the cost of oil from shale will be competitive with that of conventional crude oil. On that day—and it may well come within the next few years—there will be born a major new American industry.

With all the industry's immense progress, the United States today faces a problem in keeping that industry healthy against any future national emergency.

The development of huge oil reserves in foreign lands and the economic pressures from these areas for access to United States markets have resulted in decreasing rates of drilling, discovery and development at home.

These facts led President Eisenhower as far back as 1955 to initiate programs designed to assure the nation an adequate supply of oil during emergencies.

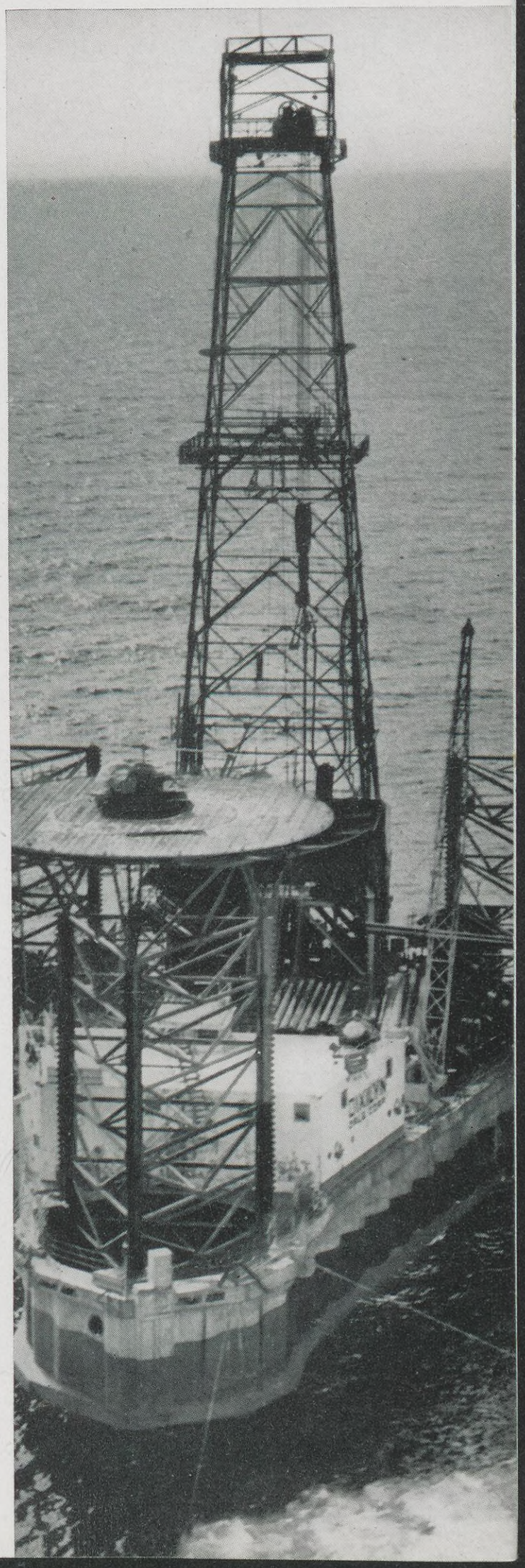
OIL IMPORT QUOTAS

Today, the Department of the Interior—through the Oil Import Administration—is attempting to strike a reasonable balance between oil imports and domestic production. Through an import licensing system, petroleum imports are currently restricted to about 1,475,000 barrels daily. This level, the department believes, assures foreign oil fair access to American markets without stifling the incentive necessary to maintain a healthy domestic producing industry, which is so vital to national defense.

What of the next hundred years? For one thing, our national demand for energy will surely continue to grow at a galloping pace.

Only twenty-five years from now, the Bureau of Mines estimates, the United States may need twice as much oil and twice as much natural gas as we now use.

It is national policy to provide the incentive necessary to keep the oil industry strong against the coming of a national emergency. It is also national policy to continue to assist the industry, through research, to solve problems in exploration, drilling, producing, transporting and storing oil ●



Modern production methods have made it possible for the industry to provide about seven million barrels of oil a day from U. S. fields. Wise conservation practices have enormously extended U. S. oil resources. Current research will someday enable the industry to double the amount of oil it now recovers from reserves of petroleum in the ground. Only 25 years from now, the U. S. may need twice as much oil as now.

news and views

OILDOM'S BIRTHDAY PARTY

The 9,000 residents of Titusville, Pa., will have about 50,000 guests this month at the 100th birthday party of the oil industry.

Although August 27 is the official birthday, commemorative events of oil's celebration have started already. An early event was the unveiling on July 22 of a momument on the site of the first dry hole. This well, the second ever drilled, was located at Tidioute, Pa., about 10 miles from Titusville.

Major centennial events are scheduled to take place between August 23 and 29—designated as "Colonel Drake Week" by Pennsylvania Governor David L. Lawrence. The program includes: a symphony concert, an art exhibit and display of early oil-region mementos, a barber shop quartet contest, and an outdoor choral concert. Wednesday evening, August 26, the celebration will go into high gear as spokesmen from industrial fields related to oil discuss the next 100 years in a "second century oil conclave."

The following morning, the centennial day, the "Today" show starring Dave Garroway, will broadcast a special TV program from Titusville. The show will feature the result of a wildcat well "Big Dave No. 1" (see SHELL NEWS, July, 1959). Progress of the well, located in Oklahoma, has been followed by "Today" with televised reports every two weeks since June 25. The well is being drilled by brothers Carl and Henry Gungall, veterans of 30 years of drilling.

Highlight of the show will be "shooting" of a well in the Drake Memorial Park, which will start drilling August 10. The shooting will be done by placing nitro-glycerine in the well in an attempt to stimulate production. Spokesmen for Oil Centennial, Inc.—an organization established by local citizens and oil industry representatives to direct the celebration—say there is little chance of striking oil and the drilling is mainly for demonstration. (The following day, the rig will be moved to a new location where it will drill the rest of the week.)

Placing of a stainless-steel time capsule in Drake Memorial Park will also be covered by the Garroway show. The capsule, filled with significant documents and memorabilia, is to be opened in the year 2000.

At noon of the centennial day, the Post Office will issue the official oil centennial commemorative stamp. In the afternoon, a prominent American leader—not yet named—will keynote the start of the second century of oil, and in the evening, an "old-time barbeque" will be followed by a fireworks display.

The following day has been designated "Youth Day," with a full calendar of events designed to explain the significance of oil to visiting and local youngsters.

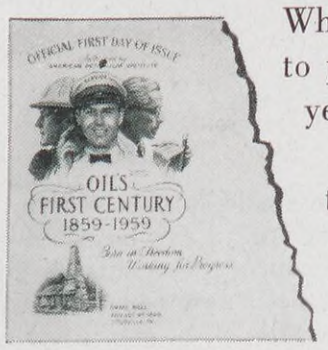
On August 29, townspeople and visitors will gather for the "Grand Parade of Oil," featuring musical and marching groups from many points in the country. Accompanying floats will depict the history of the industry. The celebration week will close with an Oil Centennial Ball that evening.

CENTENNIAL STAMP

At the end of this month, each Shell employee and pensioner will receive a letter from the president of his company mailed from Titusville, Pa. It will be a personal souvenir of the 100th anniversary of the oil industry.

The envelopes will be affixed with the official oil centennial commemorative stamp and will also have on them a picture of Drake's well and a black-and-white reproduction of the Norman Rockwell centennial painting which appears on the front cover of this issue of SHELL NEWS.

The commemorative stamp shows a silhouette of a typical oil rig. It is the first U. S. postage stamp giving special recognition to the oil industry. When this issue of SHELL NEWS went to press, colors for the stamp had not yet been announced.



Stamp collectors will recognize the envelope and stamp, postmarked at Titusville on the day the stamp is officially issued August 27, as a "first day cover."

TITUSVILLE: THEN AND NOW

Except for the Drake Memorial Park and a few old mansions built by the first oil millionaires, Titusville today bears a close resemblance to many towns in the U. S. with a population of 9,000. It is a far cry from the boom days of a century ago that followed Drake's well.

Before then, Titusville was a tiny town in a tributary valley of the Allegheny River, where 400 people made their living from lumber and farming. Within five years after Drake's discovery, the town burgeoned to about 14,000 people. They poured in by the hundreds, all trying to make a million overnight. At its height, Titusville became known as the "Queen City of the Oil Region."

During the 1860's, 13 refineries were built, as the oil industry grew. But after the turn of the century, town fathers saw that oil reserves there were rapidly diminishing. They created special funds to attract other industries. Lumbering once again became important, and Titusville later acquired other industries, including iron and steel, textiles, and plastics.

(Other nearby oil towns were less fortunate. Pithole City, a few miles away, which grew from an oil well in the wilderness to 15,000 people in only three months, died when the oil stopped. For a while it was a ghost town, and now, except for a few commemorative markers, it no longer exists.)

Today, Titusville has neither significant oil production nor refineries. Modern supermarkets and hotels stand on sites of oil wells. The first oil exchange, a meeting place for buyers and sellers, is now a five-and-ten-cents store. The mansion of Jonathan Watson, the first U. S. oil millionaire, is a recreation center of Titusville High School.

Titusville has changed a great deal since it was the "Queen City of the Oil Region." But later this month it will bustle again with some of the old excitement it had a hundred years ago ●

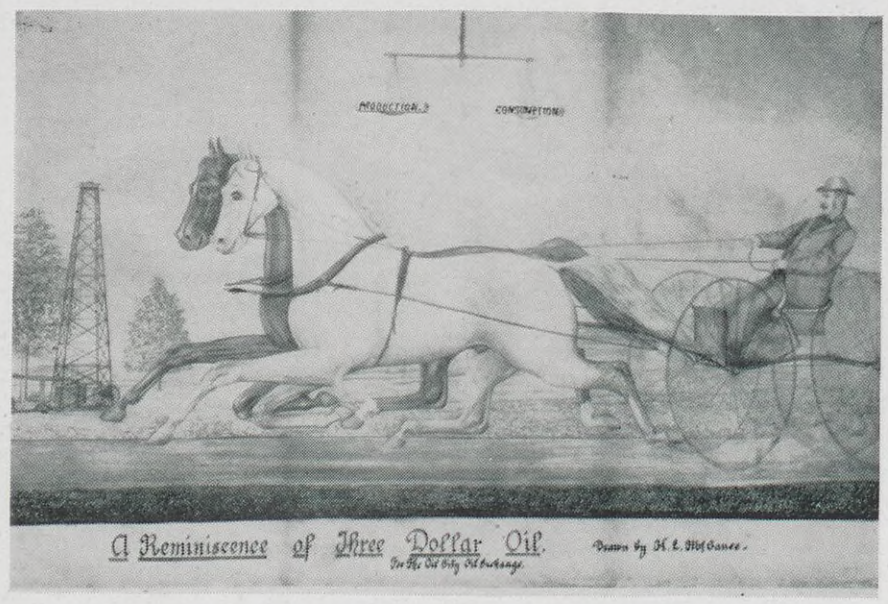
TITUSVILLE 1865

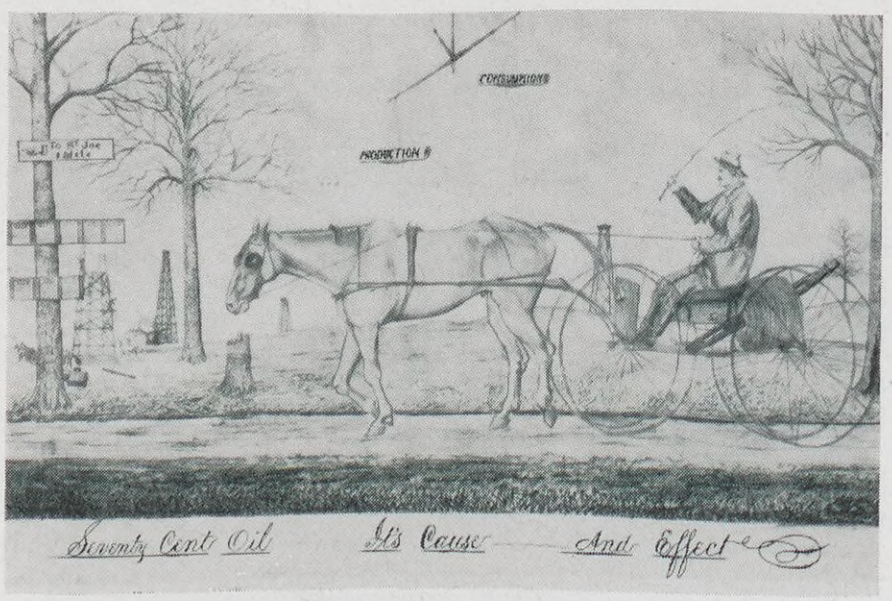
TITUSVILLE 1959

Oil

GULLTOWN IN AN UPROAR!!

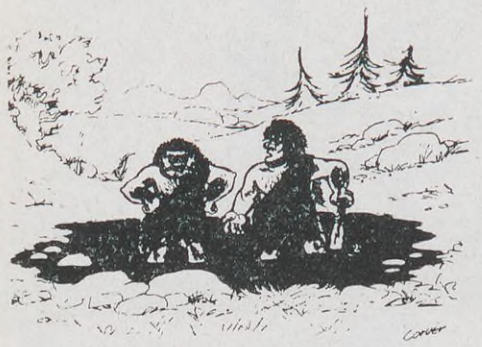
First published in 1865, this cartoon shows speculators trying to buy stock in the "Munchausen and Gull Creek Grand Consolidated Oil Company"—illustrating the oil speculating fever which hit its peak in the mid-1860's with many losing money on phony stock deals. A tongue-in-cheek item published in a Boston newspaper said the Gull Creek Company was "capitalized at $4,000,000,000 with a working capital of $37.50. Wells produce not just oil but cod-liver oil, quinine, ale and the milk of human kindness."





The drawings above, made in the 1870's, illustrate axioms that are as true today as they were then. When production equals consumption (see balance at the top of the drawing at left), the price of crude oil is good and the oilman is prosperous. When production is heavier than consumption (see balance at the top of drawing at right), the price of crude oil drops—and so does the oilman's prosperity.

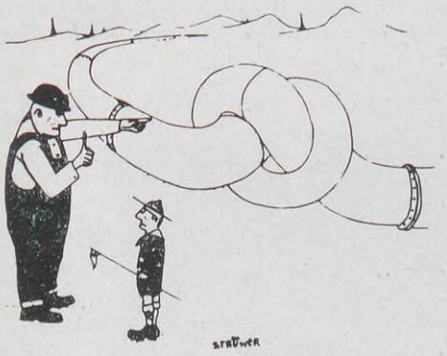
Barbs and Banter

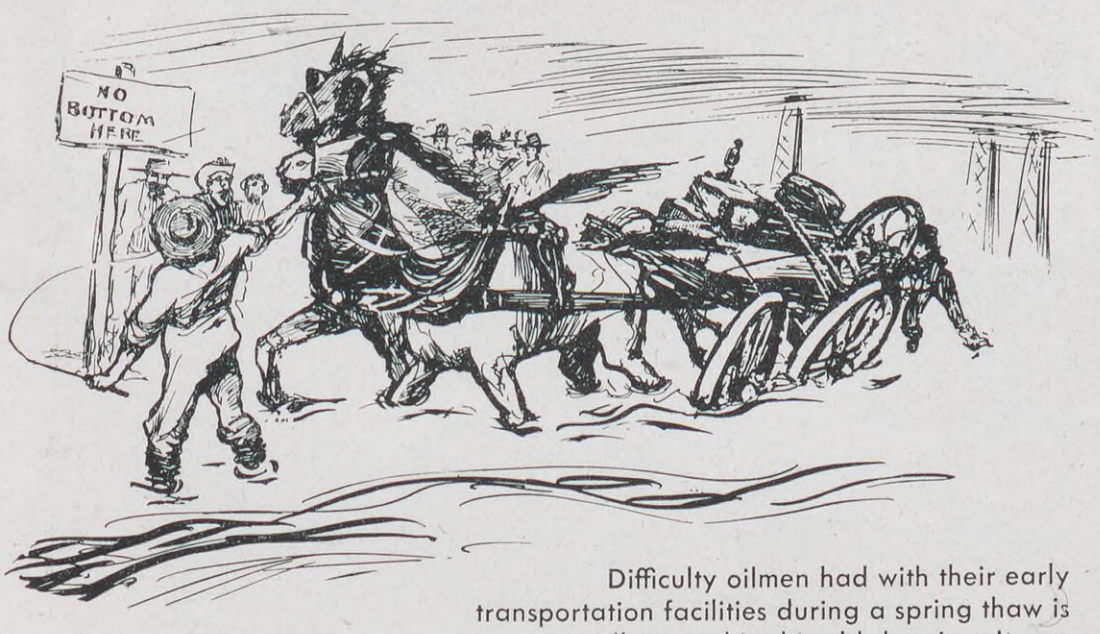


"Sure it's oil, but we can't use it until there are automobiles!"

FROM its rowdy beginning, the oil industry has inspired cartoonists. As a result, newspapers and magazines have published thousands of oil cartoons—both serious and humorous, fanciful and illustrative, congratulatory and derogatory.

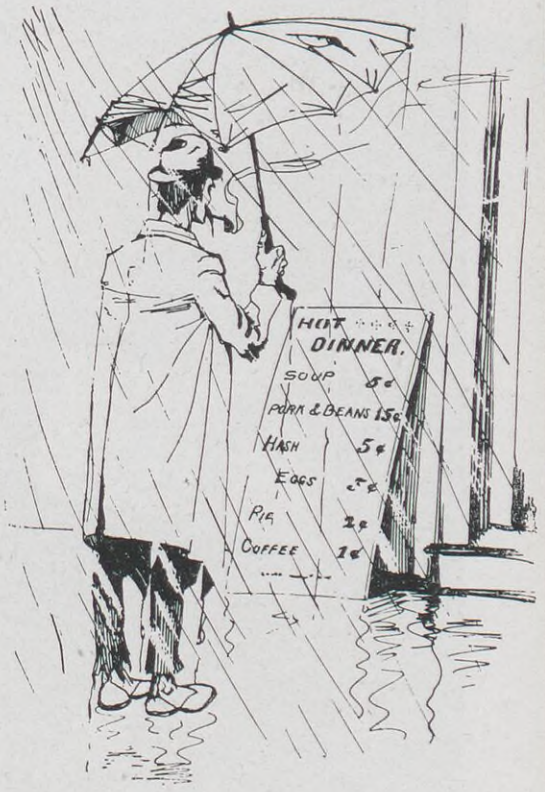
The collection of cartoons on these and the following pages are representative of the type and style of cartoons that have appeared during the industry's 100-year history. Some of them are considered cartoon classics, such as "Gulltown in an Uproar!!" and "A Bull Movement in the Gasoline Market." (In contrast with some of the historical drawings are present-day cartoons, shown in small scale, reprinted from the copyrighted book, "Oil Fun," recently published by an associated Royal Dutch/Shell Group Company, Bataafse Internationale Petroleum Mij. N. V., The Hague.)





Difficulty oilmen had with their early transportation facilities during a spring thaw is illustrated in this old drawing. It was captioned "The Pleasures of Teaming in Oildom. Both profanity and philosophy are developed 'when the frost comes out of the ground.' "

Early oil prospectors used a "divining rod" to locate well sites. It was a Y-shaped, witch-hazel stick which a "spirit medium" held as he walked around a plot of ground. (See drawing below.) If the stick was pulled to the ground by an "unseen force," that's where the well was drilled.



"Duster" was a term developed early in the industry's history to describe a dry hole. This cartoon, which appeared in the 1890's is entitled, "Got a Duster." The caption reads, "I've just finished a duster and must take a tumble. But after all, rich food is a mistake —kills more men than whiskey."

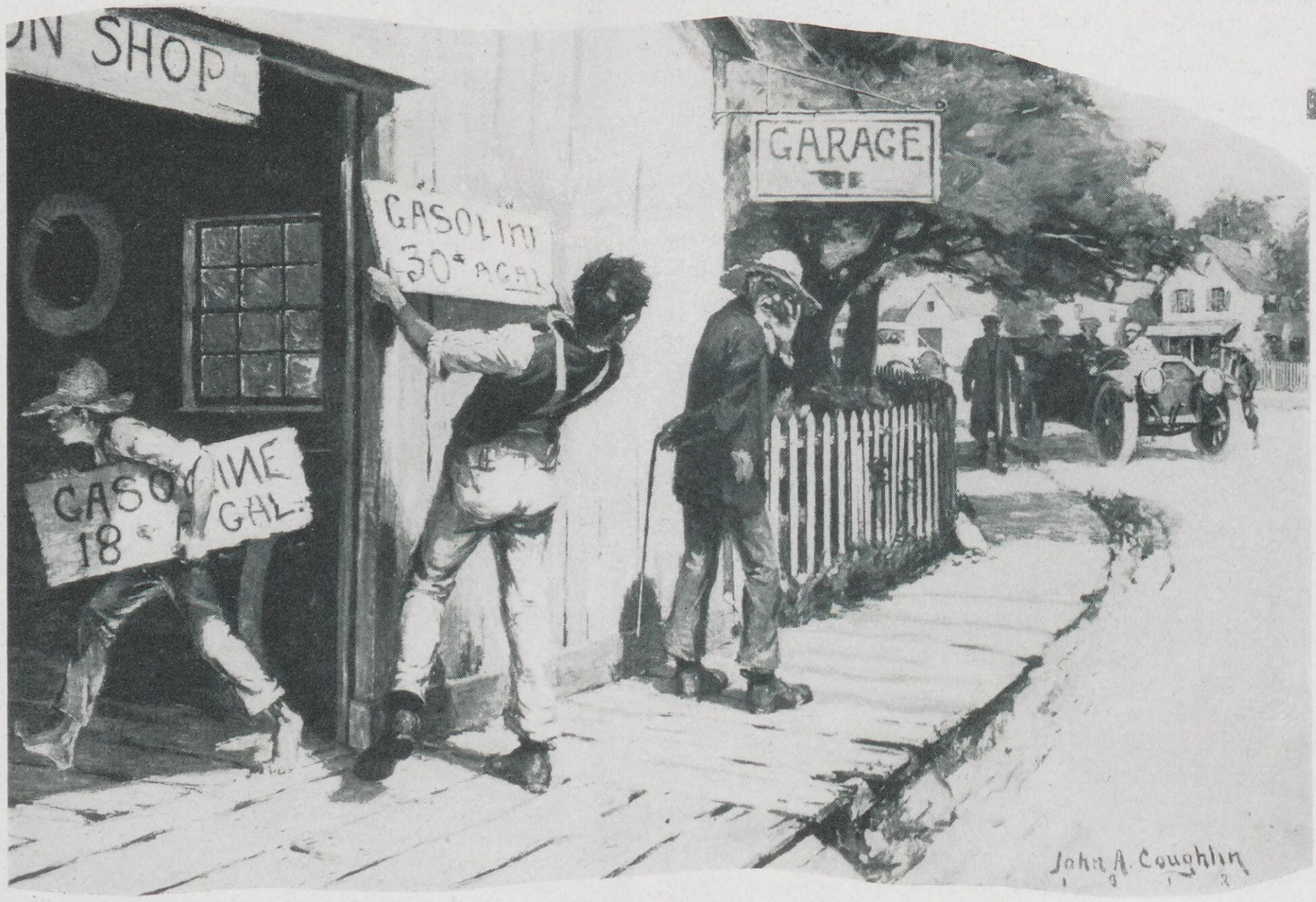
Oil Barbs and Banter

continued

"Leasing the Widow Martin's Farm" is the title of this 1895 cartoon. The widow is saying, "Now, none ave your blarney. John Galloway has offered me an eighth (royalty) wid a Quane Anne cottage in Pitchburg, an' you don't git the farm for liss than a straight quarther. As to hitchin' up wid an ileman laike yersilf; well, we'll see about that when you git the fust well down. If she's dhry, you'd give me the mitten, sure."

The cartoons below, which appeared more than 35 years ago, sho
was having some of the same troubles then as it is toda
"Forever on His Trail." The caption for the cartoon at right rea
the American Oil Man directs the Giant Petroleum in its serv

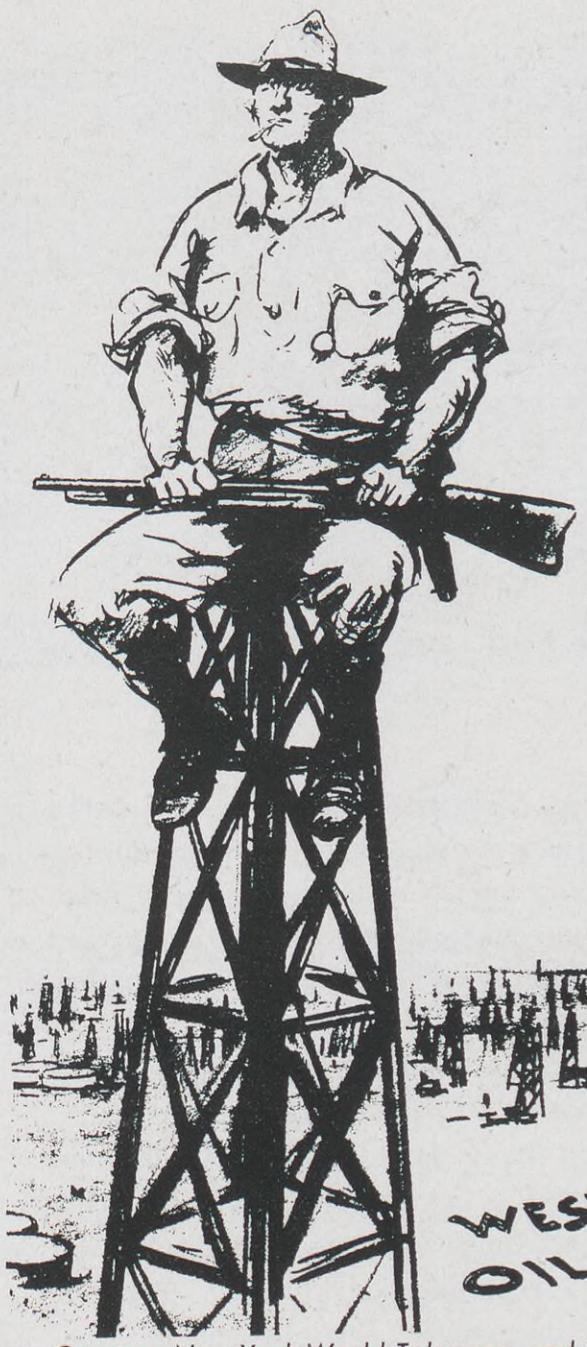
—Courtesy National Petroleum News



The cartoon above appeared in HARPER'S WEEKLY in 1913 and was called, "A Bull Movement in the Gasoline Market." A motorist of that day never knew what price he might have to pay for gasoline, especially when his tank ran dry in a strange neighborhood.

35 years
s then as
artoon at
Petroleum

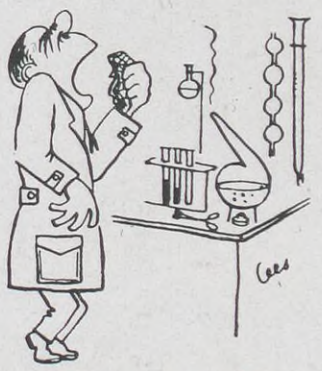
ago, show that the oil industry
it is today. The cartoon at left is called,
right reads, "While others talk,
in its service to humanity."



WESTERN OIL FIELDS

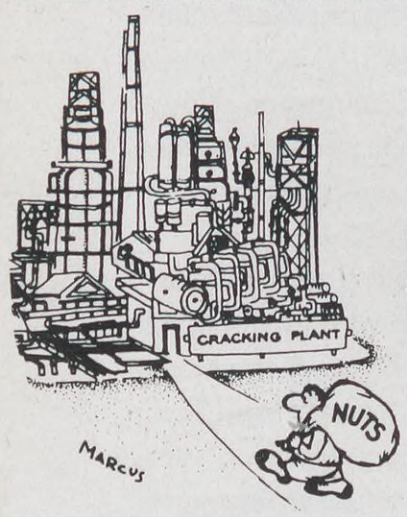
ROLLIN KIRBY

—Courtesy New York World Telegram and The Sun

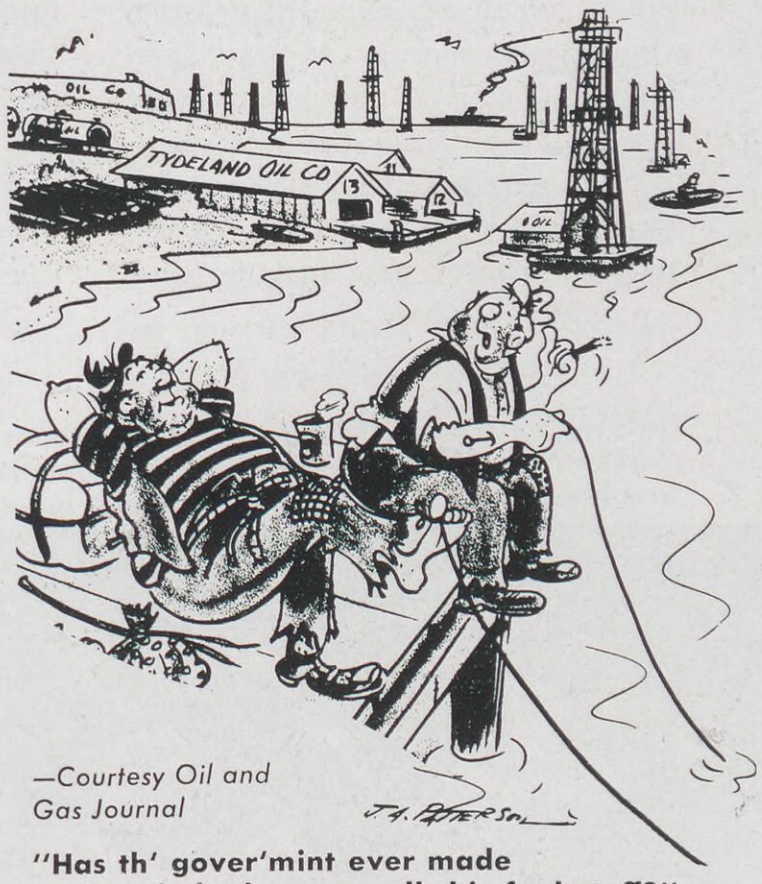


A-CHO$_2$O$_3$!!

In the depression year of 1931, the price of oil dropped drastically in Oklahoma and Texas. (In the prolific East Texas Field, discovered the previous year, prices dropped to a low of 2½ cents a barrel!) To protect their most valuable natural resource in the flooded and depressed market each state set up regulations for controlling oil production in certain fields. To enforce these proration rules, the Governors of Oklahoma and Texas declared martial law in the fields. This Rollin Kirby cartoon appeared in 1931 and was entitled, "The Price Adjuster."



During World War II, cartoons were used to urge motorists to conserve gasoline and rubber. The cartoon at right, "Giving Them a Lift," appeared in 1942.



—Courtesy Oil and Gas Journal

"Has th' gover'mint ever made up its mind who owns all this fool stuff?"

The above cartoon, published in the early 1950's refers to the battle between Federal and state governments over ownership of tideland oil.

WHO'S YOUR COMPETITION?

Competition in the oil industry has grown through the years to involve a legion of rivals and competitive pressures

Service Station competition is the kind best kn

ATLANTIC, Cities Service, Esso, Gulf, Humble, Pure, Sinclair, Socony, Standard of California, Texaco. These are some of the names that come to mind when we are asked the question, "Who's your competition?"

Part of the answer can be given by listing the names of service stations in any locality that compete with Shell. But that would be only a beginning; competition in oil involves much more than a list of names.

The industry comprises more than 42,000 companies (not counting more than 180,000 service stations, 90 per cent of which are operated by individual businessmen). At least hundreds of companies compete in every branch of the industry, from exploration through marketing. Oil companies compete with others in the energy market — natural and manufactured gas, coal, water power; soon there will be atomic energy and eventually, solar energy. In the chemical field, many chemicals from petroleum are rivaled by chemicals from other sources.

Throughout petroleum's history, the answer to "Who's your competition?" has changed continually with developments in the industry's size and structure, its products and the nature of the economy in which it operates. With changes, new elements of competition have been added. The major ones now include price, quality, service, new and improved products through research, alternative products from other industries, and new competitors entering various phases of the oil industry.

At the turn of the century, only two major products were made of petroleum—kerosene and lubricants. Moreover, about 85 per cent of the U. S. market for these products was supplied by the original Standard Oil Company. Standard held major interests in pipe lines, refineries and bulk plants, although it was involved only incidentally in exploration and production. Then, as now, public feeling was against extreme concentration in any industry. This public and government attitude led to a Supreme Court order in 1911 that the Standard interests be split into 33 separate, competing companies.

Long before the Supreme Court decree, however, economic forces were at work creating inroads into Standard's position.

These developments were caused largely by: 1) discovery of new producing fields, exemplified by the Lucas Gusher in 1901 at Spindletop, Tex., Field; 2) widespread adoption of a new form of transportation, the automobile, which provided a tremendous new market for gasoline, previously an unwanted by-product; and 3) adoption of oil fuel by railways and by merchant and naval vessels. With a strong demand for three big-volume products—gasoline, kerosene and fuel oil—petroleum production rose from about 65 million barrels in 1900 to about 200 million in 1910. In the same period, the number of automobiles increased from about 8,000 to 469,000.

Bidding for leaseholds involves offers of millions of dollars for rights to drill by scores of competing oil companies. Above, landmen from throughout the Southwest United States gather at Austin, Tex., for one of the semi-annual auctions.

best known by the general public. But competition is also intense in all other phases of the U. S. oil industry.

When Shell began in Seattle and Oklahoma in 1912, the industry was on the threshold of a period of accelerated growth, which brought more complex and intensified competition. For example, within 12 years after the Supreme Court had broken up the original Standard Oil Company, the percentage of the oil market held by the companies which had comprised Standard dropped from 85 to 35 per cent. (Since then many of them have grown as independent companies to sizes that make the former Standard Oil Company look small. But none represents more than a small fraction of any part of the oil industry.)

The competitive elements that evolved in the decade 1910-1920 when Shell entered the industry set a pattern in each segment of the modern oil industry.

In production, competition had been acute long before the Standard breakup. The Spindletop discovery, and those that followed in Oklahoma and California, ended the dominance of the old Pennsylvania-West Virginia-Ohio oil fields. This new production brought many newcomers into the business. A large number of oil producers continues to be a feature of the American oil industry.

The second decade of this century also set a pattern for developments in manufacturing. Refiners had to adapt their facilities to the burgeoning market for gasoline. New manufacturing methods were needed to extract from crude oil more of the formerly almost worthless gasoline. One outstanding development in early technological progress was the thermal cracking process developed in 1913 by Dr. William A. Burton of Standard of Indiana. This process cracked distillate fuel to give a greater total yield of gasoline. It set off a contest in processing progress because refiners sought their own new cracking techniques rather than pay Standard of Indiana for a license. Only refiners who could find new ways to make more gasoline at lower costs could in the long run hope to survive in the struggle with competitive rivals. Similar technological competition, at an ever-increasing tempo, has continued to be a hallmark of the industry.

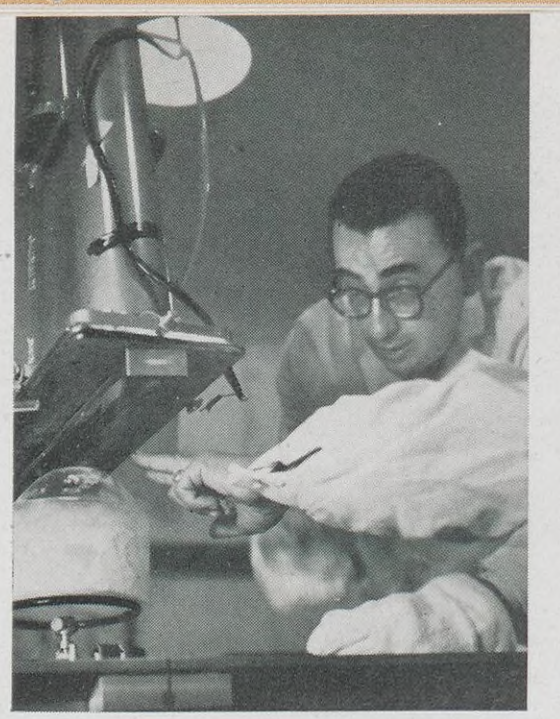
Rivalry sharpened also in all phases of petroleum transportation, such as railway tank cars, pipe lines, barges and tankers. Each type of transportation was pushed to greater efficiency by the threat of losing out to other means of transportation.

In marketing, this decade saw the introduction on a wide scale of service stations, the aspect of oil competition most obvious to the average motorist. Many oil companies were born or grew up in these years. Shell's start in oil marketing was in Seattle as the American Gasoline Company, one of the first to market gasoline exclusively. Previously, the Royal Dutch/Shell Group had been selling Sumatra gasoline to Standard of California for distribution on the Pacific Coast. When Standard cancelled this arrangement in 1910, the American Gasoline Company was Shell's answer to the problem of continuing its sale of gasoline.

Other Shell companies were formed in production and refining and they were linked with marketing in one operation. This fully-integrated structure had been developed first by Royal Dutch/Shell Companies in other parts of the world. In the U. S., meanwhile, several companies besides Shell were developing integrated organizations from exploration to marketing.

This new form of organization grew from the need for efficiency. Supplying gasoline and other petroleum products was beginning to be an immense task. It required many small companies in every phase of the industry. But also needed were large integrated companies with resources to tackle big jobs.

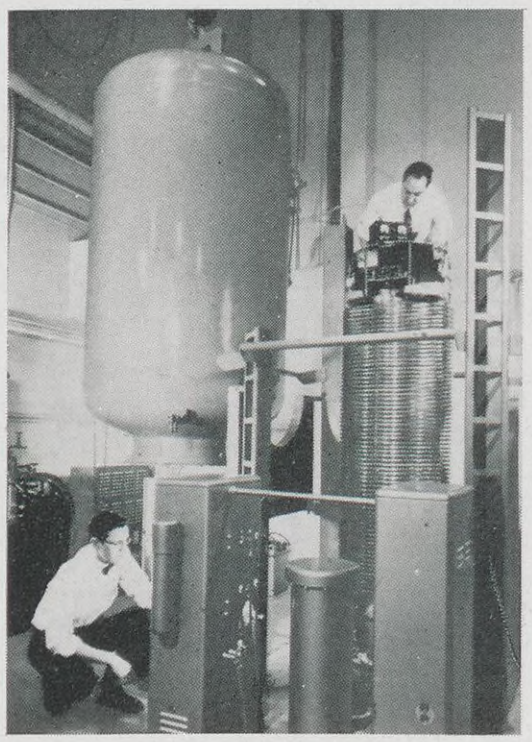
The integrated organization of oil companies raised in some minds the specter of monopoly. But these 1958 figures show that the oil business today is spread among a large number of firms—with none holding a domi-



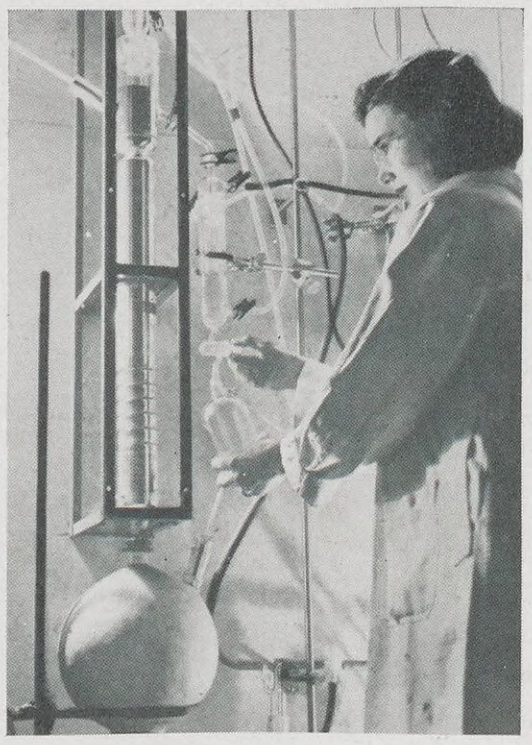
SHELL

CITIES SERVICE

Research competition is probably the sharpest competitive spur, forcing companies to provide a wide choice of products at low prices. These pictures show scientists at work in laboratories of four companies—Shell, Cities Service, Gulf and Standard of New Jersey. U. S. oil research costs about $300 million a year.



GULF



STANDARD (N. J.)

Competition in research is severe

nant part of the business: The largest producer has only 5.2 per cent of total U. S. crude oil production; the largest refiner has only 9.8 per cent of refinery intake; and the largest marketer has only 12 per cent of refined products sales.

Besides, there are now more elements to competition than numbers of competitors. Two of the major new dimensions in competition are research and alternatives. These new competitive factors, involving both large and small companies, have their roots in the scientific and technological revolution of the last 50 years.

Competition in research probably is the sharpest spur, forcing companies to provide a wide choice of products at low prices to hold and attract customers. The individual companies in the oil industry spend a total of about $300 million annually on research, seeking new and improved products and techniques in all phases of the business. A recent example of the results of research competition is Shell Isoprene Rubber, the first commercially-produced synthetic duplicate of natural rubber.

Besides being an example of competition in research, this Shell product is also a good example of competition among alternatives—the contest among different types of products for the same market. Similarly, many synthetic fibers based on petroleum now compete among themselves as well as with wool and cotton in the fabrics field. In the fuel and energy market, as noted, oil companies compete with alternative forms of energy—natural and manufactured gas, coal and water power. As producers of natural gas, oil companies find themselves in the anomolous position of selling fuel oils in competition with natural gas.

Research and substitutes, along with the older competitive elements of price, quality and service have helped motivate the oil industry to provide products and services consumers want, where and when they want them.

In exploration and production, there are more than 12,000 separate companies. A highlight of competition in this branch of the industry has always been rivalry for leaseholds. Today, it is more intense than ever. For example, in Alaska, California, Texas, Louisiana and the Indian lands of the Four Corners region, competitive bid-

ding for leases on state and Federal land runs into millions of dollars. Early this year, the State of Louisiana held a sale at which $62 million was paid for mineral leases on 272,000 acres. Shell was one of the successful bidders, paying $26 million for leases on 24,500 acres, two-thirds of which were offshore. At a similar California state sale last year, $55 million was paid for only 19,200 acres of offshore leases. Other companies outbid Shell by millions of dollars on individual parcels and none of Shell's bids was successful.

Competition is equally severe in the transportation branch of the industry. In the U. S., there are 1,333 individual companies in petroleum transportation —54 pipe line, 42 tank ship, 174 barge and 1,063 for-hire and tank truck companies. Pipe lines and oil tankers, both developed by the oil industry, are typical examples of the competition that exists. Pipe lines are usually common carriers and as such accept anybody's oil for movement. To prosper, they must find ways to increase efficiency. Through such technological developments as large diameter pipe lines and large automatic pumping stations, pipe line companies have been able to reduce their rates over the last 30 years while all other forms of transportation have raised rates. Competition in the oil tanker business is marked by wide fluctuations in tanker rates. Rarely is tanker capacity in balance with demand. At present, excess tanker capacity is estimated to be about 15 per cent, with new tankers being launched constantly. This overcapacity forces down transportation rates which, despite rising costs, now are as much as 35 per cent below the rates set by the U. S. Government during World War II.

In refining there are 237 businesses owning refineries which manufacture a wide range of products. Another 243 companies process lubricating oils and greases with facilities smaller than refineries. Here again, excess capacity, which is about 17.5 per cent now, forces refiners to be alert for every competitive advantage. Because of the large investments needed for refining facilities and high fixed overhead, manufacturing represents a significant portion of the cost of the finished product. For this reason, running a refinery at less than full capacity results in high unit costs. This situation presses down on prices, since all refiners seek markets that allow them to use their facilities to full capacity, thus cutting average manufacturing costs and permitting additional output at very little additional cost. At the same time, refiners' laboratories look for better processes to cut costs and better products to gain public favor.

The largest number of separate companies is in marketing, the only part of the business with whose competition the general public is familiar. Besides more than 180,000 service stations (and thousands of garages and stores with gasoline pumps), there are 14,047 bulk station and terminal companies, 11,127 fuel oil dealers and 3,000 liquid petroleum gas companies. The competitive elements in marketing are many but a key one is the relative ease with which an outsider can enter the business. The growing success of independent marketers since World War II has emphasized this competitive feature of oil marketing. For example, a survey last year revealed that small marketing companies often have a powerful influence. The survey showed that Erickson had 10½ per cent of the gasoline market in Minneapolis; Clark, eight per cent in Milwaukee; Regal, six per cent in Sacramento; and Trackside, six per cent in Mobile —a larger part of the local market than many of their "major" competitors.

But if there is any aspect of marketing that testifies to how well the competitive system works in the oil industry, it is in the price and performance of the industry's major product, gasoline.

Compare today's gasoline with that of the early 1920's. Less than two gallons of today's gasoline does the work three did then. And, except for taxes, gasoline today costs no more than it did in the early 1920's. Taking a more recent span of years, the price and performance record of progress continues. Regular gasoline today is identical in quality to that of premium fuel only six years ago. Yet the improved regular grade costs about the same, except for taxes, as the regular of 1953—while prices of almost all other commodities have continued to climb. (In fact, gasoline prices are too low at present to bring an adequate return on investments needed for the long-range job of serving consumers.)

When asked the question "Who's your competition?," any oilman can count a legion of rivals and competitive pressures. Whatever his job may be—geologist, driller, pipeliner, refinery operator, accountant, salesman or scientist—his work is a part of his company's competitive stance. If he looks a little further, he can also see that most of his company's products compete with many others that consumers want.

So when an oilman is asked "Who's your competition?" he may be inclined to answer, only half-jokingly, "Who isn't?" ●

SOME SHELL ACHIEVEMENTS

Shell's major accomplishments during its 47-year history in the United States have had a strong influence on the growth and progress of the U. S. oil industry

THE petroleum industry was 53 years old when Shell started oil production and marketing operations in the United States in 1912. From a small beginning, Shell grew rapidly into a leading U. S. oil company.

Much of Shell's progress came from its association with the Royal Dutch/Shell Group, which could offer advice and technical knowledge gathered from its world-wide experience in oil. Thus, even as a newcomer, Shell was able to pioneer many developments that have had a strong influence on the U. S. oil industry.

All four Shell companies in the U. S.—Shell Oil Company, Shell Chemical Corporation, Shell Development Company and Shell Pipe Line Corporation — have contributed to these developments.

Shell Pipe Line Corporation was incorporated in 1927, although Shell operation of pipe lines in the U. S. stretches back to 1915. Both Shell Pipe Line and the Pipe Line Department of Shell Oil Company have been leaders in pipe line development over the years.

Shell Development Company, formed in 1927, was a pioneer organization set up to do basic hydrocarbon research and develop new products and processes. Since its beginning, it has contributed research achievements in all of Shell's operations. As the major research arm of the Shell operating companies in the U. S., Shell Development's function is to help to insure they will be able to find adequate supplies of raw material, that their production and manufacturing processes will be competitive in efficiency and cost, that their products will be equivalent or superior to competitors, and that opportunities are provided for growth in established fields and profitable entry into new fields.

Chemical operations, resulting in the formation of Shell Chemical Corporation, originated in 1929. The petroleum chemicals field was entered by using processes developed by Shell Development and associated Group companies. From its beginning, Shell Chemical has pioneered the manufacture of new chemicals from petroleum.

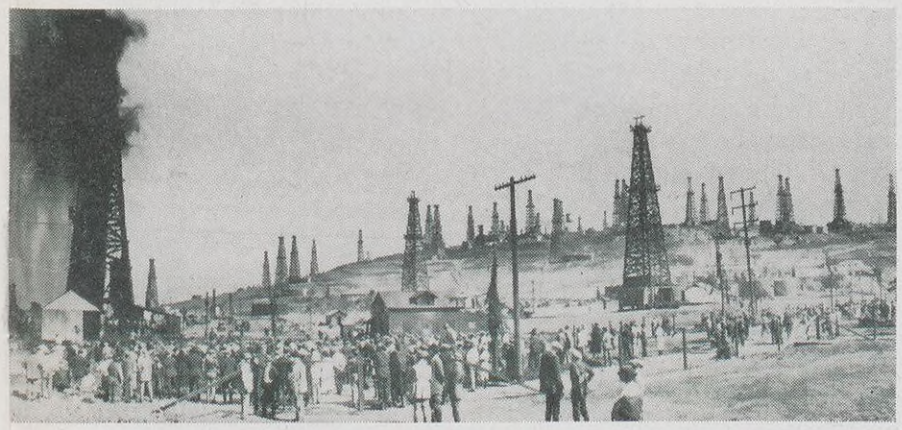
Following are some of the major accomplishments of all four Shell companies, grouped under the general categories: exploration and production, oil and chemical manufacturing, and transportation.

EXPLORATION AND PRODUCTION

1915— Production Engineering Department organized. Shell was the first U. S. oil company to set up a production engineering department. Its purpose was to study subsurface problems related to oil production. The work of this department pioneered developments in the field of exploitation engineering.

1918— Diamond core drill introduced in oil geology. This was the first improvement over surface geology, the original scientific method of oil exploration. With the core drill, previously used in prospecting for other minerals, geologists could gather positive information about sub-surface structures.

1921— Signal Hill, Calif., Field discovered. One of the industry's most important discoveries, Signal Hill became the world's most prolific oil field in terms of barrels produced per acre. It was also a milestone in Shell's history because it gave the Company a needed boost after five years of almost fruitless exploration in California and Oklahoma. The discovery gave Shell the production it needed for expansion and also spurred oil development in the Los Angeles Basin.



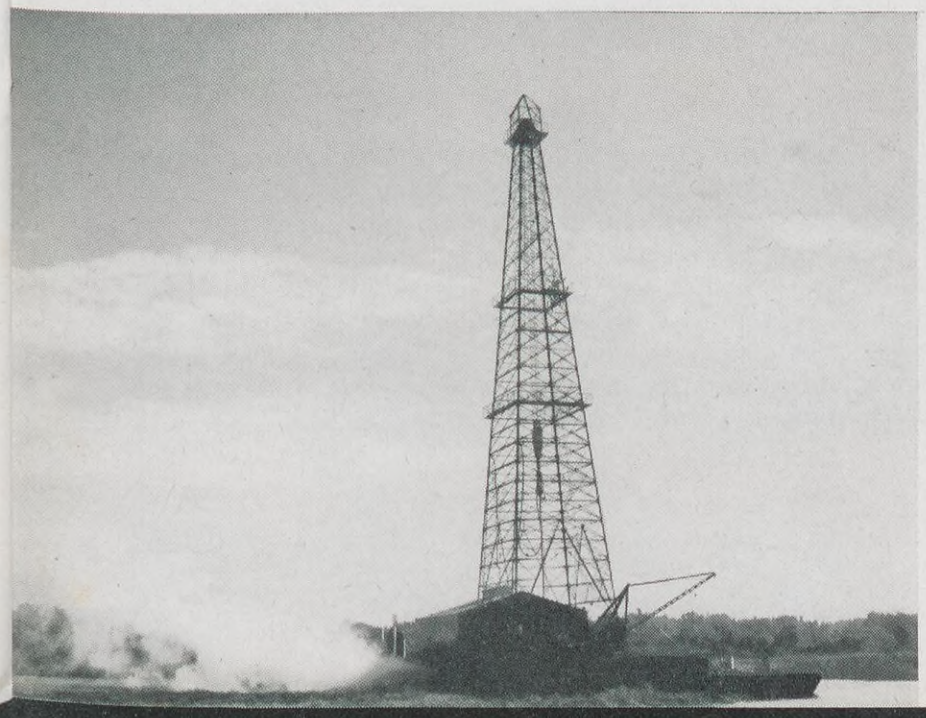
This view of Signal Hill, Calif., Field in 1923 shows Shell's Andrews No. 3 well blowing in. It was brought under control without an accident.

1922 — Oil in commercial quantities found at Ventura, Calif. Complicated underground structures in the Ventura Field were overcome, after Shell had spent six years drilling and more than $2½ million, to bring in the discovery well. But Shell's determination was well-rewarded, because Ventura developed into one of the Company's most profitable holdings.

— Torsion balance introduced. Late in 1922, a Shell geophysical party started using the torsion balance in the Gulf Coast region of Texas and Louisiana. This instrument, developed in Europe, was the first to give geologists and geophysicists information about the structure of underground formations without bringing samples to the surface. It provided gravity data which were interpreted with the aid of available geological data to furnish the desired information.

1932 — Electric well logging introduced. Schlumberger electric well logging (now widely used throughout the oil industry) was introduced to this country under Shell's sponsorship. The logs make it possible to 1) estimate production potential of a formation, 2) correlate geological information, and 3) gauge a well's ultimate production.

The drilling rig below, towering 225 feet above the swampland, is the type Shell uses to drill the deep wells in the Weeks Island, La., Field.



1942 — Monahans, Tex., Field discovered. Shell started its role as a leading oil producer in West Texas with the discovery of the Monahans Field. This was followed by other Shell discoveries in 1943, 1944 and 1945, which spurred the development of West Texas as a major oil producing region.

1945 — Weeks Island, La., Field discovered. Shell pioneered the development of deep-drilling techniques in discovering this field. The first producing oil well was 13,770 feet deep, at that time the deepest producing oil well in the world. Weeks Island has become one of Shell's most prolific fields.

1947 — Elk City, Okla., Field brought in. Shell's continued exploration activities in its oldest oil-producing area—Oklahoma—paid off with the discovery of the Elk City Field, estimated to contain more than 100,000,000 barrels of oil.

— Lease Automatic Custody Transfer systems started. Beginning with early experimental efforts in 1947, Shell has paced the industry in the installation of automatic custody transfer systems for crude oil handling. Shell has now installed over 60 systems that handle more than 70,000 barrels of crude oil per day. These figures represent approximately one-third of all oil industry automatic custody transfer work. The widespread application of this equipment is illustrated by the fact that Shell has automatic custody transfer installations in 11 states (California, Colorado, Illinois, Kansas, Louisiana, Mississippi, Montana, New Mexico, Oklahoma, Texas and Utah) and several provinces of Canada.

1948 — Development of offshore equipment started. Shell introduced the use of submersible mobile breakwaters in shallow water drilling in 1948. In 1954, Shell started working with the Oil Development Company to develop a mobile rig for drilling wells in deep water. As a leading offshore oil producer, Shell has continued developments in this field.

1950 — Louisiana offshore discovery brought in at South Pass Block 24. This important discovery spurred Shell and others to intensify efforts to develop offshore production. Today, South Pass Block 24 Field is Louisiana's largest oil field, and Shell is its leading producer.

1951 — Williston Basin wildcats find oil. A Shell wildcat well near Richey, Mont., was brought in as a commercial oil producer, focusing attention on a new section of the Williston Basin as a potentially oil-bearing region. This was followed a few months later by another Shell discovery 55 miles south of the Richey well, Shell Pine Unit No. 1. Since then, Shell has made other important discoveries in this region.

1954— Important discovery made in Four Corners region. Shell's Desert Creek No. 2 discovery well in the Four Corners region (where Utah, Arizona, New Mexico and Colorado meet) revitalized the oil industry's interest in this area. Subsequently, Shell played an important role in developing Four Corners into a major oil producing region. In 1958, the Four Corners Pipe Line, jointly owned by Shell and five other oil companies, was completed. The line, which stretches 750 miles from Four Corners fields to Los Angeles, was built and is operated by Shell Pipe Line Corporation as agent for the Four Corners Pipe Line Company.

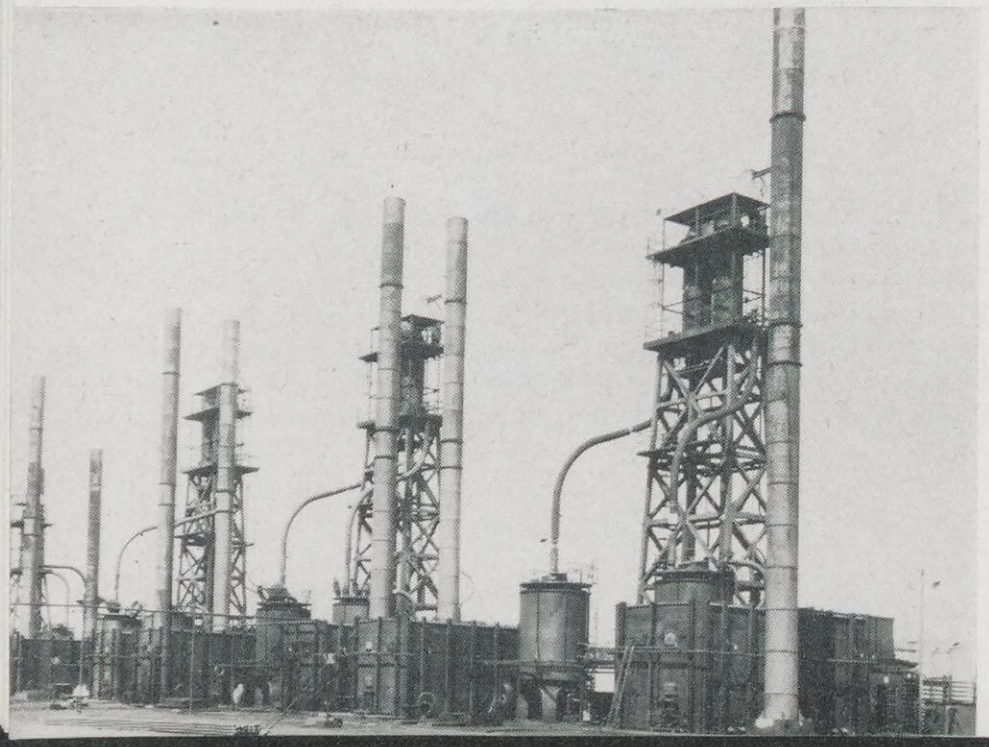
MANUFACTURING

1915— Modern refinery distillation introduced. The newly-constructed Martinez Refinery used pipe stills and fractionating columns in combination. This system has since been universally adopted.

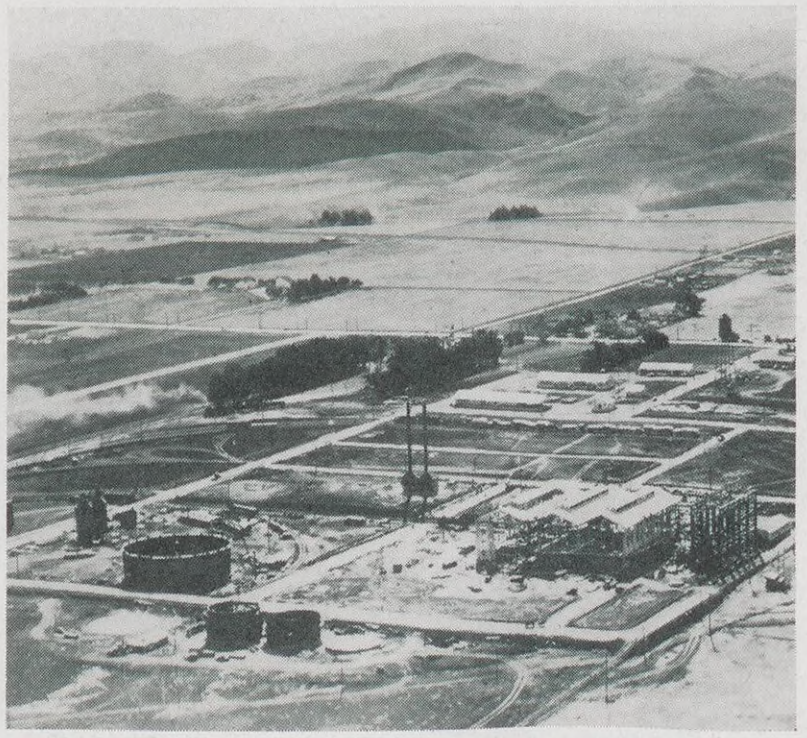
1919— Dubbs thermal cracking process adopted. After examining several thermal cracking processes (which increase the yield of gasoline from crude oil), Shell became the first licensee of the Dubbs process—a continuous cracking method instead of the costly "batch" methods developed earlier. The first Dubbs units were built at the Wood River Refinery. During the 1920's Shell made several major improvements in the process. By the 1930's, it had become the most widely used cracking process in the industry.

1920— Manufacture of asphalt improved. The Norco Refinery, built to process heavy Mexican crude oil, went on stream with an innovation in manufacturing asphalt, formerly made in batch stills. Norco manufactured it by means of a pipe still for the first time. This continuous production method lowered manufacturing costs.

Dubbs thermal cracking units at the Wood River Refinery are shown in the 1925 photo below.



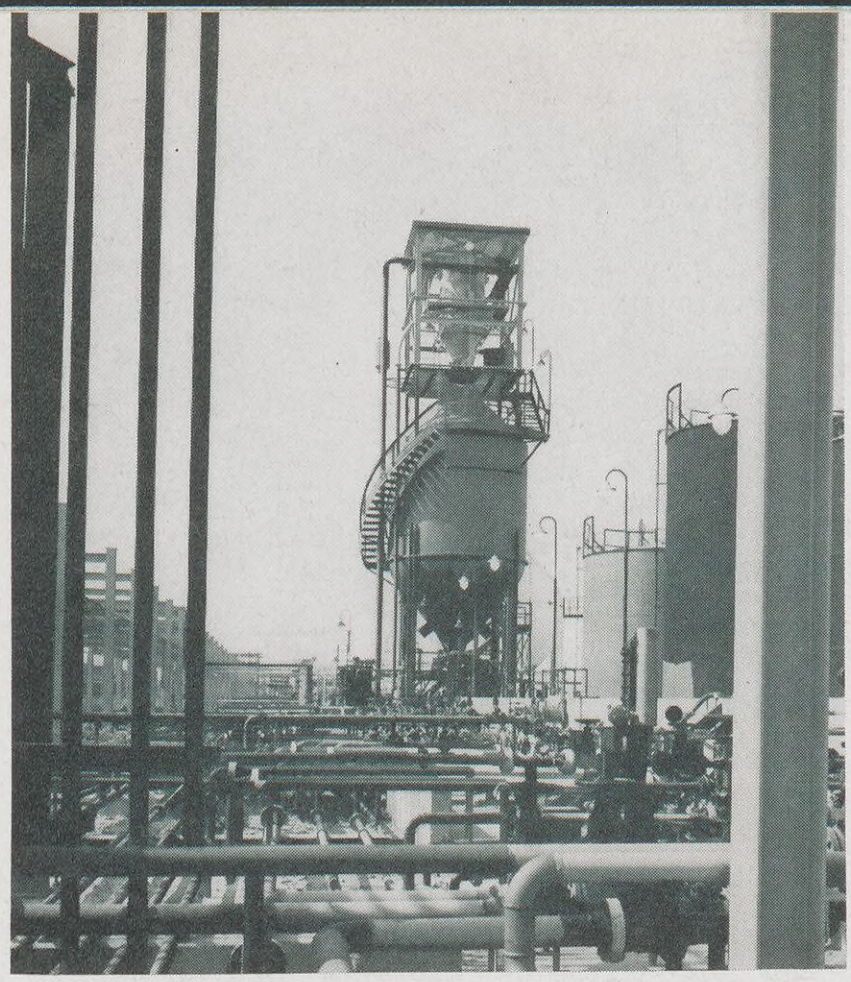
1930— Commercial manufacture of secondary butyl alcohol started. A small plant was built under the supervision of Shell Development Company at the Martinez Refinery to manufacture secondary butyl alcohol. Up to this time, SBA had been produced only on laboratory scale at a cost of about $200 a gallon. While important in itself, SBA in commercial quantities was even more significant as an intermediate for the manufacture of a solvent, methyl ethyl ketone.



Shell Chemical's synthetic ammonia plant located at Shell Point, near Pittsburg, Calif., is shown under construction in this 1930 photo.

1931— Ammonia made from natural gas. Shell Chemical's first major product was ammonia, manufactured at the Shell Point Plant near the Martinez Refinery. The process was adapted from a European method which used steel mill coke gas. Shell Chemical became the world's first manufacturer of ammonia from natural gas. Because natural gas was plentiful in California, the ammonia could be manufactured at reasonable prices to provide the raw material for ammonium sulphate—a fertilizer used by the State's growing agricultural industry. Subsequently, Shell developed methods of introducing gaseous ammonia directly into irrigation water (NITROGATION SERVICE®, introduced in 1935) and into the soil (NITROJECTION SERVICE®, introduced in 1939), both substantially reducing the cost of applying fertilizer. These developments have been an important aid to agriculture, not only in the far-western states, but in the rest of the country.

— Manufacture of methyl ethyl ketone from petroleum started. Up to this time, a poor quality MEK was produced only in limited quantity as a by-product of wood distillation to make alcohol, and it had few uses. Shell's manufacturing process made high purity MEK potentially available in large and stable quantities at reasonable prices. Shell Chemical, with the research assistance of Shell Development, pioneered the use of MEK as a lacquer solvent and it has now grown to be a leader in that field.



The glycerine plant, above center, at the Houston Chemical Plant was constructed in 1948 and became the world's first unit to make glycerine from petroleum.

1934— Iso-octane manufactured in commercial quantities. At the depth of the depression, Shell invested several million dollars for research at Emeryville Research Center and for refinery facilities to manufacture iso-octane, a chemical known to have high gasoline anti-knock properties and previously used only as an anti-knock reference fuel for gasoline testing purposes. But it was the basis for manufacturing 100-octane aviation gasoline and Shell's gamble paid off. The first carloads of iso-octane were shipped to the Army Air Corps in 1934. The following year, large-scale iso-octane plants were built at the Martinez, Houston and Wood River Refineries. Although Shell's capacity for making iso-octane was many times greater than the demand for the chemical, its availability encouraged aircraft engine manufacturers to develop more powerful engines. And when 100-octane gasoline became a vital fuel in World War II, Shell was ready to help meet the demand.

1938— Process to manufacture synthetic glycerine announced. Shell Development announced its new process for manufacturing synthetic glycerine. While Shell's process was capable of producing glycerine at costs that would make it competitive with natural glycerine, the market at that time did not warrant construction of a full-scale plant. Ten years later, Shell Chemical built the first commercial synthetic glycerine plant at Houston.

1940— Rust inhibitors developed. Between 1940 and 1945, Shell announced the development of several corrosion inhibitors and rust preventives. One of these was a rust preventive used as a basis for Shell's Navy "Turbo" Oil. It was so successful in stopping rust in turbine engines that the Navy contracted for Shell's entire output. In 1944, Shell Development announced a new class of vapor-phase inhibitors, later marketed under the trade name, "VPI." After the war, Shell Development licensees made VPI-impregnated and coated paper for wrapping machinery to be transported or stored. Shell Oil also made VPI crystals which could be used on stored machinery to prevent rust.

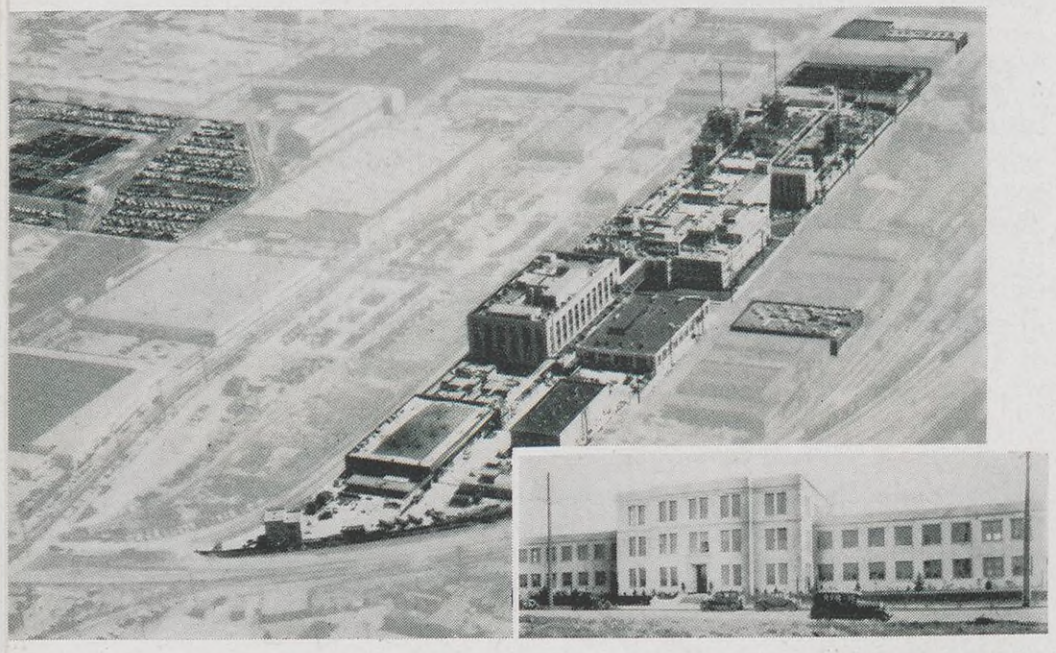
1941— Butadiene made from petroleum in commercial quantities. Shell Chemical, using a process developed by Shell Development, built at Houston the first commercial plant for manufacture of butadiene—main ingredient of synthetic rubber. This plant was the chief supplier of butadiene during a critical period of wartime rubber shortage. In 1943, Shell Chemical designed, built and started operating for the Federal Government a large butadiene plant at Torrance, Calif. In 1955, this plant and connected facilities were purchased from the Government.

1942— Process developed to boost supply of aviation gasoline. Another Shell contribution to wartime supply of aviation fuel was Shell Development's process for manufacturing synthetic cumene, an aromatic used to increase 100-octane gasoline production. This process played an important part in keeping Allied aircraft fueled.

1945— Outstanding war record set. By the end of the war, Shell had manufactured more than 13 per cent of the total wartime aviation gasoline, with only six per cent of over-all U. S. refining capacity.

— Soil fumigation introduced. Earlier experiments conducted in cooperation with the Pineapple Research Institute in Hawaii and the U. S. Department of Agriculture revealed that dichloropropane-dichloropropene was effective in controlling nematodes, which attack plant roots. Shell Chemical built units at Houston to manufacture the chemical and started marketing it under the name D-D® Soil Fumigant. The product, applied to the soil before planting crops, made possible the first significant gain for farmers in their long war against crop-crippling nematodes. In 1955, Shell Chemical introduced another nematocide, developed by Shell Development's Agricultural Research Division. It is called NEMAGON® Soil Fumigant and can be applied to the soil while crops are growing.

Shell installed the first two-stage catalytic cracking unit (the largest structure at right below) at its new Anacortes, Wash., Refinery in 1955.



Shell Development's installations at the Emeryville Research Center today are shown in the large photo. The inset shows the first laboratory building, completed in 1928.

1948— New process used to manufacture ethyl alcohol. The first unit for the large-scale manufacture of ethyl alcohol by direct hydration of ethylene gas went on stream at the Houston Shell Chemical Plant. This type of alcohol—used in the manufacture of plastics, dyestuffs, cosmetics and printing inks—had been made previously from petroleum, but the new process, originated by Shell Development, was simpler than those developed earlier.

1950— Shell becomes largest supplier of commercial aviation gasoline. By 1950, Shell had become the No. 1 supplier of aviation gasoline to commercial air lines. Today, the Company still holds that position and supplies about 30 per cent of all commercial aviation fuel in the U. S.

1953— Shell Gasoline with TCP* additive goes on sale. Shell developed TCP additive first for use in aircraft engines. Research showed that it also controlled automotive spark plug misfiring and deposit ignition — two problems that were becoming more prevalent with automobile engines constantly increasing in horsepower and compression ratio. The introduction of Shell gasoline with TCP additive caused a revolution in the automotive gasoline field. Today about 65 per cent of all premium gasoline sold in the U. S. contains the TCP additive or phosphorus compounds similar to it.

1955— Two-stage catalytic cracking plant developed. When Shell built its Anacortes, Wash., Refinery, it installed a two-stage cat cracking unit, developed at the Houston Refinery Laboratory. The unit, the first of its kind to be built on a commercial scale, was a major manufacturing development because it increases the yield of high octane gasoline from crude oil.

The first commercial application of EPON Asphalt Concrete was made at United Air Lines' jet maintenance base at San Francisco's International Airport.*

1956— Fire resistant hydraulic fluid introduced. Shell met industry's need for a non-flammable hydraulic fluid with the introduction of IRUS® Fluid 902. This was an important development in industrial safety, because most large industrial firms use some type of pressure hydraulic system and ordinary hydraulic fluid had caused disastrous fires when leaks occurred near heat. Research on this product led to the development of Shell 3XF* Mine Fluid, a high-quality, non-flammable hydraulic fluid designed to reduce hazards of mine fires.

1958— New asphalt developed to solve airport pavement problems. A product of Shell Development Research, EPON* Asphalt Concrete was introduced as an answer to deterioration of airport pavement. The new product is a blend of asphalt, EPON® resin and an additive. It is a tough, flexible pavement that withstands weight of the heaviest aircraft, intense heat of jet blasts and solvent action of jet fuels and gasoline.

1959— Process developed to manufacture "synthetic natural rubber." Shell Chemical started manufacturing a synthetic rubber that duplicates better grades of natural rubber in performance. Called Shell Isoprene Rubber, it sells for about the same price as high-quality natural rubber. The new rubber is expected to help reduce fluctuations in the natural rubber market and thus allow rubber fabricators to plan ahead with more confidence.

TRANSPORTATION

1927— First automatic main-line pipe line station built. Unattended operation of pipe line stations was pioneered by Shell in construction of the Simi station on Shell's Ventura-Wilmington, Calif., natural gasoline line.

* Trademark Shell Oil Company

1938— Modern products pipe line built. Shell Oil's East Products Line between Wood River and Lima, Ohio, was completed as the most modern products line in the industry. It incorporated the latest equipment to make the line as automatic as possible at that time and introduced a new dispatching system superior in accuracy and simplicity to any yet devised. The new line also made it possible for Shell to perfect a method of pumping different products through the line, one after another, by keeping the flow rate and pressure within the line at predetermined levels. The line set a new standard for products pipelining.

— Chemistry used to control corrosion in products lines. Shell introduced the use of a sodium nitrite solution in product streams to minimize internal corrosion of pipe lines, a technique developed at the Emeryville Research Center's corrosion laboratory.

1939— Natural gasoline shipped in crude oil. Shell Pipe Line was a pioneer in making large-scale use of the method of transporting liquefied petroleum gas products dissolved in crude oil. The method now is used widely throughout the industry.

1942— Military portable pipe line developed. A portable pipe line for military use was designed by Shell and donated to the Federal Government. It was used extensively in North Africa, Italy, France and the China-Burma-India Theater.

Large diameter pipe lines, such as the 22-inch Ozark System, were pioneered by Shell Pipe Line Corporation after World War II.

Dispatcher's control board, shown above, made possible accurate control of products shipped on Shell's East Products Pipe Line, completed in 1938.

1946— Pipe Line coating materials developed. Shell Pipe Line Corp. has been a consistent leader in the development and use of external asphalt pipe line coating materials, internal plastic coating for corrosive crude oil, and laboratory testing of coatings with accelerated soil burial tests. Specifications developed by Shell Pipe Line for asphalt enamels now are in general use throughout the industry.

1947— Large diameter pipe lines constructed. Shell Pipe Line, in cooperation with a group of other companies pioneered the construction of crude oil pipe lines 20 inches or more in diameter. The advent of the large-diameter lines, and the resulting lower tariffs, changed the entire pattern and character of the pipe line industry.

1950— Modern automatic pipe line stations completed. Shell built four unattended pump stations on its East Products Pipe Line, marking the beginning of the modern remote-control trend in pipe lines.

1953— Product blending system perfected. This advance made possible automatic receiving and blending of product components in a pipe line. It eliminated the need for tanks used in batch blending, as well as tank circulating equipment ●

SHELL PEOPLE in the news

W. B. GOLUSH

J. T. JORDAN

M. L. NEWMASTER

H. W. EGLIHT

R. A. PRATT

A. J. MARTIN

SHELL OIL COMPANY
EXPLORATION AND PRODUCTION ORGANIZATION

D. B. Kemball-Cook, Executive Vice President, has announced that in recognition of the expanding scope and complexity of Shell's natural gas-gasoline activities, and their increasingly important contributions to the Company's over-all operations, all Head Office gas activities are being brought together in a single Gas Department. The changes involve the following:

NAME	PRESENT POSITION	FORMER POSITION
W. B. GOLUSH	General Gas Manager, Head Office	Manager, Gas Department, Head Office
J. T. JORDAN	Manager, Gas Engineering, Head Office	Manager, Technological Department, Head Office
M. L. NEWMASTER	Senior Gas Engineer, Head Office	Superintendent, TXL Gasoline Plant, Midland E&P Area

Other E&P changes are:

J. T. LAMB	Legal Manager and General Attorney, consolidated Denver-Tulsa E&P Area	Legal Manager and General Attorney, former Denver E&P Area
R. B. WING	Consultant, Exploration Economics, E&P Economics Department, Head Office	Exploration Manager, Calgary E&P Organization, Shell Oil Company of Canada, Limited

Shell Oil Company of Canada, Limited

W. L. GROSSMAN	Exploration Manager, Calgary E&P Organization	Area Geologist, Calgary E&P Organization

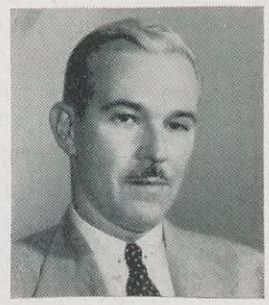
FINANCIAL ORGANIZATION

H. W. EGLIHT	Special Assistant to the Controller, Head Office	Employment abroad with Royal Dutch/Shell Group Companies
K. C. BLOCHER	An Assistant Controller, Head Office	Employment abroad with Royal Dutch/Shell Group Companies

MANUFACTURING ORGANIZATION

R. A. PRATT	Administrative Superintendent, Norco Refinery	Manager P&IR, Shell Pipe Line Corporation, Head Office
A. J. MARTIN	Manager P&IR, Wood River Refinery	Industrial Relations Representative, Head Office
D. L. SEVERE	Manager-Treasury, Wood River Refinery	Chief Accountant, Wilmington-Dominguez Refinery

J. T. LAMB



R. B. WING

W. L. GROSSMAN

K. C. BLOCHER

D. L. SEVERE


J. F. THOMPSON

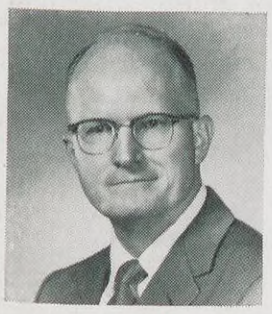

G. A. SHAHAN


J. A. MAWHINNEY, JR.


R. J. SULLIVAN


R. H. HORD


R. W. MARTIN


G. C. FORD


R. E. VAN INGEN


D. S. MEADEN


R. W. HESTER


R. P. TRAINER


H. R. WYNNE

MANUFACTURING ORGANIZATION (continued)

NAME	PRESENT POSITION	FORMER POSITION
J. F. THOMPSON	Manager, Distilling, Wilmington-Dominguez Refinery	Manager, Effluent Control and Utilities, Wilmington-Dominguez Refinery
R. E. VAN INGEN	Manager, Effluent Control and Utilities, Wilmington-Dominguez Refinery	Manager, Distilling, Wilmington-Dominguez Refinery
G. A. SHAHAN	Manager, Purchasing-Stores, Wilmington-Dominguez Refinery	Manager, Stores, Wilmington-Dominguez Refinery
D. S. MEADEN	Manager, Purchasing-Stores, Martinez Refinery	Manager, Stores, Martinez Refinery

PERSONNEL AND INDUSTRIAL RELATIONS ORGANIZATION

J. A. MAWHINNEY, JR.	Manager, Wage and Salary Division, Organization and Salary Department, Head Office	Manager, Training Division, Employee Communications Department, Head Office
R. W. HESTER	Manager, Training Division, Employee Communications Department, Head Office	Assistant Manager, Policy and Benefits Division, Personnel Department, Head Office

TRANSPORTATION AND SUPPLIES ORGANIZATION

R. J. SULLIVAN	An Assistant Manager, Traffic, Head Office	Traffic Field Representative, Head Office

SHELL PIPE LINE CORPORATION

R. H. HORD	P&IR Manager, Head Office (Houston)	P&IR Manager, Wood River Refinery

SHELL DEVELOPMENT COMPANY

R. W. MARTIN	Head, Thermoplastics Department, Emeryville Research Center	Technical Assistant to the President, Head Office
R. P. TRAINER	Administrative Assistant to Vice President, Research	Technical Assistant to the President, Head Office

SHELL CHEMICAL CORPORATION

G. C. FORD	Manager, Purchasing Stores, Torrance Chemical Plant	Supervisor, Purchasing Stores, Pacific Coast E&P Area
H. R. WYNNE	Assistant Manager, Engineering, Head Office	Section Leader, Construction, Engineering, Head Office

SHELL Coast to Coast

API AND AMERICAN RED CROSS AWARDS FOR LIFESAVING

The oil industry's top safety award, the API's Meritorious Safety Award, was presented to Mechanic I. A. Davis, Wood River Refinery, left, by M. P. L. Love, Vice President Manufacturing, right, as Refinery Manager P. J. Merkus, second from right, and Supervisor W. A. Keller watch. Davis was on duty at the Refinery Garage when Boilermaker B. W. May, working under a car, accidentally touched the gasoline tank with a welding rod. As gasoline poured out, enveloping May in flames, Davis dived under the car and pulled him clear in a matter of seconds. He then proceeded to beat out the flames before fellow workers arrived at the scene. Davis is the first Shell employee to win this award, which includes a gold medal mounted in lucite, a lapel pin, and a framed citation. Only 78 such awards have been issued in the history of the API, and it is comparable to the National Safety Council's President's Medal.

Pensioner L. Edwards and Mrs. Edwards of Houston, proudly pose with their 16-year-old son, Larry, after he received the American Red Cross' highest award for lifesaving—the Certificate of Merit, signed by President Eisenhower. He also received the Emergency Performance Certificate from the Houston Red Cross Chapter. These awards were given to him for his presence of mind in saving the life of a little girl. Larry had been waiting for a bus when he heard the screams of a boy who had just pulled his seven-year-old sister from a bayou. Noting she was not breathing, Larry attempted artificial respiration, but the girl did not respond. Larry then noticed that her mouth and nose were clogged with mud. After using his fingers to scrape the mud from her throat, he again used artificial respiration, first placing a pencil in her mouth to keep her from biting her tongue. This time his efforts were successful.

BOYS ON HORSEBACK

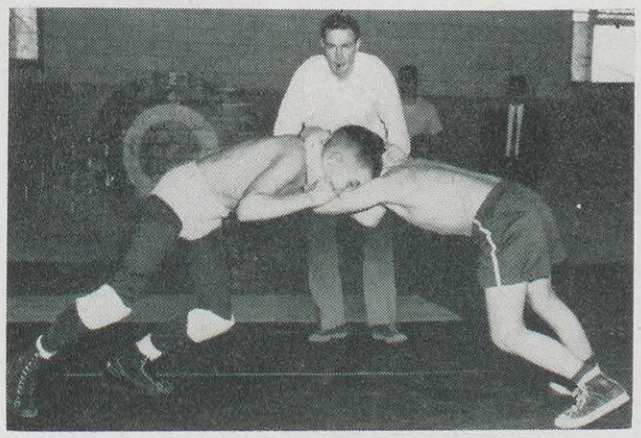
When members of Boy Scout Troop 90 of Larkspur, Calif., go on an outing, they don't walk. Because of the efforts of S. J. Hastings of Shell Chemical Corporation at San Francisco, they go on horseback. Hastings, Sales Manager of the Ammonia Division, helped organize the troop—one of two mounted troops in the country—two years ago. At right, Hastings leads members on a camping trip in the rugged Devil's Gulch in Samuel P. Taylor State Park in California.

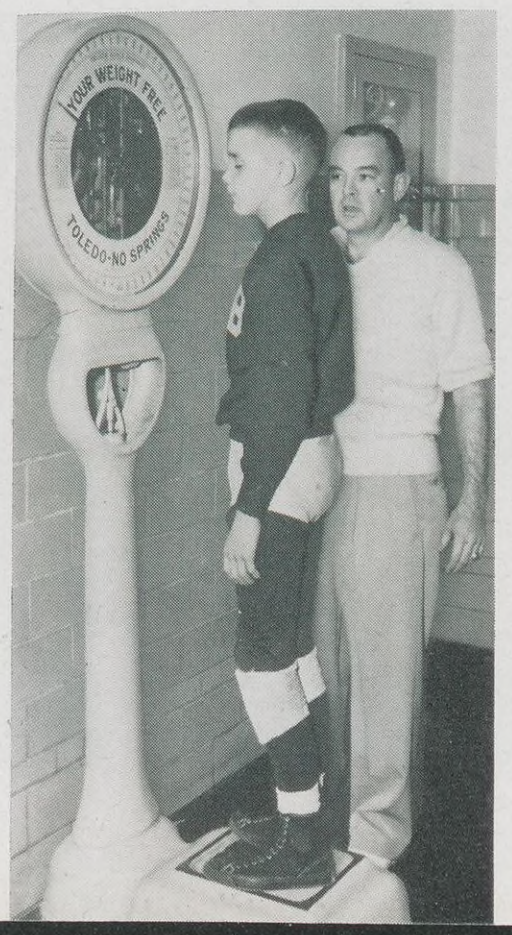
WHEN IT RAINS

A near-record, 24-hour downpour of 12 inches in New Orleans turned the Norco Refinery site into a shallow lake late last Spring. The Refinery continued to operate, however, with the help of drainage pumps and a temporary dam. At right, employees wade knee-deep as they go about their duties at Distilling Unit No. 4. The cloudburst, which resulted from tropical storm "Arlene," also flooded homes and highways in some areas.

WRESTLING CHAMP

Jimmy Selby is an 11-year-old Houston, Tex., boy who excels at many things. He is an "A" student, a Boy Scout patrol leader, a track star and an expert swimmer. But Jimmy, who has been blind since birth, prefers to wrestle. As a member of the Texas State School for the Blind team less than a year, he has five victories and one defeat in tournament matches—recently winning the Houston YMCA 105-pound crown—all against sighted opponents. At right, Jimmy's father, Technical Representative J. W. Selby, Jr., of Shell Chemical Corporation's Agricultural Chemicals Division at Houston, reads the scale as Jimmy weighs in before a match. Above, Jimmy, left, strains for position at the start of a match. He later pinned his opponent.



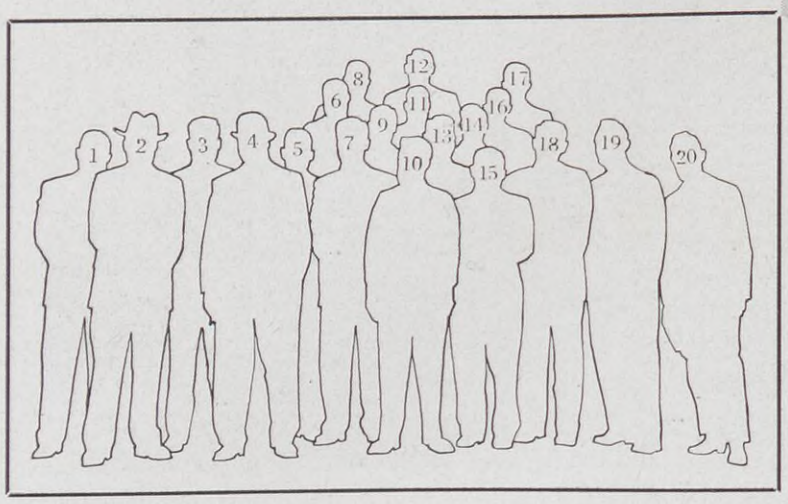


SHELL Coast to Coast

continued

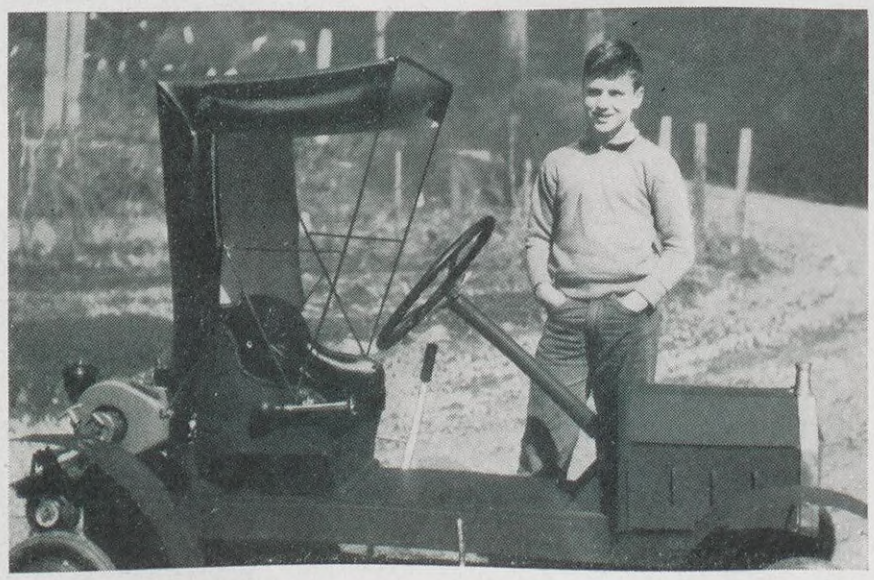
A DOUBLE CENTENNIAL

Employees at the Denver E & P Area are celebrating two centennials this year. Together with all other Shell employees, they are marking the 100th birthday of the oil industry; they are also taking part in the Colorado Centennial celebration. At the right, the Colorado State Capitol building, partially blocked by the century-old original Capitol, serves as a backdrop for 20 bearded employees of the Area. The men grew beards for the costume pageants and parades being held this year. They are (see diagram below): 1) T. J. Sweeney, 2) D. E. Whited, 3) R. G. Carlson, 4) B. J. Hammers, Jr., 5) D. B. Hoge, 6) J. E. Akins, 7) W. A. Olsan, 8) Aldo Zueck, 9) S. R. Carpenter, 10) D. G. Ayers, 11) L. A. Kirkpatrick, 12) G. L. Powell, 13) J. B. Haller, 14) E. W. Corfman, 15) E. H. Saulsberry, 16) R. B. Young, 17) R. J. Svoboda, 18) R. W. Webber, 19) R. C. Peterson and 20) D. W. Wells.



MODEL DRIVER

When District Geologist G. M. Valentine, Pacific Coast E & P Area, wanted to give his 12-year-old son, Brent, a convertible, he didn't buy it—he built one. The car, a scale model of a 1906 Model N Ford, took Brent and his father three months to build. Powered by a used lawn mower engine, the car can reach speeds up to 15 miles an hour.



HONEY OF A HOBBY

Pumper J. F. Ryan of the Boston Division has 375,000 pets in his backyard. Since 1938 Ryan has been a part-time beekeeper. Last year his five colonies produced 300 pounds of honey. Is he ever stung? Rarely, because of careful handling.

RETIREMENTS

R. B. BATTIN
San Francisco Division
Operations

C. M. BRANDIN
Pacific Coast Area
Production

R. J. BREAUD
Norco Refinery
Thermal Cracking

F. T. BROWN
Sacramento Division
Sales

W. B. BROWN
Wood River Refinery
Purchasing-Stores

J. J. BURNS
Wilmington Refinery
Effl. Cont. & Util.

A. DEL PERAL
Houston Refinery
Engineering Field

J. P. FRIEDMAN
New Orleans Division
Sales

L. GARDENHIRE
Martinez Refinery
Cracking

J. L. GELLER
Tulsa Area
Production

H. W. HANNAY
Minneapolis Division
Sales

W. M. JOHNSON
New Orleans Area
Administration

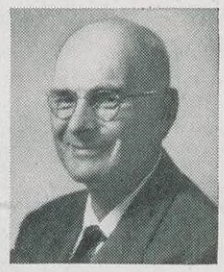
J. KELLER
Norco Refinery
Engineering Field

S. B. KENNEDY
Wood River Refinery
Utilities

L. A. LOHMAN
Wood River Refinery
Administrative

D. McLENNAN
Shell Chemical Corp.
Shell Point Plant

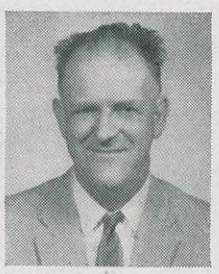
G. W. NORRIS
Shell Pipe Line Corp.
Mid-Continent Division



L. A. OSBURN
Wilmington Refinery
Engineering Field

A. L. PORTER
Seattle Division
Operations

F. E. POSEY
Houston Area
Transport



G. L. ROUGIER
Head Office
Manufacturing

J. J. SANDERS
Shell Pipe Line Corp.
Mid-Continent Division

E. G. SHAKELY
Midland Area
Production

L. E. SHELBY
Wood River Refinery
Engineering Field

C. C. SHIRLEY
Tulsa Area
Production

E. F. SMITH
Shell Development Co.
Emeryville

L. L. SWANSON
Seattle Division
Operations

L. W. TALKINGTON
Wood River Refinery
Engineering Field

E. H. UHLEY
Wood River Refinery
Engineering Field

F. H. VASEL
St. Louis Division
Operations

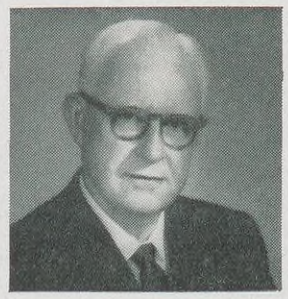
G. A. WATERS
Wood River Refinery
Engineering Field

MARY D. WILLIAMS
Pacific Coast Area
Treasury

Service BIRTHDAYS

Forty Years

C. J. BRASHEAR
Norco Refinery
Effl. Cont., Fire & Safety



M. K. LAKIN
Portland Division
Personnel

O. T. TROXLER
Norco Refinery
Engineering Field

Thirty-Five Years

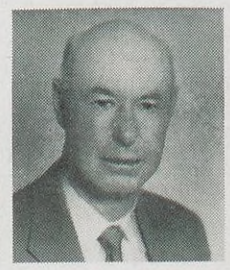
H. H. BRIGHAM
Pacific Coast Area
Production

H. M. BROWNE
Seattle Division
Railroad Sales

E. F. COX
Wood River Refinery
Engineering Field

J. G. CUDDY
Wood River Refinery
Light Oil Treating

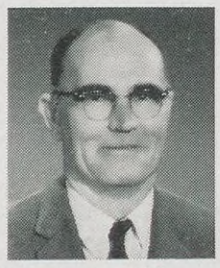
W. J. DE GROOT
Head Office
Trans. & Supp.



H. B. GRIST
New Orleans Area
Transport & Materials

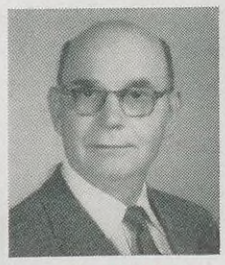
W. HAFNER
Head Office
Expl. & Prod.

E. R. HOWDEN
Shell Chemical Corp.
Martinez Plant



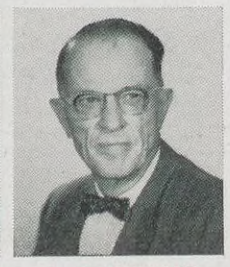
W. C. LYON
Pacific Coast Area
Production

J. P. PETITT
Anacortes Refinery
Zone B

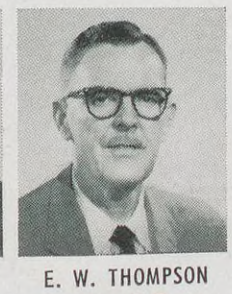


R. H. SANDERS
Wood River Refinery
Engineering Field

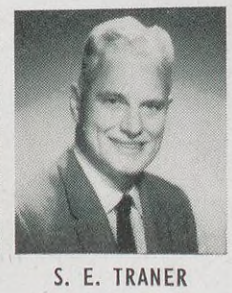
H. L. SHORT
Wood River Refinery
Engineering Field



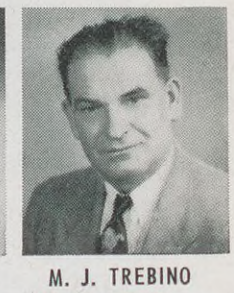
R. W. TARRANT
Houston Area
Legal



E. W. THOMPSON
Martinez Refinery
Economics & Scheduling



S. E. TRANER
Los Angeles Division
Sales



M. J. TREBINO
Martinez Refinery
Engineering Field

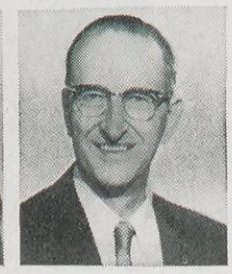
Thirty Years

G. N. ANDREWS
Wood River Refinery
Utilities

J. BECK
Wood River Refinery
Lubricating Oils

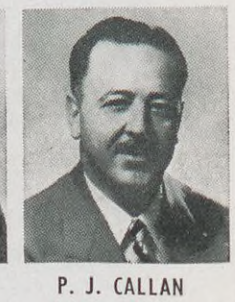
E. BRAATEN
Martinez Refinery
Engineering Field

W. C. BRANDAU
New Orleans Area
Land



C. E. BURNS
Martinez Refinery
Engineering Field

A. W. CALHOUN
Houston Refinery
Dispatching



P. J. CALLAN
Seattle Division
Treasury

L. W. CATLING
New York Division
Sales

E. L. CHAPMAN
Los Angeles Division
Sales

J. W. COBURN
Martinez Refinery
Cracking

H. F. CRANDALL
Pacific Coast Area
Land

J. B. CROSTHWAIT
Tulsa Area
Exploration

G. H. DAVIS
Head Office
Marketing

E. F. DELAUNE
Norco Refinery
Treasury

EUGENIE H. DESBETS
Head Office
Financial

C. L. DES NOYER
Pacific Coast Area
Production

J. V. DURBIN
Wilmington Refinery
Dispatching

R. W. FAULK
Norco Refinery
Manager

M. D. FERREIRA
Martinez Refinery
Engineering Field

J. M. FRANK
Boston Division
Sales

D. E. FULLER
Sacramento Division
Treasury

L. W. GIBBONS
Houston Refinery
Treating

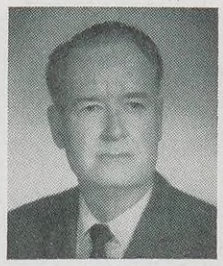
M. C. GILES
San Francisco Office
Financial

W. E. HAND
Shell Development Co.
Emeryville

M. J. HANNON
New York Division
Operations

Thirty Years *continued*

E. C. HARRIS
Houston Refinery
Thermal Cracking



R. M. HORROCKS
Head Office
Financial

A. E. HOUCK
Atlanta Division
Administration

W. E. JAMES
Norco Refinery
Aromatics

L. P. JENKINS
Boston Division
Operations

E. F. JONES
Boston Division
Marketing Service

H. M. JONES
Pacific Coast Area
Production

P. E. KEEGAN
Houston Refinery
Administration

J. F. LEWIS
St. Louis Division
Sales

J. R. LYNCH
Los Angeles Division
Sales

C. M. MAGNESS
Houston Refinery
Utilities

R. P. McALPIN
St. Louis Division
Sales

H. W. MENDE
Portland Division
Operations

RUBY E. MESSMAN
Los Angeles Division
Treasury

W. S. MILTON
New Orleans Division
Sales

J. A. MOORE
Wood River Refinery
Engineering Field

R. R. MOORE
Wood River Refinery
Engineering Field

W. A. OLIVER
Tulsa Area
Production

T. V. OVERSTREET
Houston Refinery
Purchasing-Stores

ELIZABETH PALE
Midland Area
Land

E. A. PETERSON
Seattle Division
Treasury

E. F. PHILLIPS
Tulsa Area
Gas

L. PORTER
San Francisco Division
Personnel

C. RAGUTH
Houston Refinery
Refinery Laboratory

L. RICHARD
Houston Refinery
Engineering Field

H. A. SAY
Tulsa Area
Gas

H. L. SELLERS
Cleveland Division
Sales

C. M. SHUTT
Baltimore Division
Sales

W. C. SMITH
Indianapolis Division
Sales

E. R. TAFT
Houston Area
Transport

J. C. THOMPSON
Head Office
Financial

M. A. WAGUESPACK
Norco Refinery
Distilling

G. C. WALKER
Wood River Refinery
Engineering Field

C. G. WEST
Houston Area
Production

C. C. WUTH
Wood River Refinery
Engineering

Twenty-Five Years

F. AMARAL
Boston Division
Operations

W. M. ARLEDGE
Midland Area
Treasury

F. E. BAKER
New Orleans Division
Treasury

F. H. CARTER
New Orleans Area
Production

M. W. CLARK
New Orleans Area
Exploration

L. M. COLLINS
Wood River Refinery
Alkylation

B. W. CONN
Head Office
Marketing

J. S. COOPER
Pipe Line Department
Hammond, Ind.

D. J. DURHAM
Wood River Refinery
Gas

G. E. DUSCHAMP
Shell Chemical Corp.
Houston Plant

J. P. ENSCH
Pacific Coast Area
Personnel

R. R. FARMER
Tulsa Area
Production

F. E. FREEMAN
Pacific Coast Area
Production

H. I. GREEN
Wood River Refinery
Engineering Field

R. L. HALL
New Orleans Area
Production

W. P. HALL
Pacific Coast Area
Production

W. C. HANSON
Shell Chemical Corp.
Shell Point Plant

Twenty-Five Years *continued*

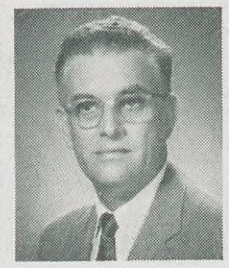
D. P. HARKNESS
Houston Area
Transport

H. G. HART
Pacific Coast Area
Exploration

J. V. HAZEN
New York Division
Operations

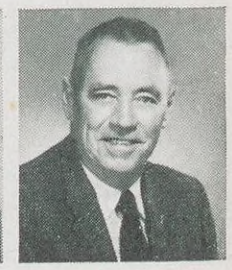
T. A. HEAD
Tulsa Area
Production

J. O. HEINE
Seattle Division
Sales



J. H. HEINEMEIER
Wood River Refinery
Engineering Field

E. B. HERRON
Shell Chemical Corp.
Head Office



H. W. HINDRY
Pacific Coast Area
Production

W. H. HOLLERAN
New Orleans Area
Production

P. R. HOYT
Shell Development Co.
Emeryville

G. F. JOHNSON
Shell Chemical Corp.
Houston Plant

O. KASSAK
Wood River Refinery
Lubricating Oils

V. L. KELDSEN
Shell Chemical Corp.
Torrance

M. G. KENNEDY
Pacific Coast Area
Production

J. A. C. KIRKWOOD
Wilmington Refinery
Alkylation

R. F. KLAUSNER
Pipe Line Department
Bakersfield, Calif.

C. E. LAIN
Midland Area
Production

E. C. LARSON
Wood River Refinery
Research Laboratory

L. V. LEONARD
Pacific Coast Area
Gas

R. R. McGREGOR
Head Office
Financial

E. MEAUX
New Orleans Area
Exploration

D. S. MENDEZ
Shell Chemical Corp.
Shell Point Plant

E. K. MENKE
Cleveland Division
Sales

G. W. MIKULS
Pacific Coast Area
Production

D. F. MILBRADT
Wilmington Refinery
Engineering Services

H. G. NEAL
New Orleans Area
Production

C. F. ODEN
Shell Pipe Line Corp.
West Texas Division

J. H. PARKER
Shell Development Co.
Emeryville

J. L. PARSONS
Indianapolis Division
Sales

G. D. PATON
Pipe Line Department
Zionsville, Ind.

C. H. PHILLIPS
Sewaren Plant
Compound

R. H. PINE
Wood River Refinery
Alkylation

H. E. RADFORD
Pacific Coast Area
Production

O. RAPE
Houston Refinery
Dispatching

R. L. REYNOLDS
Indianapolis Division
Operations

J. L. RHODES
Wilmington Refinery
Thermal Cracking

J. L. RHODES
Wood River Refinery
Gas

L. M. ROBERTS
Shell Chemical Corp.
Gen'l Mgr., Ammonia Div.

L. ROBIDEAUX
New Orleans Area
Production

H. G. ROE
Houston Refinery
Engineering Field

S. B. SAMERJIAN, JR.
Pacific Coast Area
Treasury

G. H. SAMUELS
New Orleans Area
Exploration

W. SCHREIBER
Wood River Refinery
Engineering Field

D. J. STEPHENSON
Houston Area
Land

W. Z. STUTCHMEN
Houston Area
Production

A. G. STUTZMAN
New Orleans Area
Gas

I. T. THERIOT
New Orleans Area
Production

H. E. WARD
Pacific Coast Area
Production

W. O. WARRINER
Houston Area
Treasury

H. M. WETTER
Wood River Refinery
Alkylation

J. W. WILLIAMS
Tulsa Area
Production

H. I. WOLFF
Shell Chemical Corp.
Head Office

V. E. YARNO
Wilmington Refinery
Engineering Field

matters of fact

SPEAK UP FOR YOUR INDUSTRY

In this, our industry's centennial year, the spotlight of public attention is focused on oil companies and oil people. This gives you an excellent opportunity to tell others about our industry—its vital contributions to our American standard of living, its importance to our national security, its actions as a good citizen, its continual improvement of products and services through competition, and the several million good jobs it provides. Continuing public good will toward our industry and our company is necessary if we are to continue to enjoy the employment conditions and career opportunities which we now have.

SHELL OIL COMPANY
50 West 50th Street
NEW YORK 20, N. Y.
RETURN POSTAGE GUARANTEED

J. B. Bradshaw
10231 Eddystone Dr.
Houston 24, Texas

SPL

AT THE TOP WITH TCP

A milestone in the history of gasoline was the introduction of TCP* additive by Shell in 1953. It revolutionized automotive gasoline by solving the problems of spark plug mis-firing and deposit ignition in modern automobile engines. While similar additives have been developed subsequently, experiments have proved that TCP additive tops them all and is still the greatest gasoline discovery since the development of tetraethyl lead in 1921.

*Shell's trademark for this unique gasoline additive developed by Shell Research.