

# The **TEXACO STAR**



M. D. ANDERSON

**JANUARY-FEBRUARY 1934**

## Get a Horse!

THE HORSELESS carriage made the petroleum industry what it is today. Nursed through its infancy by the kerosene lamp, the oil business did not reach manhood until a few dreamers here and abroad began to experiment with self-propelled vehicles, and finally succeeded in making them run.

Man had been toying with the idea of mechanical propulsion ever since Hero of Alexandria built the first steam engine of record, one hundred and thirty years before the birth of Christ. Most of the vehicles, and they were fearful and wonderful things to behold, remained on paper, but throughout the Seventeenth and Eighteenth Centuries earnest attempts were made to apply what little was known about steam engines to self-propelled carriages.

Early in the Nineteenth Century the steam locomotive started to emerge as something more than an idle dream, and inventors began to experiment with other sources of motive power, principally gas. In 1870, Julius Hock of Vienna produced a practical but very low-powered petroleum engine, and two years later George B. Brayton, an Englishman living in Boston, Massachusetts, applied for a patent on a two-cylinder gasoline engine.

Previous to this time, kerosene was the major product of a young but reasonably flourishing oil industry—what gasoline happened to be produced was often dumped into the nearest stream as a useless and annoying by-product. From 1870 on, experiments with gasoline engines were being made in many quarters.

With the turn of the Twentieth Century, America woke to find the "horseless carriage" an actuality, and within a few years the taunting cry, "Get a horse!" had passed into the limbo of forgotten slang.

Meanwhile the progress of gas and electric lighting resulted in a marked decline for kerosene, but gasoline was being made in larger and larger quantities. As internal combustion engines improved, better fuel and lubricants were provided. Today the oil industry produces more than fifteen billion gallons of motor fuel a year for this country's twenty-four million automobiles, as well as nearly four hundred million gallons of motor oil and other lubricants.



THE COVER ILLUSTRATION ON THIS ISSUE OF THE TEXACO STAR, SHOWING ONE OF THE EARLIEST TYPES OF MOTOR CAR TO BE MANUFACTURED IN QUANTITY IN THIS COUNTRY, IS THE NINETEENTH IN A SERIES OF ORIGINAL PAINTINGS DRAMATIZING OUTSTANDING EVENTS IN THE DEVELOPMENT OF THE AMERICAN PETROLEUM INDUSTRY



# The TEXACO STAR

VOLUME XXI



NUMBER 1

JANUARY-FEBRUARY, 1934

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Cover by O. F. Schmidt

## A PUBLICATION OF THE TEXACO COMPANY

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## BRIEF

★ Miniature trains and tracks, used either as toys or commercial models, account for the consumption of 5,000 tons of steel annually in the United States.

## AND

★ More newspapers are published in Texas than in any other state, says *The Texas Weekly*, which points to 714 for Texas and eight less for Illinois, which is in second place. Even little Morton, Texas, population 25, has a newspaper. There is a separate newspaper for every 8,158 persons in Texas; one for every 10,808 in Illinois, and only one for every 18,512 in New York State.

## TO

★ Middle-Western farmers and railroads both benefit from sales of discarded box cars at \$10 each. They are made into corn-cribs, sheds, or other farm buildings.

## THE

★ The California Indian, it was learned recently by uncovering the remains of an ancient Indian village in Los Angeles County, made use of petroleum asphalt for patching shell utensils, inlaying beads in stone, waterproofing baskets, and setting knife blades and arrow heads.

## POINT

★ The better brands of motor oils, says a petroleum research engineer, are further ahead in development today than the engines they lubricate.



★ A motor car with a "fire escape" has been introduced by a British inventor. The top of the car is cut away to provide a large, rectangular aperture, which is normally closed by a fitted panel. If an accident should turn the car on its side, the panel automatically falls out, thus allowing the occupants to escape or be helped out.



★ To solve the problem of holding the shifting sands at the base of the massive granite monument to the Wright brothers, airplane pioneers, at Kill Devil Hill, North Carolina, a Puerto Rican product had to be used. The knoll was planted with *Crotolaria* grass, imported from Puerto Rico.

M. D. ANDERSON



EWING GALLOWAY

★ How well do you know your United States? This building, rich in religious and historic significance, is located in the Far West. You will find its name on Page 24

# EDITORIAL

THE FOLLOWING STATEMENT of the posted prices for 36° Mid-Continent Crude and for East Texas Crude from October 15, 1932, to date tells the story of the oil industry during that period:

36.0-36.9 Gravity Mid-Continent Crude		All Gravities East Texas Crude	
Oct. 15, 1932	\$1.04	Oct. 15, 1932	\$1.10
Dec. 15	0.88	Dec. 15	0.75
Dec. 20	0.69	Jan. 19, 1933	0.50
Jan. 19, 1933	0.44	Apr. 24	0.10
May 9	0.25	May 10	0.25
June 19	0.44	June 19	0.50
July 8	0.54	Aug. 25	0.60
Aug. 25	0.64	Sept. 6	0.75
Sept. 6	0.74	" 8	0.90
" 8	0.89	" 29	1.00
" 29	1.00		
Today's price	1.00	Today's price	1.00

Between October, 1932, and January, 1933, the price structure was growing weaker and weaker, and by April had collapsed. This was because of excessive production allowables aggravated by illegal production in excess of allowables.

When the National Industrial Recovery Act was passed, an opportunity was given to remedy the greatest defect in the situation by providing a nationwide control of production and an impartial allocation of the total as between the producing states. The industry immediately took steps to formulate a Code which would accomplish this purpose and also improve the marketing and refining situation, and in June the draft of a Code was prepared which was submitted to General Johnson in July. The preparation of this Code gave promise of a more intelligent control of supply which was reflected by an advance in the price of crude in June. The hearings on the Code in Washington in July and August gave further promise of stability which was reflected in the crude advances shown in the tables. The Code was made effective by the President on September 2, and its administration has been gradually improving with a consequent improvement in the price of crude as indicated above.

The year began under the most unfavorable circumstances but ends quite differently.

This industry has been in a peculiarly favorable position to receive the benefits of the National Industrial Recovery Act. It has been struggling with the problem of overproduction for the last seven years, during all of which time it has lacked the benefit of national legislation. Each of the principal oil-producing states has been pursuing its own

conservation policy but the states have not been able to coordinate their activities on a national scale with the result that any one of three states, by failing to properly control its output, could destroy the market for the country as a whole. The activities of the industry have been in definite recognition of the fundamental nature of demand and supply, and have been directed toward the objective of limiting supply so as to balance demand both in the interests of conserving an exhaustible and irreplaceable natural resource and of obtaining a fair price for products. Under the Code the Secretary of the Interior is authorized to fix the allowable for the United States as a whole in order to balance production with consumption, and to allocate this allowable as between the states. He has procured the cooperation of the Texas Railroad Commission and the Corporation Commissions of Oklahoma and Kansas and the producing agencies in other parts of the country in a fairly satisfactory manner, with the result that total production has been reduced from the high point by about 700,000 barrels a day, and his order effective on January 1 fixes an allowable for the country as a whole at 2,183,000 barrels.

During the year under the Code wages have been increased and hours reduced. Relations between employers and employes in the industry are, in the main, quite satisfactory, although there have been a few labor troubles in certain localities. The earnings during the first six months were very unsatisfactory but the turn came in June, and during the last half of the year earnings have been much improved. An excellent program for 1934 has been formulated by Secretary Ickes and the Planning and Coordination Committee of the Industry. This program involves the limitation of current crude production to the requirements of the consumers, a small withdrawal from the excessive stocks which have accumulated, a regulation of the quantity and distribution of gasoline stocks, a plan for the handling and orderly distribution of distress gasoline, and an improvement in marketing practices. When this program is made effective it will probably result in fair prices, both to the consumers and to the suppliers. The great bulk of the producers, refiners and marketers are supporting the program and at this moment it appears that 1934 will begin auspiciously.

—C. B. AMES

From the *New York Journal of Commerce*  
January 2, 1934

# “Let’s Look at the Record”

**N**UMEROUS references have appeared in the public press recently regarding the modest increase in gasoline prices during the last half of 1933. Several of these articles have implied that the amount involved (one estimate being as high as \$486,000,000 per annum) represents entirely an increased revenue to the petroleum industry. Four important facts, however, have been generally overlooked:

*First:* The gasoline prices effective on June 1, 1933, were the lowest in more than two decades, the lowest in fact since the automobile came into general use, with the result that the petroleum industry was suffering losses.

Recently, *The Oil and Gas Journal* estimated that gasoline prices in June, 1933, amounted annually to \$400,000,000 less than in June, 1932, and \$1,050,000,000 less than in June, 1929. Therefore, any appraisal of increased revenue to the petroleum industry, based on prices existing in June, 1933, is unfair to the industry.

*Second:* Of the increases in retail prices since June, 1933, a very substantial portion has been passed to gasoline distributors and retailers throughout the country, in the form of increased operating margins, to enable them to comply with minimum wage and other labor provisions of the N.R.A. Petroleum Code.

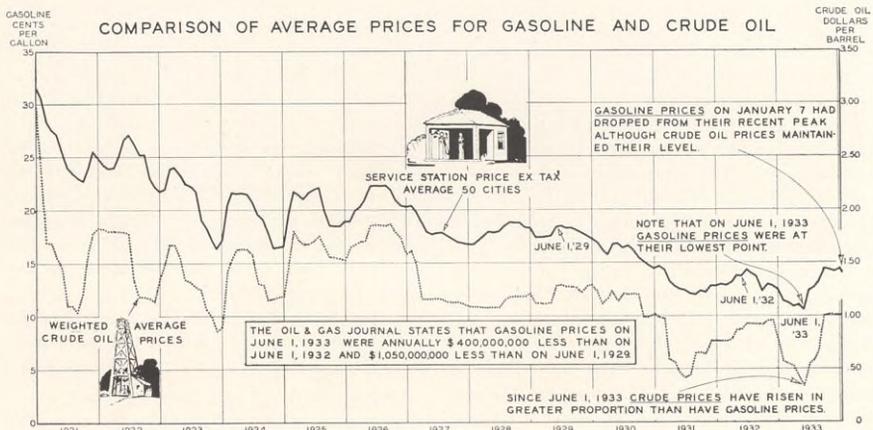
*Third:* Another substantial portion of the increased prices has been expended in employing many thousands of new workers and in higher wage

scales resulting from the promulgation of the N.R.A. Petroleum Code.

*Fourth:* The petroleum industry needed some very substantial increases to enable it to overcome the heavy losses of the past several years. For some time prior to the general depression, price conditions in the petroleum industry were bad. The upper line on the chart shows that even in the days of general prosperity, 1928 and 1929, gasoline prices were far below the levels of generally less prosperous years. After 1929, the trend of gasoline prices continued downward until June, 1933, but since then there has been a very moderate recovery.

Aside from the necessity of a generous increase in gasoline prices to enable the industry at least to break even and cease losing money, there have been, since June, further needs for increased revenue as explained above; first, to provide more liberal margins for gasoline distributors and retailers in order that they might comply with the labor provisions of the N.R.A. Petroleum Code; and second, to provide the larger payroll for additional employes and higher wage scales resulting from the adoption of the Code.

A study of the chart will indicate the continual downward trend of gasoline prices from 1921 to June, 1933. It will be noted that since June, 1933, the cost of crude oil, the industry’s raw material, has increased in greater proportion than have gasoline prices, and that gasoline prices have not maintained all of the modest increase that occurred since June, 1933.



UNIVERSITY OF ILLINOIS

# The Thirty-Hour Week

**E**FFORTS to procure legislation making a 30-hour week compulsory are not new. These efforts now, as in the past, are based on the claim that this is a sound method of relieving unemployment. Relief of unemployment is a matter of such general concern to the country as a whole that any plan for relief seriously suggested by thoughtful people is entitled to frank consideration. There is grave doubt, however, whether the 30-hour week would accomplish the desired result, or whether it would react so unfavorably upon industry as a whole as to defeat its purpose. An abnormal situation relative to employment, such as now exists, may very easily result in abnormal legislation which, in the long run, would do harm instead of good.

Just after the World War, certain interests sought to compel the 30-hour week in the coal mining industry in order to relieve unemployment. During the war the coal mines were stepped up to a maximum capacity and prices opened many marginal high-cost mines so that employment was abnormally increased. When the war ended, demand for coal was greatly lessened with the result that many high-cost mines were forced to shut down, and competition resulted in a sharp decline in the price of coal, reducing employment, wages, and earnings. The theory of those who advocated the 30-hour week at that time was that the coal mines should continue to employ all the labor that was employed during the abnormal period of the war, and it was the reaction from this abnormal situation that was the excuse for advocating the 30-hour week.

## Would Have Injured Coal Industry

Viewing the matter in retrospect, it is apparent that a 30-hour week in the coal industry in 1919 would merely have had the effect of increasing costs and rendering the coal industry less able to meet the competition of other fuels with a resultant decline in production and decrease of employment.

The present agitation for a 30-hour week is based upon another abnormal situation in industry as a whole which is similar to that which existed in the coal industry 14 years ago. Prior to 1930, an enormous plant construction program was in full swing. During the eight years preceding 1930, the total construction program of the United States, including highways, railways, and building construction involved an expenditure of approximately 65 billion dollars. This money was not spent in

repairs but in addition to plant investment. This plant construction, added to the abnormal operating schedule, resulted in an enormous demand for labor which, in turn, resulted in high wages, which, in turn, attracted labor from the farm to industry and abnormally increased employment. The tabulation shown on the next page gives an estimate of the breakdown of this construction program for the years 1922 to 1929, both inclusive.

It is now generally known that plant capacity was unduly increased, and that, since 1929, many industries, including some which are basic, have been operating at from 15 to 50 per cent of capacity, with the result that several million men have been thrown out of employment.

It is obvious that industry cannot employ the men who were employed in 1929 unless it engages in a vast construction program and is able to operate not only the existing plant facilities but the additional plant facilities at capacity. With plant capacity already greatly over-extended, further additions ought not to be made and will not be made, and therefore, even if industry was operating at 100 per cent of capacity, it would not employ all the men who were employed in 1929, because employment at that time embraced not only operating but construction activities; nor is it likely that the surplus plant capacity constructed prior to 1929 will have an opportunity to operate at 100 per cent capacity for some time to come. It would seem, therefore, to be the part of wisdom to recognize as a fact, no matter what may be one's wishes, that industry cannot absorb the unemployed, and to quickly formulate some other plan for permanent relief of unemployment.

## Other Objections

Assuming, however contrary to the fact it may be, that the 30-hour week would provide employment for all of the unemployed, there are other objections to it, considered from any standpoint. If the 30-hour week resulted only in maintaining the present hourly wage, it would result in a sharp decrease in the weekly wage and would, therefore, not only be unsatisfactory to employes, but might result in reducing their weekly pay envelope to a point below their present scale of living. This would not increase purchasing power, would cause dissatisfaction, and would result in inefficiency.

If, notwithstanding the reduction in hours, the hourly rate were increased and the weekly pay

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envelope of existing employes were not reduced, the result would be a sharp increase in total payrolls by so much as new employes were paid. This would result in a greatly increased cost of production, higher prices and, therefore, a marked increase in the cost of living. Existing employes, therefore, whose hourly rate was increased, but whose weekly pay remained the same, would still be receiving less because their cost of living would be increased, and this, again, would result in dissatisfaction and decreased efficiency.

In addition to this, a sharp increase in the cost of production followed by a corresponding increase in the price of commodities would naturally result in a decrease in the consumption of commodities. A decrease in the consumption of commodities would result in a decrease in the production of commodities, and a decrease in the production of commodities would result in a decrease of employment, so that industry might be forced again to raise prices, again reducing consumption and again, in turn, reducing employment. And thus the 30-hour week not only might, but would in all probability, fail to accomplish its purpose and make it impossible to operate industry on a profitable basis.

Entirely aside from the economic factors mentioned, the serious question arises as to whether it

is a good thing for any man, and particularly a young man, to work only 30 hours a week. If the week is divided into six days of five hours each, it leaves 19 hours of the day to be otherwise disposed of. If the week is divided into five days of six hours each, it leaves 18 hours to be otherwise disposed of, plus two whole days each week, without employment. This amount of idle time on the hands of the workers, and particularly the young, would have a deteriorating effect both upon their morale and upon their morals.

Many of the employes of The Texas Company have been consulted on this subject and the foregoing represents their views as well as the views of the management of this Company.

Under the National Industrial Recovery Act there has been a marked improvement in employment and payrolls. The codes which have been approved by the President recognize differences in different industries and in different parts of the United States, and hours and wages have been fixed on the basis of these differences. A universal 30-hour week would wipe out these existing differences and would subordinate facts to theory. It would seem to be the part of wisdom to continue meeting the employment situation under the codes instead of by sweeping legislative fiat.

### APPROXIMATE AMOUNT EXPENDED FOR CONSTRUCTION IN THE UNITED STATES

1922 to 1929, INCLUSIVE

(Shown in Millions of Dollars)

#### 1—CONSTRUCTION CONTRACTS

AWARDED (48 States)	1922	1923	1924	1925	1926	1927	1928	1929
Residential	1,649.3	1,949.3	2,269.6	3,019.4	2,935.3	2,827.8	3,064.1	2,105.2
Commercial	626.9	570.7	653.6	958.7	1,012.0	1,025.2	972.1	1,021.1
Factories	363.8	333.5	245.3	358.9	517.8	413.1	559.1	599.9
Public Works and Utilities	829.6	934.6	916.8	1,171.3	1,473.0	1,518.7	1,609.3	1,603.3
Educational	382.0	342.9	400.8	468.6	418.8	417.4	438.5	419.7
Hospitals and Institutions	103.7	74.3	117.4	122.1	146.3	178.6	181.0	167.3
Public Buildings	49.0	30.1	41.1	59.9	73.8	87.4	83.7	132.7
Religious and Memorial	111.5	93.4	124.8	168.2	163.5	172.0	140.5	116.6
Social and Recreational	135.1	123.1	135.2	273.3	271.5	286.5	235.3	153.8
TOTAL	4,250.9	4,451.9	4,904.6	6,600.4	7,012.0	6,926.7	7,283.6	6,319.6

#### 2—RAILWAYS

Equipment	245.5	681.7	493.6	338.1	371.9	288.7	224.3	321.3
Roadway and Structures	183.7	377.4	381.1	410.1	513.2	482.9	452.4	532.4
TOTAL	429.2	1,059.1	874.7	748.1	885.1	771.6	676.7	853.7

#### HIGHWAYS

3 State and Local	646.8	672.4	778.4	828.5	824.9	906.4	1,005.1	1,025.7
4 City Streets	472.5	513.0	591.3	711.0	760.5	864.0	859.5	855.0
TOTAL	1,119.3	1,185.4	1,369.7	1,539.5	1,585.4	1,770.4	1,864.6	1,880.7
GRAND TOTAL	5,799.4	6,696.4	7,149.0	8,888.0	9,482.5	9,468.7	9,824.9	9,054.0

#### SOURCES

- 1—United States Commerce Year Book, 1931—compiled by F. W. Dodge Corporation.
- 2—1931 Yearbook of Railroad Information—by Committee on Public Relations of the Eastern Railroads.
- 3—United States Statistical Abstracts.
- 4—American Automobile Association publication "Motor Vehicle Taxes" for March, 1931.



*Wells may be drilled on any kind of ground—and they usually are*

## “I Drilled a Well One Time—”

**W**HEREVER veterans of the oil industry assemble, sooner or later reminiscences are in order. Invariably every “yarn” starts with the words, “I drilled a well one time—”

That short phrase tells many volumes of the romance, the hardships, the overcoming of almost insuperable obstacles, the fortunes won and lost, in the greatest and most hazardous of business ventures—drilling a well for oil.

A seasoned producing organization is dismayed at nothing. The frozen wastelands of the Arctic, the swamps and jungles of the tropics, towering mountain ranges, and inaccessible and desolate places in far-off Asia have all been invaded by those hardy pioneers—the geologist, the engineer, and the drilling crew.

A vast amount of preliminary work is necessary before actual drilling begins (except in the case of the “wildcatter” who often drills a well on a hunch, ignoring or being ignorant of any geological information). The first step is the all-important “where to drill?” Here is where the geologist steps in. Conditions in an area are known to be favorable for the accumulation of oil and gas. A reconnais-

sance is made of the whole area, which, incidentally, may be very small, or may cover several hundred miles of territory.

A few years ago the geologist was compelled to rely on what he could see on the surface, or on information developed by core drilling. Today he has a variety of highly technical and scientific geophysical instruments to assist him.

The preliminary survey being favorable, the land department acquires leases on all land that might be on structure and then further geological work is done. The general outlines of a structure are determined, and an intensive and detailed study is made to secure all possible information.

After the location has been selected, and located on the ground, the operating department enters the picture. The type of rig—rotary, cable-tool, or combination—must be selected. The well site might be on any kind of ground; mountainside, swamps, desert, or even in the ocean. In Louisiana, Caddo Lake covers part of the Caddo oil field, while some fields on the Gulf Coast are located in a malarial, tangled morass of swampland. The oil pools of South America and India are in the heart of a

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fever-ridden, steaming jungle, and the new oil development of Iraq, which is adjacent to the sites of the ancient cities of Babylonia in the once-fertile valley of the Tigris, is in a desolate, sun-baked desert, inhabited by Arab tribes.

The site for the derrick once chosen, estimates are carefully calculated on the probable expenditure for construction, drilling, fuel, labor, material, and a hundred-and-one other items. Equipment is ordered and usually road-building is the first step. Often this is a fairly simple problem. On the grass plains of the Texas Panhandle it is scarcely thought of. In swamp-land or in the mountains it is a serious consideration. In mountainous country it is often necessary to hew out a one-way shelf road on the side of a towering cliff. In the swamps material is transported in flat-bottomed scows or on miles of corduroy road.

Modern drilling machinery is so heavy that the usual bridges and culverts found on country roads will not support the weight of heavy trucks, and they must be reinforced and repaired before anything is moved. Any and all kinds of

motive power are pressed into service to transport the material from the railroad to the location. Ox teams, mules, and trucks of every vintage are utilized, and, in remote parts of the world, hundreds of coolies patiently drag equipment over land on which there are no roads at all.

Meantime, fuel and water must be considered. The water problem becomes acute when the location is removed from an adequate source of supply. A modern rotary drilling rig will use from 40,000 to 125,000 gallons of water per day, 30,000 to 40,000 gallons of which must be suitable for boiler use.

Where gas is available, fuel requirements are easily handled, but it is often necessary to trans-

port fuel oil or coal long distances to the drilling site. A rotary rig will consume 60 to 75 barrels of oil per day. When the job lengthens out into months, or even a year, fuel oil at 50 cents to a dollar a barrel, plus another 50- or 75-cent freight and trucking charge, it will be readily seen, can easily mount to many thousands of dollars.

A few years ago, derricks were practically all 84 feet high and made of wood. Today wooden derricks are the exception. Modern steel derricks, often 136 feet high, have replaced them. The change was brought about by the need for greater efficiency and strength due to the great depths now reached. Not so long ago 4,000 feet was considered deep; now wells reach depths of 10,000 feet. In addition, a steel derrick can be erected and torn down many times (one or two wells is the limit for a wooden derrick), and the fire hazard is greatly reduced.

Now a word about that resourceful and nonchalant character who has made oil-field history—the driller. He is usually a self-confident, brawny individual, capable of enduring

the hardest kind of physical labor. His experience covers years of drilling in a score of fields. Above all, he possesses extraordinary skill, for in the last analysis he either makes or breaks the venture. One mistake by the driller and a \$100,000 hole might be hopelessly plugged. On the other hand, the successful completion of a well a mile and a half deep speaks volumes for the precision and accuracy with which the work is done.

With a rotary drilling rig, hole is made by a bit attached to the end of a string of heavy drill pipe. Through this drill pipe is pumped a stream of mud-laden fluid, while the drill stem is turned by a rotary table connected to a "draw works," which, in turn, is driven by an engine. Rotary drilling bits



Fire often causes heavy losses

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*"Roads" like this aren't permitted to stand in the way of a job that has to be done*



culating mud with which the wall of the hole is plastered, is to assist in "making hole." The pumps force mud out of the bit through one or two small openings, with tremendous pressure and velocity. As the bit is constantly rotating, the cutting action of the mud in soft formations accounts for a large part of the

vary in type and design from the original, flat-bladed "fish tail" to the modern, roller-bearing rock bit. Each is designed to be especially effective in certain formations. In addition, the "core barrel," a tool designed to recover cores of the various strata, has been so improved that it is possible to recover, intact, samples of the formations exactly as they occur thousands of feet below the surface.

When a drill bit or core barrel has become dull and will no longer cut hole, it is removed from the well by withdrawing the drill stem. This is accomplished by pulling the drill pipe out in sections of three or four joints each (called "thribles" or "fourbles") unscrewing and stacking each section in the derrick. This would appear to be a slow and cumbersome way of changing bits. However, practically all operations are done by machinery. The modern rig is high-speed, and the crew is usually so well-trained that several thousand feet of pipe can be withdrawn and run back into the hole in surprisingly few hours. On cable-tool rigs, the bit is withdrawn on the cable, which in turn is spooled on the bull wheels and can be withdrawn much more rapidly than the rotary bit.

The function of the pumps, in addition to carrying the drilled material to the surface and cir-

hole made. This does not hold true in hard rock.

The steam rotary rig; that is, one on which the engine and pumps are driven by steam, is the most commonly used. A few years ago a steam rig cost less than \$20,000. The modern steam rig, with correspondingly large draw works, tables, and the like, costs \$100,000 or more. Some rotary rigs are now coming into use powered with internal combustion engines. There are also electric rigs, powered with motors, and the Diesel-electric type, which generates electricity at the location.

Cable-tool drilling became more or less standardized years ago and has not shown the recent advancement made by the rotary. Hole is made by the action of a wedge-faced bit attached to a heavy steel stem on a wire cable, actuated up and down by a walking beam. This system is the older, in fact the original, and was the only one used for many years in the oil industry. The rotary rig is in-



*The driller — resourceful, nonchalant character who has made oil-field history*

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roduced in the early part of the century in South Texas.

Where the objective "horizon" is deep, a hole 20 to 26 inches in diameter is always started. The idea is to reach the oil zone, if any, with the largest-diameter hole possible, and to avoid "running out of hole." This happens when the diameter of the hole becomes so small that it is no longer possible to make progress, or it becomes impossible to recover tools or pipe that might become loose or lost.

After a small amount of hole is made, "surface casing" is run and cemented. The usual method of cementing is by circulating the cement down the

rotary rig will often drill a thousand feet in 12 hours. This is being constantly done in East Texas. In hard rock, especially near the surface, rotary progress is slow.

With heavy equipment and increased drilling speeds, the crooked-hole problem arose. Instruments have been designed so that it is now not only possible to determine the degree of drift from vertical in a well, but also the direction in which it is drifting. Modern practice requires that readings be taken every few hundred feet and the hole straightened if found to be going crooked.

Mention "fishing" to a layman and he visualizes



*An oil field town in East Texas*

inside of the casing and up the outside, between the outside of the casing and the wall of the hole. A wooden plug is forced down ahead of the cement, and one behind. When forced into place behind the pipe, the cement is allowed to harden for a few days, after which drilling is resumed.

There are many sound reasons for surface casing. With cable tools it is often necessary, because the hole sometimes caves, making drilling dangerous if not impossible. Again, a heavy flow of water may have been encountered, and the surface casing is used to shut it off. With both rotary and cable tool systems it tends to prevent or control unexpected blowouts. Progressively smaller strings are landed at varying depths as necessity or judgment dictates.

On cable tools in shale that does not cave, a good driller can make from 50 to 125 feet of hole in 12 hours; in hard rock from four to 20 feet in 12 hours. On the other hand, in soft formations a

joyous holiday along the banks of a mountain stream, breathing the pine-scented air and engaging in Homeric struggles with a giant trout. Not so the oil man—mention fishing to him and he will shudder violently and want to know what is lost in the hole.

Every veteran oil man has a pet fishing-job story to tell and he will tell it on any or no provocation whatever. Fishing jobs call for the utmost skill, patience, nerve, and imagination. Anything may become lost in the hole—a drilling bit with a set of broken jars attached, an underreamer, or even one, two, or three entire strings of tools. This may be further complicated by having the hole cave in on top of them, and this in turn may be followed by the collapse of the casing above. When a well gets in this condition, the star fisherman of the organization is usually assigned to the job and everyone from the manager down spends anxious days

## The TEXACO STAR

and sleepless nights hoping that "Bill" will display his usual skill.

In running casing in the well it sometimes happens that the string, thousands of feet long, is dropped. This means that practically all of it is twisted, kinked, corkscrewed, collapsed, or telescoped. An accident of this kind in a shallow hole is bad enough—at the worst the rig can be "skidded over" to a new location. But on a well 6,000 or 7,000 feet deep on which more than \$100,000 has been spent, it is tragedy. Very rarely can all the lost pipe be fished out. Usually there are several hundred feet that defy all efforts at removal. In this case there is a 50-50 chance of sidetracking the "fish;" that is, cementing a whipstock on top of the lost casing and starting a new hole down alongside it.

Mention was made above of "blowouts," and the accompanying danger of fire when high-pressure gas is encountered. A carelessly struck match, sparks from fragments of formation striking connections or the crown block, friction, or, in damp weather, gas held close to the ground, with a shift of the wind, will travel hundreds of feet to a boiler thought to be at a safe distance and ignite.

A few years ago there was a succession of disastrous fires with a large loss of life. An investigation showed that all safety precautions were observed. It was finally concluded that static electricity was responsible, and all derricks, engines, and belts were grounded.

On a rotary rig, should safety appliances fail to function, the drilling mud and very often the drill stem itself are blown from the hole, usually demol-

ishing the derrick. In many cases high-pressure gas not only blows the tools from the well but will form a huge crater which, in a few hours, will swallow up the derrick and rig.

Should the escaping oil and gas from a well on which a large crater has formed catch fire, the situation is well-nigh hopeless. The crater becomes a seething mass of flames that makes the most expert efforts at control seem puny and futile. The heat is terrific, almost beyond human endurance even when the workers are protected by asbestos suits and shields.

The technique of fire-fighting, like other phases of the business, has been improved and refined. A few years ago, when a well caught fire a battery of boilers was assembled and connected up. Men, working behind shields to protect them, laid lines as close as possible to the hole and tried to snuff out the fire with steam. If this failed, various types of funnels or cones would be swung over the blaze to divert, if possible, part of the gas. Sometimes a tunnel would be driven to encounter the casing 20 or 30 feet below the surface of the ground. The casing would then be tapped and the flow diverted through the tunnel.

Today burning wells are literally shot out with high explosives. It is a job calling for iron nerve and utter disregard of danger. Protected by heavy asbestos suits and helmets, men approach the fire with grappling hooks and drag all debris clear of the well. Streams of water are played on the casing and connections until they are thoroughly cooled. A bomb or torpedo is *(Continued on last page)*



"Grand Hotel" plays the Conroe field

# YOUR FACE SEE

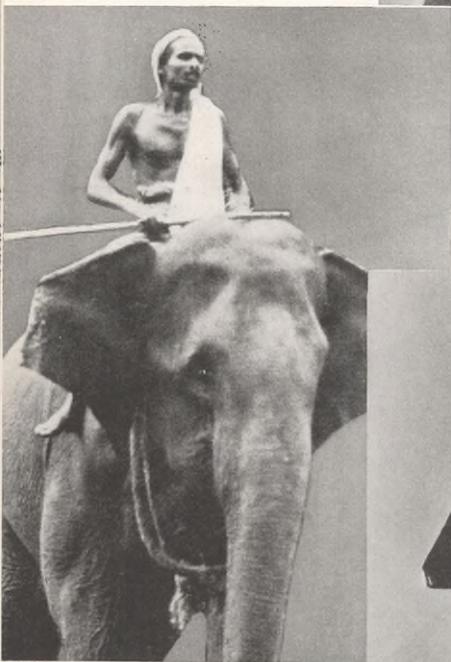
*Some machine  
have apparent  
liberties with M*



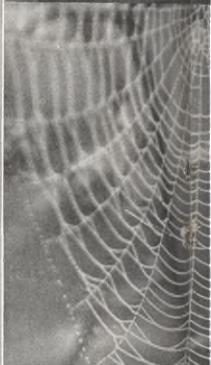
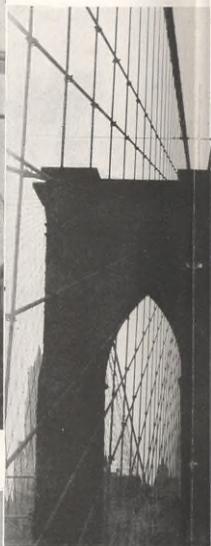
*A toadstool doesn't look particularly like a valve*



*But this valve certainly resembles the toadstool*



*Jumbo's benign features (above) contrasted with the bow and anchor of a modern ocean liner (right)*



*Does Brooklyn mind you of the engineering world a chance to con*

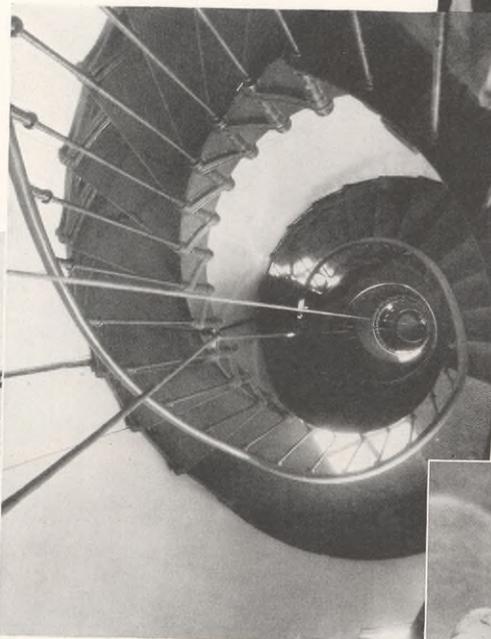


# SEEMS FAMILIAR

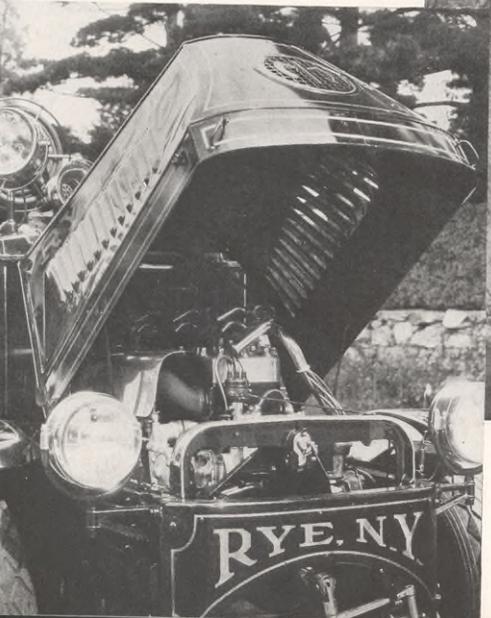
Machine-age creations  
recently taken a few  
lessons from Mother Nature



Brooklyn Bridge re-  
vival of the spider's  
weaving work? Here's  
one to compare them



Spiral stairs in a light-  
house as seen from above



The nautilus shell—Nature's idea of a spiral



This fire engine (above)  
(pardon us, that's a hip-  
popotamus), the fire en-  
gine is shown at the left



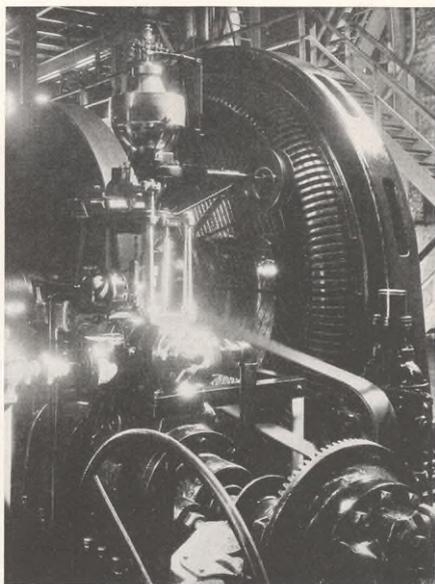
# SAVE YOUR ENERGY

By ALLEN F. BREWER

Editor of *Lubrication*\*

**T**O THE layman there is magic in the operation of much of the industrial machinery in use today. Indeed, even to those entirely familiar with the miracles of modern engineering, the very intricacy of a bottle-blowing machine or bread-wrapping device is a source of wonderment.

The performance of these machines is even more impressive when we consider that they are called upon to function almost constantly in meeting production demands. Obviously the utmost ingenuity



*Today the relationship between power economy and good lubrication is fully realized by the designer as well as by the operating personnel in the plant*



*Under unusually difficult operating conditions, special care must be given to the choice of bearings and their lubrication or trouble will be encountered*

of the designing engineer must have been enlisted in developing these devices and in perfecting every part to insure absolute synchronism of motion.

Naturally power economy is a large factor in the operation of any modern machine. Thus effective lubrication naturally demands consideration, for the relationship between power economy and good lubrication is fully realized by the designing engineer as well as by the operating personnel.

Effective lubrication does not involve simply the installation of a mechanical lubricating device and the application of oil or grease. It requires a careful study of operating conditions, and the design and construction of machinery—in other words, the time has passed when an “oil hole” could be stuck here and there on a bearing as an afterthought.

But oil alone cannot insure satisfactory results; the human element cannot be eliminated. Of late the machine designer's cooperation with the lubricating profession and the builders of automatic lubrication equipment has been noteworthy. Lubrication research has been of considerable aid to the machine designer, for it has proved that for certain conditions of operation, definite types of lubricants are best adapted. The lubrication engineer who has

\*A Publication of The Texas Company.

## The TEXACO STAR

a combined knowledge of mechanical and petroleum engineering is a valuable man to industry.

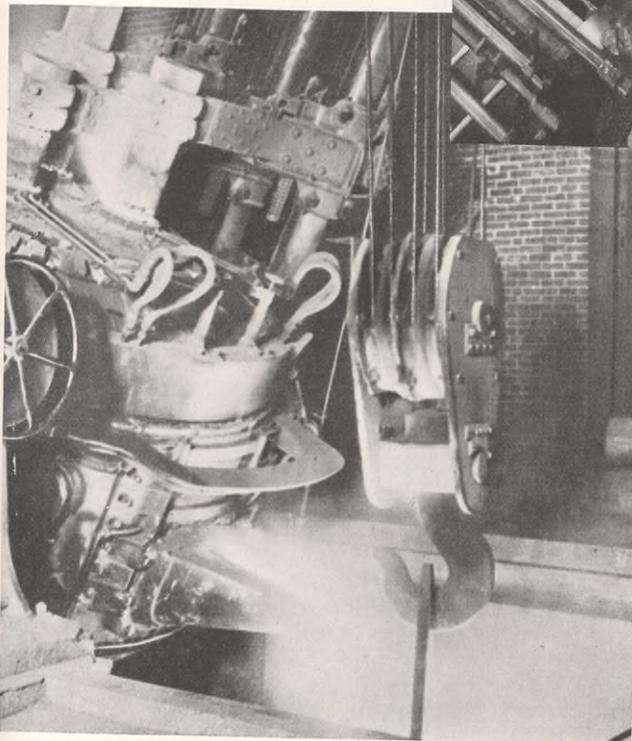
Operating conditions must be given the most careful consideration. It is always advisable to investigate ultimate use and to design bearings, chains, gears, and other parts accordingly. In general, temperatures, pressures, speeds, and conditions of cleanliness should be considered in any approach to the problem.

In the steel industry, for example, cranes and other hoisting devices are subject to widely diversified operating conditions; charging cranes in the open hearth may be frequently subjected to external temperatures well above 150 degrees Fahrenheit, while in the storage yard crane motors and other mechanisms must operate practically at atmospheric temperatures,—often below zero in Winter.

The machine designer must consider these factors when deciding what types of bearings to use. Where and when to use them is another problem. Under conditions involving moisture, acid, and unusual temperatures, special care must be given to the choice of bearings and their lubrication.



PHOTOS FROM R. I. NESMITH AND ASSOC.



*(Above) The utmost ingenuity of the designing engineer is called upon to make every part function smoothly and continuously*



*(Left) High temperatures and pressures impose severe loads on the lubricants used in equipment for the steel industry*



*The Olympian, famous transcontinental train of The Milwaukee Railroad, in Montana Canyon*

★

## The Milwaukee's "Olympian"

**I**TS SWIFT course over four great mountain ranges of the West recalled the myth of Apollo's chariot, wrought upon the forge of Olympus by Vulcan, so The Milwaukee Road's famous transcontinental train was named "The Olympian."

The Olympian has had, for many years, a feature that is talked about the world over: For 656 miles through the mountains it is electrically operated. Passengers sense an ease of motion, a smooth precision of starting and stopping. There is a keen, ever-present thrill of being propelled by power vastly in excess of requirements—power that is smokeless, sootless, cinderless.

From without, the train in motion is a streak of orange, the characteristic Milwaukee Road color. Inside, the traveler may relax in complete luxury and convenience of furnishings and feast his eyes

on the rich and unusual brightness of the Spanish-style decorations. Friction buffers on every car provide exceptional riding ease.

The Dakotas, Montana, and the Pacific Northwest, through which the route of The Olympian is laid, are alive with interest pictorially, historically, geographically, and geologically. Yellowstone and Mount Rainier National Parks are on the route. The Olympian is operated over the only through railroad between Chicago and Seattle and Tacoma—the shortest route between these points.

Texaco products, of course, lubricate the giant electric locomotives that haul the famous Olympian and contribute to its smoothness of operation.

NOTE: This is the ninth of a series of articles concerning famous trains lubricated by Texaco Products—EDRON.



The administration building houses the general offices and a theater

TEXACO STAR PHOTOS

## West Point of the Air

**T**O REFER to Randolph Field, Texas, as the largest project undertaken by United States Army Engineers since the building of the Panama Canal is to do it scant justice. The so-called "West Point of the Air" is far from being just another Government construction job.

A skillful combination of Spanish and modern architecture has resulted in a group of buildings and grounds in perfect harmony with the stretch of level prairie country which is their setting. The general impression is that of a very lovely suburban city rather than of an army institution devoted to the task of training young men in the science and art of military aviation.

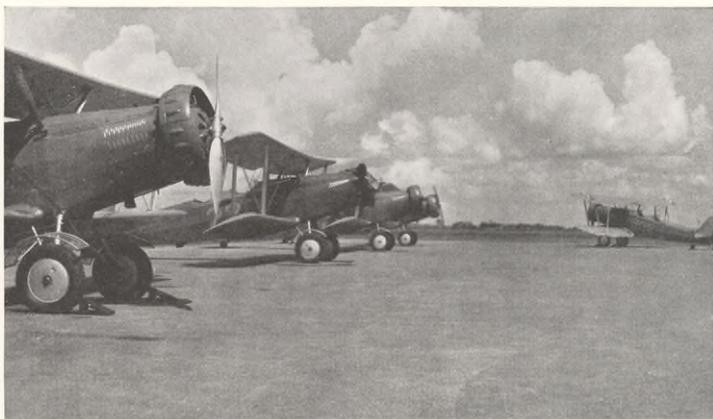
Half an hour's brisk drive from the city of San Antonio on the road toward Seguin brings you to Randolph Field. A tall structure in Spanish mission style, the administration building, looms up first, and in a few minutes you turn in past the sentry and roll down a long avenue toward the center of the field.

The property occupied by Randolph Field is

about 2,300 acres in extent. It was acquired by the citizens of San Antonio and donated to the War Department when the site of a new field was being considered. It was named in memory of Captain William M. Randolph, Air Corps, U. S. A., who, while Adjutant of nearby Kelly Field, was killed in an airplane crash several years ago.

While the total area of the post is nearly four square miles, only one-fourth of the space is occupied by buildings. The building area is in the form of a circle in the center of the reservation, while around it, on four sides, is the landing field area. Two opposite sides can always be used for flying training at the same time, according to the direction of the wind. Conspicuously absent are masts, power lines and the like, which form not only an actual hazard to the experienced flyer, but are an acute mental handicap to the fledgling intent on keeping his nose on the horizon and his wings reasonably level. The single tower is that of the headquarters and administration building, which contains the post's water supply tank and the office

## The TEXACO STAR



*Texaco Asphalt is used to surface the hangar aprons at Randolph Field*



and laboratory of the meteorological section of the field's weather bureau. Crowning the tower is a revolving beacon which guides the night-flying pilot.

There are 18 hangars, nine each on two sides of the field, for the post's 275 planes, as well as two large assembly hangars and a large shop and repair hangar. All hangars bordering the field have their roofs painted a startling black and chrome-yellow checkerboard pattern.

The total population of the post is about 3,500, including 1,700 military personnel, officers, students, and enlisted men, and civilian employes and members of officers' and non-commissioned officers' families. The administration building houses a completely equipped theatre, and there is an excellent restaurant for the accommodation of civilian

visitors. Visitors, incidentally, are welcome to enter the grounds at any time and to inspect the field.

Students are selected from several sources, most of them being flying cadets appointed from civil life or from the enlisted men of the Army, the latter receiving priority in appointment.

Texaco Asphalt plays a prominent rôle at Randolph Field. The "aprons" in front of the hangars are surfaced with a non-skid, waterproof and resilient top course of Texaco Asphaltic Concrete. In addition, the same type of Texaco Asphalt construction has been used extensively to surface the streets of the community where the living quarters of the officers and other personnel of the field are located. In all, approximately a quarter of a million square yards of Texaco are serving the West Point of the Air.

*The architecture of the post harmonizes perfectly with its setting*





*General view of the new Texaco terminal at River Rouge, Michigan*

## Meet the New Terminal

By **A. L. VALADE**

River Rouge Terminal, River Rouge, Michigan

Also Mayor of River Rouge

**I**NDUSTRIALLY famous River Rouge, Michigan, is the home of The Texas Company's newest bulk marine terminal, providing additional facilities for serving that important Mid-West area. River Rouge is a city of about 18,000 population, and is bounded on the north and west by Detroit, on the south by the town of Ecorse, and on the east by the Detroit River. Within its one and a quarter square miles are shipyards, steel and paper mills, and hundreds of other industrial enterprises.

Situated in the northeast section of the city, on what was formerly known as "The Marsh" is the Texaco terminal; it covers about 20 acres and is one of the finest and most up-to-date petroleum products terminals in the vicinity.

On July 2 of last year, workmen began filling and grading the site, much of the earth fill having been secured from the mounds of dirt at the river front, where the Company's dock now is. On this same property the stone crushers of the Dunbar and Sullivan Company, erected about 35 years ago, once stood. All that remained of these crushers was a mass of concrete foundation, which called for the use of hundreds of pounds of dynamite to remove.

Work progressed rapidly and on the afternoon of August 18, six weeks after construction was begun, gasoline from the Texaco tanker, S. S. *Maine*, was pumped into the first tank. Since that time the rest of the terminal has been completed.

At the peak of construction, 162 men were on the plant's payroll; most of them were citizens of River Rouge. In addition to this force, more than 100 men were in the service of the various contractors.

The present property consists of 18 steel storage tanks, with a total capacity of half a million barrels; a transfer pump-house equipped with 11 of the latest-type motor-driven centrifugal pumps; a steel tank car loading rack capable of accommodating 16 tank cars; a truck loading rack at which four tank trucks can be loaded at once; an additional pump-house for serving the truck loading rack, and a garage with accommodations for 15 tank trucks. There is also a brick warehouse in which are located the general offices and laboratory. Fire-protection equipment includes two motor-driven fire pumps located in an additional pump-house at the water front. All buildings are constructed of brick.

# C. K. Longaker

A HOST of friends, both in and out of The Texas Company organization, were shocked to hear of the death of C. K. Longaker, Assistant to the President. Mr. Longaker died in New York City December 15, 1933, after a brief illness, and in his passing the Company has lost a loyal, efficient, and well-liked employe.

Charles Kline Longaker was born in Pottstown, Pennsylvania, July 4, 1877. He entered business life as assistant bookkeeper for a wholesale dry goods company in Philadelphia, and in 1906 applied for a position with The Texas Company. In August of that year he was told to report as Cashier in the general offices of the Company, then located at Beaumont, Texas, and since that time he rendered continuous and faithful service.

After a month in Beaumont, Mr. Longaker was transferred to Port Neches, Texas, as Chief Clerk, and a year later went to Port Arthur, Texas, as Cost Clerk. In 1910, when the Refining Department's general offices were transferred to Houston, he came to that city as Department Agent in charge of the newly organized Accounting Department. In 1920 he was appointed Superintendent of Shipping, and

in 1923 became Assistant Manager of the Refining Department. In March, 1928, he was transferred to the Company's New York Offices and on December 1, 1929, was made Assistant to the President.

For several years Mr. Longaker was an active member of the Texaco Round Table, an organization of employes in the New York Offices, and for the past three years had served as chairman of that body. He was a member of Stichter Lodge #254, F. & A. M., Pottstown, Pennsylvania; Houston Consistory, Houston, Texas; Arabia Temple (Life), A. A. O. N. M. S., Houston; and of Houston Chapter #385, O. E. S.

He is survived by his widow, Mrs. Mary D. Longaker, three sisters and two brothers, all of Pennsylvania.

The funeral was held in Limerick Church, Limerick Centre, Pennsylvania, a few yards from Mr. Longaker's birthplace. Burial was in Limerick Centre Cemetery.

Those of us who were privileged to know and work with "C. K." were always impressed by his love for the Company, which almost amounted to a religion. It is difficult to realize that his genial good humor, his kindly wit, and his shrewd judgment should be lost to us. We who are proud to call ourselves his friends extend heartfelt sympathy to his bereaved family.

## A Tribute to Service

It is difficult to trace acts which produce satisfied customers, but one customer, Paul Shirley, of Brookline, Mass., has made it possible:

Mr. Shirley, a musician of international repute, called the leading exponent of the *viola d'amore*, drove into H. J. Aarion's Texaco station, Atlantic, Massachusetts, last Spring and was so impressed that he wrote to our Boston office:

"It is not often that a motorist is given good service, fair advice, and courtesy, but I received valuable information and was sold on Texaco service and products by Mr. Aarion." He then requested a routing for a 12,000-mile trip, which was forwarded to him by Texaco National Road Reports. Home again, the musician expressed his appreciation:

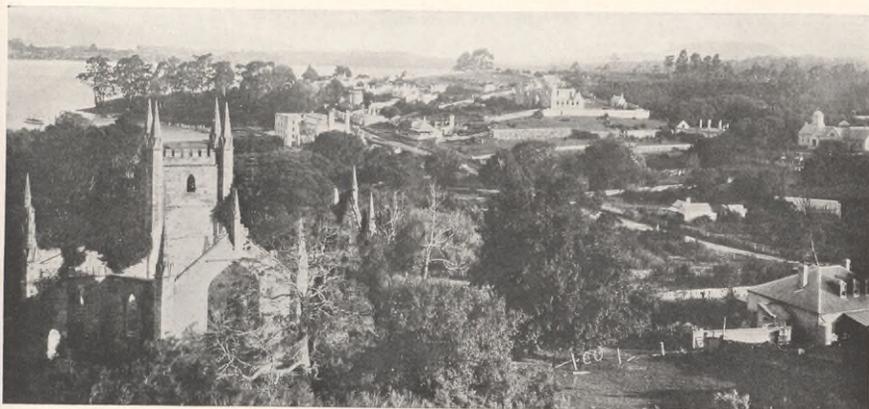
"Our 1933 Chevrolet was never touched by anyone but your Texaco Certified Service Stations. Throughout our journey we found not only expert service, advice, and your fine products, but received courtesy and help worthy of the highest praise."

NATIONAL REGULATIONS FOR PLEASURE CARS													
STATE SPEED LIMITS & GASOLINE TAXES													
ALA. 45	ARIZ. 61	ARK. 51	CAL. 45	COLO. 31	CONN. 41	DEL. 21	D. C. 22	FLA. 45	GA. 40	IDA. 35	ILL. 35	IND. 41	IA. 41
KAN. 31	KY. 40	LA. 51	ME. 35	MD. 41	MASS. 30	MICH. 31	MINN. 45	MISS. 31	MO. 61	MONT. 21	NEB. 41	NEV. 41	N. H. 35
N. J. 40	N. MEX. 31	N. Y. 51	N. CAR. 40	N. DAK. 45	O. 50	OKLA. 45	ORE. 51	PENNA. 40	R. I. 35	S. CAR. 21	S. DAK. 40	TENN. 41	TEX. 45
UTAH 45	VT. 41	W. VA. 45	WASH. 40	W. VA. 45	WIS. 41	WYO. 35							

30 Is maximum legal speed on the open road.  
 30 Is "greater speed is prima facie evidence of careless driving with burden of proof to the contrary on the driver."  
 U Is "the universal speed law." No maximum, but careful driving required at all times.  
 71 Is State gasoline tax. Federal, county and city tax not included.

NOTE: Provided you drive at a speed which allows you to bring car to a full stop in clear space ahead, slowing down in residential districts, for schools, when passing thru smaller towns, on curves and signal for your turns—You are entitled to claim to be a good driver.

TEXACO NATIONAL ROAD REPORTS  
 Compiled, services & copyright, Jan., 1933  
 TEXACO NATIONAL ROAD REPORTS



*View of Port Arthur, Tasmania*

## With the Texaco Globe-Trotter in

# TASMANIA

**NOTE:** This is the fifth of a series of articles on Australia prepared by The Texas Company (Australasia) Limited, and published as a supplement to the regular "Globe-Trotting with Texaco" articles on Australia which appeared some time ago.—**EDITOR.**

**T**ASMANIA is an island directly south of Victoria, separated from the Australian mainland by about 200 miles of sea—Bass Strait. It is the smallest state in the Commonwealth, its area being 26,215 square miles, or about that of Scotland. Its greatest length is 180 miles, and its greatest breadth 190 miles.

The island was discovered by Tasman in 1642, taken possession of as a British colony in 1802, and first settled in 1803. Being situated over three degrees of latitude, roughly from 40° 40' to 43° 40', its climate lacks monotony. It has no torrid Summer heat nor frigid Winter cold, but a pleasant balance of temperature. The altitude varies from sea level to 4,000 feet; its lofty mountains in Winter are suggestive of the Alps. Unlike the mainland of Australia, serious drought is unknown in Tasmania.

Tasmania is more broken in its surface than any other state of the Commonwealth. There are no plains like those of the mainland interior. Instead there are charming valleys and lovely hills, picturesque gorges and majestic heights, entrancing bays where rugged cliff meets sandy beach, and inland waters where crystal streams lose themselves

in mighty lakes. There are splendid mountains everywhere and, amid all, a smiling countryside with green fields and orchards stretching back into the bushlands where, through the clear, bright atmosphere, great peaks point their smoke-blue crests toward the sky.

Tasmania possesses a coastline which, from a scenic viewpoint, it would be difficult to excel—broad estuaries and landlocked harbors, rugged cliffs and golden shores. In the south is the estuary of the Derwent River, on the shores of which Hobart, the capital city, with its many attractive suburbs is located.

The Port of Hobart lays claim to being one of the finest in the Southern Hemisphere. Its open approach and depth make it possible for the world's largest vessels to berth at its city docks.

Launceston, principal city of Northern Tasmania, is not so favorably endowed as an ocean port; it is reached by traversing the Tamar River some 40 miles from the ocean. This river is navigable as far as Launceston only for vessels of 5,000 tons and under; larger vessels proceed to within 28 miles of the city and anchor at a picturesque spot known as Beauty Point, where passengers and cargo are transferred to smaller craft.

As a manufacturing country, Tasmania is particularly fortunate in having natural water-power resources, and is the only one of the six Australian states that has been so abundantly blessed. The writ-

## The TEXACO STAR

er is indebted to the Secretary of the Tasmanian Hydro-Electric Department for the following interesting information:

Hydro-electric power resources are almost unlimited, for there has been located approximately one and three-quarter million horsepower, on a continuous 24-hour rating, that is today untouched. If taken on a 50 per cent load factor basis, there would be double that quantity.

In 1914 the Government first embarked on the development of the state's hydro-electric power by taking over the assets of a company that had begun some three years earlier by developing the Great Lake hydro-electric scheme. From that time the Government has continued to develop and expand the scheme so that today its power lines take in large areas and provide service for homes and industries.

was about 213,000, of which approximately 54,000 were in Hobart, and about 23,000 in Launceston, the next most important city.

By comparison, the total population of Tasmania is barely that of one of the larger suburbs of Melbourne. Nevertheless, the country is rich in natural resources. Practically every known metal is found in Tasmania, the value of some of the metals won from 1880 to 1923 being as follows: Gold, \$38,000,000; silver-lead ore, \$43,000,000; copper ore, \$96,000,000; tin, \$79,000,000; osmiridium, \$2,500,000.

No royalty is imposed on the mineral industry, but all mineral deposits are leased from the Crown at an annual rental per acre. There were 1,356 leases and licenses in force in 1923, covering 54,362 acres.

Tasmania has another valuable asset in her timber—pine, blackwood, swamp gum, myrtle, celery



*Tasmania possesses valuable timber resources: A logging scene on the eastern coast*

This was not the first hydro-electric development in the state, as the city of Launceston had constructed a plant in 1895 by utilizing the waters of the South Esk River. The Mount Lyell Mining Company also constructed a 10,000-horsepower plant about the same time as the Great Lake scheme was built.

The Great Lake, being practically in the geographical center of the state, lends itself to the easy distribution of power. With a supply of cheap hydro-electric power available, the unique opportunity presents itself for the establishment of an industry wherever desired in the state.

The abundance of cheap power, combined with other factors, such as cheap factory sites, deep-water frontages, abundant pure water, ideal climate, and settled labor conditions, must present Tasmania as a very attractive place for the settlement of an industry.

The population of Tasmania at the end of 1929

top, and other hardwoods. Tasmanian blackwood is one of the finest furniture timbers known. For the 12 months ended June 30, 1923, a total of 35,000,000 super feet of timber was cut from the forest areas, of which nearly 3,000,000 super feet was Tasmanian blackwood. There are also many native trees, all of them evergreen except the beech.

Tasmania is a prolific orchard country and produces most of the deciduous fruits, as its climate permits these to be grown to perfection without resort to irrigation. Rightfully called the "apple land of the Australian Commonwealth," Tasmania's average annual apple production is 3,500,000 bushels, from an area of about 28,000 acres. About 2,000,000 bushels are exported, two-thirds the quantity exported annually by the Commonwealth. Agriculture is the backbone of this island state, and dairy farming is carried on extensively.

To students of botany and natural history, Tasmania is interesting. The mountains are,

## The TEXACO STAR



Tasmania's second largest city is Launceston, which has a population of about 28,000



geologists say, very old—older than the Alps, Andes, or Himalayas—and so are some of the forms of animal and vegetable life that exist in and about these ancient fastnesses. There are about 220 species of birds, about 20 of them peculiar to Tasmania. In this category are the native hen, the green rosella parrot, dusky robin, yellow wattle bird, and one or two varieties of magpie. There are three species of snakes, all venomous. And one must not fail to mention the mutton bird, for a description of which we are indebted to H. K. Holloway, Flinders Island.

The mutton bird industry is carried on at Flinders Island, situated between Tasmania and Victoria. Mutton bird is a name given by shipwrecked sailors about 60 years ago. The industry started at that time and has now increased to 1,000,000 birds per year.

The birds and the products are valued at £12,000. The bird is really the sooty petrel, *Puffinus tenuiro-*

*tis*. Its flavor, when fresh, is something like teal. Under the present method of packing, the birds are treated by sugar-curing and brined down in casks. One of the by-products of this bird, an oil, is used in the treatment of tuberculosis.

Among the animals generally representative of Australian types, there are several still existing in Tasmania that are extinct elsewhere, notably the Tasmanian devil and the Tasmanian tiger. There are wombats, kangaroo rats, native and tiger cats, opossums, platypus, and porcupines.

In many parts the bush is beautified by wild flowers and flowering shrubs, including heaths, waratah, blandfordia, and native laurel. Tasmania is rich in tree ferns, some of which grow to a considerable height.

Tasmania is noted for its fish. The principal edible fish are the trumpeter, trevally, bream, barracoota, king-fish, gurnet, (Continued on last page)



Elizabeth Street in the business section of Hobart, capital city of Tasmania



# STAR DUST

## ■ CACTUS TUBES

Workmen in the desert area around Las Vegas, Nevada, and the Boulder Dam project found some time ago that the tough, resilient pulp of the Joshua tree would serve for an emergency inner tube. Now the "cactus tube" is becoming more popular among those who do not have money to buy the superior rubber article.

The scaly bark of the Joshua cactus is first torn off, and the fibrous branches pared to fit tightly in the casings. The cutting is done in short lengths to conform to the circumference of the wheels, and when the casing is filled, water is injected through the valve stem hole. The moisture makes the pulp pliable and causes it to swell so as to hold the tire on the wheel. Some "cactus tube" users say they can run 400 miles over dry roads without "rewatering."

## ■ "I DRILLED A WELL—"

(Continued from page 11)

then prepared and swung into position directly over the casing and discharged. The force of the explosion drives the gas stream downward, creating a momentary vacuum, and the blaze is snuffed out.

The final chapter of the drilling well is "drilling in." Through coring, showings of oil or gas or correlation of formations, the casing point of the "flow string" is determined and the casing landed "on the pay."

Drilling the "pay" is done most cautiously. Short runs are made and the cuttings carefully examined. Drilling the proverbial "one foot more" has probably ruined more good wells than any other single factor. Good practice demands that drilling cease when satisfactory production is obtained.

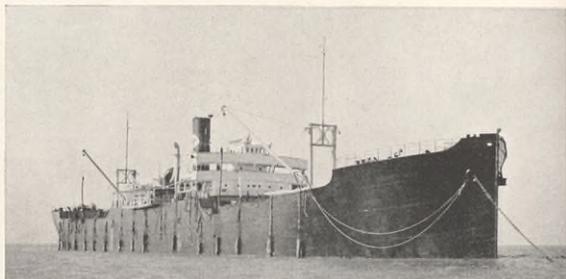
The above briefly touches the highlights of the drilling well. If successful, the rewards are great. If a dry hole, the loss is taken philosophically, for it is a gamble, with the odds against a paying well.

## ■ TASMANIA

(Continued from page 23)

flathead, rock cod, sole, flounder, ling, garfish, and whiting. The whiting is regarded as one of the choicest edible fish in the Commonwealth.

In addition to salt water fish, Tasmania is famed for a plentiful supply and wide variety of fresh water fish, and was the first Australian state



Port Texaco, formerly the S. S. Westlake

TEXACO STAR PHOTO

## "Port Texaco"

WITHIN sight of the warm, blue waters of the Gulf of Mexico, a few miles from the marshy, irregular coastline of Southern Louisiana, is a seaport that was once a ship. There, anchored firmly to the muddy, shallow bottom, is the *Port Texaco*, formerly the S. S. *Westlake*.

Once a freight steamer, and a good one, she is now no more than a tank for the oil that is produced from The Texas Company's water-location wells in Terrebonne Parish, some 50 miles from New Orleans. The United States Shipping Board sold her to the Company's Marine Department in 1932, on the condition that she should be used only for storage purposes. So her engines were dismantled and she was towed to her present location and anchored.

A member of THE TEXACO STAR editorial staff recently visited the *Port Texaco*. Boarding a rakish speedboat at the Producing Department's warehouse on Bayou Terrebonne, a few

successfully to introduce trout from the "old country," after years of experimenting. Practically all the principal rivers and lakes are now stocked. The chief varieties of trout are the salmon trout, rainbow trout, and brown trout.

Lobsters and oysters are also very plentiful and of a very fine quality. It is interesting to note that nowhere else within the Commonwealth is the scallop found. Practically all of the season's catch is consumed locally, few being sent out of the state, even to the Australian mainland.

Hobart, owing to its geographical location, is used as a base by whaling companies, full cargoes being brought in from the Antarctic and shipped from Hobart annually. The value of the 1929 cargo exceeded \$1,000,000.

miles south of the little town of Houma, Louisiana, we scurried down the bayou and out into Cat Island Pass, which leads to the Gulf. A few minutes later the squat outlines of the *Port Texaco* appeared, and not long afterward we came alongside and clambered up the Jacob's ladder which hung from her gunwales.

Outwardly, and for that matter inwardly, with the exception of her engine room and wheelhouse, the *Port Texaco* has every appearance of being ready to put to sea at a minute's notice. She is spotlessly shipshape; a captain and crew are stationed aboard at all times, her galley provides three excellent meals a day, and her living quarters are quite as comfortable as those found on the Company's finest ocean-going tankers.

Small barges ply among the Company's oil wells, which, in this part of the country, are never located on dry land, and carry the oil to the *Port Texaco*. About 80,000 barrels (more than three million gallons) can be stored in her hold at one time. Every few days a tanker from Port Arthur puts in at the *Port Texaco* and takes a cargo.

Captain Wyman Baker and his crew don't seem to mind the fact that the *Port Texaco* will never sail again. After all, she is still performing a useful service, and is not, like so many of her war-time sisters, lying rusty and forgotten alongside some abandoned pier. —P. C. H.

## ★ HOW WELL DO YOU KNOW YOUR UNITED STATES?

The building illustrated on Page 2 is the Santa Barbara Mission, at Santa Barbara, California.

Watch for pictures of other important places in America that you should know about.

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This streamlined tank truck, developed by The Texas Company, is a radically new design for this type of vehicle. Although only 26 feet long, it has a capacity of 1500 gallons. The engine is in the rear, a factor making for greater economy and safety and ease of operation for the driver





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