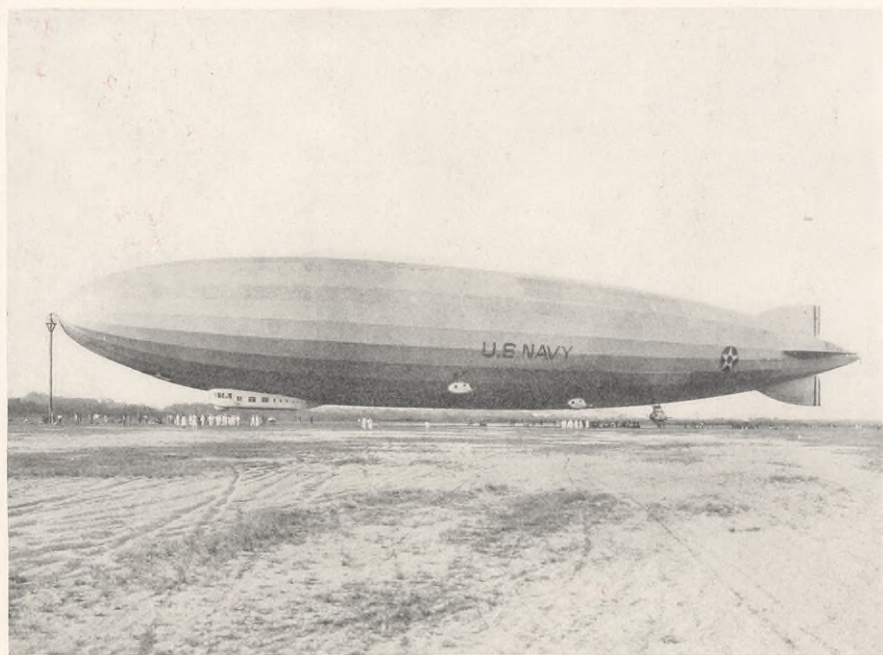


A detailed illustration of a winter night scene. A snow-covered path leads through a row of trees towards a house in the distance. The sky is dark blue with stars, and the ground is covered in snow. The trees are bare, and the house has a chimney and a porch. The overall mood is peaceful and serene.

*The* **TEXACO STAR**

**DECEMBER**

**1929**



**T**HE UNITED STATES NAVY  
DIRIGIBLE LOS ANGELES MOORED TO  
HER NEW STUB MAST AT FRANCE  
FIELD, CANAL ZONE: THE LOS  
ANGELES IS TEXACO LUBRICATED



# Brief and to the Point

★ Our front cover . . . Christmas Eve in New England . . . snow piled in huge drifts on the spacious lawns . . . cozy houses with yellow light streaming from their windows . . . tiny Christmas trees in the front yards, ablaze with varicolored bulbs . . . a last-minute shopper trudges homeward . . . one by one the lights blink out . . . a distant bell tolls the hour . . . the towering elms look down upon the bleak hills and silent valleys . . . another Christmas is born.

★ The average well in the United States produces only about eight barrels of crude oil daily.

★ One of our readers in the Asphalt Sales Department has taken issue with the statement of Miss Jane Cody Garlow in her recent article that no town can be called Buffalo Bill's home town. North Platte, Nebraska, is the place, he says, and furthermore it is paved with 400,000 square yards of TEXACO asphalt.

★ More than one thousand companies have now signed the National Code of Marketing Practices.

★ Before the day of the automobile, kerosene was the most important petroleum product and gasoline was often run off as waste because there was no demand for it.



★ Not all crude oil goes to refineries. Many barrels of it are sent directly to owners and operators of beauty establishments for oil shampoos.

★ Taxes paid by the petroleum industry last year exceeded \$100,000,000.



★ The Texas Corporation has declared its regular quarterly dividend of 75 cents, payable on January 1, 1930, to holders of all stock of record December 6.

★ Some years ago a self-appointed prophet offered to drink every drop of oil found outside the State of Pennsylvania.

★ Of course this has no connection with the forthcoming automobile show in New York, but the National Automobile Chamber of Commerce recently announced that the life of the average car is six and three-quarter years.

★ Refueling a plane in flight was first accomplished in 1921 at Long Beach, California, when a pilot with a five-gallon can of gasoline strapped to his back transferred in midair to a ship from the top wing of a machine flown by Frank M. Hawks, now Superintendent of The Texas Company's Aviation Division.

★ More than one quarter of all the petroleum produced in the United States comes from Oklahoma.

★ The feasibility of using oil sands for the storage of crude oil is being tested in the Brea Olinda fields by enterprising petroleum operators in the State of California.



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DECEMBER, 1929

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Cover by Leroy Clinker

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★ Our official attention-caller has noted the fact that THE TEXACO STAR is read with marked interest by the young men of the Hoboken, (New Jersey), Y. M. C. A.

★ Statistics, like the poor, hover constantly in our midst. This month we submit the following: Gasoline is being consumed at the rate of 1,218,000,000 gallons monthly, a gain of sixteen per cent over 1928. In 1927 the monthly consumption rate was 966,000,000 gallons.

★ The National Tuberculosis Association, which was founded in 1904, in indicating the progress made during those 25 years, says that today there are more than 3500 tuberculosis clinics in this country. The annual sale of Christmas seals by this organization is now in progress. Buying them will assist a most worthy cause.

## The TEXACO STAR



"TEXACO 6," a Great Lakes Biplane—Note the "Doughnut Wheels"

## "TEXACO 6 and 7"

### Two Fledglings Join The Texas Company's Air Fleet

**T**wo additions to the TEXACO air fleet were made last month with the purchase of a Great Lakes and a Waco biplane, to be known respectively as "TEXACO 6" and "TEXACO 7." The former will be used in the Seattle and Los Angeles Sales Districts, while the latter is for use in the Southern Territory.

The "TEXACO 6" is powered by an American Cirrus Mark motor of 100 horsepower and has a cruising speed of 95 miles an hour. It was intended to carry two passengers, but the front seat has been converted into a baggage compartment.

An unusual feature of the "6" are the so-called "doughnut wheels," recently developed by the Goodyear Tire and Rubber Company. These are used in place of the regular landing wheels and may be best described as great rolling rubber pillows, contain-

ing only from five to 25 pounds of air. The manufacturers assert that the doughnut wheel rolls smoothly without hopping or bouncing on takeoffs and landings and permits a ship to rise from sand, snow, swamp or rough ground if forced down.

"TEXACO 7," the Waco, is equipped with a two hundred horsepower Wright Whirlwind motor and will carry three persons. Its cruising speed is one hundred miles an hour. Hal P. Henning will pilot the "7" through the Southern Territory.

The famous Lockheed monoplane, "TEXACO 5," in which Captain Hawks made his record-breaking coast-to-coast flight, is still living up to its not inconsiderable reputation. Captain Hawks admits that no matter how fine a fleet The Texas Company acquires in the future, this plane will be his favorite.



"TEXACO 7," Loads Up for a Trip Through Southern Territory



*Clara Bow Officially  
Christens the New  
Pickwick Nite-Coach*

## Behind the Scenes with **TEXACO** Users

### II—The Pickwick Stages System

By **WILLIAM R. GRUNDMANN**

Automotive Engineer, Pacific Coast Territory

**A**N AMBITIOUS STUDENT of the language looking for the word "jitney" in any standard dictionary of the present day, will be doomed to disappointment. Yet this word, particularly during the few years preceding the World War, was in common use among those of us who had occasion to travel from place to place in a less comfortable but somewhat more economical carrier than the railroad.

The rickety jitney bus is now a thing of the past. Prior to 1914 nearly every city boasted one or more of them; rattle-trap touring vehicles or crudely made-over trucks, running on schedules that would have made a railroad dispatcher border closely on apoplexy.

From such humble beginnings was born one of

the greatest motor bus systems in the United States, covering more than thirty thousand miles of routes and operating with its affiliated lines, more than 190,000 bus miles a day. Thanks to the determined and far-seeing efforts of its founders, the Pickwick Stages System has helped to transform the bus industry from a maze of ill-connected and irresponsible lines to a great, smooth-working enterprise. Its huge motor coaches move with clock-like precision, connecting promptly at terminal points and offering safety, comfort and courtesy to its millions of passengers.

The Mexican Revolution of 1912 accomplished something more than a mere change of presidents. It drove a prosperous mining man from his Mexican



*The Nite-Coach Connects with Pickwick Airways at Air Terminal in Los Angeles*

## The TEXACO STAR



*The 200-Room Hotel  
Pickwick, San Diego*

holdings to seek shelter in San Diego, California, where he could remain until affairs in our neighboring republic might become more stabilized.

A. L. Hays was the man who, with an eye to temporary income, decided that with all its perfection, Southern California needed better transportation between San Diego and Escondido. He invested in a used Ford touring car, established headquarters at the old Pickwick Theater in San Diego and fared boldly forth with his first passengers along the fifty dusty miles to Escondido.

Californians, always romantic souls, dubbed the new jitney line "Pickwick", despite efforts on the part of the ambitious new company to retain another and more complicated title. The antiquated buses then in use became Pickwick stages, and nothing could shake the appellation. Didn't they start at the Pickwick Theater? And wasn't the theater named after the book by Charles Dickens? And didn't Dickens feature a number of uproarious stage-coach journeys in that volume? In desperation the company accepted the title and Pickwick it has remained ever since.

The expansion of the Pickwick systems has been no mushroom growth, but a sound, healthy development. The addition of new lines and the construction of finer equipment and terminals has gone on year after year under the guidance of pioneers who have known stage travel since its infancy.

Two great divisions were combined to form the Pickwick Stages System of today. They were the Southern Division, consisting of routes south and southeast of Los Angeles, and the Northern Division, extending from Los Angeles, through San Francisco and on to Portland, Oregon.

The southern half of the system was born late in 1912, when the old "scenic route," and Imperial Valley Lines were merged with the Pickwick System at San Diego. During the first year of operation, the San Diego and Back Country Line to Julian and Descanso was added and in 1916 another advance was made when the line was extended along the coast to Los Angeles. Additional lines followed in rapid succession, until today there is scarcely a point in the South that has not been touched by this service.

Charles F. Wren, now president of the Pickwick Stages System, of the Pickwick-Greyhound Lines, and of the Pick-

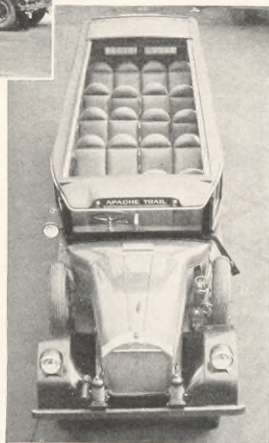


*Equipment Used on Latin-American Route*

wick Airways, Incorporated, was responsible for the rapid growth of the Northern Division and enlargement of the entire system after its consolidation.

Between 1915 and 1918 the northern line was pushed gradually up the coast; first to Santa Barbara, then to San Luis Obispo, San Jose and San Francisco, along 455 miles of highway between the two largest cities on the Pacific Coast. This journey presents a delightful cross-section of California's vaunted scenic charms, traversing as it does the gardens of Southern California, skimming along the edge of the Pacific, dipping into wooded valleys, and piercing the broad plains of the rich Santa Clara valley for many miles.

The greatest gain, in point of territory covered, was when the 740-mile stretch between San Francisco and Portland was opened up. All the timbered grandeur of Northern California and Oregon was thus made available to the traveling public. Since the purchase of the franchise for this line, schedules have been multiplied seven times and another in-



*Open-Top Sight-Seeing Bus*

## The TEXACO STAR

crease in schedules is already deemed necessary.

In 1925, the Redwood Highway Stages became part of the Pickwick System, adding four hundred miles of roads through hunting, fishing and outing regions and taking in the vast redwood forest that follows the highway for more than one hundred miles.

One year later the Short Line, between Los Angeles and El Centro, was acquired in a deal which also included a network of Imperial Valley Lines. The system was thus strengthened by the addition of a shorter route to the southwest. The merger likewise brought into the company two transportation leaders of marked ability, Thomas and Howard Morgan, of the United Line. The former became general manager of the Pickwick group and held that title until recently when he resigned to become manager of the Pickwick Airways. Howard Morgan

the greatest advances in the field of motor coach transportation. Seeing the necessity for extending their lines to the East, Pickwick started a line with schedules straight through El Paso, Texas, by way of Amarillo, Tulsa and Springfield, Missouri, into St. Louis. Today three daily schedules are maintained between Los Angeles and St. Louis, connecting there to other eastern points over routes of the Greyhound Lines. This line passes through the oil fields of Texas and Oklahoma and divides at Joplin, Missouri, the main line going into Springfield and the branch to Kansas City, where further connections for points to the north, east and west are made.

The same year marked the opening of the Los Angeles to Salt Lake division, a total of 786 miles. Opening this line was most difficult, due mainly to road and climate conditions. Buses started from Los Angeles, where the temperature was 75 degrees at an elevation of 57 feet and on the way encountered temperatures of 128 at Baker, California, on the edge of Death Valley, then climbed to Beaver, Utah, with an elevation of 5975 feet.

In the winter



*Inaugural Dinner for the New Nite-Coach*

is at present general manager of the Pickwick-Greyhound Lines.

Almost coincident with the addition of the Redwood Highway Lines was the joining of the link from El Centro to Phoenix, Arizona, to the Pickwick chain, opening highway travel from California to the southwest. Two years ago many local lines near Phoenix were added, making service in the Salt River Valley and southern Arizona quite complete. Four through schedules to Phoenix, Tucson, Globe and other Arizona cities are now in daily operation, with through daily service to Lordsburg and El Paso, Texas, and a further leap to Hot Springs, Roswell and Carlsbad, New Mexico, where the Carlsbad Cavern may be visited.

The summer of 1927 saw the beginning of one of



*Along the Apache Trail in Arizona*

## The TEXACO STAR



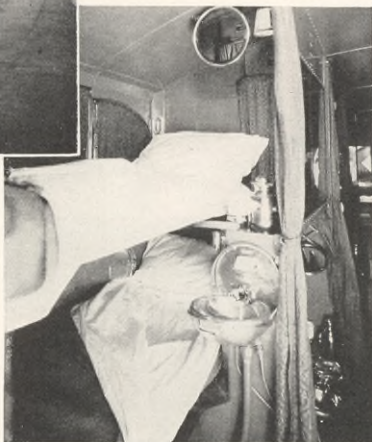
At the TEXACO Commonwealth Ave. Station, Boston. (Left) and View Showing Berths

months, temperatures as low as sixteen degrees below zero have been experienced at Beaver, Utah, while a balmy seventy would be found at Los Angeles. It can readily be seen what strains the equipment had to stand and still maintain schedules, one bus being used for the entire trip.

In the spring of 1928, the Salt Lake to Denver division was opened up. This route is another severe one from the point of maintenance and operation. In 619 miles of travel, the height of the road above sea level ranges from 4251 feet at Salt Lake City to 8883 feet at the summit of Sherman Hill, Wyoming.

These figures are mentioned in order to give background to a description of some of the problems which had to be solved in designing equipment for this run, as heretofore the Pickwick system had been operating over comparatively level country. One item particularly worthy of note is that the motors used for the run showed a loss of 23 per cent of rated horsepower when at the peak elevation of 8883 feet at Sherman Hill, over their rating at sea level.

It was on this division that The Texas Company was first given the opportunity of working out more efficient motor operation, utilizing TEXACO Motor



Bus Oils and TEXACO Gasoline. The data and results compiled on this division and on the Los Angeles to Salt Lake division were instrumental in convincing Pickwick officials of the superiority of TEXACO products.

The work of testing and assembling information was carried on day and night, our engineers riding buses through snow, mud and rain. Schedule time for the run of 619 miles was 28 and one-half hours, and at times, when road conditions were bad, it meant sticking to the job for more than 48 hours. But the more severe the roads and the weather, the more anxious were the engineers to get correct information on operating temperatures and the condition of the motors.

The summer of 1928 marks the opening of the Denver to Omaha division under the name of Prairie Stages. These lines are now operating two through schedules each way daily. In the same summer another line to Kansas City was opened by way of Limon, Colorado, Salina and Topeka.

The shops and body building plant of this remarkable motor



The Texas Company's New "TEXACO 6," a Pickwick Bus and a TEXACO Tank Truck Enjoy a Brief Chat

## The TEXACO STAR

*Typical Interior (Right) and the Steward Preparing a Meal in the Nite-Coach Kitchen*



coach system are located in Los Angeles in an unassuming brick building on East Seventh Street. As one goes to enter the big double doors that open out on the surging traffic of this section of town, a mechanic sprints from the interior of the plant into the street, waving pedestrians back and flagging the stream of cars along the busy thoroughfare to a momentary halt.

All eyes are turned toward the big doors. Through them slides a huge, stream-lined motor coach, glistening in its new blue and gray enamel, resplendent with nicked trimmings, rich in soft leather upholstery and treading softly on its bulging balloon tires. This leviathan melts into the stream of traffic, dwarfing the other cars with its bulk and length, yet swinging along as lightly as a two-thousand-pound pleasure car.

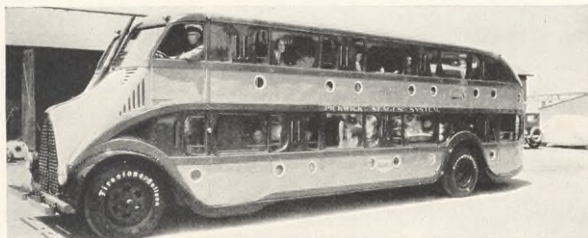
Half a dozen mechanics stand in the entrance and watch the bus depart; in their eyes is the pride of achievement. Such is the birth of a modern motor coach.

Entering the shop, one is welcomed by the din of falling hammers, the hiss of acetylene torches,

the rhythmic purr of newly assembled motors and the clash of sheet metal presses. At one end of the room a forest of stark wooden ribs marks the beginning of a fleet of sturdy bodies. A battery of lathes is at work turning out massive shafts and gears.

To the novice this is all a bedlam; to the trained ear and eye of the plant official it is well-ordered and smooth-working. The visitor seeks out Dwight Austin, the young designer under whose watchful eyes each Pickwick coach is produced.

He is found in a small room set apart, bending over an eight-foot detailed drawing of a new type of motor coach. He is glad to explain these plans and to show drawings of coaches which are now in operation in all parts of the country. There is the parlor-buffet car, containing a kitchen, lavatory and luxurious seats, as it now appears in daily service on the old Spanish Trail. There is the "Nite-Coach," also with a kitchen and lavatories and compartments which can be made up into berths for twenty-six people. Another plan shows the sliding top coach, now in use along the Apache Trail in Arizona. The roof of this car telescopes back, allowing passengers to get a full and unobstructed view of the beetling cliffs of Arizona's painted canyons.



*The Nite-Coach is as Gracefully Streamlined as a Yacht and Provides Comfortable Transportation for 26 Persons*

## The TEXACO STAR

In the sheet metal shop there is the sound of electric drills and the blue glare of a welding machine from a corner where three or four men are finishing up the steel frame of a chassis. The coach on the highway seems large, but one does not realize its bulk and strength unless he sees this naked frame of channel steel sprawled out thirty feet across the shop.

In the motor department of the plant the visitor is told that the company adheres rigidly to the Model 66 and 48 Pierce-Arrow six-cylinder motor. Pickwick officials maintain that some of these motors have been in service for a million miles of travel and that aside from occasional overhauling and testing, they are still in excellent condition. Their model 66 motors up to the present year were taken from private cars which the company bought and it has been estimated that more than 85 per cent of all the motors of this model manufactured by Pierce-Arrow are now in possession of the Pickwick company. This year, being unable to obtain any more of these motors, they designed their own, adhering to the original Pierce-Arrow design but improving it with larger cylinders, a larger cooling and oiling system and heavier crank-case and crank-shaft.

Set up on testing frames in the motor department is a squad of these powerful engines, gleaming with new paint, and running under a load which closely approximates actual operating conditions. An old motor can be removed from a coach and a new one bolted into place within a few hours.

The body building department is manned by a small army of craftsmen in wood, leather and steel,



Pickwick-Greyhound Bus on Kansas City Run

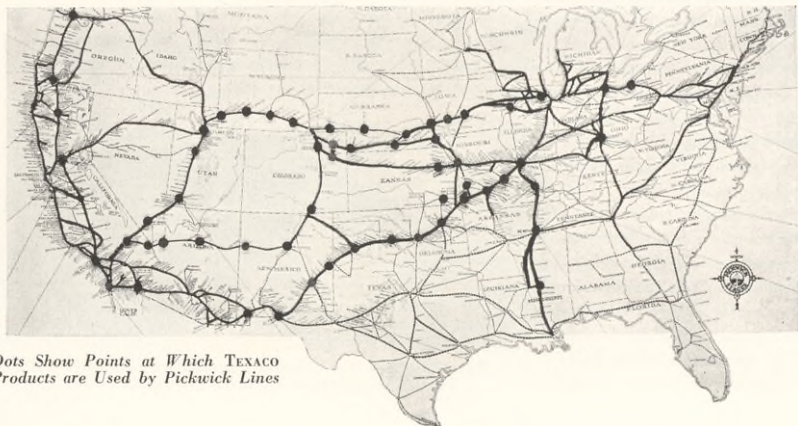
swarming over a group of bodies in every stage of construction. As the bodies near completion, it is customary to see eight men working on a single body, one spraying a finishing coat of paint, another bolting on door-handles, a third installing heat regulators and others tacking down upholstery or fitting the plate-glass windows.

Known to those of his acquaintance as "the largest man in the motor-coach industry," Tom K. Stone, general superintendent of operation and maintenance of the Pickwick company, has the responsibility of keeping this fleet in condition. His two hundred-odd pounds of bone and muscle are always on the job. A short talk with him will give one a good idea of the way in which the Pickwick stages are cared for.

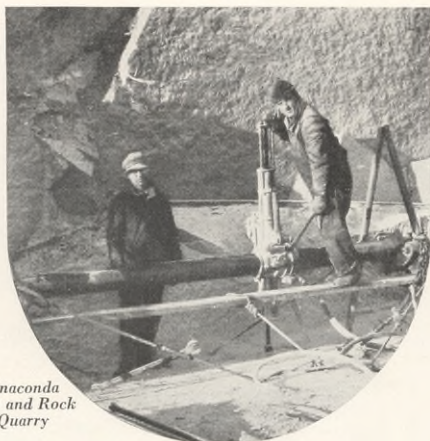
One learns that all equipment is greased every five hundred miles and oil is drained every thousand miles. There are definite schedules for greasing and oiling each part of the coach and motor. Valves are ground every 20,000 miles and the carburetor, vacuum tank and auto impulse screens are cleaned every five thousand miles. Brakes must be adjusted so that the car will stop within 37 feet when traveling at twenty miles an hour.

Something more should be said about the famous "Nite-Coach" since this is the most radical design ever attempted in the field of bus transportation. In appearance it resembles a submarine, for it is gracefully streamlined and is equipped with portholes and observation windows. There is no hood, that portion of the body which contains the driver's

*(Continued on last page)*



Dots Show Points at Which TEXACO Products are Used by Pickwick Lines



In the Anaconda Mines (Left) and Rock of Ages Quarry

## TEXACO Under the Ground

Good Lubricants Needed in the Battle for Earth's Treasures

By F. C. KERNS

Superintendent, Lubricating Sales, Northern Territory

ANYONE who has read Jules Verne's "A Journey to the Center of the Earth," or has himself penetrated even a slight distance beneath the surface of this whirling home of ours, cannot help experiencing something of a thrill. The interior of the earth, like the bottom of the ocean, holds a strange fascination for all of us.

It is characteristic of man that, not being content with exploring the surface of the globe, he must bore beneath its crust in a further attempt to learn its mysteries. And by gratifying this curiosity, he has increased his store of wealth, knowledge and comfort.

Hundreds of years ago, when the fact that the earth was round came into the realm of general belief, scientists were of the opinion that the crust of the world was very thin and that not far below the surface was a lake of fire.

Gradually explorers became more bold and began to make excavations here and there. They were rewarded, not by plunging into a sea of molten

metal or falling through the other side into China, but by finding minerals, precious stones and fuel.

To the men who made these early subterranean explorations, much credit is due. With the entrance of the industrial age, humanity became more and more dependent upon materials from under the ground. Hundreds of lives were lost that the world might be provided with light, heat, metal and jewels, and that millions of city folk might ride swiftly and safely beneath teeming city streets and wide-bosomed rivers.

In the West and South, the battle is still going on to bring to the surface the treasures in the earth's storehouse; oil, gold, copper and coal. In the North, men face danger and privation to provide themselves with granite blocks on which to build their homes or carve their obituaries.

In all these fields, one of the greatest enemies has been friction. Step by step, as man has become more and more daring in his underground penetration, newer and better methods of overcoming friction have been de-



Operating a Drill in a Granite Crevasse

Two Striking Views of Rock of Ages  
Quarry, the Largest in the World



veloped. In drilling for oil, building transportation tubes and quarrying and blasting mighty rocks for stores of hidden metal, TEXACO products have been called upon to give uniform and efficient service.

The petroleum industry itself presented a unique problem in lubrication some years ago with the advent of the rotary tool for drilling. This device made possible the drilling of wells to depths which heretofore had been regarded as merely visionary. Wells a mile or more in depth are now common and ten thousand-foot holes are being discussed somewhat more calmly of recent years.

In the drilling of an oil well, as in perhaps no other field of mechanical effort, operating conditions are most severe on lubricants. At the end of a vertical "line," thousands of feet below the ground, the rotary bit gnaws and bores its way downward, under stress of gigantic overhead and lateral pressures, heat and solid resistance. And as it gradually eats its way through solid rock

and sand toward the oil, it must be constantly lubricated.

The rotary drilling bit was developed by Howard Hughes and Walter Sharp, the latter president of the Producers Oil Company, which has since been merged with The Texas Company. For many years this bit

was manufactured by the firm of Sharp and Hughes and later by their successors, the Hughes Tool Company of Houston, Texas.

Speed and more positive insurance against cave-ins and blowouts were the main advantages of the rotary method. The Hughes bit is so constructed that while it is in operation, lubricating fluid is pumped down inside the stem of the drill. As this takes place, a pressure is set up within the drill which is greater than that on the outside of the hole. This pressure is admitted to the upper end of a plunger, which forces the oil downward to the bearing. With this system of lubrication, it has been

possible to make drilling runs of thirty hours or more without taking the drill out of the hole.

Traveling from the oil fields of West Texas, Oklahoma and California, we find that in the crowded cities of New York, Chicago and Boston, TEXACO lubricants are playing an important part. The New York subway, a carrier which



Transporting Copper Ore in the Anaconda Mines

## The TEXACO STAR



*Giant Buckets Used at the Pittsburgh and Midway Coal Mining Company*



yearly transports more than the entire population of the earth, recently celebrated its 25th birthday. In subway systems of the Brooklyn - Manhattan Transit Company, the Boston Elevated and subway lines and the Chicago surface lines, TEXACO oils and greases are providing for the

essentials of safety and economy in high-speed locomotion. In addition to the rolling stock, stationary equipment on the subways, such as fans, motors, track switches, signal systems and pumps, is lubricated with TEXACO.

Another most important feature of underground transit are the great Holland Tubes, two in number, which connect the Island of Manhattan with New Jersey under the Hudson River and join the famous Lincoln Highway. The total length of these tunnels, one east-bound and one for west-bound traffic, is 9250 feet. The length of the portion actually under the river is 5430 feet. Each roadway is twenty feet wide and the height of the tunnels is thirteen feet, six inches. The estimated hourly capacity in both directions is 3800 vehicles.

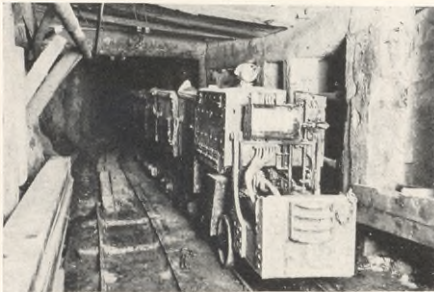
The problem of ventilation of these tunnels was a most vexing one. Final arrangements provided for the installation of ninety Sturtevant Silentvane fans which provide 42 complete air

changes an hour, or 3,761,000 cubic feet of fresh air each minute. TEXACO is used to lubricate these fans, as well as the motor bearings and link belt drives. Near the New York entrance, tourists may obtain TEXACO New and Better Gasoline and TEXACO Golden Motor Oil at a TEXACO service station strategically located.

Far from these swarming city streets, deep in the rugged hills of Vermont, we find one of the greatest granite quarries in the world, operated by the Rock of Ages Corporation, of Barre. There we learn that TEXACO products lubricate a wide variety of the drilling, hoisting and transportation equipment.

The main pit of this quarry is 175 feet deep and

about a quarter of a mile long. Far down in this crevasse, under the towering, sheer walls of granite, men toil with drills and hammers, make a few tiny holes in the face of the mighty cliff and skillfully place their dynamite charges. The noise of the explosion reverberates through the bleak hills and thousands of tons of



*Electric Locomotive in the Anaconda Mine*



GALLOWAY

Holland Vehicular Tunnel (Left) and General View of Homestake Mining Company Works



stone break loose from their age-old resting place to crash into the gorge below.

More than 1600 tons of granite are removed from this quarry every day, most of which is used in monumental work and fine buildings. When the dynamite has done its work, eight large derricks grouped about the pit, each one capable of lifting one hundred tons, hoist the rock to the ground.

TEXACO Crater Compound is an important item here, for all gears and wire rope are kept in condition by it. The one hundred compressed air tools in daily service at the quarry, consisting of jack hammers and drills, are each lubricated with TEXACO Hydra Oil and TEXACO Ursa Oil. The compressed air is furnished at one hundred pounds pressure by a steam-driven compressor, lubricated with TEXACO 650 T Cylinder Oil, Alcaid Oil for air cylinders and Altair Oil for external parts.

Once the granite has been pried loose from its native hills, it is loaded into cars by steam shovels and sent on its way by locomotive. This rolling stock is also lubricated with TEXACO throughout.

Thousands of miles across the country from Vermont, and thousands of feet below the ground, are the great mines of the Anaconda Copper Company, at Butte, Montana, where again we find TEXACO at work lubricating compressed air drilling equipment, hoisting machinery, mine cars and motor generators in the underground operations.

Lubricating conditions in this mine are extremely strenuous, some of the units working at levels ranging from 900 to 4000 feet in depth and under temperatures, due to atmospheric pressure, of 125 degrees Fahrenheit. The locomotives working underground present an unusually difficult lubricating

problem because of the various acids dripping from the walls. Nevertheless, over a period of six months, one of these units traveled 14,000 miles on six and one quarter pounds of TEXACO Marfak No. 1 without additional lubrication.

A neighbor of the Anaconda mines, comparatively speaking, is the great Homestake Mining Company, of Lead, South Dakota, the largest gold mine in the United States. This mine has been in operation more than fifty years and enough ore is still "blocked out" to furnish 4350 tons daily for nine years longer.

In the Ellison Shaft of the Homestake mine, which is 2420 feet deep, all hoist cables are lubricated with TEXACO Crater Compound, and 2600 feet below the surface TEXACO Algol Oil lubricates the jack hammers which pry the precious ore loose from the walls.

While "strip coal" mining does not fall strictly into the classification of underground operations, yet it approaches it. This method of mining is used extensively throughout southeastern Kansas, where the giant shovels are lubricated with TEXACO exclusively.

In another portion of Colorado, TEXACO products had one of their most severe tests in the building of the Moffat Tunnel under James Peak, at one time the longest tunnel in the Western Hemisphere.\* This is merely another instance of the reliability of TEXACO products under the ground for no matter where subsurface work is being carried on, either in making new tunnels and mines or in working ones which are already in operation, TEXACO is on the job, twenty-four hours of the day and every day in the year.



GALLOWAY  
Ventilating Tower, Holland Tunnel

\*The Cascade Tunnel is now the longest.



The Texas Company's No. 1 Pump Station, Lee County, Kentucky

## A Tale of Old Kentucky

Country Near Pryse Works Still Reminiscent of Pioneer Days

By P. T. WILLIAMS

Superintendent, Pryse Works, Pryse, Kentucky

THE Kentucky home of The Texas Company's Refining Department is located in the foothills of the Cumberland Mountains, just north of the old Wilderness Trail, where the shades of Boone, of Kenton and the Long Hunters stalk through the Cumberland Gap to the center of the Blue Grass State. The early history of this section is replete with tales of their deeds and the country still bears that aspect of rugged grandeur which typifies the spirit of frontier days.

In the very heart of this district is The Texas Company's Pryse Works. It is located in Estill County on the banks of the Kentucky River, three miles from the Lee County Line. The crude supply for the works is produced in Madison, Estill, Lee, Owsley and Powell Counties and is sent by pipe line to Pryse.

In 1776, Boonesborough, on the Kentucky River, was founded by that prince of frontiersmen, Daniel Boone. It was the center of pioneer activities during the period of settlement of the state, and the site of countless bloody struggles with hostile Indian tribes. After the

settlement of this town, other trading stations were rapidly established.

Evidence of these early activities abounds. There are numerous Indian burial mounds in the section, one of which is on the Company's property at Pryse Works. The remains of the old fort at Boonesborough are still to be seen.

The present inhabitants, particularly in that section comprising Lee, Powell and Owsley Counties, are direct descendants of these early settlers and not only possess the same characteristics and temperament, but for the most part live in the same way. All are of direct Anglo-Saxon origin and a short

description of the manners and customs of their God-fearing and intrepid ancestors will in a measure show the mode of living of the present inhabitants.

All the household offices were performed by the women, while the men cultivated the soil, hunted game, built the houses, garrisoned the forts and freely exposed themselves to danger and privation in defense of the settlements. Practically all of the articles in common use were of domestic manufacture. Metal



"Drowning Creek," Madison County



"Billie's Fork"



Boonesborough

utensils, except guns and knives, were extremely rare. The furniture was usually home-made and either turned on crude lathes or coopered.

Contrary to popular belief, founded principally on motion pictures, the hospitality of these people was and is profuse and unstinted. Very few of them go skulking about in the underbrush with a rifle, looking for "revenooers," and every ravine or clump of trees does not conceal a "still."

In respect to dress, on the other hand, the movies are perhaps a little more accurate. The Kentucky hunting shirt was so peculiarly adapted to the habits of its wearer and is so linked with the popular conception of such men as Daniel Boone that it is famous throughout the world.

This article of apparel is still worn in the more remote settlements. It was usually made of linsey, although in some cases coarse linen or deerskin was used. A stout belt, drawn tightly around the waist and tied in the back not only kept the shirt together but also served to carry the tomahawk, scalping knife and other little tools. The bosom of the shirt was a handy place to keep food and also cloths for wiping rifle barrels. A pair of breeches or leggings covered the legs and moccasins of dressed deerskin encased the feet. A cap of native fur completed the picturesque costume of the early Kentucky hunter.



Snow Occasionally Visits Pryse Works

Forts and cabins alike were constructed of hewn logs, with block houses built at strategic defense angles. These were usually enclosed in stockades made of heavy timbers set end-up in the ground, and they were erected

without the aid of a single nail or iron spike.

With respect to customs, the marriage ceremony, which is still followed in a modified form, is worthy of considerable attention. There was no distinction of rank and very little of fortune and the inhabitants married young and stayed married. Once a wedding was announced, the interest of the entire community was aroused. On the morning of the wedding day, the groom and his attendants assembled at the house of his father and set out for the bride's home. It was desirable to reach this about noon, the usual time for celebrating the ceremony, which, in any event, must take place before dinner.

The appearance of the groom's entourage, since there was neither a store, tailor nor dress-maker within many miles, can be left largely to the reader's imagination. Suffice to say, the gentlemen of the party were in their hunter's garb, while the ladies wore linsey petticoats, coarse shoes and stockings and buckskin gloves. The hair of the men shone with vigorous applications of "b'ar's grease."

The promenade to the home of the bride in double file was often considerably hindered by the narrow



Ox-Drawn Logging Team Along a Highway in Powell County



*Native Home Atop Bald Rock Mountain (Left) and Only Negro Residents of Owsley County*

confines of the horse path, for there were no roads. These difficulties were often increased by the jocular neighbors who felled trees and tied grape vines across the line of march. Sometimes an ambushade of young bloods was formed by the wayside and an unexpected discharge of several guns would cover the wedding party with smoke. These mild little jokes usually resulted in sprained or broken wrists and ankles for some of the guests, but little was thought of such a minor casualty.

The marriage ceremony took place immediately upon the arrival of the groom and was followed by a coarse but toothsome feast of beef, pork, fowl and sometimes venison, roasted with plenty of vegetables. After dinner the dancing began and generally lasted until the following morning. The usual dances were three or four-handed reels, square sets and jigs.

The wedding having reached a successful conclusion, it was then in order to "settle" the couple. A spot for the home site was selected and a day shortly after the marriage appointed. When the

work of building the cabin was begun, all the neighbors assisted in this task.

The cabin once completed, the ceremony of house warming required another night of dancing. Should any person not perform his share of the labor in making the house, the entire community would refuse to help him when it came his turn to require like assistance.

This, then, is the section of the state which has given to the nation such characters as Daniel Boone, Simon Kenton, Cassius M. Clay, Kit Carson and James B. McCreary. The native employes of Pryse Works, while in many cases illiterate, are very intelligent and have a high sense of honor and hospitality. With the introduction of rural schools in this section, the educational activities are increasing rapidly and illiteracy is being appreciably decreased.

In addition to the above items of interest, the climate is temperate, the soil productive and the scenery unsurpassed. All parts of the state are now easy of access over a system of modern highways.



*Texas Company  
Producing Area  
Near Hell Creek*



*(Above) Auto Road  
(Left) and Tourist  
Camp, Breathitt Co.*

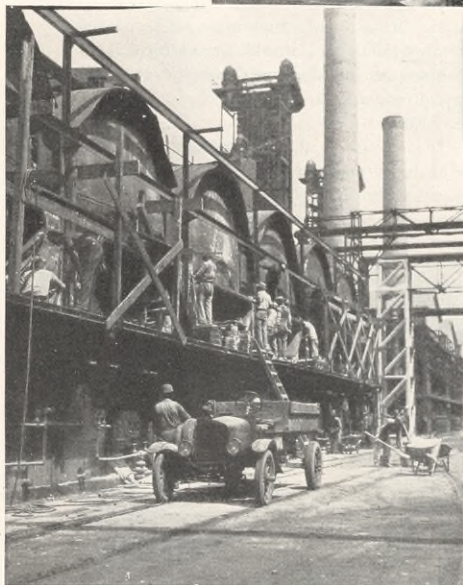
# SNAP-SHOOTING



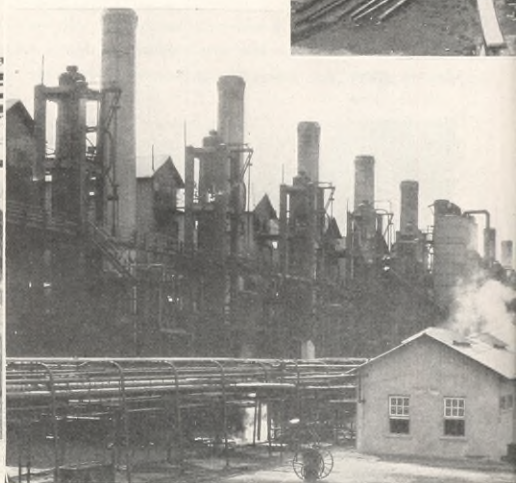
*Lunch Time at the  
Employees' Cafeteria  
West Side of Works*



*View of the General Offices,  
Boiler House and Laboratory*

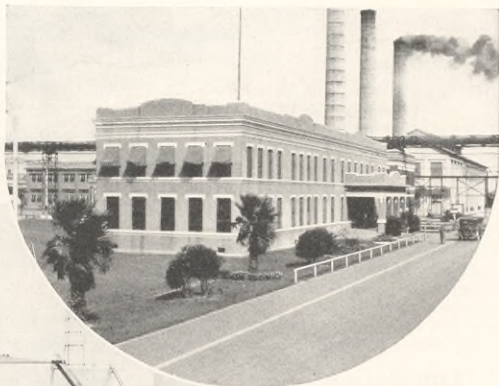


*Remodeling a Battery of Coke Stills  
on West Side of Port Arthur Works*

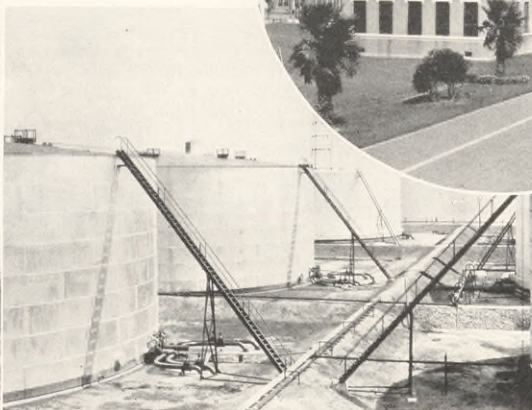


*(Left) Rear View of the Giant Ho  
(Above) Two of the New Badger  
(Right) Birthplaces of TEXACO—*

# PORT ARTHUR



*The Texas Company's  
General Offices at  
Port Arthur Works*



*Huge Gasoline Storage Tanks  
at the Port Arthur Terminal*



*Holmes-Manley Units, Showing Control House,  
Distillation Columns in Process of Construction and  
Walkway of Holmes-Manley Vertical Stills*



*Starting TEXACO Products on their  
Journey—The Gasoline Loading Rack*

## The TEXACO STAR

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17 Battery Place New York City

### EDITORIAL BOARD

R. B. Newcomb, Jr.  
Blanche N. Gallagher  
Phillip C. Humphrey



## Greetings

Christmas, with its scent of green things, its appeal to the philanthropic instinct and with its temporarily good little boys and girls, is just around the corner. A New Year, fraught with promise after the fashion of all New Years, is just beyond.

For a short but comforting interval, we ignore our trials and tribulations, anticipating the numerous joys of the future and forgetting momentarily the discomforts of the past.

THE TEXACO STAR extends to you the season's greetings.

## "Lubrication"

During the early development of the sales policies of The Texas Company, the need for organizing some medium of presenting accurate information regarding the storage, protection and application of lubricants was recognized. This observation eventually took form as the magazine "LUBRICATION," the first issue of which was published in 1911. Since its very inception, "LUBRICATION" has been regarded as an authority in its particular field.

It was a singular departure to introduce articles of this nature to the average individual or power plant operator, for sales efforts twenty years ago were usually directed toward sales alone; service and operating advice were secondary matters. The Texas Company recognized that improvements in machinery were beginning to emphasize the necessity of more careful selection and application of lubricants. Hence "LUBRICATION" was designed to assist users not only to select proper lubricants but to handle and apply them in their plants.

"LUBRICATION" as it is published today is essentially a technical publication and of several Company publications enjoys the most widespread distribution among the technically-minded public. It is extremely popular with plant operators and executives, many of whom regard it as a veritable text-book. It is even a standard source of reference in college and public libraries and in bound form is seen on the book-shelves of many plant executives who treasure it highly and refer to it frequently.

Since it is prepared by the Technical Division of the Company, "LUBRICATION" represents the consensus of the staff of experts who make up that division. The publication is abstracted regularly by the Engineering Index of the United Engineering So-

cities and practically every issue is printed in part or in its entirety in one or more of the technical trade papers.

## An Appointment

On December 1, Mr. C. K. Longaker, former Assistant Manager of the Refining Department, assumed the duties of Assistant to the President of The Texas Company.

Charles Kline Longaker was born in Pottstown, Pennsylvania. He entered business life as assistant bookkeeper for a wholesale dry goods company in Philadelphia and after a brief career in that line of endeavor, applied in 1906 for a position with The Texas Company. In August of that year he was told to report for the position of Cashier in the general offices of the Company, then located at Beaumont, Texas.

After a month in Beaumont, Mr. Longaker transferred to Port Neches as Chief Clerk under Mr. R. C. Holmes and when Mr. Holmes became Manager of the Refining Department a year later, Mr. Longaker went to Port Arthur 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. He held that position until 1920 when he was appointed Superintendent of Shipping. In 1923 he became Assistant Manager of the Refining Department and in March, 1928, came to New York in the same capacity.

Mr. Longaker's appointment is regarded with unanimous enthusiasm by every employee of the Company.

## Opportunity

The Texas Company is a little more than 25 years old. The present executives have reached their positions through their loyalty to and interest in the Company and their fellow-workers, and through their ability.

What will the next 25 years bring to the members of the TEXACO family? In the past 25 years of Company progress lies the answer.

The history of The Texas Corpora-

tion, successor to The Texas Company organized in 1902, which started business in a small three-room office in Beaumont, Texas, covers one of the interesting developments of the petroleum industry. Today there are more than 25,000 employees, with Company offices located in principal cities and parts of the world. Its cycle of operations is complete from source to sale—producing, refining, transporting and marketing. It markets, as does no other oil company, in every state of the Union through some 40,000 distributing outlets and maintains other sales facilities throughout the world.

The growth of the Corporation to its present status is a record to stimulate the earnest enthusiasm of every employe and stockholder. It is a record which promises the maximum of personal opportunity for every capable and loyal TEXACO employe.

## Trade Names

A certain brand of fruit, bearing a well-known trade name, backed by 22 years of advertising, has meant a profit of millions to its growers over the amount paid by the public for fruit which did not bear the trade name, according to the report of a national advertising agency.

The significance of this lies in the fact that any trade name, made familiar through advertising, stands for a certain type of product. Once a manufacturer has established in the mind of the public that his trade name stands for uniform quality, he dare not sell inferior products under that name.

This is as true of petroleum as of fruit. Products bearing the name of TEXACO predispose quality and uniformity. Advertising, while it sells tangible goods to the public, also sells the reputation of its manufacturer. Producers of unlabeled goods have no such obligation. The value of a trade name is not in the word itself but in the reputation which it stands for.

## The A.P.I. Meeting

As this edition of THE TEXACO STAR goes to press, the American Petroleum Institute is in session at Chicago. At the meeting of December 3, unit development of oil fields was approved in principle by the directors of the organization and a resolution was adopted which provides for the appointment of a committee to work with other organizations toward developing this method of oil production. The code of marking practices was discussed on December 4.



Catapulting a "Primary" Glider into the Air With Elastic Rope

## Motorless Aviation

Glider Flying Is Becoming An Increasingly Popular Sport

By FRANK M. HAWKS

Superintendent, Aviation Division

ONE PHASE of aviation which up to a few years ago received comparatively little attention in this country, although tremendously popular in Europe, is the manipulation of motorless airplanes, known as gliding. For efficient instruction of student aviators, for remarkable safety in flight and for sheer, downright sport, there is nothing which can compare to it.

Gliding presents three distinct features and advantages. First, it is fundamentally right; that is it teaches the elementary principles of flight correctly and develops a technique on the part of the student that is far superior to the instruction gained from the first few hours in motor-driven planes. Secondly, and of more far-reaching importance, it is safe. The proportion of accidents in gliders is almost negligible and injuries received have practically never been fatal. This is because the absence of the motor causes the glider to float gently to earth, even when out of control, whereas powered aircraft under these conditions, due to the weight of the motor in the nose, immediately go into a dive.

On his first flights in the glider, the student is pushed only a few feet into the air. This suffices to give him the feel and general conception of how a plane acts when in

flight and by a gradual stepping-up process he soon completes his tests. Moreover he has at the same time developed a firm basic knowledge of the subject.

Third, it is a great sport and an inexpensive one. A good glider costs only about five hundred dollars, as against the two or three thousand necessary to purchase a plane. A program providing for glider clubs throughout the United States, properly organized and effectively put over, would do much to popularize flying. The subject will be absorbed by those interested in flying as a sport, who will unconsciously become air-minded and well-informed on the subject of aeronautics. This will likewise contribute toward the sale of power-driven aircraft, because it is only natural that the next step after gliding is the airplane itself.



Off on a Motorless Trip to Cleveland

It might be interesting to readers of THE STAR for me to outline briefly the three steps in mastering the art of gliding: First, the student goes aloft in a primary machine, where he learns the function of the controls laterally, longitudinally and directionally. He is catapulted into the air from small hills and makes consecutive flights, each time to a greater altitude as his skill increases, until he is able to maintain flight for thirty seconds.

For the next step he trans-

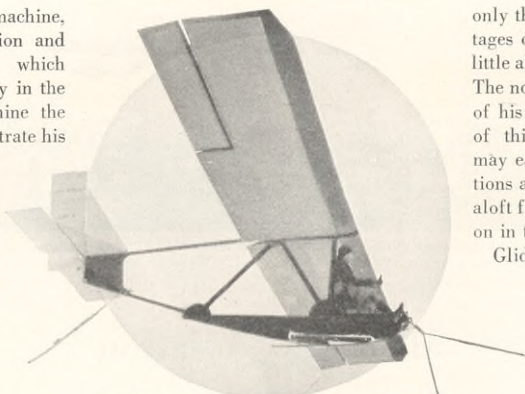
## The TEXACO STAR

fers to a secondary machine, of lighter construction and greater wingspread which permits a longer stay in the air. With this machine the student must demonstrate his ability to remain aloft at least one minute and a half and learns to make right and left hand turns. Having accomplished these, he is placed in a soaring machine, which is the last word in gliding. In this he is required to remain in the air for at least fifteen minutes.

When the glider pilot has reached the soaring stage, he has a very thorough knowledge of how to make good take-offs and landings and how to "bank" and turn. He understands the "stalling angle," that is, the angle at which a plane's controls will no longer function, and has automatically become familiar with the air currents which either help or hinder his remaining aloft.

Some remarkable records in soaring have been attained. Pilots have remained in the air for more than fourteen hours and have covered lineal distances exceeding one hundred miles. This indicates not only great skill on the part of the pilot but shows the contributions which have been made to aviation by the designer and manufacturer of the gliding and soaring machine.

Consideration of the above facts has brought out



*Amelia Earhart Glides at Orion, Michigan*

only the instructional advantages of gliding. I have said little about gliding as a sport. The novice receives the thrill of his life on his first flight of thirty seconds and one may easily realize his sensations at being able to remain aloft for fifteen minutes later on in the instruction.

Gliding has many ramifications and offers a great field for development. Personally I am decidedly convinced of its value and never fail to grasp the

opportunity to fly a glider whenever it is presented.

At the recent National Air Races held in Cleveland, I made several demonstration flights in gliders, in addition was fortunate in winning the motor pilots' gliding derby. The latter was a contest open only to motor plane pilots. The object was to remain aloft for the longest period of time and land on a given mark. The contestants were towed into the air by a five hundred-foot cable attached to an automobile. The automobile ran across the field at 25 miles an hour to a certain spot. It was up to the contestant to gain all the altitude he could in that run and then cut loose to make his free gliding flight. The winning time was one minute and 45 seconds in the air from an altitude of four hundred feet and the landing was made within thirteen paces of the mark.

It was a delightful contest, and my friendly opponents, Casey Jones, "Speed" Holman, Amelia Ear-



*Two Views of Captain Hawks' Glider Flight from Pontiac, Michigan, to Cleveland*

## The TEXACO STAR



*Soaring—A Process which Calls for Considerable Skill*

hart, Lieutenant Boyden and Reed Landis all expressed themselves as I have—that it is a great sport and affords tremendous possibilities to the youth of our country.

I was eager to continue making glider flights and through the courtesy of Bill Scripps, president of Gliders, Incorporated, of Orion, Michigan, I was given the opportunity of making a flight in a glider from Pontiac to Cleveland. This was accomplished by a five hundred-foot cable fastened to an airplane. The glider was towed the entire distance, 160 miles, in that manner.

The photographs accompanying this article give some idea of the beautiful scenery, both above and below, encountered on the flight. We arrived over Cleveland at about three thousand feet, where I cut loose from the tow rope and began the free glider flight, which lasted about twenty minutes.

While soaring, the glider attains a speed of only eight to ten miles an hour, and I greatly enjoyed watching the activity of the crowds below while flying about serenely in this engineless little machine. Moreover, keen interest in the glider was evidenced by the crowd, despite the counter-attraction of Colonel Lindbergh and the Navy High Hats, who were doing all sorts of wonderful stunts at the same time.

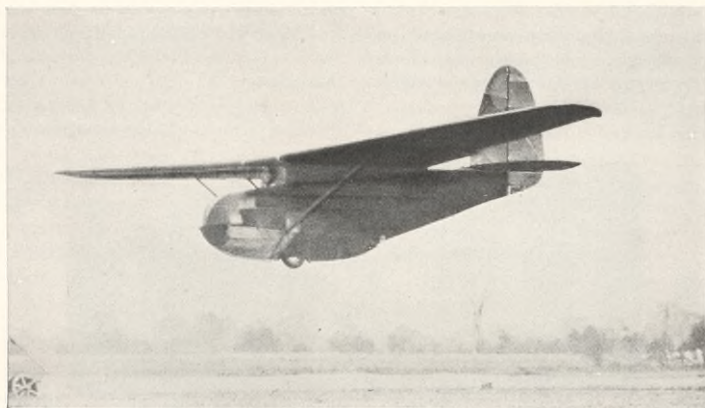
This would indicate that the public is looking forward to new and interesting phases of aviation and that the time-worn stunting program is doomed to pass.

It is particularly gratifying to note the interest developed in gliding by young boys and it is a pleasure to mingle with youngsters from twelve to fifteen years old who make very remarkable flights in their tiny machines. These boys are the aviators of the future. They are receiving splendid instruction and are achieving what I consider the best possible foundation work in their study of aeronautics.

The aviation industry has long been convinced of the theory that flying and air transportation to be made successful must be made popular. To be made popular, it must be placed before the public at reasonable cost and above all, must be made safe.

One means by which this can be accomplished is to stimulate interest in gliding. I would like to see this sport sweep the country like the bicycle craze of the nineties, for in many ways it can be compared to bicycling.

Once aviation is familiar to everyone it will be no more feared than traveling by automobile or by train and the day when the average citizen drives his own plane will be much nearer.



*Hawks Coming in for a Landing to Win the Famous Motor Pilots' Derby Cup*



*Exterior View of a Typical Southern Cotton Mill*

## Lubricating the Cotton Mill

A Brief Review of this Industry's History and Problems

By N. M. AYCOCK

Assistant Superintendent, Lubricating Sales

IT IS RECORDED that when Christopher Columbus landed in the West Indies about 437 years ago, he found growing there a peculiar looking plant known as cotton. Later, when the mainland of America was explored, it was learned that the Indians were, by a primitive system of carding, spinning and weaving, making the white fibers of this plant into cloth.

In 1609 the first colonists in what is now Virginia, attempted the cultivation of cotton, devoting their efforts to the production of longer fibers which, when woven into cloth, would give greater strength to the material. The experiments were successful and the cultivation of this plant spread rapidly throughout the south and southeastern sections of the United States, where climatic conditions were most favorable to its growth.

At that period, the only method available for manufacturing cloth from the fibers was the age-old hand process. Each family carded, spun and wove cloth on the quaint spinning wheels and looms which now decorate a large portion of the nation's antique shops.

The first machinery for making cotton cloth was

manufactured in England, and in 1787 cotton machines were smuggled into New England, where they were set up and operated. Traditional Yankee mechanical ingenuity led to the rapid growth of the industry in this section and for many years New England led the rest of the country in the number of mills operated. In 1831 there were eight hundred cotton factories in the United States. Within the past few years many of the mills have been moved from New England to the southeastern part of the country in order to be closer to the base of supplies.

At the present time there are in the southeastern area 18,406,379 spindles in operation. In New England 13,707,798 are working and in other sections there are 1,184,816, making a total of 33,298,993. There are moreover 345,717 cotton looms in the southeastern area, 340,898 in New England and 36,796 in other sections, a total of 723,411. In 1927 there were 2,433,700,519 pounds of cotton fabric wider than twelve inches manufactured in this country.

It is not generally known that cotton mills were the first factories to use petroleum in lubricating



*Types of Employee Houses Renting at Ten Dollars Monthly*

## The TEXACO STAR

their machinery. A book published in Philadelphia in 1865, entitled "Petroleum and Petroleum Oils," by J. A. Bone, contains the following interesting commentary: "In the year 1845 a Mr. Lewis Peterson, Sr., of Tarentum, Pa., brought to the Hope Cotton Factory, at Pittsburgh, in a bottle, a sample of a substance that came up with the salt water from his salt well, causing him much trouble. One of the owners of the cotton mill and manager of the spinning department, Mr. David Anderson, experimented with this substance and soon found that after putting it through a certain process it could be combined with sperm oil in such a manner that it formed a better lubricant for their finest spindles than the best sperm oil that could be obtained. This substance was what has since become known as petroleum.

The mixture of petroleum and sperm oil cost the Hope factory about 75 cents per gallon, while the sperm oil alone cost \$1.30 per gallon. The saving was so great in this one item of operating expense that a contract was drawn up between the Hope Cotton Factory and Mr. Peterson by which the latter was to supply two barrels of petroleum per week, and for ten years this mineral oil was used by this cotton factory unknown to anyone but the proprietors of the mill and Mr. Peterson."

From this early start, the use of "mineral oil," or petroleum, by the cotton mills has grown steadily until now more than six million gallons of lubricating oils are used annually in this field.

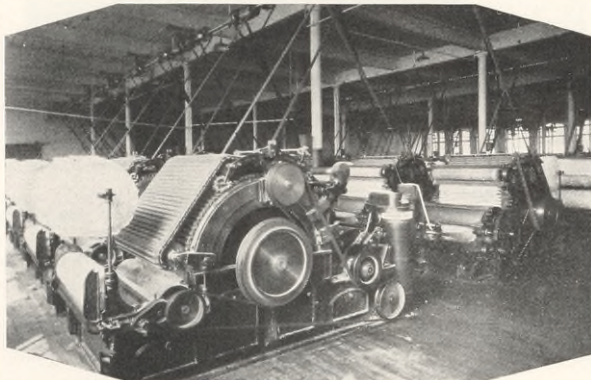
A typical cotton mill of the present day operates some 30,000 spindles and five hundred looms. The majority of the cotton mill companies provide homes for their employes, charging a rental of about ten dollars monthly. This nominal fee includes electricity and water.

In order to encourage employes in beautifying their homes, it is customary to award a prize each month to the worker who has the prettiest yard in the mill village. The mill company buys coal in car-load lots and sells it to the employes at cost. Some of the larger mills operate stores, where good cloth-

ing and general merchandise are sold on a cost basis. One company maintains a nine-hole golf course for its employes.

A great deal has been said about cotton mill workers being underpaid. Those who make this charge evidently do not give proper consideration to the provisions made by companies for the welfare and comfort of employes and the low cost of their living expenses.

Baled cotton is brought to the mills by railroad, motor truck and wagon. The bales are stored in a warehouse whence they are taken to the opening room and broken open. The cotton is sucked up by a fan and blown to what is called a "picker." Here the dirt and short fibers are removed and the cotton is rolled up in batting form. These rolls proceed to the card-



Carding Machine Which Combs the Cotton Fibers Parallel

ing machine where the fibers are combed out so that they lie parallel. The loosely-laid fibers are coiled into fiber cans and taken to the drawing frames, where the loose strands are drawn out lengthwise, again placed in fiber cans and taken to the "slubbers," where they are given the first "twist" in the formation of threads and wound on bobbins. The filled bobbins are placed on intermediate machines, where they are further doubled and twisted, wound on bobbins and placed on machines similar to the slubbers and intermediates but, due to the higher speed at which they are run, called "speeders." Here further twisting is carried on and the thread is finally taken to the spinning room.

The spindles on the spinning frames are run at a very high speed, two types of bobbins being used, the "warp bobbin" and the "shuttle bobbin," the warp thread, which runs lengthwise of the finished cloth, being the stronger.

Warp bobbins go to the warp room where they are placed on an automatic "spooler" which rewinds the thread on specially-shaped rolls. These are then placed on a large framework. Hundreds of thread rolls are on this machine, the number depending on the width and density of the cloth about to be manufactured. One thread from each roll is led through

## The TEXACO STAR

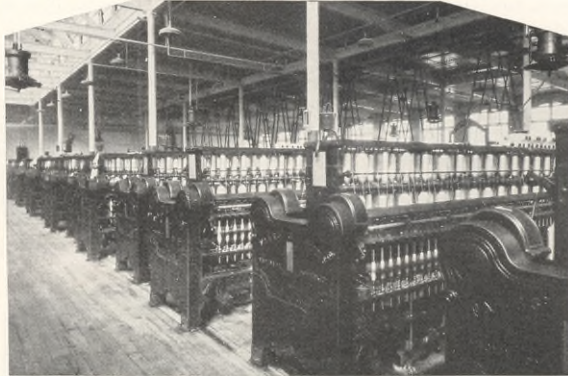
a steel guide and all are wound on a "warp roll," a large roll of threads which will go the length of the cloth.

The warp roll is fitted with two "harness frames," every other thread being passed through the eye in one harness and the alternate thread through the eye in the other harness. Warp roll and harnesses are then placed in position on the loom.

The shuttle operating mechanism is a most essential part of the loom, since it weaves the cross threads into the cloth. A "loom bobbin" holding these cross threads, is placed in the shuttle. When the loom is started, one harness frame rises while the other goes down, the shuttle shoots across between the warp threads, the harness frames reverse their positions and the shuttle goes back between the threads. Thus the cloth is woven.

Last year The Texas Company began development of a new spindle oil, with the object of reducing power consumed for driving spindles by means of more efficient lubrication. A new oil was finally developed and a southern cotton mill turned over one of its spinning frames to Company engineers.

The frame was fitted with a seven and one half horsepower motor and a graphic recording wattmeter was installed in order that power consumption might be accurately recorded. The frame had been in use by the mill for several years. The spindles were lubricated with the TEXACO Spindle Oil then in use and run for three weeks. Meter charts were calculated to establish the amount



*Final Spinning Frame—Spindles Run at Very High Speed*

of power consumed and the old lubricant was pumped out, the spinning frame thoroughly cleaned and the new TEXACO Spindle Oil applied to the spindles. Again the frame was run for three weeks. On completing the latter test, it was found that by use of the new

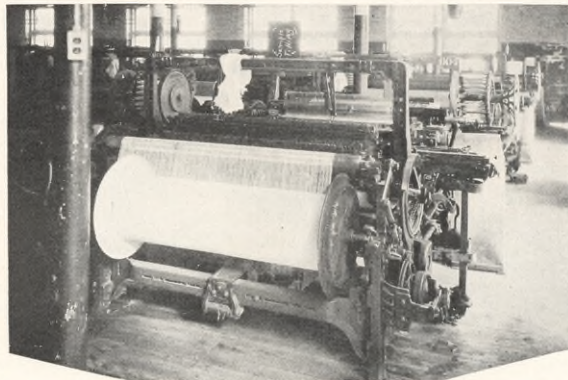
TEXACO Spindle Oil, the power required for operating the spinning frame had been reduced approximately fifteen per cent.

The new spindle oil was subsequently tested by twelve large mills and in each test a large saving of power was shown. It has been found that the higher the spindle speeds, the greater the power saving.

Many unusual problems were encountered in making these tests with the new TEXACO Spindle Oils. It was found that many mill operators prefer liquid or semi-liquid greases instead of oil for lubricating their machinery, with the exception of spindles and electric motors. The use of grease has been brought about in many cases by permitting excessive wear to exist in bearings and then depending on grease to compensate for the larger bearing clearances, that is, the space between the bearing and the shaft.

Although the Company started this experimentation a little more than a year ago, it was already

enjoying a large percentage of the cotton mill business and there is every expectation of increasing this percentage as mill owners come to see that the use of TEXACO will not only reduce their power consumption but actually lower the cost of maintaining their spinning frames, looms and other equipment.



*View Showing Warp Roll—if Thread Breaks Machine Stops*



Bakersfield, Which Became a City of 1200 in a Month

## Prosperity Comes to West Texas

Along the Petroleum Trail in the Boot and Spur Country

By SAM ASHBURN

IT'S a new country now out in West Texas, where the wind whines through the sagebrush and over the desolate hills, and where men are not only men, but six-footers as well. For the oil derricks have changed a country of alternating prosperity and distress into a land of the bulging pocketbook and sunny smile.

Prosperity came to these citizens of the Lone Star State after numerous young men had swept through in their big automobiles and had given high lease prices for land that a few years ago went begging at ten cents an acre. Few areas have been overlooked by the oil companies and men in white hats and fancy boots today talk as readily of royalties and leases as they do of steer yearlings and mutton lambs.

Ten years ago Texas had just passed through a record drought. The high prices paid for livestock during the war had done the rancher little good, for he had been able to raise only a small percentage of the young that were born in his flocks. Then came the price deflation and some of the men more heavily involved drove their herds to town, turned them over to their bankers and ended their own lives.

Later, the legislature passed an act permitting ranchmen who owed interest on school lands to forfeit these lands to the state. On such lands as these, which include the two million acres owned by the University of Texas, half a dozen oil fields have been opened up since May 23,



Sulphur Water Well

1923, when Santa Rita Number One University, the discovery well, became a producer.

Ollie Parker, who held a lease on the University lands for grazing purposes, moved to Pecos County, where three years later another field was to follow him. There was a rush of development around the Santa Rita well, but the field was soon defined and interest dropped until the World Field brought new life to the exploration and wealth to L. B. Powell.

In this first big play, ranchmen of the section were given good prices for their leases, and big cars began to surround fine new homes. The ranchman believes in spending: in good times he has three automobiles; in the drought he has his telephone taken out.

Explorations continued and when George B. McCamey drilled the discovery well in the McCamey Field, pipe lines to tide water were built. McCamey

built a home near Fort Worth and a boom oil town was named after him. Over the dark escarpment and around the mountain crept the field; along the old Comanche trail, where Indians in warpaint used to ride into Mexico to pillage the towns and down toward the Horsehead crossing, which never saw a settlement and yet has a graveyard.

Up to Crane County traveled the field, chased by the little operator and the big companies alike. Several miles away, in the deep sand, a lone wildcat was drilling, its crew living in a tent and seeing no one except an occasional scout. Then



A Burning "Gasser"

one morning it blew in with a haze of poison gas and the Crane County Fields were born.

E. A. Landreth, who in June, 1928, sold to The Texas Company, developed his famous "vacancy strip," four hundred feet wide and three and three-quarter miles long. This strip was originally leased from

the state by Cowden and Anderson. Landreth built a tank and drilled a well, then built another tank and another well, until he had 16 wells and 43 tanks. Since June, 1927, this strip has produced approximately seven million barrels, nearly four million of which have come from the Number Eleven well.

At night the field is one of the most brilliant spectacles in the West. A driller, with a little too much liquor in him was moved to remark, with the eloquence of an Indian chief: "I am a driller, but I have the soul of an artist. Damn it, that field of waving gas flares might well be part of the fire in hell, and the hissing it makes the despair of souls that are being consumed. But paint, man? I can hardly write my name."

To this country, then, new wealth came. Droughts were forgotten and fine homes were built at the end of telephone lines. A new town, the first in Crane County, was established, and grew quickly to a population of one thousand. New fences were built around the ranches, water wells were drilled and tanks erected. Even the rain seemed to fall more frequently. So Crane County now has its own government and hard-surfaced roads.

Across the Bankhead highway now moves the trail of West Texas petroleum, up into Winkler County, with its voting



Texas Company Office and Warehouse on the Landreth Strip

years had fought droughts and low prices became men of means over-night. County Judge Malley, S. S. Scarborough and T. G. Hendricks, who had made some success in the cattle business, saw adventurers from 48 states rush to the new towns built on their lands. Now there are good roads, good schools and a new courthouse in place of the little wooden shack that at times was unapproachable through the heavy sand.

A United States Geological Survey of the early eighties pronounced the Trans-Pecos region unfit for man and beast. On October 26, 1926, the sensational Yates Field was born. Ira Yates, the owner, sold \$180,000 worth of leases in the next 24 hours and since then has been defendant in thirty suits and has had one thousand applications to marry. He has bought ranches all over the state and is enjoying life at the ripe old age of seventy.

One of the biggest and eventually the most disappointing plays of Pecos County was when the Rowan and Tong Number One McDonald, about twenty miles northwest of the Yates Pool, blew in and for several days flowed wild at the rate of from twelve hundred to three thousand barrels daily. Other wells were immediately drilled in the neighborhood and brought up sulphur water. Then, after its sensational start, the first well stopped flowing and upon being



The Drunken Jackass of Wink, a Noted Texas Character

population of 23 and its utter absence of telephones, electric lights or radio. There a wildcat well came tearing out of the ground, "painting the sun, moon and stars with 29-gravity crude and prosperity came running. Men who had gone into Winkler County to build ranches and who for

## The TEXACO STAR

drilled deeper brought in some very smelly and decidedly useless sulphur water. The Rowan and Tong area is now considered a failure.

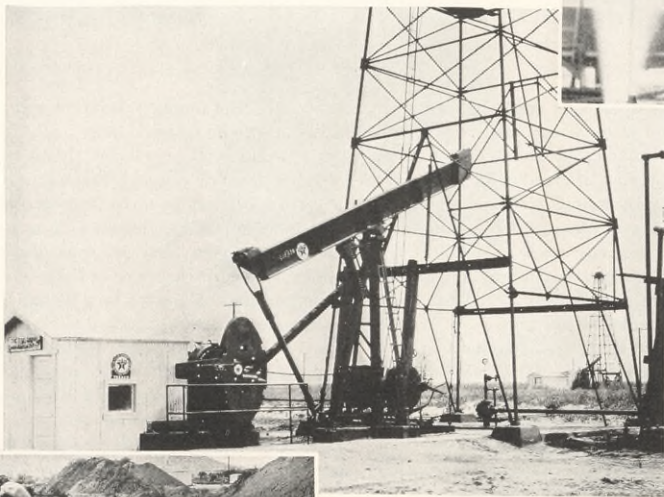
South of Girvin, a seventeen-year-old ranch town with a population of fifty, the road leads into a basin surrounded by rock-crowned mesas. There, on lands of the University of Texas, the Taylor-Link discovery was made on the 100,000 acre Baker and White ranch, where there are four thousand big steers and 25,000 head of sheep. Within a month the town of Bakersfield was built from nothing to a population of 1200. Most of the buildings had come from other boom towns, moved there on trucks.

This field is located in an area where the spectacular cactus grows, where roads are long and one can travel for fifty miles without seeing a house. Now company camps have risen, with hot water, gas, electric and gas stoves, the buildings covered

But the main production in West Texas is in the hands of the big companies and it is they who have built the pipe lines to tide water. Here The Texas Company's line runs through the ranches and over the hills for hundreds of miles.

Pecos County contains two other fields, the Pecos Valley and Taylor-Link. The former is located on land where irrigation was once vainly attempted. Hal Cockran, who drilled the first well in this area, got oil on his first try. Another outfit has counted 35 dry holes and is still going strong.

In Ward County, in the town of Grandfalls, lives Colonel Boogher, who came down



*Well in the  
8379 Foot  
Pay Strata*



*Our Cowden-  
Anderson  
State No. 11,  
Largest Well  
in Texas*



*A Trench of Oil in Pecos County*

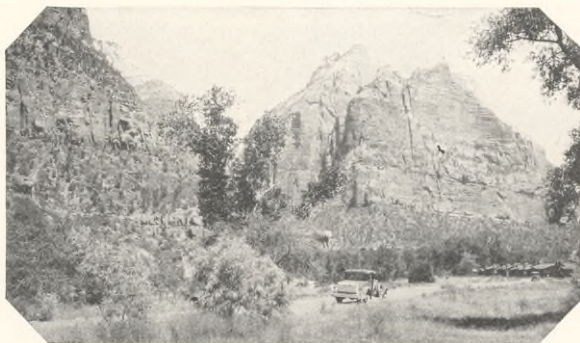
from St. Louis many years ago. Up to a short time ago he had little besides a fine library and a genteel air. Now he has an oil well.

Many ranches on which oil has never been found are leasing for large sums. In the first days of exploration in this territory, it was easy to assemble a drilling block of 25,000 acres, but some of the more recent discoveries have been drilled on 160-acre tracts.

About 150 scouts travel the West Texas territory daily, watching the development at various wells. The percentage of finds in the wildcats has been so heavy that not a hole in the ground is being overlooked.

with the typical gray paint that sulphur gas, the badge of West Texas, cannot blacken.

J. A. McDonald, who kept the hotel at Girvin for several years, came into independence and many who had bought leases in this area by mail found their purchases tremendously increased in value.



Approaching the Lodge in Zion National Park, Utah

## The Cruise of the Flying Cloud

A Trip to the Golden West By Way of Reo and TEXACO

By MARK HOWARD

**M**OST easterners have the ambition, secret or otherwise, to take an automobile trip to the Rocky Mountains or the Pacific Coast. Each year, in increasing numbers, they are loading up the family car with gas, oil and camping outfits and hitting the trail for the land made famous by a newspaper editor's advice to a young man.

Motorists raise two principal objections against a western trip: time and comfort. As a matter of fact both these drawbacks are practically extinct. Fine new roads are being constantly built and an able driver can easily average thirty miles an hour on them. Furthermore, on the main highways today there are hundreds of worth-while tourist camps which provide single-room cabins, outfitted with beds, furniture, stoves and fuel. Many of them supply the additional luxury of wash-basins, water pitchers and shaving mirrors.

Because of the experiences my wife and I enjoyed during a motor trip from New York City to Yellowstone National Park in 1928 and this year from New York to San Diego, California, we secured information which may be helpful to others who are planning such a journey for next summer.

Both trips were made in the same make car, a Reo Flying Cloud coupe, and TEXACO gasoline and motor oil were used throughout with marked success. In these days of dependable cars, tires, fuel and

service, we had implicit faith in our ability to make the trips on schedule time.

It was and is still our belief that it is unwise to try to "economize" through the purchase of cheap fuel and lubricants or to run the car until it feels "hard running" before changing oil or greasing up. We followed the Reo recommendations about lubricating and tire pressure and after a long, dusty stretch, we changed the oil, even though the car had run not more than two hundred miles since the last change. We did this whenever dust storms or narrow roads made the car inhale a large amount of grit, for we did not want the oil to act as a liquid abrasive and shorten the life of our motor.

Roads of today are such an improvement over those of ten years ago that one need have no fear of not being able to find his way easily. The poor roads of today were considered first-class ten years back and while we may always suffer with a few poor roads, they will become more scarce each year on the main routes of travel.

Motor trips should assist in enlightening people about our country, because an actual visit to a place of interest is a form of education that is hard to beat. Many people know so little about the wonders of the United States that they will be startled and enthused at the sights encountered on a long motor trip.

In 1928 we had a little more than three



A Reminder

## The TEXACO STAR



GALLOWAY

*Clouds in the Grand Canyon (Left) and "The Narrows" in Zion National Park*

weeks in which to cover some five thousand miles. Yellowstone National Park was our goal. We left a town "45 minutes from Broadway" on a Saturday morning in June and with daylight driving only we surprised ourselves by arriving in the Loop District of Chicago at 9 a. m. Monday. The confidence gained from that good start gave us the "mileage fever" of the transcontinentalist and two days later we halted in the twilight near the Colorado line, congratulating each other that that day we had traversed 537 miles. Neither tire nor motor trouble had developed and the only repairs necessary were to tighten the body bolts and adjust the carburetor.

After a few hours in Denver, we proceeded to Estes and Rocky Mountain National Parks, with their convenient trout fishing and exhilarating atmosphere. We decided to devote two days to this territory, even at the expense of a day or two in Yellowstone. However, we made the trip from near Kremmling, Colorado, to West Yellowstone, Montana,



*Fording a Stream*

by way of Salt Lake City, in three days. Mileages of several hundred a day had become easy to make and we were therefore able to spend eight days in the Yellowstone and Jackson Hole country.

The return trip through Montana, North Dakota, Minnesota and Wisconsin was of further interest because we had with us literature which contained historical information concerning the country through which we traveled. The journey totaled 5373 miles and was made with no motor trouble and only one tire puncture. The experience we gained was valuable in planning the trip this year to San Diego, so on another morning in June we started a 22-day trek to California.

We still firmly believed that perseverance and a steady gait produce large road mileages. Pursuing our daylight driving plan, we reached Colorado in four days. We camped where TEXACO S. A. E. 40 (TEXACO Golden Motor Oil, extra-heavy), is called "bus oil" and where life in some respects is more primitive and in others more cultured than thousands of easterners ever realize.

The trip over Raton Pass to Taos and Santa Fé, New Mexico, still haunts our memory, for that



*Young Indian Pottery Vendors in New Mexico*

was the start of a succession of scenes which will be memorable to us no matter what we may see hereafter. The silver sunrises, limitless skies, barren yet colorful wastes, petrified trees and the torn and twisted landscapes in pastel shades are so impressive that when the Grand Canyon is reached it is little wonder that one stands fearful and seemingly alone. We had received warnings about driving through the desert and we tried to heed them, moving steadily for 23 hours of one day and driving 865 miles to reach the incredibly blue Pacific at Ocean-side, California.

## The TEXACO STAR

The desert, as we first saw it, was charming, but other motorists told us that we were fortunate in getting through so easily.

After two nights and a day in and around San Diego, we proceeded leisurely to Los Angeles and thence to the world-renowned Hollywood. Those unfamiliar with this town may be astonished to learn that it is a good-sized city with skyscrapers, a thriving business district and splendid residential sections.

We had a feeling that our good fortune might desert us on the road south of Death Valley which leads through Las Vegas, Nevada, to St. George, Utah, and the assumption was correct. We traveled for more than twelve hours with a motor temperature of from 180 to two hundred degrees, drinking bottled soda to put moisture into our bodies in place of that which the scorching winds and sun were absorbing.

The TEXACO Golden Motor Oil with which the Reo-Harwood Company had supplied us in San Diego was supplemented with two quarts from TEXACO filling stations on the Mojave Desert and when the oil was changed at St. George it was found to be in good condition after a 641-mile run.

A second desert trip faced us and my advice to motorists is not to minimize its dangers. One sign in Nevada stated baldly that it was 38 miles to the next drinking water and in one settlement another sign informed us that the water was hauled 35 miles.



*Sections of Petrified Trees, Arizona*

The saving grace was the smoothness of the desert roads, making for fast driving.

Visits to Zion National Park in Utah and to the north rim of the Grand Canyon in Arizona made us think that we had reached the ultimate in scenic beauty, but we got the surprise of our trip when we abruptly came up to the rim of Bryce Canyon in Southern Utah and saw one of the most vivid,

*Under the Palms at The Coronado Hotel, San Diego, Cal.*



*(Below) the Aviary in Balboa Park at San Diego*



GALLOWAY

colorful large-scale nature scenes we have ever observed. But home was calling us, and we plodded through Salt Lake City once more and out through the Uintah Basin section to Denver and thence back to New York.

The mileage for the trip to San Diego and return was 7509, requiring about fifteen days of driving. We averaged 34 miles an hour. The navigator and historical information bureau was the "Mrs." of the household while the writer was pleased to be chauffeur and student of history and nature lore.



GALLOWAY

*Giant Monoliths, Like Sentinels, Guard Bryce Canyon, Utah*

# Peanut Oil—By An Age-Old Process

By R. L. DRAKE

General Superintendent,  
Case and Package Division, Port Arthur

JUST around the corner from our godown in Swatow (warehouses, in China, are called godowns), I espied four naked Chinese trying to get washed. My first reaction was amazement that anything so extraordinary was taking place in a locality where bathing seemed to be the exception to a long-forgotten rule.

Walking toward the spot where these gentlemen were performing their ablutions I noticed a one-story brick building with a gray-tiled roof. The building had once been painted white but obviously the painter had long since gone to join his ancestors. In the front of this unprepossessing structure was a low, narrow doorway which, curiosity still impelling me, I entered.

When my eyes became accustomed to the darkness, I descried a small room, stacked with coal and dingy, greasy five-gallon cans. Out of this room led another narrow door, opening into a large room so dark and smoky that, midday as it was, I could not at first make out what was going on. I could see sluggish fires burning beneath kettles and the forms of naked men going to and fro. A few sickly rays of sunlight streamed through small windows set high up in one blackened wall and filtered wanly down through the smoky air.

Peering more intently into the dark interior, I could make out large logs lying here and there about the room. Now and then the naked men would take great iron mauls and drive wedges into the sides of the logs. A weird rite of some pagan religion? Nothing but a peanut oil factory where, by a method centuries old, oil was being extracted from cooked peanuts.

Peanuts grown in the Northern provinces of China, are brought to Swatow, where after



*Logs of Lignum-Vitae are the Presses*

shelling, the meats are spread out over the outdoor pavements to dry. They are then placed under a crude apparatus which consists of a beam, balanced horizontally with an iron weight on one end, and when thoroughly crushed are next placed in the kettles and cooked until they are softened into a mash. This mash is worked from the kettles by hand into disks about twelve inches in diameter and three quarters of an inch thick. A woven cane ring surrounds the edge of the disk.

On closer examination, the logs which I had seen on the floor of this room, proved to be hollowed out, almost from end to end. A slot in the top of the log ran the length of the hollow space. Forty or fifty disks of the cooked peanut mash are placed side by side in the log and a "follower" of wood is placed behind the row of disks. Under the disks is a groove leading to a central outlet.

When the disks are in place, a wedge is entered behind the follower and is driven home. Another wedge is entered, and another. The oil begins to seep from the woven cane rings and drips into a container under the log. More wedges are placed and the process continues until all the oil has been recovered.

The logs are made of lignum-vitae, the hardest wood that grows. The oil is filled into empty five-gallon kerosene cans, (TEXACO cans in many cases) and shipped to Singapore, to be used for cooking purposes.



*Interior of the "Factory" at Swatow*

## The TEXACO STAR

### OUR WHO'S WHO



**WILLIAM R. GRUNDMANN**, who contributed the article on the history and development of the Pickwick Stages System for this issue of THE TEXACO STAR, is a native of New

York City. He graduated from the Sheffield Scientific School of Yale University with the degree of Mechanical Engineer and took a post-graduate course in automotive engineering.

Emerging from the cloistered confines of the New Haven institution, Mr. Grundmann began his business career with the Amplex Motor Company, of Mishawauka, Indiana, builders of fast cars, and transferred to the Packard Motor Company when the manufacture of Liberty aviation motors was at its height. Later he took a position with the Mercer Motors Company, makers of the justly famous Mercer racers and for four years built and raced these speedy vehicles.

In 1923 he became interested in motor bus operation and went to Los Angeles where he assisted in starting the first bus line between that city and Salt Lake City, Utah. Five years later he became an automotive engineer in The Texas Company's Denver District, applying his earlier knowledge of bus operation to the problems of fuel and lubrication. Early this year he was returned to Los Angeles as Automotive Engineer for the Pacific Coast Territory and on September 1, 1929, was transferred to the National Sales Department Headquarters at Los Angeles.

His hobbies, he says, "as we all have them," are "hunting, fishing, trapshooting, and last, but not least, main object in life is to see all motor buses operating with TEXACO products."

**F. C. KERNS**, author of "TEXACO Under the Ground," which appears in this issue of THE STAR, is Superintendent of Lubricating Sales, Northern Territory. Although young in years, he is a veteran in point of service, having entered the employ of the Company at Houston, Texas, January 20, 1911, the day the Lubricating Division started to function. In 1922 he was transferred to Denver as Lubricating Assistant, Western Territory Sales, and in 1925 came to New York to assume his present post. He says that his chief diversions are "selling more lubricating oils, sales campaigns, stock turnovers, sales plans



for next year, developing new TEXACO products and doing old things in new ways." Above all he enjoys "outdoor life, a good story and the fellowship of friends."



**N. M. AYCOCK**, who prepared the article on cotton mills which appears in this issue, came to The Texas Company in February, 1923, as a staff engineer in the Northern Sales Territory. Later he went to Chicago where for two years he specialized in engineering problems on electric railways. In December, 1925, he became lubricating engineer for the Chicago District and a few months later was transferred to Youngstown, Ohio. In September, 1927, he came to the territorial office at New York and in July, 1928, was made Assistant Superintendent of Lubricating Sales, Northern Territory.

**P. T. WILLIAMS**, whose entertaining history of the Pryse Works site appears in this issue of THE STAR, is Superintendent of that refinery. He submits the following sketch of his career:

"P. T. Williams was born in Green County, Kentucky, on Green River, May, 1891. The Green River section was the center of the whiskey distilling activities in Kentucky at that time and as a boy Mr. Williams was conversant with what was then the only industry practicing fractional distillation successfully and probably one of the first industries to develop bubble tower distillation as practiced in an improved form by the petroleum industry today.

"Between 1891 and 1911 he managed to enter and part company with six respectable institutions of learning. The major portion of this period was given over to freight car expeditions into Oklahoma and to the West Coast, during which time he became acquainted with and was employed for a short time by The Texas Pipe Line Company in Oklahoma. In 1911 he went to Port Arthur where he formed a connection with the Company's Refining Department.

"His services with the Company have been continuous except for service from May, 1916, to April, 1917, with the Texas National Guard on the Mexican Border and from April, 1917, to May, 1919, in the World War, followed by a short period as Chief of



### PICKWICK STAGES

(Continued from page 8)

compartment being built directly over the motor. From tapered prow to rear observation deck it is as graceful as a yacht.

A high-roofed center aisle runs through the center of the car, on either side of which are the thirteen compartments of the upper and lower decks. By an ingenious arrangement the upper and lower compartments are made to interlock, so that the height of the car is reduced to only a few inches more than the ordinary single-deck stage. The center aisle is located half way between the floors of the upper and lower decks.

In the spring of this year the Pickwick Lines entered partnership with the Southern Pacific Railroad, the Greyhound Lines and the Yellowway System, concluding a merger of nationwide importance and consolidating a network of bus lines which touch the four national boundaries.

The part TEXACO has played in this gigantic transportation system has established a record of which we may well feel proud. On May 20, 1928, the writer was detailed by the Denver District to work out lubrication schedules for the Pickwick Stages System on the Salt Lake to Denver Division. The first series of tests lasted six weeks. In July The Texas Company was awarded the gasoline and oil business one hundred per cent for the district.

In September a survey was started on the Denver-Omaha and Omaha-Kansas City Divisions. In October the contract for these two divisions was secured one hundred per cent.

Tests on other divisions were held and the first of this year found The Texas Company lubricating 2669 miles of Pickwick lines. On June 6 a contract was signed for all the operations of Pickwick-Greyhound lines one hundred per cent. Approximate annual requirements were 3,000,000 gallons of gasoline, 350,000 gallons of oil and 350,000 pounds of grease.

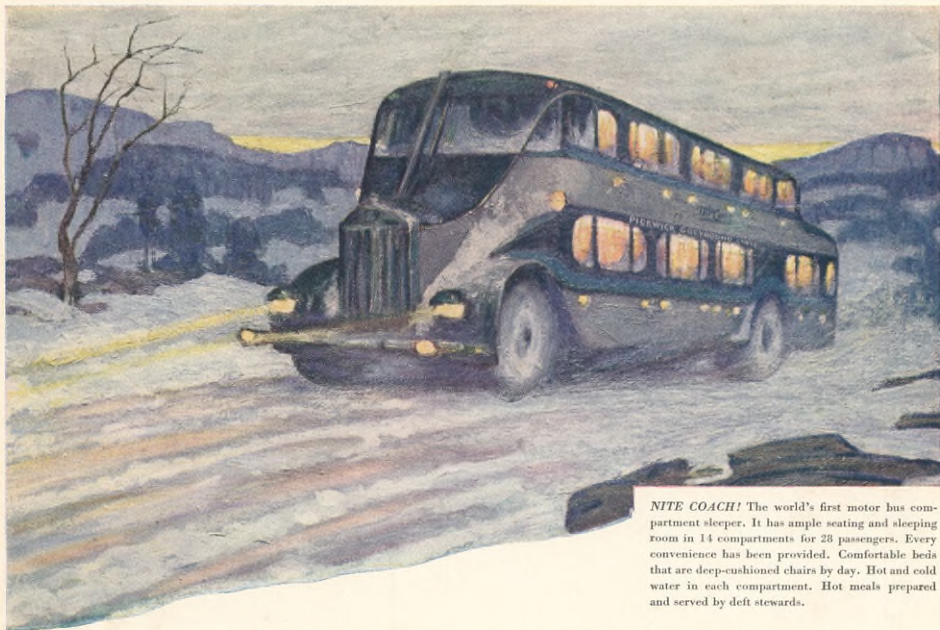
Relations between officials of this great coach system and The Texas Company are most cordial and it is with a great deal of pleasure that we welcome them as members of the large TEXACO family.

Police in the city of Port Arthur, Texas. Discharged with the rank of Captain at the close of the war, he continued his connection with the Texas National Guard and now holds the rank of Major in the 11th Engineers of that organization. His hobbies are the National Defense Act and outdoor sports."



**T**EXACO SERVICE STATION ON THE BOSTON POST ROAD IN WESTCHES-  
TER COUNTY, ERECTED TO HAR-  
MONIZE WITH THE ARCHITECTURE  
IN THAT EXCLUSIVE COMMUTING AREA

●



**NITE COACH!** The world's first motor bus compartment sleeper. It has ample seating and sleeping room in 14 compartments for 23 passengers. Every convenience has been provided. Comfortable beds that are deep-cushioned chairs by day. Hot and cold water in each compartment. Hot meals prepared and served by deft stewards.

## "COVERED WAGONS" of 1930 *Fueled and Lubricated with* **TEXACO**

Twenty years ago the first primitive motor bus chugged up Fifth Avenue. Today there are in the United States alone close to 100,000 swift buses owned and operated by modern unified bus lines. Outstanding in this new arm of transportation are the Pickwick-Greyhound Systems.

Along 30,000 miles of America's beautiful highways, Pickwick-Greyhound Coaches offer through service from the Atlantic to the Pacific, from Canada to Mexico. These systems are one of the world's largest users of gasoline — consuming approximately 20,000,000 gallons a year. The choice of Texaco by the world's largest and most progressive

motorized transportation system, is based on proven economies and the fact that Texaco Products can be secured in each of our 48 States.

The gasoline that gives Pickwick-Greyhound buses low mileage costs, will save you money in your car. The lubricants that protect the huge Pickwick engines will give longer life to any car old or new! Wherever you are, make the Texaco Red Star with the Green T your "stop sign" for both gasoline and motor oil.



### THE TEXAS COMPANY

Refiners of a complete line of Texaco Petroleum Products, including Industrial Lubricants, Railroad and Marine Lubricants, Farm Lubricants, Road Asphalts and Asphalt Roofing.

# TEXACO

**GASOLINE - MOTOR OIL**