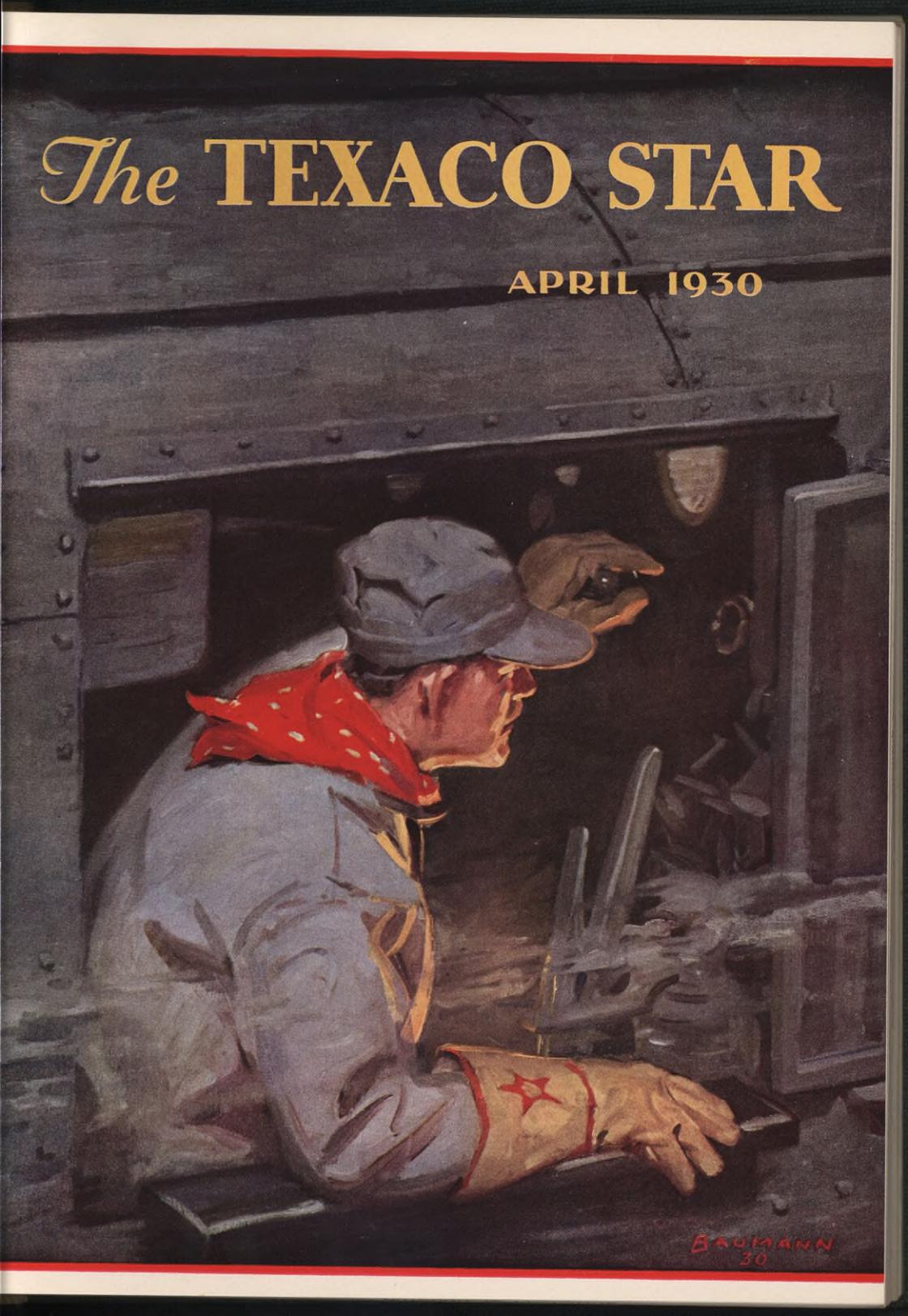
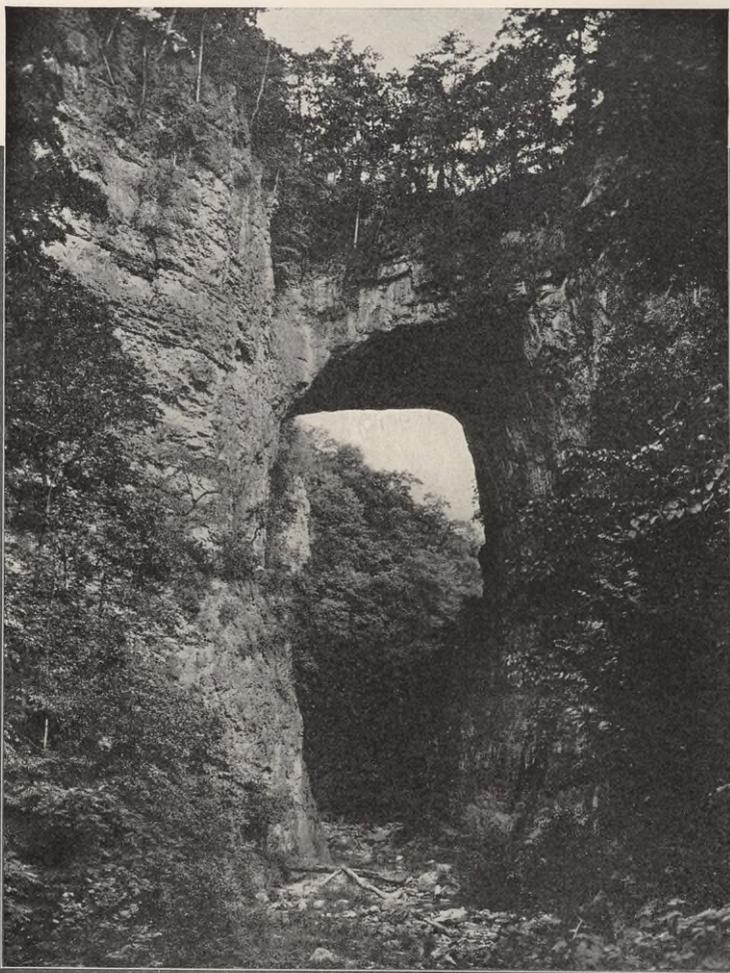


The **TEXACO STAR**

APRIL 1930



BAUMANN
30



GALLOWAY

THE FAMOUS NATURAL BRIDGE OF VIRGINIA
CONTINUES TO BE A POPULAR SPOT FOR
THE MOTORIST AND SHOULD BE INCLUDED
IN ANY TRIP ALONG THE ATLANTIC COAST

The TEXACO STAR

A PUBLICATION OF THE TEXAS COMPANY

VOL. XVII NO. 4



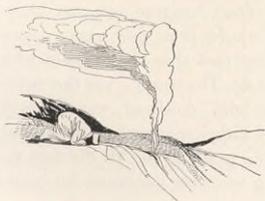
APRIL, 1930

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Brief and to the Point

★ The Texas Company manufactures more than four hundred petroleum products.

★ A small refinery, for the manufacture of illuminating oils, was in operation near Tarentum, Pennsylvania, in 1849, ten years before the drilling of the Drake well. The crude was obtained from salt wells in the vicinity.



★ Burning natural gas, issuing from a rock fissure on the shores of the Caspian Sea, was worshipped by natives for many years as a sacred and eternal flame.

★ A greater tonnage of TEXACO asphaltic products was shipped from our refineries and terminals during 1929 than during any previous year in the history of the Company.

★ The State of California collected more than \$100,000 a day in gasoline taxes last year.

★ The Texas Company was a pioneer in developing a petroleum thinner for use in the paint and varnish industry.

★ In 1886, an eminent geologist declared that the production of oil had "passed its meridian." He estimated the total petroleum deposits of the country at 20,000,000,000 barrels. By 1915 the State of Oklahoma alone had produced more oil than the amount which he had estimated for the entire Midcontinent area.

★ Although Illinois received no gasoline tax funds for road building in 1929, it led all states of the Mississippi Valley in highway construction during the year.

★ It costs but three cents more a mile to operate a light airplane than to drive an automobile, according to the American Motorists Association.

★ The first oil discovered in the Midcontinent area was thought to be suitable only for fuel.

★ Our front cover this month depicts that great hero of our boyhood days, the railroad engineer. We wonder if the railroad engineer, when he was a small boy, wanted to follow railroad-ing and whether, after he achieved that ambition, he didn't find that it would be rather nice to be a small boy again.

★ Several courses of interest to petroleum technologists are now being given in connection with the chemical engineering program of the University of Michigan.

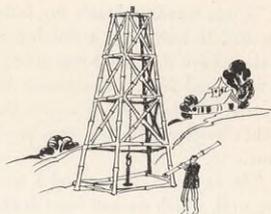
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★ The modern oil derrick evolved from a bamboo structure used by the Chinese for drilling water wells.

★ The mayor of Boston advocates a one cent increase in the Massachusetts gasoline tax to create a state fund for old age pensions.

“This is the Way it Really Happened—”

ONE minute there was a hole in the ground. The next minute the hole had been flooded with oil, and the petroleum business had begun. There, in a nutshell, and in the phraseology of Samuel B. Smith of Titusville, Pennsylvania, the only man living who saw it happen, you have it.

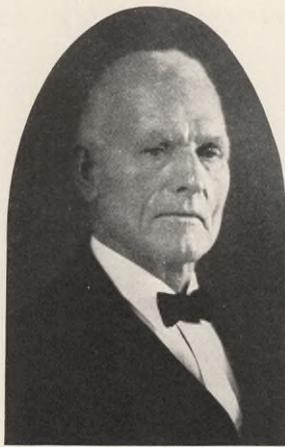
Mr. Smith, who is getting on to his ninetieth year and who remembers that significant day in August 1859 as though it were yesterday, explodes a few stories about the beginning of the oil business. Sitting in a comfortable armchair in his Titusville home, where he can command a view of the endless hills, he reminisces in a way that reveals his delight with the early days of the petroleum industry and his utter astonishment with its growth and development.

“There are a lot of stories spun about the Drake well,” Mr. Smith recalls. “Many people think of an oil well always as a gusher, and perhaps that is why so many believe that the Drake well came in a-flying. Well, she didn’t; the Drake well never even flowed.

“I was standing beside my father when she came in, and it wasn’t on a Sunday, either, as the historians have it. I don’t remember exactly what date it was—and there isn’t a person living who is really sure of the day—but it wasn’t Sunday, because we didn’t work on Sunday then any more than we do now.

“At any rate, father and I were standing beside the well, which we had been drilling for some time, and as I happened to glance down, I saw something dark and fluidy even with the ground. I shouted right out loud, and even though I was only sixteen at the time, I can remember how my father started, and looked down at the ground where I was pointing.

“We didn’t have to test it: we knew what we were looking for and that what we saw was it. She didn’t gush a bit, and my father hustled us around to get the pump on her. It was an ordinary water



Sam Smith, the Only Man Living Who Saw the Drake Well Come In, Tells Us A Thing or Two About It

pump, but for our purposes at the time, it did the trick.

“Getting the oil to the market,” he observes, “was not all figured out in advance as they say it was. As a matter of fact, we went scurrying all over town that day, digging up everything in the way of containers we could find. Barrels were scarce, so we collected pails, boxes—in fact, anything we could lay our hands on. The oil leaked out of nearly everything we had, and we must have lost as much as we saved.

“The town went crazy. They dropped their work right in the middle of the day and hustled out there—the site of the well is about three miles from Titusville proper. We didn’t have much in the way of coöperation from the citizens who came to watch, but I don’t imagine you can blame them for that; they were so thunderstruck they didn’t know what to do. The trouble was that neither did most of us. Through

the whole thing, my father managed to keep cool, and he gave directions to all of us. All the time the oil was flowing into whatever container happened to be handiest.”

There are markedly divergent opinions concerning the virtues of Colonel Drake, popularly conceded to be the elected parent of the petroleum business. Mr. Smith, whose association with the Colonel extended over several years, gives him a clean bill of health:

“He was one of the finest men I ever knew,” Mr. Smith will tell you. “He didn’t know a whole lot about the business we were trying to engage in, but neither did any of us. He worked hard, and he kept cheering us fellows up all the time who were naturally getting a little discouraged over the way things were going.”

For a number of years, Mr. Smith, veteran of the oil business if ever there was one, has gone to Tulsa for the annual petroleum exposition as the guest of the sponsors. He comes back each year marveling at the present scope of the industry, never realizing for a moment, in his modest way, that many who have met him think him marvelous too.

Turning the Clock Back

James M. Townsend Was the Man Who Sent Colonel Drake to Titusville, to Study the Oil Possibilities There: In a Series of Articles Beginning With This Issue, His Nephew, a New Haven Attorney, Supplies a Few New Facts Concerning the Country's First Oil Enterprise.



JAMES M. TOWNSEND

By HENRY H. TOWNSEND

IT IS regrettably true, as many truths are regrettable, that quite often the man who conceives an idea from which enormous fortunes are made, receives little or no benefit himself. If the idea is good, someone else generally converts it into money; too, as was the case with petroleum, the industry may be so new and the uses for its products so limited that there is little or no financial return and it becomes impracticable to bear the financial burden. Only when the idea is poor does the man responsible for it have all the glory to himself, and no one begrudges him it, because it is not worth having.

It has frequently been recorded that the financial support given Colonel Edwin L. Drake, who drilled the first well for oil in this country in 1859 near Titusville, Pennsylvania, originated in that community; it is held that, being on the ground, various Titusvillians were quick to appreciate the potentialities of Drake's endeavors and rallied to his aid. Drake, whose contributions to historical errata are

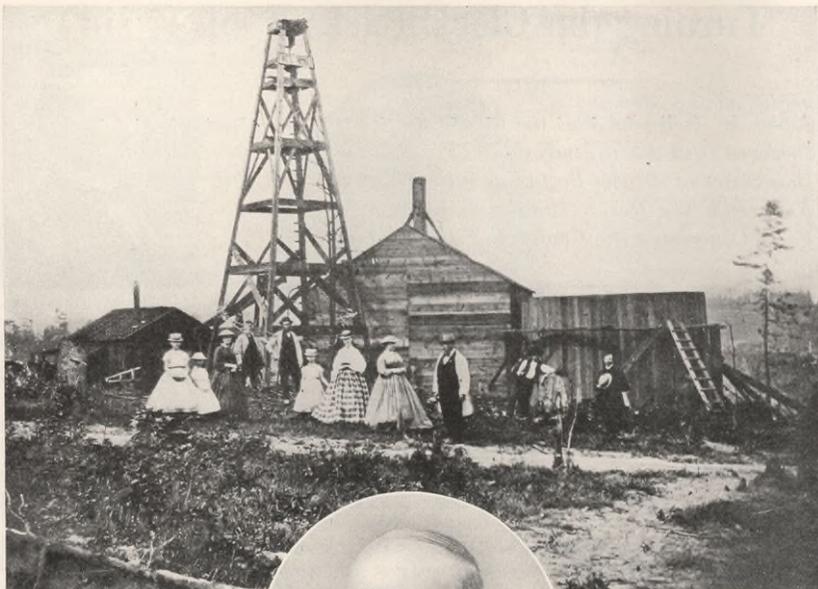
not inconsiderable, is sometimes said to have been independently wealthy.

With none of these statements, I wish it understood, do I take spiteful issue. It is a matter of only slight personal concern to me and, as I propose shortly to reveal, of woefully less financial import. Merely for the sake of the records, I wish now to make public a few facts concerning the country's first oil company—The Pennsylvania Rock Oil Company—of which my uncle, James M. Townsend of New Haven, Connecticut, was prime mover, and to reveal how actually it was New Haven business men who, by a series of coincidences, came to be the backers of the nation's first oil enterprise.

It seems to me rather deplorable that the history of an industry as vast as the petroleum industry should be as fragmentary as it is. We have relied for years upon newspaper reports of the various periods, and petroleum journalism of an historical nature has largely taken the form of privately pub-



Headquarters of One of the Oil Companies at the Peak of the Bonanza



(Above) Visitors' Day
at a Titusville Well
in the Early Sixties



Charles H. Townsend,
First to take Penn-
sylvania Crude Abroad

lished reminiscences of pioneers. It is no secret that an entirely authoritative account of the activity which occurred at Titusville during a few years of the past century has yet to be written.

In view of this curious condition, I present my own facts with a pardonable appreciation of their value: they are based upon documents which historians up to this time never knew existed; they were buried among my uncle's personal effects and for years remained untouched. Upon going over them for the first time several months ago, I found the original charter of the Pennsylvania Rock Oil Company, the company's ledger, maps, many important letters exchanged between Colonel Drake and the officers of the company, and personal memoranda of my uncle's which I regarded as highly suited to publication. Since I was always aware of my uncle's activity in the oil business, although never until then fully enlightened as to its extent, the significance of these documents appealed to me instantly.

James M. Townsend (only in my father's branch of the family is the original "h" in the surname

retained) was descended from a long line of British ancestors. The business instinct manifested itself in James, and in two of his brothers, William and Fred. William, during the crusading days of the oil business, established himself in New York and, working under the direction of the New Haven men and with Colonel Drake, made what was undoubtedly the first bid for foreign business. Fred remained in New Haven with Uncle James, acting as secretary and treasurer of the oil company. My father, Charles, felt the urge of the sea at fourteen, and became a captain at 21. He sailed the old packet ships between New York and Havre at first, and when steamers came into use, he was placed in command of the "Fulton," of the New York and Havre Line, and it was while he had charge of this ship that he took abroad the first sample of crude oil from Pennsylvania, to be analyzed by an eminent French chemist.

In the early '50's, Uncle James, still a young man, had become the president of a bank in New Haven. He was aggressive and alert. Of all of the Townsends of that generation he was the most energetic in new undertakings, and in spite of his willingness

The TEXACO STAR

to ally himself with enterprises that were sometimes regarded as visionary, his business judgment was usually sound.

Uncle James lived at the Tontine Hotel in New Haven, which, up to its demolition only a few years ago, was a landmark and the invariable gathering-place of those who were wealthier in experience than in pocket. An ex-conductor of the New Haven Railroad, temporarily retired because of a malarial affliction which rendered work impossible, resided at the same hotel. His name was Edwin L. Drake.

One day two men registered at the Tontine under the respective labels of George H. Bissell and Jonathan Eveleth. Bissell, a graduate of Dartmouth College and a somewhat distinguished educator who had withdrawn from pedagogical activity because of ill health, had come recently from Hanover, New Hampshire, where the college is located. While in Hanover, he had been shown samples of Pennsylvania oil skimmed from ditches near Titusville. This negligible petroleum activity had been going on for some time in the vicinity of Oil Creek (upon the bank of which the Drake well was later to be drilled) under the direction of a certain J. D. Angier.

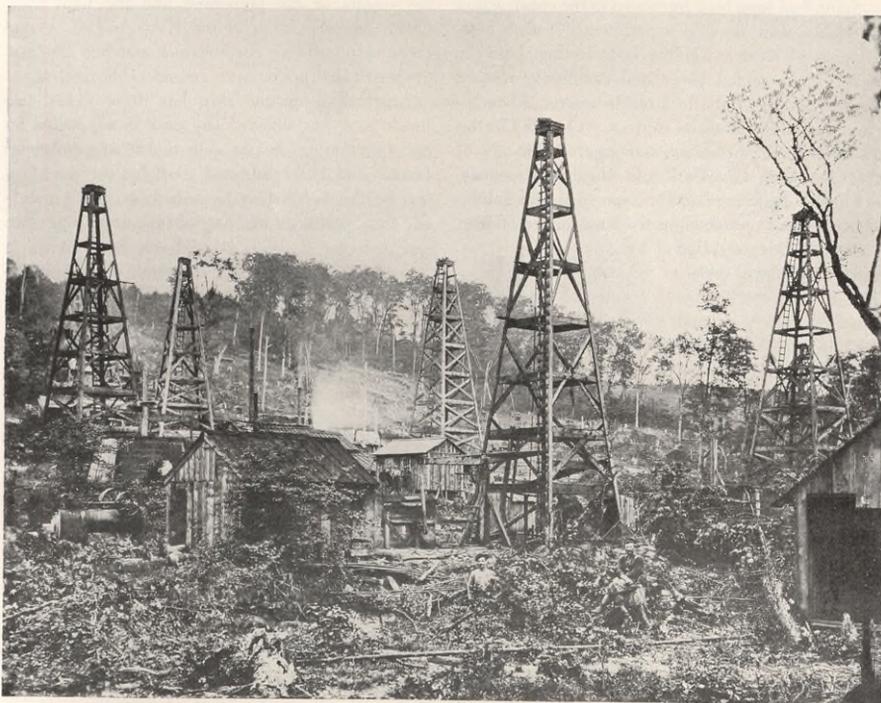
The property was owned by a prosperous Titusville lumber firm, Brewer and Watson.

The skimming process consisted of digging shallow ditches and picking up the oil from the surface of the water which formed, resulting in two or three barrels of oil a day. The enterprise, at least the skimming feature of it, ultimately collapsed.

The slight flurry along Oil Creek, however, had attracted mild attention, and two chemists—one the distinguished Professor Benjamin Silliman, Jr., of New Haven—had made exhaustive tests. Reports revealed that there were promising indications of oil, but neither educator ventured a view as to the best means of obtaining it.

Some of these preliminary facts, I believe, have already been fairly well established. It is not the purpose of the writer to rewrite the history which has already been given wide circulation, but rather to fill in the gaps, repeating only enough so that those who have not pursued the history of petroleum fully will be able to follow me.

Eveleth and Bissell, keenly interested in the few steps which had been taken at Titusville with regard to capturing crude oil, (*Continued on last page*)



Along the Derrick-Studded Banks of Oil Creek, Early in 1862

Electricity Builds a Boat

First All-Welded Tanker Will Carry TEXACO Products

AN all-steel tanker, constructed without a single bolt or rivet, has been successfully launched and after preliminary tests will be used for the exclusive transportation of TEXACO products from The Texas Company's Norfolk, Virginia, Terminal, to Elizabeth City, North Carolina. The new boat, christened the *Carolinian*, has been purchased by M. L. Clark, TEXACO distributor and representative.

The rivetless tanker, first of its kind to be built in this country, has been put together entirely by a special process of electric welding. It is the invention of Richard F. Smith, a native of Virginia, by profession an electric welder and designer of ships.

The method by which the steel plates of the tanker are fastened together is known as the Smith lock-notch process. In the opinion of naval and civilian experts who attended the launching, the *Carolinian* will stand up under every test.

Smith had long been interested in the construction of such a ship. He first experimented with a combination of electric welding and riveting. Later he built an all-welded barge and eventually worked out the details of the lock-notch process. Then began a search for financial support. At length Charles V. Boykin, vice-president and general manager of the Charleston Dry Dock and Machine Company, of Charleston, South Carolina, agreed to give Smith's plan a trial and construction work was begun at once.

Smith's design called for a 2500-barrel capacity oil tanker, 120 feet long, 23 feet wide and with a ten-foot draft. Construction was carried on in secret for several months until patent rights in the United States and in foreign countries were made secure.

The inventor declared that a boat built by his system would save twenty per cent in weight and 25 per cent in construction costs as compared with the cost of building a riveted ship. These es-

timates proved correct and it was further discovered that the welded ship has a greater cargo capacity than an ordinary tanker of the same dimensions. In addition, the lines of the ship provide less resistance to the water, making it possible to attain a greater speed with the same amount of power.

From the time the keel was laid until the launching of the boat, no more than nine workmen were used at one time. The equipment comprised an acetylene cutting torch and one electric arc-welding machine. Eight thousand pounds of electric welding wire were required, as compared with 28,000 pounds of rivets necessary to build an ordinary ship of the same size.

Early in January, Acting Secretary of the Navy Ernest Lee Jahneke visited Charleston and carefully examined the welded ship from stem to stern, above and below decks. He seemed quite interested and announced that the Navy would follow carefully the results of the launching and the final tests. Other representatives of the Navy and of several large ship-building corporations watched the progress of construction with considerable interest.

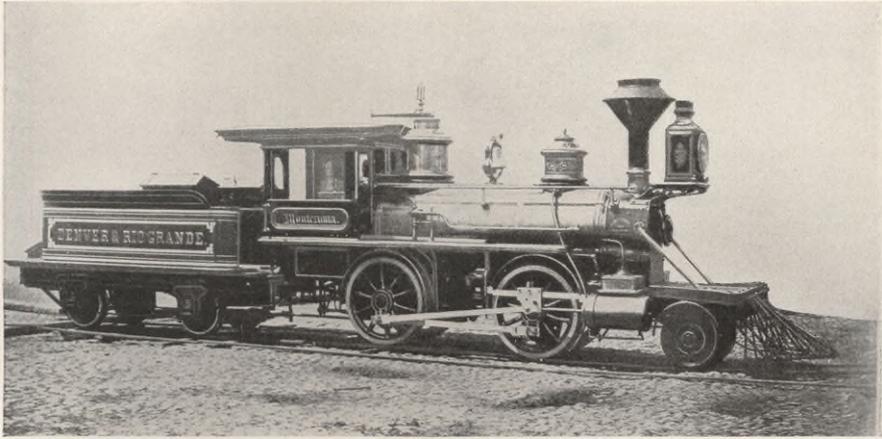
Every seam in the ship has three welds, two inside and one outside. The deck is supported by two longitudinal beams with the usual number of frames and bulkheads and, save for the markings left by the welding, is as smooth as it is possible for steel plates to be. Extra-heavy iron pipe, two

and one half inches in diameter, slit the length of the pipe with a cutting torch, is slipped over the bulwark plating to which it is welded, forming a unique and substantial bulwark rail. The deck house and living quarters on the welded boat are aft.

The propulsion machinery consists of one 180-horsepower full Diesel Fairbanks Morse engine and a 25-horsepower full Diesel cargo pump, which is capable of discharging six hundred gallons a minute.



Launching the First Rivetless Tanker



First Locomotive Used on the Denver & Rio Grande Railroad—Put into Service in July 1871

TEXACO and the Railroads

The Development of this Branch of The Texas Company's Activities

By W. E. GREENWOOD

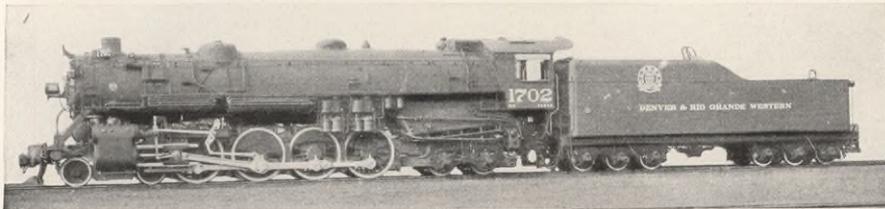
Manager, Railway Traffic and Sales Department

SUBSTANTIAL citizens of a century or more ago were practically unanimous in their contempt for railroads and the apparently misguided individuals who sought to promote them. Stalwart captains of industry and shipping snorted with rage at the mere mention of the "puffing, stinking little tea kettles on wheels," and prominent townsmen wrote indignant letters to the newspapers.

Today there is scarcely a city or town of any importance in the United States that is not linked to its neighbors and to the whole continent by the slender bands of steel which make up our country's railway system, one of the greatest in the world.

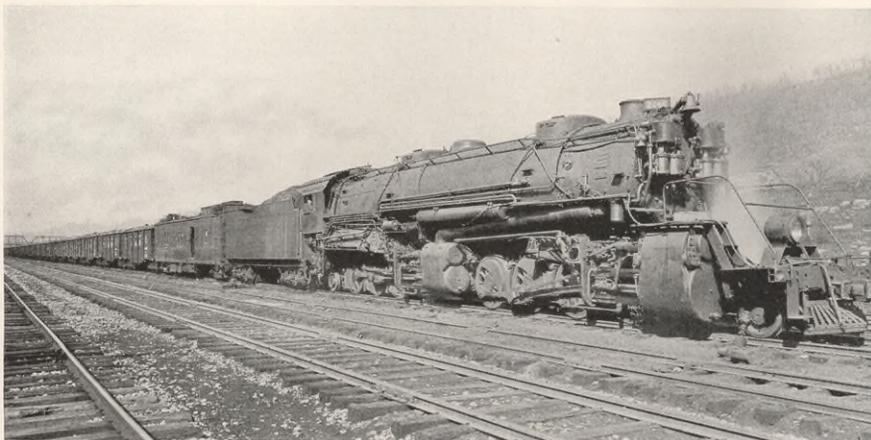
The Texas Company entered the railroad equipment lubricating field in 1903. The Railway Traffic and Sales Department was organized and G. L. Noble, a man with several years of railroad experience, was selected to head it. At that time 93 and one-half per cent of the country's railroads were being lubricated by one company.

For nearly two years the department struggled against what seemed overwhelming odds. But nothing could deflect their interest or their determination and the first equipment lubricating contract was secured on November 1, 1909. It may be added that the Company has retained this contract con-



Modern Denver & Rio Grande Locomotive—TEXACO Lubricated Throughout

The TEXACO STAR



TEXACO Lubricates this Mammoth Freight Engine of the Norfolk & Western Railroad

tinuously to date, an unbroken record of twenty years of service.

During the past two decades, there have been marked changes, not only in operating conditions on the railroads but in the weight of the equipment used. Records for the year ending December 31, 1927, the latest available, show that in 1909 the average locomotive weighed 72 tons. The ordinary locomotive now pounds along the rails with a total dead weight of 111 tons. In 1909 the average freight car had a capacity of 35 tons. In 1927 the average was 44.3 tons.

Twenty years ago the approximate trip run of a passenger locomotive was 150 miles. Today passenger locomotives run from four hundred to seven hundred miles in a single trip. One road, whose equipment is TEXACO-lubricated throughout, and which is said to be one of the most difficult railroads in the country to lubricate satisfactorily, is running its passenger locomotives on continuous trips of 762 miles, and TEXACO products are giving entire satisfaction.

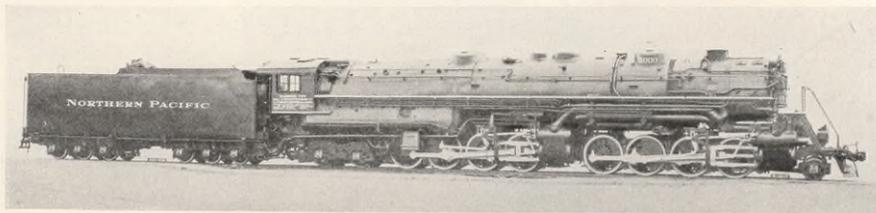
These long, high-speed runs, together with the increased weight of locomotives and cars, require

lubricants of the highest quality. The Technical Division of the Refining Department, thoroughly cognizant of this situation, has done intelligent research work along these lines, with the result that every improvement in railroad equipment is met with a corresponding improvement either in the lubricant itself or in the method of its application.

Uniformity is one of the most essential characteristics of a good railroad lubricant. To illustrate the success which the Company has met with in this respect, I quote the following unsolicited tribute from the general mechanical superintendent of one of the greatest railroads in the United States:

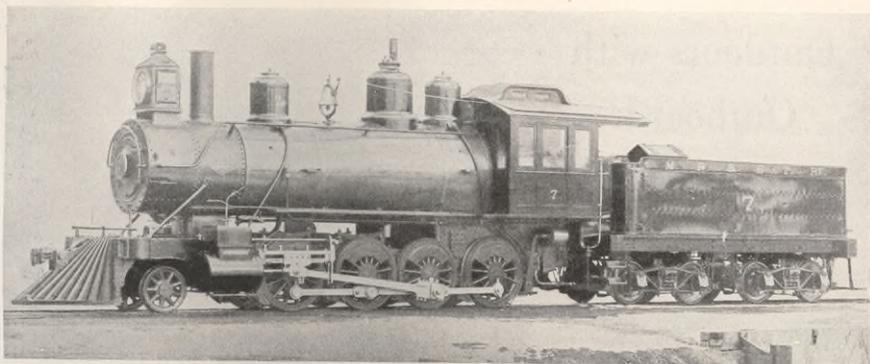
"While this record is not entirely complete, due to failure to receive samples of some few shipments made to outlying points, yet the information is very interesting as indicating the very satisfactory conformity to specifications you have maintained and the very uniform condition of current shipments as regards physical characteristics and tests."

When The Texas Company entered this field, there were two bidders for railroad equipment lubricating contracts. Today, according to a recent quotation for this class of business, there are twelve.



The Largest Locomotive in the World is Lubricated by TEXACO

The TEXACO STAR



Type of Locomotive in Use When the Company's Railway Sales Department Was Organized

Regardless of this increasingly keen competition, TEXACO lubricants are in use on more locomotives and cars than are the products of any other company. From the latest available records, our products are in use on 36 per cent of the locomotives and thirty per cent of the cars on Class 1 railroads. Measured in terms of car mileage this represents the staggering total of ten billion car miles a year lubricated by TEXACO.

Up to about ten years ago practically all railroad equipment lubricating contracts were based on what is known as a "mileage guarantee." That is, the oil company guaranteed that the cost of lubricating locomotives would not exceed a stipulated figure per thousand miles run. Another figure was quoted for the performance of lubricants on passenger cars and still another for freight cars. Should the combined cost for these three classes of equipment exceed the combined guaranteed costs,

the oil company, at the end of the contract period, refunded to the railroad the excess cost. During the control of railroads by the Federal government at the time of the World War, the question of a gallonage form of contract, that is, a stipulated price per gallon of oil and per pound of grease was carefully studied by officials. The result is that both forms of contract are now in use, and are about equal in popularity.

In addition to lubricating rolling stock, The Texas Company is supplying the railroads with large quantities of shop and power-house lubricants, road oils and fuel oil. The Company is also lubricating about six hundred buses operated by subsidiaries of the railroads.

From one railroad customer in 1909 to two hundred and fifty at the close of 1929 is the twenty-year record of the Railway Sales Division and one of which we are pardonably proud.



TEXACO Oils and Greases Are also Used on Electrified Roads—New Type Virginian Locomotive

Outdoors with Outboards

*Here is a Sport Which
Increases in Popular-
ity Every Season*



WITH spring just around the corner, thousands of out-of-door fans are getting ready for another season of motor boating. Amateur nautical equipment, from expensive and expansive yachts to tiny, chugging outboards, is being put into shape in family garages and drydocks, and, borne on the backs of sturdy trucks, is making its way to the nearest water.

Yachting has been for many years a popular sport but outboard motoring is just coming into its own. The outboard has proven itself to be a source of healthful recreation to thousands who are unable to afford the larger cruisers.

The outboard motor is perhaps the most versatile of all marine equipment. Its use ranges from high-speed racing to heavy-duty work on commercial boats; from towing logs up rapid streams to propelling the family rowboat or canoe across the lake for a call on the neighbors.

The popularity of the outboard is dependent in no small degree on the thrilling speeds which it has made possible and safe, and the enjoyment which it provides at a relatively moderate cost. Anyone who can afford an automobile is a potential user of the outboard.

Outboard motor racing has had a remarkable growth in the past few years. In the space of a decade it has grown to national prominence. Races and regattas are now held in all sections of the world and attract widespread interest. The outboard racing season is now in full swing in Florida waters, and regattas in that state are attracting outboard pilots from all sections of the country.

An important factor making for increased popularity of the outboard is the electric starter. Ten years ago the popularity of the motor car grew enormously when automobile builders installed self-starters, doing away with the tedious and nerve-racking process of cranking. With today's traffic-congested highways, signal lights and traffic laws, many former cross-country auto tourists have taken to motor boating.

Hunters and fishermen in increasing numbers are finding that the outboard motor adds considerable pleasure to their favorite sport. The average hunter generally takes a railroad spur line to its last stop and finds several miles of wilderness to hike through until he reaches his favorite hunting grounds.

The hunter finds, your city hunter does at any rate, that the smoothly-gliding canoe is not to be propelled without considerable effort when making headway against a stream or across a wide lake. Moreover, to the city dweller, tired arms and strained muscles do not improve either the aim or the disposition. The outboard motor is an excellent solution to this problem.

Incalculable miles have been churned up on oceans, lakes and rivers by outboard propellers since Ole Evinrude gave the world its first successful outboard motor, in 1909. That motor marked the beginning of a new era in yachting, and sounded the knell of the laborious task of rowing. As an observer sees the equipment around a modern yacht club, he cannot fail to be impressed by the large number of outboard motor-powered dinghies and tenders which scurry between the dock and the yachts.

Outboard motors are made in various sizes and horsepower ratings and may be used on any type boat from a canoe to a cruiser. The world's lightest twin-cylinder outboard motor weighs but 29 pounds, develops two and three-quarter horsepower and is capable of a speed from three to thirteen miles an hour. The world's most powerful two-cycle outboard is electrically started, develops 35 horsepower and provides luxurious water transportation for large outboard runabouts and cruisers.

The Texas Company has furnished fuel and lubricants for outboard motors for a period of many years. Today TEXACO products figure in outboard motor contests all over the United States and TEXACO pumps are to be found near the docks of yacht clubs and marine bases on many bodies of water in this country.

TEXACO at Home

II-CHICAGO

By H. F. WOODYATT

Assistant District Manager, Chicago Sales District

ONE hesitates as to which would be the better story—the tale of the ninety-odd years that have sufficed to convert a region of hunting grounds and trading posts into an enterprising city of nearly three and a half millions; or the bold plans of far-seeing city builders who are doing the initial work toward making Chicago a fit abode for the five million inhabitants it expects to have before the middle of the twentieth century.

Chicago's recorded history begins with the visit in 1673 of Pere Marquette, the French missionary, and Louis Joliet, the explorer. A few years later came La Salle on a quest for a route from the St. Lawrence to the Mississippi. The names of these explorers, missionaries and traders are linked with tales of their early exploits to a small village and trading post, a mud hole in a prairie, called by the Indians "Chicagou," usually interpreted as applying to wild onions or garlic which grew along the river banks.

The first white settler of Chicago is said to have been Jean Baptiste de Sable, a fur trader who built his cabin on the north branch of the Chicago River opposite the spot on which Fort Dearborn was built in 1803.

Then followed a period dark with Indian warfare, massacres, and cholera that was only the lull before the storm of immigration. After the opening of the Erie Canal in 1825, when the national motto seemed to be "Go West," restless Yankees came in increasing numbers, and Chicago became a natural supply station. In covered wagons they came: some pressed on westward, but others stopped.

On August 10, 1833, Chicago was incorporated as a town, with 43 houses and less than two hundred inhabitants, and on March 4, 1837, it became a city with a population of four thousand. The sudden spurt in population was due in large measure to a land boom along the projected site of a canal which was to connect the waters of Lake Michigan and the Mississippi.

Chicago's natural advantages would have meant little had it not been for the railway development which has made it the transportation center of the

North American continent. On November 20, 1848, the first train of the Chicago and Galena Railroad pulled out of town. It returned with a cargo of wheat. This marked the beginning of Chicago's commercial history. Within six years, six railroads were centered at Chicago and since that time it has never lost its place as the railway center of the world. Today the Chicago terminal district is served by 37 railway lines, embracing more than two-fifths of the total railway mileage in the United States.

Hand in hand with Chicago's growth as a railway center has gone its industrial development. With its slaughter houses, soap and candle works



GALLOWAY

Looking South Along Michigan Boulevard (Top) and Wrigley Building by Night

The TEXACO STAR

and tanneries of the 1840's, Chicago's "hog-butcher-ing" continued to grow until Chicago did a larger business in the slaughtering of animals and the utilization of animal products than any city in the world.

Chicago has held world dominance in the manufacture of agricultural implements and farm equipment for more than eighty years. It leads as a distribution center for grain and foodstuffs, iron and steel, machinery, lumber, furniture, cement, sleeping cars, and radios. Chicago is likewise the mail order distribution center of the nation, and the

yond, it is certainly a beautiful and inspiring thoroughfare.

Continuing north and across the Chicago River, Michigan Avenue merges into Lake Shore Drive, Chicago's gold coast. Along this boulevard are gathered the town houses of many men and women who have helped make Chicago's history. Then winding on through Lincoln Park it becomes Sheridan Road and continues on to the beautiful North Shore suburbs with no perceptible border between them and what is officially the city.

The Texas Company started operations in Chi-



(Above) The Texas Company's Archer-Pitney Bulk Plant, Archer Avenue, Chicago



business address of such prominent names as Marshall Field, Julius Rosenwald, Cyrus McCormick, Armour, Swift and Sears-Roebuck.

Chicago is the headquarters for The Texas Company's Chicago Sales District, comprising the States of Illinois, Indiana, Michigan, Ohio, Kentucky and Missouri. The Chicago District is directed from the thirteenth floor of the McCormick Building, at 332 South Michigan Avenue. This same Michigan Avenue is one of the famous boulevards of the world. With many of the city's best hotels and shops fronting on it; its tiers of skyscraper windows with Grant Park facing it and the glittering lake just be-

hind, it is certainly a beautiful and inspiring thoroughfare.

In 1911 an office was opened in the McCormick Building and then the active solicitation of gasoline, kerosene, naphtha and lubricating oils was begun.

In May 1912, the Central Western Division at St. Louis was moved to Chicago and early in 1913 the Chicago District was formed, then comprising the States of Missouri, Indiana, Illinois, Michigan, Iowa, Minnesota, Wisconsin and North and South Dakota.



Another View of Chicago's New Skyline, a Close Rival to that of New York City

GALLOWAY

The first Company bulk station was built in 1913 at North Kingsbury Street, on the north branch of the Chicago River, which a hundred years ago was only a sluggish, muddy stream with a few log cabins on its shores. Shortly after the completion of the Kingsbury Plant, another station was started in DesPlaines, located on the same river where the early explorers, Joliet and Pere Marquette, picked up their canoes and carried them across the Chicago portage.

The Archer Avenue Plant, located at Archer Avenue and the south branch of the Chicago River, was built in 1916, as was also the plant constructed at West Pullman.

All the bulk stations in the metropolitan Chicago are very strategically located, especially the Kingsbury and Archer Avenue Plants, as they are served almost entirely by barge from the Lockport Refinery at Lockport, Illinois. With the completion of the Archer Avenue and West Pullman Bulk Plants, the chain for efficient distribution in the Chicago metropolitan area was completed.

Potential lubricating sales in the Chicago District are great, the major portion of the gallonage that the Company enjoys coming from steel mills in Illinois, Indiana and Ohio, packing plants in

Chicago, automobile factories in Detroit, and coal mines, rubber plants, cement mills and hundreds of other miscellaneous manufacturing concerns throughout the territory. Agriculture also adds a large volume to the sale of petroleum products in the district.

There are other aspects of the city of Chicago which many persons fail to appreciate, but which are of importance to all its citizens. Chicago has a proud position in art, music and education. Its aesthetic development has kept pace with the growth of commerce and industry. Its two great universities have advanced to foremost rank among the universities of the world, and have added scores of beautiful buildings to their impressive groups. Scientific achievements of world-wide recognition have been developed in the laboratories of Chicago's universities and schools of medicine.

Chicago's location as the hub of national producing and consuming centers of the United States creates a vital market for all petroleum products. With increased production and distribution centered around Chicago, we can safely predict that future growth is assured to an already famous and internationally-known trade-mark the TEXACO Red Star with the Green T.



One of the Many Thousand Members of the TEXACO Tank Car Fleet

The Tale of a Tank Car

It's a Matter of Keeping the Company's Rolling Stock Rolling

By **J. O. WILSON**

Superintendent, Equipment Division

BACK in the good old days of oil which, as a matter of fact, were more old than good, the crude oil from the fields of Pennsylvania was transported in barrels on rafts. Later the railroads were utilized and thus it was that the tank car came into being.

The original oil tank car consisted of one or more upright wooden tanks, constructed of staves and bound together with metal hoops. They were somewhat similar to a wooden barrel, but were much larger and several of them were mounted on a flat car which itself was constructed largely of wood.

The past two decades have seen a marked advance in railroad freight equipment, but the most radical changes in tank car construction have taken place within the past ten or twelve years. At the present time there are sixteen different kinds of tank cars, as classified by the Interstate Commerce Commission, for handling various products. Each type is built to serve for the transportation of some specific product, or class of products.

Certain semi-solid products at atmospheric temperatures may be heated to a liquid state and

shipped in insulated tank cars over distances requiring from two to four days to transport, and will arrive at their destination retaining sufficient heat to keep the contents of the car liquid. Likewise, other products, including liquified gases, may be loaded at low temperatures, shipped in insulated cars and retain a relatively low temperature until they reach their destination.

The tank cars employed in the petroleum industry are for the most part non-insulated, unlined steel tanks. The tank of the ordinary petroleum tank car is constructed of steel sheets one-half to five-sixteenths of an inch thick and is designed to have a calculated bursting pressure of not less than three hundred pounds to the square inch and a test pressure of sixty pounds to the square inch.

It does not necessarily follow that the specified test pressure of a tank car is also the working pressure. In no case should tanks be subjected to pressures anything like that required in the tests. The application of excessive pressure is likely to lead to serious accidents or damage to the tank shell. The specifications under which all tank cars

The TEXACO STAR

are built are made by a committee of the Mechanical Division of the American Railway Association, known as the "Tank Car Committee," whose office it is to pass on all new ideas or devices as well as to approve or reject alterations and additions affecting the specifications.

The body especially instituted to function in the interest of safe transportation is the Bureau of Explosives. The services of this bureau are available to and may be utilized by the Interstate Commerce Commission. In fact the bureau, in a manner, acts as an agent for the Commission in the dissemination and administration of the Commission's regulations applying to tank cars, as well as many other matters affecting safe railway freight transportation.

Needless to say, the maximum service from tank cars depends principally upon prompt handling at loading and unloading points and upon mechanical maintenance. For the latter purpose The Texas Company maintains throughout the United States seventeen repair points. The Company's policy is to keep all its equipment in first-class repair and presenting a good appearance. In October 1923, the Company adopted a new style of lettering for its tank cars and since they are kept clean and neat, TEXACO tank cars attract widespread attention and are commented on favorably from many sources.

The performance of TEXACO tank cars for the past year indicates efficiency, not only

on the part of those employes in the various operating divisions of the Company who have to do with loading, unloading and directing the movement of the cars, but also is a favorable commentary on the generally fast transportation service now being rendered by the American railroads.

Most tank cars in the United States are privately owned, or commonly referred to as "private cars," that is, the ownership is vested in other than railroad companies. For this reason the private owners are compensated for the use of such cars on the basis of the total number of miles covered while traveling on the railroads in the United States, Canada and Mexico.

The mileage the Company's tank cars make in any given period depends upon the speed with which they are handled by the railroad companies, consignees and by the Company's employes at shipping points and at distributing stations. In other words, the cars earn no mileage nor serve any useful purpose when standing idle in railroad yards or at Company-owned terminals and stations during the busy season. Obviously it is important that the Transportation Division keep constantly behind the railroads to keep the cars moving and also to insist on their being promptly loaded and unloaded by those who use them. The railroads are anxious to

coöperate with the shipper and each hour saved in unloading gives them the opportunity of starting the cars on their journey that much sooner.



Gauging a Tank Car at Our Port Arthur Refinery

A GOOD CASE



*The Swamper Fells the Tree
and Prepares it for its Trip*



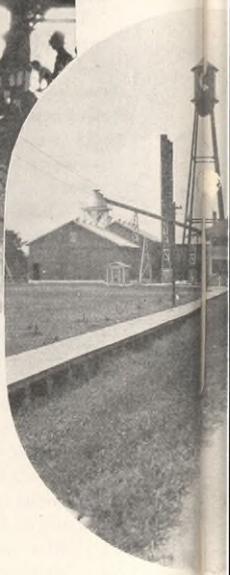
Logs are Made up Into Rafts for a Journey to the Mill



*The Log Reduced by Successive
Operations to Rough Lumber*

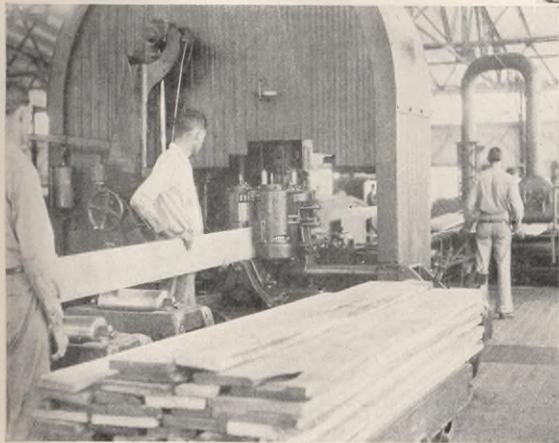


*Hauling the Tupelo Logs Up
Incline into the Saw Mill*

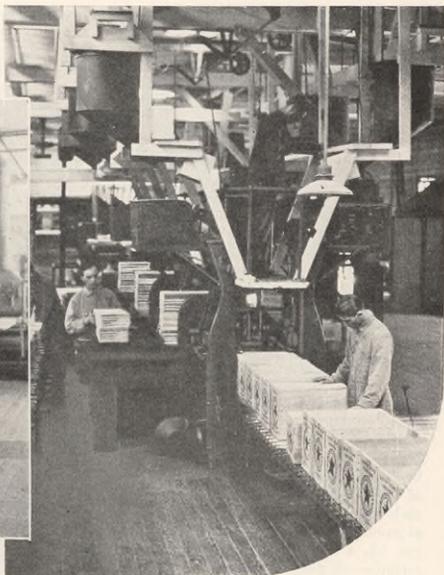


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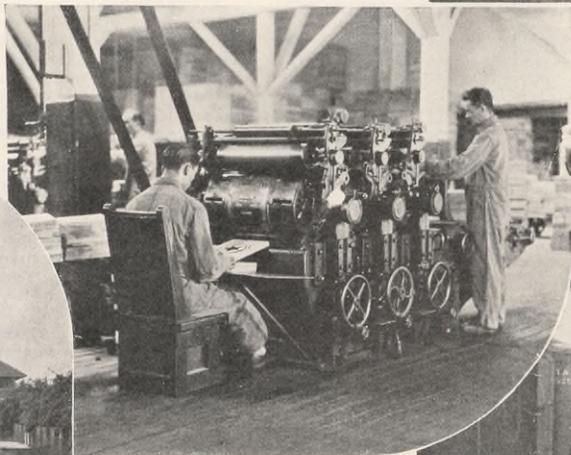
FOR TEXACO



Planing the Boards to the Desired Degree of Smoothness



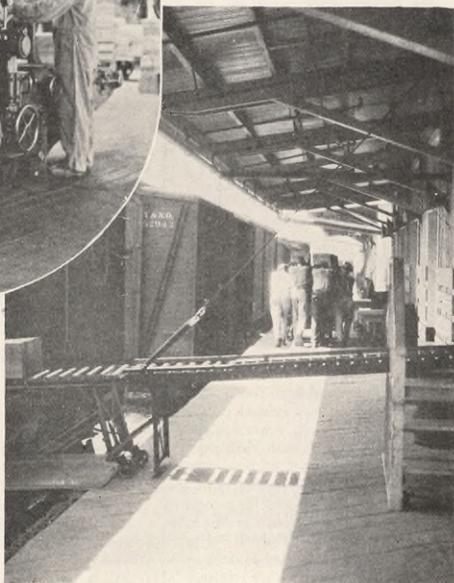
*The Shooks Become Cases
—Nailing and Inspection*



*Printing the Case Ends With
TEXACO Trade Mark and Brand*



ty Shook Mill



*Completed Cases are Loaded
Into Box Cars for Shipment*

The TEXACO STAR

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★

There is a Law

Friends of conservation were gratified at the recent decision of Superior Judge William Hazlett, of California, upholding as constitutional the natural gas conservation law of that state. The ruling was no surprise to those who have viewed the California situation from an unbiased viewpoint.

Judge Hazlett expresses himself in part as follows, regarding the conservation situation in California:

"I have concluded that the Legislature has power to enact legislation to control and limit the production of oil and gas, these resources being such natural resources that the general public, particularly in the use of gas, has a direct interest in the conservation of them so that they may not be wasted, but may continue to be used in the homes, public buildings and factories for the greater development of our state. I am finally satisfied that the great natural resources not made by the hand of man should be and can be conserved by legislation and their taking and use limited for the general public good and for the good of those owning or producing."

The decision should do much to induce other state legislatures to enact appropriate laws for the conservation of petroleum within their borders. It would appear that reducing wastage at the source of supply will accomplish what all of us most wish to see, a true balance between production and consumption in this great industry.

The Colonel

However little we may know of Colonel Edwin L. Drake, in whose honor the first well drilled for oil in this country was named, his memory will never suffer for lack of speculation about him. Any man who, in the more or less manual pursuit of drilling an oil well, wears a high silk hat, deserves to be more than passably interesting.

In publishing a series of articles concerning the Colonel and his associates, the first of which appears in this issue, THE TEXACO STAR is privileged to reveal hitherto untouched sources of information. Among other matters of importance is disclosed a somewhat

different picture of the Colonel, as well as material concerning him which properly belongs to the records. Opportunity knocked at the Colonel's door not only once, but fairly battered it down several times. He had success within the grasp of his hand constantly, but he was too ambitious for other things, too completely satisfied with what he had, or too something or other, to close it.

The petroleum business has moved ahead with electrifying strides, ranking today with industries many years its major, and defying the most prolific of historians to keep abreast of it. It is curious to reflect that it traces itself, through admittedly devious channels, to a man who consistently refused to believe his own eyes even though they were wide open.



The containers in which TEXACO case oil is shipped to foreign points suffer no inglorious fate when once their contents are gone: it is not profitable to use them over again for their original purpose, but many people into whose hands they fall make otherwise good and sometimes astonishing use of them.

Above we find an ingenious individual from Brazil, who has taken a five-gallon TEXACO can, once its basic mission has been fulfilled, and converted it to domestic use. The sprinkler which he has fashioned looks just as durable and infinitely more decorative than lots we have seen.

Speaking of the uses to which TEXACO containers are sometimes finally put, it is interesting to know that in China, cans and boxes are converted into household tools, ornaments and toys. At Port Arthur Terminal, the Superintendent of the Case and Package Division, Mr. R. L. Drake, has had on display a variety of such things. TEXACO tins become dustpans, food boxes and candlesticks; our wooden cases wind up as chairs, desks and tables, which are sold in China for only a few cents.

From an important distributor of TEXACO products in North Carolina comes this interesting sidelight: "If not asking too much, we would be glad if you would ship us any copies of back numbers of THE TEXACO STAR which you have on hand. Whether they are old or new, we can use every one that you send and would certainly appreciate them."

"For your information, we use them in our rural district by mailing them direct to the homes, and this is the only way we can reach them as they never see a *Saturday Evening Post* or anything of this nature."

Moving Day

The Texas Company is now settled in its new New York City headquarters at 135 East 42 Street. The new offices occupy fifteen floors in the tallest building in the world, located in the heart of the so-called Grand Central Zone.

From 3 p. m. on April 4 to the early morning hours of April 7, hundreds of desks, filing cabinets and the other inanimate objects which make up the office equipment of a large organization, were transported through the busy streets of New York. The whole process was effected with the loss of but one full day of office time. At 9 a. m. on the 7th, business was going on as usual in our new quarters.

For twenty years the Company had occupied its quarters in the old Whitehall Building, at 17 Battery Place. In 42 hours The Texas Company's New York offices had been moved a distance of four miles. Much credit is due to the months of careful planning on the part of those who comprised the moving committee, and to those of the employees who were appointed to supervise the actual moving process.

Paying Toll

The American Petroleum Institute has prepared an interesting tabulation of the amount of gasoline taxes, in the form of "toll charges," which the country's motorists pay every year. In states where the gasoline tax is two cents on a gallon, the car owner pays toll at the rate of one cent every six miles. Where the gasoline tax is as high as six cents a gallon, the "toll rate" is approximately one cent every two miles.



A Logging Camp—Deep in the Swamps of Southern Louisiana

Lumberjacks—Southern Style

Your Louisiana Swamper Leads a Simple but Strenuous Existence

By C. J. HELLER

Forest Engineer, Case and Package Division

AS THE first faint streaks of dawn filter through the murky atmosphere of the Southern swamp, a sudden, hoarse cry breaks the stillness:

“Come and get it!”

There follows a low murmur of voices, the shuffling of heavy feet, guttural jests and banter, the glare of a flashlight and then the scraping of wooden benches on planking as the gang sits down to breakfast. A day in the Southern lumber swamps has begun.

During the summer months, when the sun is an early riser, this hour would be close to five o'clock. In winter an hour or so is allowed for the laggard appearance of the awaited dawn.

Hardly before one realizes what is taking place, the same shuffling of feet and the scraping of benches denote that breakfast is over and the men are preparing to leave for the woods. The laborious puffing of cold engines as the tow boats are warmed up, the clanking of saws, axes and wedges as tools are hoisted to brawny shoulders, and the loud, hurried verbal orders to the crews by the woods foreman are notice to the world at large that a goodly supply of timber will be at the mill by night.

As one sleepily regards the scene, one is startled by a sudden volley of shrill steam-whistle blasts close by. This ruthless breaking of the serene tran-

quillity of the early morning may be quite disturbing to the uninitiated but it is the daily reminder to the crew, who are trudging to their work through mud and water often waist deep, to make haste. It means that plenty of steam is on hand and all men are at their posts on the pull boat.

A crew's ability and reputation are based on the number of trees delivered to the pull boat each day and it is a shamefaced crew that comes in with less than the recognized standard. So it is “make haste” from dawn to dusk and take advantage of everything, as there are many obstacles which may cut down the output. A poor day's showing means much explaining to the camp foreman that night and is ridiculed by the other crews who, perhaps, have been more fortunate that day.

The shrill whistle blasts continue with but few interruptions throughout the day. This is the method of communication between the pull boat and the woods crew, often half a mile apart. The combination of short and long blasts is the “Morse Code” of the Southern swamp and is immediately translated by the experienced swamper as far away as he can hear it. One mustn't make mistakes in interpreting this code, for dire results may follow. An incorrect interpretation may mean loss of time, the breaking of equipment, or, possibly, the loss

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of limb or life itself, none of which is desirable.

So our swamper works in the mud and water, day in and day out, cutting down trees, clearing the limbs away, and hooking tongs to the end of the tree for pulling by the pull boat. These men have been born and raised in the vicinity of the swamps and, from childhood on, have made a livelihood from it. They know the twistings and windings of the many sloos and ridges. They can forecast the weather by the shape and size of the moon, combined with certain aches in their bodies. Snakes and alligators are part of their every-day life.

through, he is particularly proud to show the high water marks of past overflows. He has a local name for every sloo, ridge, lake and swamp.

Except for a few days off at Christmas and a day now and then to visit his folks back home, the swamper puts in all his time and effort in the



(Above) Close-Up of a Load Nearing the Pull Boat



★

The Pull Boat's Whistle Shrills a Message to the Men

They can prepare quite delicious food out of such items as the tail of an alligator, young grosbeak, loggerhead turtles, chrimp and crawfish. They not only can make a restful bed mattress out of moss, which festoons the swamp timber, but often eke out a fair sustenance by gathering and selling this moss for automobile upholstering purposes. To them the swamp is their world. Outside of its timber, they make a living by trapping fur-bearing animals and gathering moss, and many a meal from squirrel, coon, possum and fish is found in the numerous lakes and bayous.

To ask a swamper to work outside the swamp is highly insulting to him. He takes exceptional pride in his knowledge of his particular section and delights to act as a guide through it. In taking you

woods. Covered with mud, a handful of moss in each hand to wipe off this mud, and wet from his waist down, rain or shine, hot or cold, he follows the dictates of an uncompromising, unrelenting and hard-driving task master—a steam whistle.

The Texas Company's timber holdings consist principally of tupelo gum and cypress and are located in the overflow and permanent swamp portions of lower river basins in the Gulf Coast region east of the Neches River, in East Texas, and extending into Florida. The lands often remain under water which ranges in depth from a few inches to many feet, depending upon the height of overflow. Usually, during late summer and early fall, the lands contain very little water and, except for extraordinarily dry seasons, are then just mud-



Constructing a Log Raft

dy. Extremely dry swamp conditions, where the ground is hard enough to permit traveling dry-shod, are rare. Never does the ground become hard enough to support anything heavier than a man. This state of affairs calls for a certain course of action to follow in getting the timber out.

The logs are large and fairly thick near the ground. A good stand contains about fifty tupelo and cypress trees to the acre—an average of four trees to each thousand feet of logs, although many trees contain as much as a thousand to fifteen hundred feet each.

It is safe to assume that the green tree, with its sap content and bark, will weigh ten pounds to the foot, log scale.

Thus the lumberman is faced with the problem of dragging a dead weight of from one to five tons through several thousand feet of water and sticky muck. Since an up-to-date sawmill will cut such logs into lumber at the rate of about one to the minute, running time, it goes without saying that speed is a very important factor in the situation.

The pull boat and its auxiliary equipment, as now in use, is the outcome of years of experiment and is the most efficient method for getting trees out of swamp lands. It might be added that the lessons learned and the methods in use in Southern pull boat logging have served as a basis for the high-powered machinery logging now in use in the heavily-timbered and mountainous country of the Pacific Northwest.

A pull boat consists of a heavy, double-cylinder, steam engine, coupled by means of a drive shaft to two large drums in front of it. Around one drum is wound three thousand feet of wire cable, one inch in diameter, for drag-



Raft, Ready for the Mill

ging in the logs. The other drum is wound with six thousand feet of cable, three quarters of an inch in diameter, for hauling back the heavier cable. The two cables pass over pulleys, three and one half feet in diameter, set up in the woods some three thousand feet from the boat and are joined together to form an endless cable. In addition,

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between the ends of these two cables, are placed slings eight to ten feet long with cross-bars on the free end about one hundred feet apart. These slings are hooked into the logs and drag them in as the main cable is rolled up on its drum.

Steam is furnished by a one hundred to one hundred and fifty-horsepower boiler and all the equipment is set up on a barge which is about fifty feet long, twenty feet wide and five feet deep.

The pull boat will drag in from four to six logs each load (about eight tons) through mud and water for a distance of half a mile. Such an outfit will average about 150 logs every working day. When the swamp is more than half a mile in width, the tract is divided up by means of canals dug to the proper width and depth to permit the handling of the pull boat.

As the "trip" of four to six logs is dragged in, the sticky mud is rolled ahead and often causes a log to bury itself. A small charge of dynamite, skillfully placed and set off, releases the log and the load continues to the pull boat without further loss of time.

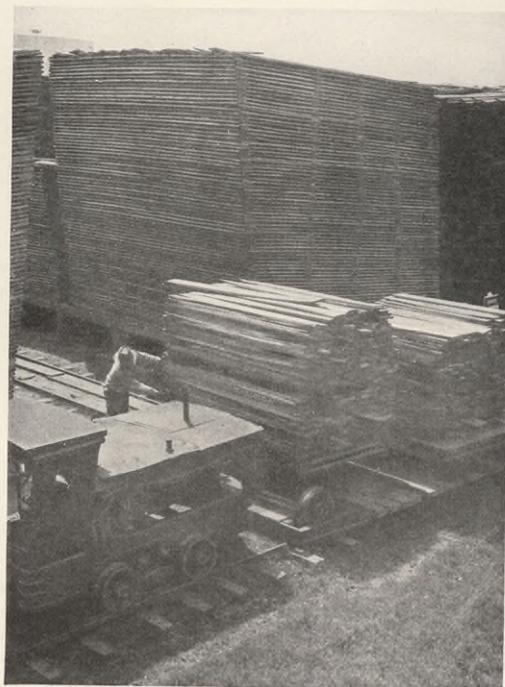
Dynamite is a very important adjunct to this class of logging, sometimes as much as one hundred pounds a day being used. As the logs reach the pull boat, they are made up into rafts and towed to the mill for sawing.

The men live right on the job in house boats, with the kitchen boat in the middle, the white camp and dining room tied to the bank at one end

of the kitchen boat and the Negro camp tied at the other end. The food prepared by the Negro cook and his assistants is rough, plentiful and very wholesome. The sleeping quarters consist of several double-decked house boats which accommodate fifty men each, the men sleeping in hand-made bunks built one over the other. The camp boss, or "captain", as he is called by his swamper, has a camp boat to himself, which is his office, sleeping quarters, and commissary. He is the absolute master of the camp and has to be man enough to enforce discipline and to quell any and all disturbances which may arise from time to time.

No swamper will work under a man he does not fear. Occasionally, a laborer decides he has had enough of the camp and, in quitting, tries to "walk the table" to show that he is the best man in camp and fears no one. By "walking the table" is meant to step up on the dining table, while everybody is busy eating and walk its length, kicking off all the food and dishes. This tests the caliber of the camp boss who sits at the head of the table. The swamps contain many a would-be table walker who can show plenty of evidence that walking the table is not a wise practice to be indulged in with immunity.

In closing, I wish to bring out the fact that, although our swamper does not have the picturesque setting of the northern logger and works under greater handicaps, yet for the past 25 years he has gotten out vast quantities of timber and as to ability, resourcefulness, and skill, he ranks with the best.



Stacks of Lumber at Our Morgan City Shook Mill



"The Colorful Followers of a Great, Nomadic Occupation that Never Could be Called a Trade"

Along the Pipe Line Trail

Workers Nowadays Are Less Picturesque but More Dependable

By SAM ASHBURN

OUT in the semi-arid country of West Texas, where cactus is a decoration and pipe lines cover distances of more than a thousand miles, the old "cats," the veteran followers of the lines, are scratching their last. The colorful followers of a great, nomadic occupation that never could be called a trade are wandering over the hill one by one as new machinery makes way for a less interesting but more reliable group of men who save their money and wander only when the need for employment elsewhere arises.

Today one can still find these old fellows, clad in warm but rarely new clothing, as they wander from one place to another. Their hands are covered with calluses and their talk is of the years they have spent in digging into the earth to make way for pipe lines to carry oil from the fields to the refineries, or to the tankers riding at anchor in the harbor.

"I was a good caliper man," or "I was a first-rate collar pounder," they will say, as they talk of the days when an old timer could get a job wherever he went.

A hitch in the Navy and many years of service for the pipe lines had sent Joe to keeping a small restaurant in Rankin, one of those restaurants where it is impossible for one to do much more than order

hotcakes or change his mind and go without them.

"I know jillions of pipe liners," observed Joe, "but I never knew one to have anything more than a job. A lot of the old boys I remember well. There was Big Neck Jones, Squirrel White, John Light-foot, Blackie White, Blackie Davis, all old timers, and all expert 'canal wrench' men." (A canal wrench is the pipe liner's name for a shovel.)

Joe had worked his time at pipe lining and hadn't found the work hard. Pipe lining, he explained, is not a trade, and after a man has worked at it one day, he becomes one of the gang. Some get to be bosses, he said, because they know how to lead men. Salaries then increase and the lines around the mouth get pretty firm.

Most of the old timers end their days as pipe line walkers, as workers in the refineries or keeping a station clean. Men with a brogue and feet that want to wander each morning, they are.

In came an old pipe liner to the restaurant, and Joe fed him free.

"Last time I saw you was in Casper, wasn't it, kid?" asked the old man.

"That's right," replied Joe, who then further inquired as to the health of his guest.

"Not so good these days," he mourned, "The welders have taken the old timers' jobs. An old



This Line Will Carry West Texas Oil to Eastern Markets

collar pounder ain't in it any more. Which way would you go, Joe?" he asked.

"Which way did you come from?" inquired Joe.

"From the east," he gurgled, as he drank his third cup of black coffee.

"Better go west then, but it ain't so hot either way."

And the old timer, who bore the name of "Fuzzy Goose," wandered out on the highway.

There's something of the poetic in the old pipe liners; as witness such a nickname as "Fuzzy Goose." Joe didn't know his name—only Fuzzy Goose.

"Humph! the only time these guys ever know their name is when they get a pay check."

"I hear they have struck it rich in New Mexico," said Joe to another customer. "Believe I'll go out there." Two days later Joe had gone.

There is a saying among the liners that there are always three gangs working on a line; one on the job, one going and one coming. Wherever the camps are situated, whether in the centers of population or in the far distant ranches, the men who follow pipe lining will go.

There is the story about the pipe liner who applied for entrance at the Pearly Gates. The saint in charge referred the matter to Saint Peter himself.

"Who is he?" asked Saint Peter.

"A pipe liner," was the reply.

"Let him in," ordered Saint Peter, "he'll be dragging up in a week or so anyway."

There are various reasons why men "drag up" and quit, but whatever they are, the foreman carries the pink slips around with him, ready to write them out when a man wants his money. Some have sweethearts they desire to see; others simply tire,

get the blues and want to find "something new."

There are few married men among the ranks of the old cats, and such a thing as having a name other than the nickname is unknown. The color of the hair is the key to many names and the "Blackies" are as numerous as flies. One old pipe liner called "Dad" quit the business and went into real estate in the boom oil towns. The town he struck first didn't do so well, as the oil field on which its future was based went to sulphur water. Dad left. He appeared a few days later in a neighboring town about a hundred miles distant and said, with all the gusto and dignity that the seventeen cents in his pocket could command:

"Well, boys, here I am to help you make a town out of it."

An eternal optimist he was.

There are recreations a-plenty in the pipe line camps: an occasional radio and portable phonograph are found, but usually the recreations are physical: wrestling and boxing. Old men, fifty and sixty years old, who tell the doctors and the employers that they are much younger, stand up in the boxing ring and fight like young men just to show that they are still good men physically.

For the picturesque in swearing, don't pass up the pipe line camp, for there is the melting pot of the profane language, and it has a deal of the poetic in it. They are men who swear out in the open and not behind their hands.

Just to show how transient the work is: a gang of 23 men on a job between Jal, New Mexico, and Houston, Texas, had a complete turnover in one month, only one man staying on the job during the entire time.



As Hearty and Hardy a Gang of Real Men as You Could Find Anywhere

The use of modern machinery has taken away much employment from the old cats. Tractors instead of men are employed in many cases, and the coming of the electrically-welded line has put a new man into the equation. The welder makes about sixteen welds a day.

In the welded jobs there is a firing line of from five to ten machines which weld the pipe together in sections. The lowering gang, working while the sun isn't hot, drops the pipe in the hole and then the bell welders weld it together. The bell welder must dig a hole under the pipe and weld it face upward. They are rough in handling the pipe for if it is to break they want it to break then and there.

One of these gentlemen boasted that he could

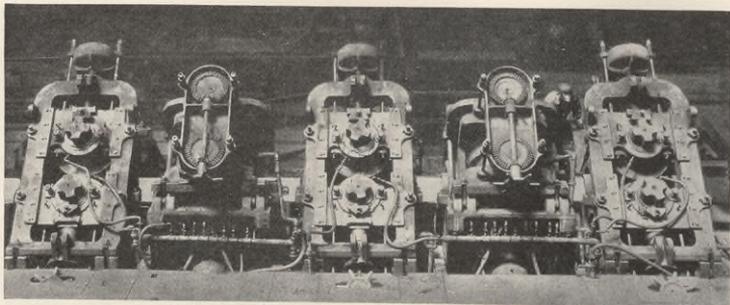
"weld anything from a broken heart to the break of day."

In putting the pipe into the ground, great care must be taken to see that proper allowance is made for expansion. Pipe lines that get up out of the ditch and move down the hill are not unheard of. Two cats were sent to take a few inches out of a line that had expanded in the heat. When they began the job the sun went under a cloud and when the sun came out again they found they had put in two inches more than they had taken out.

The present-day pipe liner is not quite so picturesque, but he saves his money and he realizes that he will face hard times unless he prepares himself for a job in which age won't play a part.



Pipe Lining isn't What You'd Call a Soft Job



Stands of Hot Size Rolls Where Pipe is Reduced to Final Diameter

Behind the Scenes With TEXACO Users

IV—Jones & Laughlin Steel Corporation

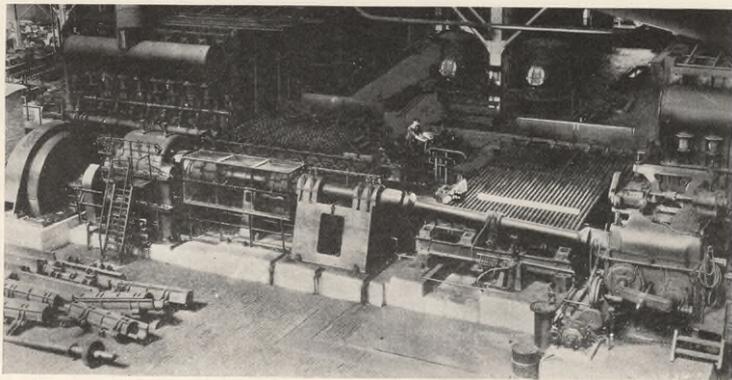
By A. E. CROCKETT

An outstanding accomplishment of the American steel industry has been the development of processes for the manufacture of seamless steel tubing used in oil regions. An important manufacturer of this product is the Jones and Laughlin Steel Corporation, of Pittsburgh, Pennsylvania, in whose mills large quantities of TEXACO lubricants are used. Mr. Crockett, manager of the Jones and Laughlin company's bureau of instruction, has written for THE TEXACO STAR the following article describing the manufacture of seamless tubing, which is the fourth of a series dealing with important customers of The Texas Company.

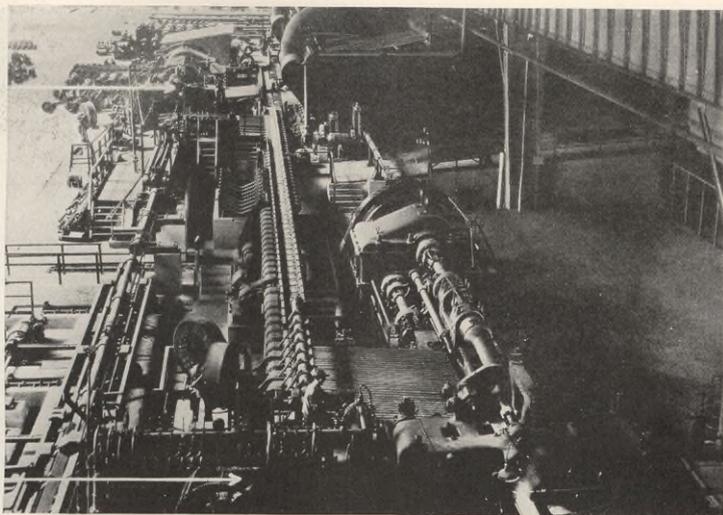
MOST of us know that lubrication is essential to the satisfactory performance of machinery in which steel moves against steel, particularly those of us who have been careless enough to neglect the proper lubrication of our motor cars. Not nearly so many of us realize that steel is just as

essential to the present-day volume production of oil as refined lubricants are to the continued service of moving parts of steel.

Thanks to the development of a seamless steel pipe, oil producers today can safely go far below the first oil sands at two or three thousand feet into sands which are nearly two miles below the surface of the earth. The Jones and Laughlin Steel Corporation, of Pittsburgh, Pennsylvania, is one of the foremost companies providing this commodity to the oil industry. Seamless steel pipe produced at their Aliquippa, Pennsylvania, works ranges in size from two and three-eighths inches to thirteen and three-eighths inches in diameter and is divided into three general classes as follows:



The Round, White Hot, is Rolling Down Skids to Enter Piercing Machine



Pipe (Right Foreground) Emerging from the Second Piercer

Seamless steel drill pipe—a product used as a shaft to transfer rotary action from power supplied above the ground to a drilling tool biting into sand, clay, gravel and rock several thousand feet below the surface. This pipe must be made to withstand greater strain than any other seamless tubular product for oil country service.

Seamless steel casing—this pipe is assembled in “strings” sometimes a mile or more in length and run down into a well to prevent cave-ins. It must not only have a wall strength which will successfully withstand the terrific pressures created by constantly shifting earth formations, but must possess great tensile strength to bear the enormous weight to which it is subjected in deep well drilling.

Seamless steel tubing—a product of a smaller diameter than the seamless casing yet of proportionate strength, to run into wells, inside the casing, and serve as a tube through which the oil may be brought to the surface.

The very highest quality steel is the first requisite for producing seamless pipe. The Jones and Laughlin Steel Corporation exercises ownership-control over all the processes of manufacture; the mining of the ore, the quarrying of the limestone, the mining of coal and the production of coke, the operation of blast furnaces and open hearth furnaces for converting the blast furnace pig iron into steel.

After its production in the open hearth furnace, the steel for making seamless pipe is cast into ingots and then rolled into “blooms,” or log-shaped rolls of steel. These blooms are heated and rolled

in a rolling mill into “rounds,” of a smaller diameter and sent to the seamless mill.

The steel is now in the form of a solid round. This round, heated to the proper temperature, is discharged from the furnace and delivered, end foremost, into a piercing machine. A piercing point on the end of a mandrel bar is applied to the centered end of the round. The outer surface of the round is gripped by specially-shaped rolls, set at an angle to each other, which rotate the round and at the same time advance it against the point. The joint effect of the rolling and piercing action of the point forces a hole through the entire round and at the same time elongates it.

The piercing point accomplishes this with apparent ease, but in reality enormous forces are at play and the operation appears to be simple only because of the powerful equipment and the care with which it has been designed.

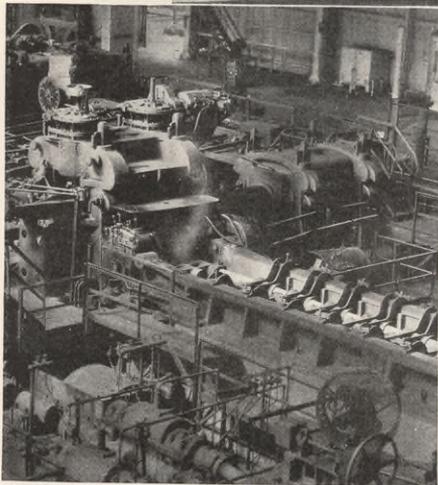
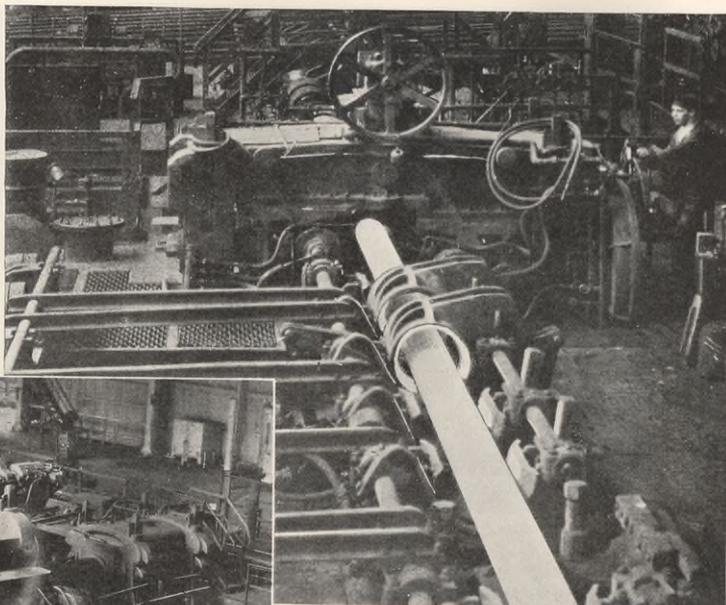
The product thus formed has a relatively small hole and a thick wall. It has been found that by using a small round, piercing a small hole in it and following this with the expanding action of a second piercing point, a more nearly perfect seamless pipe is produced. On the other hand it is impracticable to use more than one piercer on small pipe.

The pipe leaves this second piercer with a diameter larger than that of the finished pipe and with a thick wall. In this condition it is transferred to a “plug mill” where it is passed several times over plugs of different sizes in order to obtain the desired wall thickness and incidentally

Seamless Pipe
Emerging from
Reeling Machine



Giant Rolling
Machinery Used
in this Plant



to elongate the pipe still further. The tube leaves the plug mill with a diameter under that of the finished pipe in order to permit the proper "reeling" operation which follows:

The reeling machine is especially large and sturdy, and is constructed on the general design of a piercing mill, having a similar type roll but utilizing a blunt plug instead of a piercing point. As the pipe enters the machine, the rolls give it a rotary forward motion, pressure being exerted against the walls of the pipe, which in turn are supported by the plug mounted on a mandrel bar. Suitable conveyors carry the pipe, still red hot, to the "sizing mill."

The sizing unit is a tandem rolling mill, consisting of from five to twelve stands of two high-grooved rolls spaced several feet apart. The housings are inclined to an angle of 45 degrees so that

adjacent stands lie at right angles to each other. At this point the pipe is of the proper diameter and wall thickness, well within the commercial tolerance and absolutely round.

From the sizing mill, the red hot pipe is delivered to the cooling rack, which is much longer than any heretofore built. Two hours are required for a pipe to pass from one end of this rack to the other. This long time permits the pipe to be practically cold before passing through the next process, thereby avoiding internal strains and insuring a uniform grain structure throughout its entire length. As each pipe passes over the cooling rack, it is inspected very carefully by men who have no other responsibility than to check for size, eccentricity and surface defects.

During the hours of cooling which follow, the tubes are progressively advanced toward a straightener. This mechanism not only straightens the pipe but removes the "scale" and gives it a high finish, disclosing any defects which may exist. After passing through the straightener, each pipe is again thoroughly examined by a staff of inspectors. Every square inch of the outside and inside surfaces is carefully scrutinized to discover any flaw that may exist. Lamps particularly adapted to this work are employed to aid in making the inspection as thorough as possible. Unless the pipe is as nearly perfect as it can be (Continued on last page)



Bulk Station of The Texas Company (Australasia) Limited, at Warwick, Queensland, on Opening Day

Globe-Trotting with TEXACO

IX—AUSTRALIA

By E. A. BEVERLY

Managing Director, The Texas Company (Australasia) Limited

THE frequent conception of Australia is, perhaps, that of an island continent with a large population of blacks. However, when compared with the United States of America in size, there is usually a difference of opinion as to which is the larger.

The blacks, locally known as "abos," were never numerically strong and today are seen only in small groups in the interior, popularly called the "Never Never Land." This is accounted for by the fact that the Australian aborigines have practiced birth control for ages, also, the "abo," on account of poor mentality, does not thrive under civilized conditions.

This expansive country was first colonized for England by Governor Phillip in 1788, although it was discovered by the Portuguese at the beginning of the fifteenth century. The population has grown to

6,300,000, the predominant race being British.

The motor car has been a great boon to Australia, as it is a country of enormous distances. Australia ranks very high in the number of motor trucks and motor cars per population; at the present time there is one registration to every twelve persons.

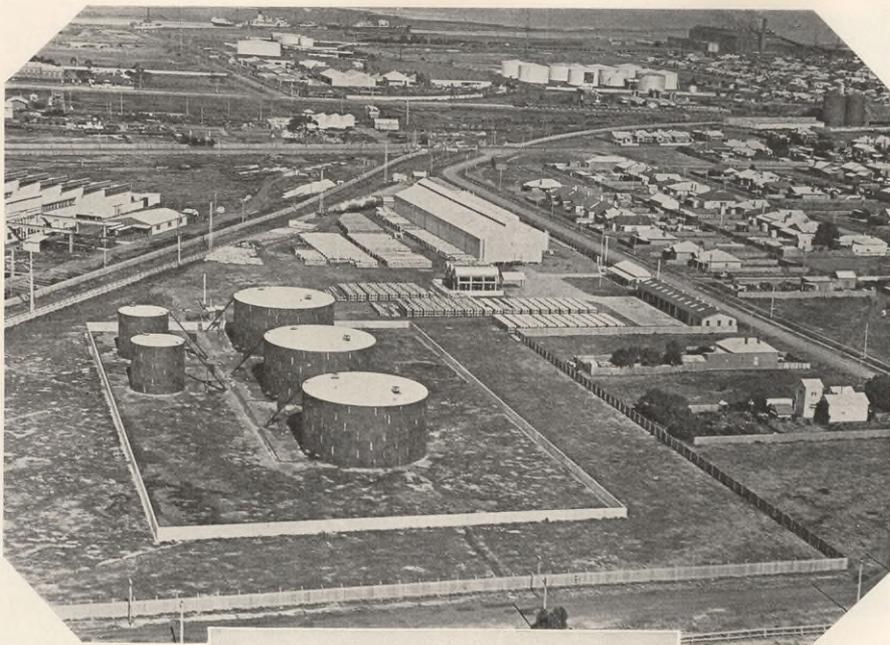
Transportation is a real problem and has been well met by the state and federal governments, who own and operate railway lines to the extent of 23,667 miles, although interstate transport is difficult on account of the change in gauge at every

border. Also there are thousands of miles of good roads and, considering the size of the population, it is phenomenal that railways and trunk highways are so well developed.

TEXACO products have been distributed in Australia by The Texas Company (Australasia) Limited, for eleven years. TEXACO "Light of



Typical TEXACO Filling Station in Australia



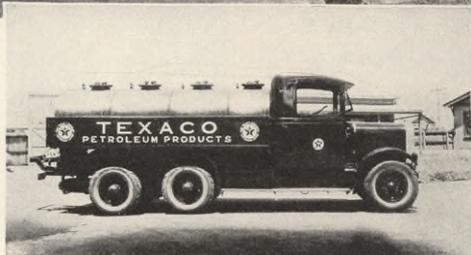
Aerial View of Our Bulk Terminal at Melbourne, Victoria

the Age" Kerosene, TEXACO Motor Oils and TEXACO Gasoline are well-known, even in the "Never Never."

TEXACO Motor Oils are carried by practically all garages and filling stations throughout the Commonwealth.

In order to cater to the increasing needs of motor vehicles, six TEXACO terminals were opened in 1929 in each of the capital cities of Brisbane, Sydney, Melbourne, Adelaide and Fremantle, and also a small bulk terminal at Newcastle, New South Wales, and TEXACO New and Better Motor Spirit is rapidly assuming its usual popularity. In general, each state comprises a district, with district offices in each capital city. Interior bulk stations are being erected at the principal interior cities where competitors have already established similar facilities.

The climate, as a whole, is excellent and ranges from temperate to tropical, although rainfall is a serious problem throughout the interior of the continent, and consequently most of the population is



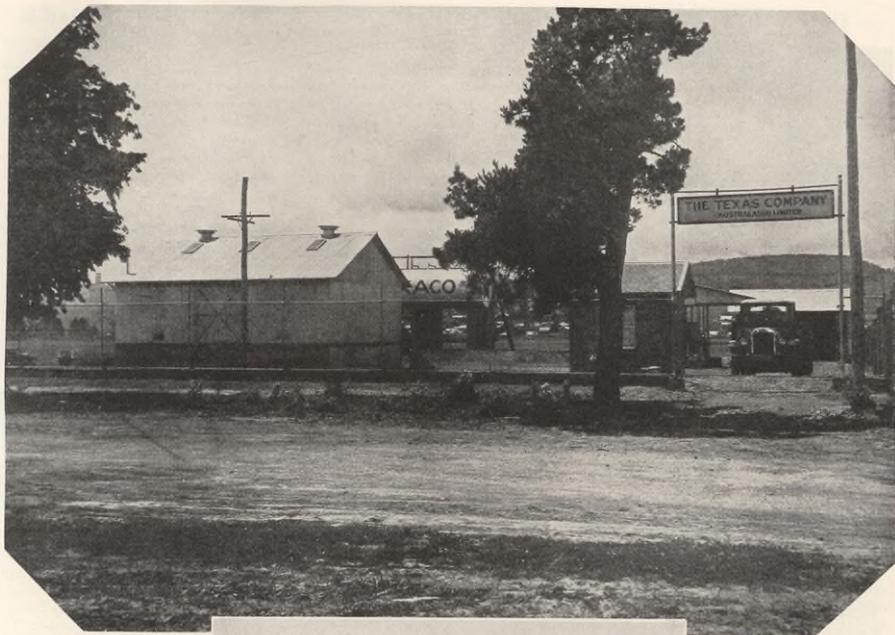
Type of Attractive TEXACO Tank Truck Used in Australia

settled along the east and west coasts, where wool raising and grazing produce the chief exportable com-

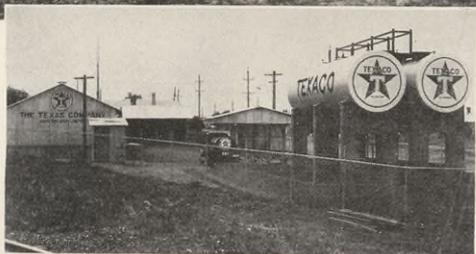
modities. Vast grazing sections and many of the wheat areas are subject to periodical droughts, but after good seasonal rains vegetation grows profusely, as the soil is very rich and has the unusual property of retaining moisture for a long period of time. Successful farmers and graziers accumulate sufficient surplus to carry them over during drought periods, although when the drought sets in one travels through miles of cleared and fenced properties showing only the color of the soil, the only growth evident being that of a few gum trees which dot the horizon of the settled areas. The peculiar way in which the gum tree grows gives the landscape the general appearance of a Corot painting.

Sheep are raised primarily for wool, and buyers of Australian merino come from all parts of the world for the annual wool sales. After the sales, fast ships race to the European markets to secure

The TEXACO STAR



(Above) Company Depot at Golbourn, New South Wales



(Left) View of the Depot at Tamworth, New South Wales

early premiums. American clipper ships used to compete in these annual wool races, but now fast Diesel ships, chiefly under the British and Scandinavian flags, seem to give the best accounts of themselves.

The Australian market is largely a demand market and split business is very much the rule with all dealers and filling stations. In the capital cities many new filling stations have been constructed during the past three years, and transition was made from the ordinary curbside pump to the super service station with practically no development in between. The interior of Australia has been supplied by us through some 1100 commission agents for a number of years, but Company-owned stations are now being constructed in the main centers where the distribution and available business warrants such facilities.

The usual way of tilling the soil is to harness from four to twelve horses to a multiple plough, and

one man may be seen driving what would appear to be a mob of horses with a number of farm implements

in the rear. The tractor has, during the last few years, rapidly assumed popularity, and TEXACO Super Power Kerosene is distributed through all of the wheat areas and has won the Power Farming Cup two years in succession.

Labor has been particularly well provided for by government laws covering wage awards, hours and overtime, as well as holidays.

While the staff of The Texas Company (Australasia) Limited, has been expanded considerably during the past year, there are many employees who have been with the Company practically since its inception, and a loyal, industrious organization has been developed. We are continually widening the distribution of TEXACO products, heralded throughout the Commonwealth by thousands of dealer signs, so that the Red Star and Green T are constantly before the public in an ever-widening market.

OUR WHO'S WHO



WALTER E. GREENWOOD, author of the article on our Railway Traffic and Sales Department which appears in this issue, was born in New Orleans, was educated in Virginia

and, to use his own words, is "a Missourian by adoption and a New Yorker by compulsion."

After seventeen years of railroad-ing, Mr. Greenwood entered the employ of The Texas Company in 1912 as a sales representative in the Eastern District. In 1916 he was made Assistant Manager of the Railway Sales Division and in 1928 he assumed the post of Manager of the Railway Traffic and Sales Department.

J. O. WILSON, contributor of the article on the tank car which appears in this issue of THE TEXACO STAR, is a native of Ohio, and for many years was a telegraph operator in that state and in the West and Southwest. He entered the service of The Texas Company as a clerk in the Sales Department at Houston, Texas, September 8, 1908. In 1910 he was transferred to St. Louis as Department Agent in the Sales Department and in 1912 was made Department Agent for the Railway Traffic Department at Chicago until his resignation in 1918. He reentered the Company in 1919 as a clerk in the Equipment Division of the Railway Traffic and Sales Department and advanced successively to the posts of Chief Clerk, Assistant Superintendent and Superintendent, which position he now holds.



C. J. HELLER, author of the interesting article on our lumber operations in the Louisiana swamps, claims Boston, Massachusetts, as his birthplace. He attended the public schools in that city and graduated from Harvard in 1909, after specializing in engineering and forestry. On July 1, 1909, he entered the United States Forestry Service. He was in charge of the national forests in Arkansas from 1917 to September 1, 1919, when he entered the employ of The Texas Company. His work consists of timber cruising, surveying and other engineering connected with our logging and lumber business.

BEHIND THE SCENES

(Continued from page 28)

made, it is rejected. If the pipe passes this rigid inspection, it is delivered to a machine for trimming the ends and is then placed on a table for an inspection for wall thickness and correct inside diameter. If the pipe is to have a plain end, it is carried to the testing bench. If it is to be threaded, it is taken to a threading unit, where the proper size and style of thread is cut. This portion of the operation is performed with painstaking care. Certified gauges are used to check the accuracy of the threads and very strict inspection is given to disclose any flaws. After the pipe passes inspection, it is carried to the tester.

At the testing bench, a final inspection is made where every item of the previous ten or more inspections is rechecked. This final inspection is made as thorough as possible to guard against any imperfect pipes leaving the works. Each pipe which passes this inspection is subjected to a hydraulic test, is then oil-coated and delivered to the shipping platform. As the pipes are loaded into the cars, they are given one more checking.

Every heat of the open hearth is fully tested in respect to physical as well as chemical properties before the ingots are cast and in addition to the twelve or more inspections, a milling machine is kept busy constantly machining out samples for pull tests to see that the tensile strength of the pipe is satisfactory. The tests made at the plant as well as at the Pittsburgh testing laboratories show that the tensile strength is safely within the requirements of the trade. Drillings are taken of every heat during the mill operation and are analyzed for proper chemical composition. Samples are also photomicrographed, from time to time, to check the grain structure of the product.

H. F. WOOD-

YATT, whose article on Chicago appears in this issue of THE STAR, is Assistant District Manager of the Chicago Sales District. Born in Dixon, Illinois, Mr. Woodyatt was graduated from the University of Illinois in 1917. He enlisted during the World War and when discharged at its conclusion, he held the rank of Lieutenant (Flying Officer) in the Air Service.



Mr. Woodyatt has been with The Texas Company slightly more than ten years. He started in December, 1919, as a lubricating salesman in Chicago.

TURNING THE CLOCK

(Continued from page 5)

found a welcome listener in Uncle James. He was deeply impressed with their sincerity and once the whole picture was before him, he began to consider its possibilities. He was not financially able to handle the entire enterprise, and with a sense of caution which he might have been more wise to have manifested thereafter but which at the time did him credit, he weighed the proposition at length and ultimately was able to enlist the aid of several others in New Haven, in association with whom he formed the Pennsylvania Rock Oil Company. Eveleth and Bissell were represented, and both Brewer and Watson, the Titusville lumber dealers, were stockholders. The New Haven men who invested in it, not one of whom ever received a penny in return, included Asahel Pierpont, Benjamin Silliman, Jr., Anson Sheldon, Samuel Brackett, E. B. Bowditch, John Hannah and others.

The Pennsylvania Rock Oil Company, as will be pointed out later, expired quickly, due to legal complications, and the Seneca Oil Company, composed of the New Haven men originally represented and a few others, assumed the former's obligations. The minutes of the directors' meeting of the Seneca organization reveal that on April 1, 1858, "at a meeting of the Board, it was resolved that Edwin L. Drake be appointed General Agent of this Company to raise and dispose of oil with a salary of one thousand dollars per annum, for one year from date hereof, and

"Be it further resolved that the Treasurer be required to procure without delay the sum of one thousand dollars to be placed at the disposal of said Drake to be used in conducting the operations of this Company."

Happily, Edwin L. Drake never availed himself of the opportunity to become the true parent of the petroleum business; consequently to make public the opinions of those men with whom he was associated involves no disloyalty to his memory. At best he was a railroad conductor cast by circumstance into a leading role in a great industry, situated so that he had but to extend a hand and fortune would have heaped itself upon him. He chose, unfortunately, the more restful alternative of glorying in the light of fleeting public esteem, and he died the object of charity.

The second installment of this article will appear in the May issue of THE TEXACO STAR.



SERVICE STATION IN SOUTHERN COLONIAL
STYLE, A NEW DESIGN, RECENTLY OPENED
IN WESTWOOD, CINCINNATI, OHIO



RESEARCH... THE GUIDE TO PROGRESS

Anticipating every development; insuring ever higher standards of quality... Texaco Laboratories are the source of Texaco progress.

Lubricating 10 Billion Miles

Where the Iron Horse hauls the burdens of the nation, Texaco assists to an outstanding degree. More railroad car miles a year are lubricated by Texaco than by any other single oil company in the U. S. A.

Ten billion miles is the remarkable record—a record which demonstrates again the enviable standing of Texaco in all branches of lubrication. Where power is generated or used, in Industry or Transport, on land or sea or in the air, there you will find specialized

Texaco Petroleum Products—renowned for their high quality and chosen for their measurable economies.

And on the highways of this country, experienced motorists are daily showing their appreciation of Texaco quality by stopping for gasoline and motor oil under the Texaco Red Star with the Green T. Available everywhere. Sold in each of our 48 States.



THE TEXAS COMPANY
*Refiners of a complete line of Texaco Petroleum Products—
Gasoline, Motor Oil, Industrial Lubricants, Railroad and Marine
Lubricants, Farm Lubricants, Road Asphalts and Roofing.*

TEXACO

The mark of quality for petroleum products