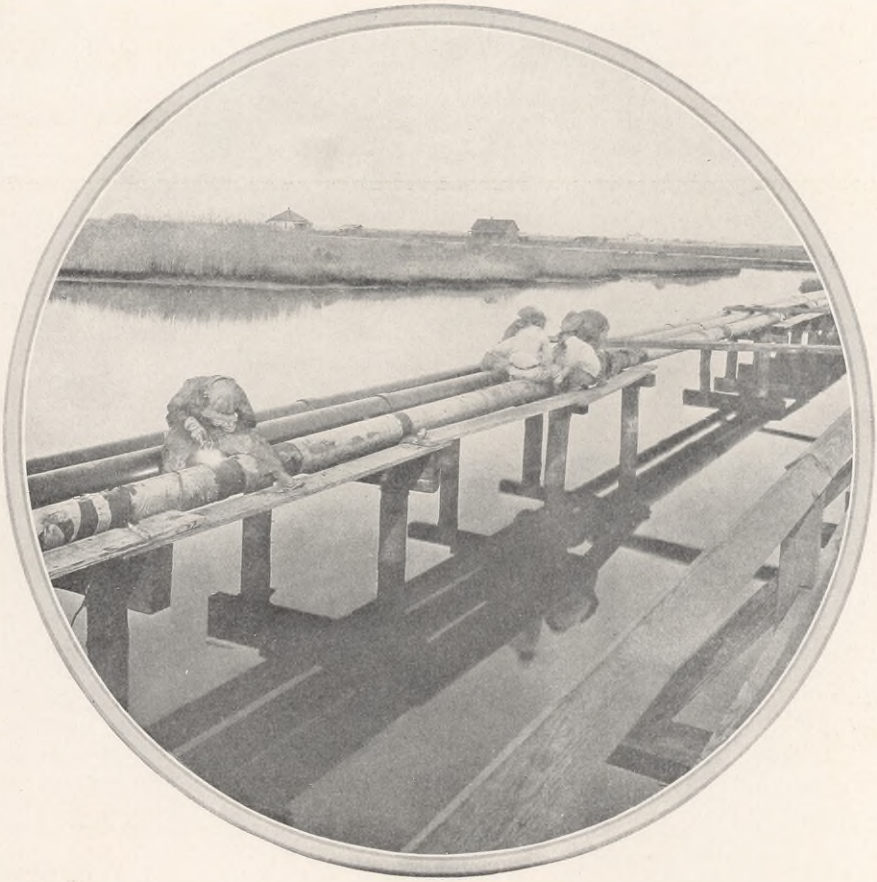
The TEXACO STAR

SEPTEMBER - 1929



WELDING SECTIONS OF NEW TEN-INCH PIPE LINE ACROSS ALLIGATOR BAYOU, OUTSIDE NORTH GATE AT PORT ARTHUR WORKS OF THE TEXAS COMPANY

This old relic is located in the little town of Langtry, Texas, which was the abode of Judge Roy Bean---a "Saloon," and also a "Hall of Justice," he being the only Peace Officer west of the Pecos river, at the time this photo was made, about 1900, and shows Judge Bean holding court, trying a horse-thief. Left of the picture is the stolen horse. On horses, guarded by officers are two other horse thieves, supposed partners of the one on trial.

Our New West Texas Pipe Line

Site of Development Has Glamorous History

A. S. BAILEY
Vice President, The Texas Pipe Line Company

TO Mitchell County, Texas, in the Westbrook Field, goes the honor of having the discovery well within the area now generally known as the Permian Basin. This well, a wildcat, was drilled in 1920. Drilling in other West Texas counties has increased so rapidly, exceeding in many instances the most optimistic estimates, that it is interesting to review briefly the geologic aspects of this area, usually referred to as the Permian Basin.

West Texas, so called, lies in a great geo-syncline. During the Permian age of geologic history, occurring some millions of years ago, and itself extending over some millions of other years, there existed over a great area a shallow epi-continental sea or arm of the ocean, which later was cut off from the main body of water and became an inland sea or salt lake. By evaporation this salt lake gradually disappeared and the dissolved salts were precipitated as sediments varying in thickness from a few feet near the shore to several thousand feet in the deepest part of the basin. These sediments make up the so-called Permian stratigraphy of West Texas and are found from bottom to top, or from older to younger, in order of their precipitation to be lime-

Unloading Six-Inch Pipe at Hunter, Texas

Swabbing Out Joints Before Lining up Sections

Pipe-Cleaning Crew on Section Four

Directing Line-up of Pipe Between Sonora and Knoxville

stone, anhydrite, gypsum, salt and potash.

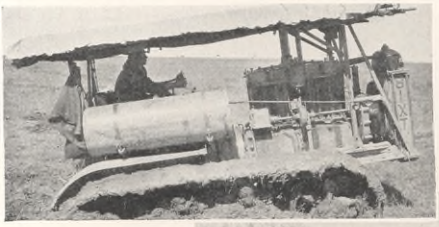
The whole region subsequently has passed through several geologic cycles during which it has been uplifted, folded, eroded, again submerged beneath the sea, again uplifted and eroded during the succeeding Jurassic, Triassic, Cretaceous, and Tertiary ages, until at the present time very little of the Permian sediments are exposed to the surface. They are, however, encountered during drilling operations and present day knowledge is based upon data so obtained.

Although the original Permian sea extended across all of West Texas, Oklahoma, and Kansas, as well as parts of New Mexico, Colorado, Wyoming and Nebraska, we are concerned here with but the south end of the Texas and New Mexico portions in which all of the phenomenal oil development has taken place. It may be well to comment briefly upon the extent of this area which, in general, embraces a large number of counties. The deepest part of the old sea, or what is now the lowest part of the basin, covered most of Midland, Martin, Upton, and Dawson counties in Texas.

In this area enormous deposits of salt are found, and in these counties prospective potash deposits are indicated rather than oil. These counties are rimmed in all directions for from 75 to 100 miles by a great circle of oil productive or prospective territory, the entire south end of the basin being 225 to 250 miles in an east and west direction, and 175 to 200 miles in a north and

(Center) Making Tie-in on Bell Hole Weld

(Left) Southeast Texas River Bottom Land



Heavy Rains Leave a Soggy Right-of-Way

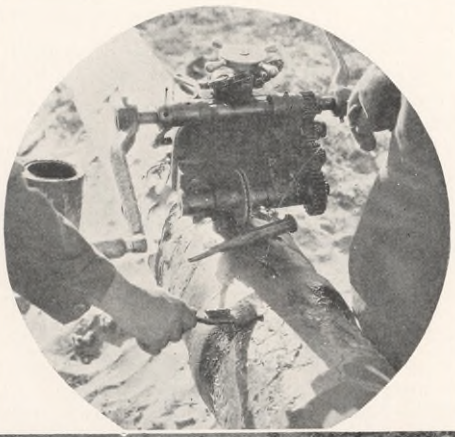
View of Typical Finished Weld

Ditching Machine Cutting Furrow Between Houston and La Grange

south direction.

For comparative purposes this area of some 50,000 square miles is approximately as large as any one of the states of Arkansas, Indiana or Pennsylvania, while the Permian Basin as a whole is perhaps larger in area than Arkansas, Ohio and Indiana combined. Production has already been developed or is expected upon all sides of the basin. The productive area swings around the central or basin counties like a great horseshoe, with the heel to the north. Already the undeveloped area is but some fifty miles from east to west and no one can say how far down in the basin production may or may not be found. There are now some 2600 producing oil wells, the combined production from which, during the year 1928, equalled the combined production of Pennsylvania, New York, Ohio, Kentucky, Colorado, Tennessee, Indiana, Illinois, Kansas, Wyoming (Tea Pot Dome included), Montana, New Mexico, and Louisiana. Pennsylvania and New York, during the year of greatest production, yielded 33,000,000 barrels, or one-fourth of the production of the Permian Basin for 1928. Up to June 30, 1929 inclusive, there has been produced from seven major pools developed in the Permian Basin or West Texas area, 264,618,000 barrels of crude oil, and the estimated ultimate recovery from areas now developed is variously estimated from one billion barrels upwards.

Past records indicate a bright economic future



(Center) Investigating Character of the Metal

(Left) Scaling and Cleaning First Bead Weld

for a region already highly colorful in its topography, climate and written history. Life in such a place presents many contrasts to the conventional, and in it we find a flora and fauna peculiarly adapted to its rigors. The early Spanish explorers, in their searches for the famed "Seven Cities of Cibolo", found little of interest, and only succeeded in leaving many of their bones scattered throughout its sandy wastes.

The first authentic record is from a certain Cabeza de Vaca who traversed it and spent many years among the Indian inhabitants prior to 1536. He crossed the Pecos River near its confluence with Live Oak Creek, and near the present town of Sheffield. Cabeza's story of this sixteenth century camping tour is without parallel among the early tales, his descriptions being complete enough to enable one to identify several present day landmarks. The Pecos River, the Great Springs (now Fort Stockton), the salt flats, as well as the local aborigines, were described by him.

A little later Antonio de Espejo laid the foundation for much trouble by losing a few horses from an expedition which he headed in 1582. The progeny of these animals were the first horses with which the Indian population had ever come in contact, and they produced a most profound change in the habits of these people. The early tribes gave no evidence of the later traits developed by the fierce warriors of the Comanche, Apache, and other tribes. The horse, providing the necessary locomotion, was responsible.

Upon his advent the Spaniard found a few poor Indian tribes who became the forefathers of the present day peon Mexicans along the border. They were known by various names—Jumanos, Tobosos, Julemes, Salineros, Mescaleros and Tajes, from a derivation of which last name the word Texas is said to have come. The two most powerful of these tribes, Jumanos and Mescaleros, have been identified as the Comanches and Mescalero Apaches of later history. Once on horseback, these Indians left a record never equalled for pure devilish bloodthirstiness, and for several hundred years they played havoc as far south as the interior of the border states of Mexico. Eventually and at fearful cost, the American army, Texas rangers, buffalo hunters and cowboys exterminated the buffalo, upon which he lived, and finally the Indian himself. Frontier history is nowhere more interesting than in its chronicles of the doings of this bloodthirsty crew.

The many hundreds of years of desultory warfare, carried on first between the Mexican and Indian, and later between the American settlers and the Indian as well as the Mexican, produced a hardy race of men, the descendants of whom are still in evidence in the trans-Pecos country. It is to be hoped that present day activity will not efface the memory and glamor of Cabeza de Vaca and others of the *conquistadores*, "Judge" Roy Bean, exponent of the "law west of the Pecos"; Aslarte and Espejo, last famous Mescalero Apache chiefs; of Bajo el Sol, a Comanche whose name was graven deep in the hearts of early frontiersmen, and of that long line of hardy settlers who neither gave nor asked for quarter.

Tractors Lining up Long Sections

Such is the enchanting background of the region into which The Texas Company, in 1928, decided to lay one of the largest single oil pipe line projects ever undertaken. This line as originally planned, together with subsequent extensions, begins at Port Arthur, Texas, and ends at our Lynch well in Lea County, southeastern New Mexico. The total length of the pipe lines, with their location and size, is distributed as follows: The ten-inch line from Port Arthur to Humble extends over a distance of 78.32 miles; the twelve-inch from Humble to Crane over 480.49 miles; the ten-inch from Crane to Jal, New Mexico, 75.95 miles; the six-inch from Jal to Lynch, 45 miles, and the six-inch branch line from San Marcos to San Antonio 44.69, making a total of 724.45 miles.

Survey was started at Houston on June 20, 1928, carried westward toward Monahans, and completed on August 15. During the same time parties were also working between Port Arthur and Humble, so that all of the main line surveys were completed by that date. Various engineering firms were engaged, who placed ten parties in the field on this work with instructions to proceed with all possible haste.

The ten-inch line from Port Arthur does not fol-

low the route of the older lines by way of Sour Lake, but, to save distance, strikes directly westward and effects junction with the old lines near Dayton Station on the Trinity River and follows the established route into Humble. The main twelve-inch line bears slightly north of west in traversing the many miles to the Pecos River, where it turns sharply northwest and after passing through the great pools at Yates (Iraan), McCamey, Crane and Wink, finally

Lowering Pipe into Ditch with Tractor

crosses the state line into New Mexico and terminates at the Lynch well in the sandy wastes of Southern Lea County.

From the bayous of the Gulf Coast with their hyacinth-filled waters, the line finds its way through the ever-changing Texas scenery. Beginning almost at sea-level, it mounts to an elevation of about 2400 feet in crossing the Edwards plateau west of San Marcos, and then finds itself a half mile high in the hills bordering the Pecos River, from which it ascends by easy stages to 3000 feet at Jal.

In finding the most acceptable route from the standpoint of economy and construction difficulties, many weary miles and much time was saved the surveying parties by having that portion between San Marcos and Iraan aerially photographed. In this way a total of 1447 square miles was surveyed from the air and Mosaic maps made to the scale of one inch to 1000 feet. As soon as a section was photographed, the films were rushed to the laboratory where they were developed, prints made and mounted upon heavy muslin, resulting in a map showing complete topographical detail of from fifteen to thirty miles of line.

In the engineering office these maps were studied in relief with the aid of the stereoscope to locate approximately the best route. A cord is then drawn along the general course selected, after which it is carefully studied in detail and the cord pinned down at all turns in the alignment finally chosen. The line is then inked in and given to the party in the field. By this system they were able to make locations more rapidly and accurately than is otherwise possible. Station sites as determined by the hydraulic grade line likewise were examined carefully under the stereoscope before ever going into the field.

With the line finally located and staked, there comes into action a long-suffering, patient individual —the right-of-way agent. It is he who hears the grievances of every landlord and tenant. Crops being bad, or Willie having the hives simply represents another "claim" to him. The successful negotiation of grants for rights-of-way and claims for damages depend solely upon his ability to get something which the majority of land owners never wish to give at any price. His personality, if it is a pleasant one, is an asset beyond compare, and his perseverance and patience are his indispensable tools in trade. In acquiring this right-of-way, nearly 750 individual easements were secured, the longest being in Sutton County where the line crosses 75,306 feet of one owner's property, while the shortest is ten feet on an ownership near Houston.

We had hoped to spare ourselves the embarrassment incident to disclosing the portrait of a pipeliner, but since a number of readers will doubtless be interested, it becomes a duty and the writer has only to cross his fingers and trust to his subjects' unfailing sense of humor to forget and forgive this unfaithfulness.

Since it is a fact that each job produces and rears its own particular type of workman, we have only to glance at the job to get a fairly accurate picture of the type of man habitually found in the pipe line camps. The first requisite is a constitution impervious to heat, cold, rain, mud; lack of sleep, baths, and barber shops; cold meals and hot ones. The second demand is that, having satisfied the first with equanimity, he must be able to work under any and all of these conditions and like it.

But probably the most important requisite of the successful pipe-liner is an infallible sense of humor. To the hardened worker a smile comes easy, for the annoyances of his period of apprenticeship become familiar ones and familiarity, in pipe line camps, breeds a hearty and amiable contempt.

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The concluding installment of Mr. Bailey's article will appear in the October issue of The STAR.

The TEXACO STAR

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Supervisor of Company Publications

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TEXACO ASPHALT

WHEN one alludes to the international character of The Texas Company and of Texaco products, it is natural to think immediately of our gasoline and motor oils. Yet one of the important complementary activities of the organization is being carried on by our Asphalt Sales Department, a branch which, on the eve of the twentieth anniversary of its establishment, has reached out to every corner of the nation and impressed upon the national mind the serviceability and superiority of Texaco asphaltic products. Practically every city of 25,000 population in the United States today has its one or more Texaco-paved thoroughfares.

Through the medium of our Export Department, Texaco asphaltic products are represented on the important highways of foreign countries.

A résumé of the activities of our aggressive Asphalt Sales Department, which we have attempted to present in the current issue, reveals the tremendous scope and established popularity of Texaco asphaltic products. They are to be found on principal commercial arteries, on our interurban highways, in civic developments of all kinds, at flying fields, and on private estates.

The Asphalt Sales Department enters upon its third decade with a record of distinct achievement behind it.

★

FLYING FEMMES

FOR some moons women have been doing men's work in various fields of endeavor, and doing it well. During this interesting interval, the hue and cry of equality has frequently been raised. The fact is that women have had equality for some time without knowing it.

The accomplishments of women in aviation, as entertainingly recounted by "Casey" Jones in the current Star, is a case in point. It is noteworthy that many of the distinct achievements in the field of aeronautics have been recorded by women; it is laudable that the majority of our women flyers are quite as fully endowed with courage as the men and that they rarely miss an opportunity to prove it.

With official recognition by the Fédération Aéronautique Internationale of women's records in aviation, we start a new chapter. The next few years should prove a boon to women and to flying alike.

FOR MUTUAL BENEFIT

FEW of the so-called mutual benefit associations which grace modern industry fulfill their somewhat ambitious mission. Shortly after their organization, they become rather negative social units for the pleasure of a particular few. None do harm, but few accomplish any good.

An impressive exception is our own Texaco Association of New York, a social enterprise that achieved its initial goal and set out thereafter to be of some definite service to its members. It overcame the obstacles always associated with the early days of such organizations, and today, as a social and business connecting link between employes of the Company, it is something tangibly worth while.

CONTENTS

SEPTEMBER, 1929
VOL. XVI No. 7

Readers of The Star are reminded that its offices have been removed from Houston, and that all correspondence pertaining to this publication should be addressed to 17 Battery Place, New York City.

A DECISION

THE Supreme Court of the State of Texas recently handed down an important decision in W. T. Waggoner Estate v. Sigler Oil Company. This was a suit instituted by the lessor to cancel or forfeit an oil lease for alleged failure by the lessee, after the discovery of oil, to develop diligently the leased premises. The plaintiff maintained that the failure of the lessee to discharge its implied obligation in that respect would automatically terminate the lease, or at least make it subject to termination at the election of the lessor. The court treated the failure to develop to a reasonable extent, after discovery, as a breach of implied agreement, subjecting the lessee only to liability for royalties that may have accrued had the property been consistently developed.

The opinion of the court accomplishes a three-fold purpose: it reduces the risk attendant upon a failure by a lessee to comply with the unauthorized demands of the lessor, clarifies the status of lessor and lessee in relation to their respective rights and obligations under the lease, and removes one of the greatest obstacles the oil industry has had to contend with in its attempts to curtail development during periods of overproduction.

The precedent established by the decision obviously is of major importance to the oil conservation movement.

★

OUR FRONT COVER

THE Ashokan Reservoir, encircling which is a thirty-mile highway of Texaco Asphaltic Concrete, is one of the largest reserve storage basins in the United States. Located in the valley of Esopus Creek, in Ulster County, New York, it extends ten miles from its southern end directly north to the base of the Catskill Mountains, the source of New York City's water supply.

Construction of the reservoir was begun in 1907 and completed seven years later. The work required the razing of eleven villages on the site of the reservoir, the removal of forty cemeteries and the re-routing of thirteen miles of railroad. Nearly seventy miles of highway were abandoned when construction work was commenced.

Our front cover this month shows a section of the Texaco road along the reservoir, considered by motorists one of the most picturesque highways in the Empire state.

The Texaco-Paved Absecon Boulevard at Atlantic City

This Texaco Product—Asphalt

Behind the Scenes With a Company Department

J. J. SMITH

ASK the average motorist to recount his touring experiences and, in almost every instance, the highlights of his narrative will undoubtedly emphasize the performance of his machine and the condition of the roads. We are not concerned at this writing with the respective merits of automobiles, but we have a considerable interest in the roads they traverse. Whether or not the motorist is aware of it, part of his tour has been accomplished over smooth stretches of TEXACO paved roadways.

TEXACO asphaltic products are used for many purposes, ranging from the construction of a street pavement subjected to an hourly traffic of approximately one thousand vehicles, to the binding together of particles of coal into a briquette, or brick-shaped mass, to be burned as a fuel.

The most important market for our asphaltic products, however, is in the road and street construction field. The tonnage absorbed by it alone is several times greater than that sold for all other purposes combined. TEXACO asphalt, a recognized leader in this field, may be found on city streets and interurban highways throughout the United States, Canada, and other parts of the world.

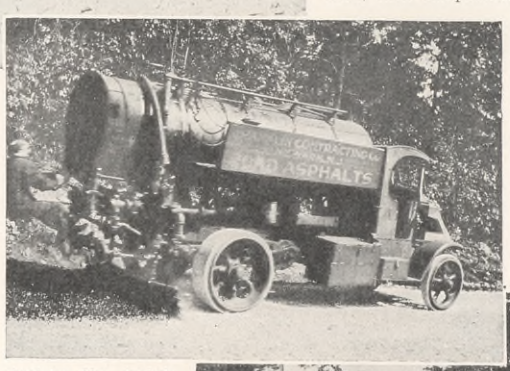
The first TEXACO asphalt pavement in the United States was laid about twenty years ago. In Baltimore, New Orleans, and Muskogee, Oklahoma, those pioneer TEXACO pavements, laid during or prior to 1909, will be found carrying traffic today. Their present condition gives promise of much longer service.

With the rapid growth of the automobile industry, the construction of TEXACO paved streets and highways assumed nation-wide proportions. At the present time, there are approximately fifteen hundred

Spreading Canal Gravel (Left), and Automobile Pressure Distributor Applying Road Oil

Wearing Course Ready for Application

cities and towns in the United States whose streets are partially paved with TEXACO asphalt. This urban service has been supplemented by TEXACO asphalt on an impressive mileage of interurban highways throughout the country. Its representation is truly national.



Applying Hot Asphalt to Wearing Course

One of the best indications of the popularity of TEXACO asphalt paving is its acceptance for street construction by our larger and more important cities. Those with aggregate populations in excess of 25,000 inhabitants are the models which smaller communities observe and strive to emulate in municipal affairs. Two out of every three of these leading cities have laid their streets with TEXACO asphalt.

The more representative cities of Canada are also served by TEXACO asphalt thoroughfares. Some of the earliest TEXACO paving was laid in the Dominion, and, in view of the severity of the climate, the excellent service afforded by TEXACO asphalt during the past twenty years is evidence of its lasting qualities.

The extent of the repairs required by any pavement is perhaps the truest indication of its worth. The experience of the city of Hamilton, Ontario, with its TEXACO asphalt paving typifies the results obtained throughout Canada.

In 1916, Hamilton constructed approximately 100,000 square yards of TEXACO asphalt streets. During the first seven years of its service, the paving required no repairs. During the succeeding five years, the area repaired comprised only five per cent of the total yardage.

The characteristics of TEXACO asphalt are such that it is employed consistently in road construction in some form or another. Scientifically combined with sand and stone, it may be used in the construction of the three most important types of asphalt paving. In the order of their durability, they are sheet asphalt, asphaltic concrete and asphalt macadam; their composition will be discussed in other paragraphs.

TEXACO asphalt is used as a joint filler in the construction of brick or concrete roadways. If a brick pavement is to be laid, TEXACO asphalt may be selected to fill the space between the bricks. In concrete road construction, asphalt is employed to furnish a joint between successive lengths of concrete. The asphalt joint provides the necessary resiliency and counteracts a tendency toward surface cracking caused by the expansion and contraction of the concrete. When brick or concrete surfaces show signs of wear, they may be covered with a protective coating of TEXACO asphalt. In rural districts, dirt roads receive an application of TEXACO asphaltic oil, which lays the accumulated dust and prevents the formation of mud. The various types of TEXACO road surfacing materials furnish an inexpensive and efficient means for conditioning less frequented thoroughfares.

Spreading Filler on Asphalt Wearing Course

Sheet Asphalt and Asphaltic Concrete are the

highest types of asphalt paving. Sheet Asphalt is laid in two layers, the first, or bottom layer, being referred to as the binder course and the second, or top layer, as the wearing surface. The binder course consists of a mixture of asphalt cement and stone. The wearing surface is composed of asphalt cement, graded sand and stone dust, which results in a more dense and stable mixture than that obtained in the binder course. The materials in each course are mixed at high temperatures in an asphalt plant and transported by truck to the location of the street or highway to be paved. Upon its arrival, the truck deposits its load and the mixture is spread over the foundation and carefully raked out. It is then formed into a compact mass by means of steam rollers, weighing five and ten tons each. When the wearing surface has been rolled and leveled, it is sprinkled lightly with limestone dust.

Spreading Sand Cover on Asphalt-Filled Joints

"Squeegeeing" Asphalt Filler into the Joints

The Preliminary Step: Clearing the Brick Surface

Asphaltic Concrete, a mixture of asphalt cement, broken stone and sand, is prepared and constructed in the same manner as Sheet Asphalt. It consists of a single course and the process of laying it is similar to that of the wearing surface of Sheet Asphalt.

The Asphalt Macadam type of construction differs considerably from those of Sheet Asphalt and Asphaltic Concrete. Broken stone, ranging in size from two to three inches, is spread over the pavement foundation and compacted by a heavy steam roller to a thickness of two to three inches. An automobile pressure distributor then passes over the stone surface spraying it with hot asphalt cement. The process forces the cement into the spaces between the stones, completely coating them and binding them securely together. Three-quarter inch stone is then spread over the surface and rolled into the spaces between the larger stones. A second application of asphalt cement is employed as a finishing coat in this type of roadway, and covered with small stone chips.

Most of the brick pavements constructed today require asphalt cementing of the joints between successive rows of bricks. Asphalt prevents water from penetrating the joints and permits the brick to expand and contract with changing temperatures. The asphalt is melted, poured over the surface and forced into the joints by means of a rake-like tool known as a "squeegee." Sand is then spread over the completed roadway to absorb the surplus asphalt remaining on the brick surface.

Asphalt surfacing materials are liquid or semi-liquid in character. They differ from the various types of asphalt cement in that they are not one hundred per cent asphalt. The lightest of these materials contains about thirty per cent asphalt, while the heaviest has an approximate asphalt content of eighty-five per cent. TEXACO surfacing materials are applied to roads or streets normally subjected to light traffic. They form a thin, protective surface for roadways constructed of earth, macadam, gravel, shell

Spreading, Raking and Rolling the Binder Course (Left), and Similar Process on Asphalt Wearing Surface

or cinders. As in the case of Asphalt Macadam construction, asphalt surfacing materials are laid by an automobile pressure distributor. Sand, or stone chips, are spread over the surface after the application of these materials and combine with the asphalt to form a tough, waterproof covering.

It is worthy of note that the state of Virginia will apply two and one-quarter million gallons of TEXACO road surfacing materials to its state highway system this year. At the rate of one-half gallon to the square yard, the material required under this contract is almost sufficient to treat a thirty foot thoroughfare across the state at its greatest width.

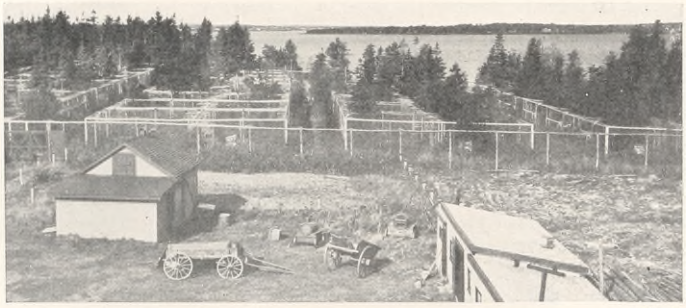
The Texas Company operates one of the largest asphalt refineries in the world at Port Neches, Texas. Smaller refineries and terminals facilitating the shipment of asphalt and asphaltic products are located at Providence, Rhode Island; Bayonne, New Jersey; Marcus Hook, Pennsylvania and Norfolk, Virginia.

TEXACO asphaltic products are shipped to consumers in railroad tank cars of 8,000 and 10,000 gallons capacity, as well as in barrels and drums. The Texas Company owns and operates a fleet of tank cars, many of them equipped with heater coils, employed in the shipment of our asphaltic products, to which a number of insulated cars have been added.

On the grounds of public parks, cemeteries, country clubs and private estates, serviceable and attractive drives of TEXACO asphalt may be found. Asphalt tanks are specified in plans for construction of swimming pools. As the need for asphalt products arises, the Asphalt Sales Department is prepared to answer it.

Rolling an Asphaltic Concrete Surface

Spreading Asphaltic Concrete on Street Foundation



GALLOWAY

A Silver Fox Farm on Prince Edward Island

There's a Silver Lining

And the Demand for Silver in Fox Pelts Continues

MACK THOMPSON

THE chances are that the whole thing started back in Neolithic times, when a roving, primeval hunter succeeded in felling for the first time a saber-tooth tiger, lithe of limb and sporting a coat of heavy, desirable fur. Exulting in his new found prowess as a hunter and a killer, our prehistoric brother was inspired to strip his victim of its glossy pelt and fashion it into a wrap for his girl friend.

Her response, as in modern times, was immediate and unmitigated, at least until she grew tired of it and demanded a new one. Her barbaric soul reveled in its sheen and color and she intuitively realized its advantages for subtly enhancing her charm. It likewise constituted a permanent and undoubtedly irritating reminder to her feminine companions that her man was a good provider.

GALLOWAY

We're Just One Happy Family

In this principally sedentary epoch there is little need of the killer of yesteryear, whose brawn outweighed his brain by many pounds. Man provides his woman with fur nowadays by killings made in the stock exchange and other marts of trade, but the fur is still the most substantial part of the female covering.

The American continent, at the time of its discovery and subsequent exploitation by the white man, was overrun with fur-bearing animals of many varieties. Pelts, more by reason of their warmth, but also for the decorative properties which they possessed, were in great demand among the inhabitants of the new world and the old. This demand led to the organization of the Hudson's Bay Company some hundreds of years ago. Trading posts were established throughout the new empire. Native and white trappers brought in raw hides and pelts to be exchanged for rifles, tools, cloth and foodstuffs. The arrange-

ment was a happy one for the trappers and company alike.

The quest for fur in time led to the steady backward pushing of the frontiers of the Northwest. Lured by the prospect of more spacious regions abounding in potential victims for their traps and guns, the hunters penetrated more and more deeply into the wilderness. In their wake, villages, towns and cities sprang up.

Such ruthless and comparatively unorganized tactics could have but one result. Their breeding and feeding grounds nearly destroyed, the furry citizenry of the continent were fast dying out, but the markets of the world continued to clamor for more and still more fur. A few men stopped

GALLOWAY

(Above) Taking a Furtive Glimpse at the World

(Left) Pen at a Prince Edward Island Fox Farm

Branding One of the Black Beauties

using their fingers to pull the trigger and scratched their heads instead. The outcome of their reflections led to the domestic breeding and raising of fur-bearing animals.

The furs most in demand, and consequently most expensive, are the coats of the sea otter, the Russian sable, the rabbit and the silver fox. The sea otter cannot be grown in captivity and experiments with the sable have likewise ended in failure. Rabbits are being raised with reasonable success, but only in the case of the fox has the problem been solved with entire satisfaction, both to the fox and the fur merchant. Domestication of this animal has advanced rapidly during the years, while the other fur-bearing species have been heading toward complete extinction.

Two Canadians, living on Prince Edward Island, were the first men to breed foxes in captivity, in 1894. These pioneers, experienced in trapping and hunting, confined their efforts to producing the silver fox, whose pelt, because of its great beauty and rarity, commanded the highest prices. They were eminently successful and their ranch was the forerunner of an industry which from humble begin-

GALLOWAY

Another System of Registration

GALLOWAY

A Model of Sheen and Symmetry

GALLOWAY

(Above) Prize Sextet at a Charlottetown Farm

(Right) Section of the W. K. Rogers Fox Farm

GALLOWAY

He Has His Hands Full

Silver Fox Pens Under Construction

nings has advanced into the million dollar class.

The best climate for the raising of the silver fox is in Canada, the northern states and in the mountains of a few states in the South. A simple, physiological reason for this is that cold or moderate weather causes the growth of thick fur. A heavily-wooded section of land is necessary for the fox farm, as the animal likes seclusion and the shade of the trees improves the quality of the fur. Since a cave, or burrow, is the natural habitat of the little fellow, the fox houses are placed under ground and open into pens 35 feet long and 25 feet wide. The surrounding country must be kept well drained.

The scientific fox farmer segregates his breeders about October

One of the Silvers at His Furry Prime

first. Mating takes place in January or February and the pups are born in March or April. From one to eight is the usual litter, the number increasing in proportion to the age of the mother fox. The pups usually breed their first year and the breeding continues for approximately ten years. At the age of ten the fox is killed, while the younger foxes are retained for breeding purposes.

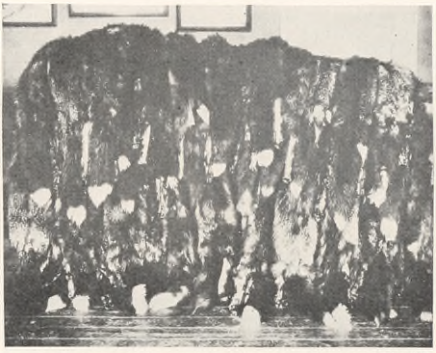
The mother fox is a temperamental soul and must not be molested to any extent after the birth of a litter of pups. If annoyed, she is quite likely to pack her things and light out with the progeny to some far-away hiding place where the pups usually die of exposure.

At the age of three weeks, the pups begin to require something more substantial than mother's milk, so she carries other food to them. Gradually they learn to eat and in about a month waddle out of their nest by themselves, to view the world with wide, innocent puppy eyes.

The little ones inherit a goodly share of the maternal temperament and once they have left their nest, separate feeding dishes must be provided for them. Otherwise they will quarrel over their food,

and it is not good business to expose these peripatetic scarves, each with a value of several hundred dollars, to the chance encounters of belligerent puppyhood.

The principal ingredient of the fox's food is raw meat of various sorts, ground up with bread. Fish, cereals and vegetables also form a part of the diet and fresh bone is often broken up and mixed with the food. An occasional addition to this toothsome bill of fare is a ration of milk and eggs. The cost of feeding a normal fox with a healthy appetite will average from $15 to $20 a year, the cost depending upon the location and size of the ranch.



GALLOWAY

Record Lot of Silver Fox Pelts from the Rosebank Fur Farms at Charlottetown

Several years of this sort of feeding and care will produce the desired effect, a glossy, smooth and heavy pelt. The fur is at the height of its beauty during the winter months, from November to February, depending again upon the climate and feeding, and it is during this period in about the tenth year of its life that the animal is killed. A hypodermic injection of strychnine is a common means.

The pelt having been removed, it is scraped and dried on a frame. Then, after a careful cleaning and brushing, it is ready for the market. The average pelt brings about $150, but some run as high as $800.

Although born and raised in captivity, the fox never becomes exactly a gentle playmate. His teeth are very sharp and he is not averse to using them. Hence a handle-with-care policy is in order and as a precautionary measure iron tongs are generally used in more intimate contacts with the animals.

The coat of the silver fox is dark, sprinkled here and there with silver hairs, and the tip of the tail is white. Recently the fox raising industry has spread to include the blue fox, and domestication of this species has been quite successful. The coat of this animal is a rich Maltese blue and is a variation of the Arctic white fox. Although the blue pelts do not command the high prices of their silver cousins, they are generally sold at a good profit.

No live stock enterprise pays such large returns on the basis of capital invested as does the fox ranch. But fox raising is by no means a get-rich-quick proposition. Intelligence and patience are the main traits of the successful fox farmer and both must be used liberally. These attributes, backed up by a knowledge of animal psychology which comes only after years of conscientious effort, are reflected in a steadily increasing return of superior pelts.

On the ideal fox farm the legitimate humanitarian principles, far from being violated, are fully realized. The domesticated fox lives out his span in the natural environment that his soul craves. He is not concerned with such annoying problems as the source of his next meal. He is not chased and harassed by packs of blood-thirsty hounds and he does not slink through the forests in deadly terror of rifle bullets or the racking torture of a steel trap. He exercises in the cool depths of the woodland or watches his children romping in the sun. And for him is not a toothless and rheumatic old age. Instead, he is mercifully relieved at his prime of all the impending miseries and responsibilities of later life. His pelt, the most gorgeous part of himself, receives all the embellishments of the furrier's art and so is launched upon a new career, lying in a perfume-laden boudoir or clinging lightly to the shoulders of a pretty girl in a final magnificent gesture.

GALLOWAY

Operator at Special Fur-Sewing Machine

Photographs not otherwise credited appear through the courtesy of W. K. Rogers, Charlottetown, Prince Edward Island.

Crop-Dusting Planes in Practice Session

Fighting the Boll-Weevil from the Air

Texaco Airport Houses Spraying Planes

AT Shreveport, Louisiana, The Texas Company maintains its Shreveport Refinery. Adjacent to it is the TEXACO airport, which has recently been leased to Wings Incorporated, Shreveport's first cotton-dusting company.

Aviation experts and students of weather and climatic conditions are unanimous that the South and the Southwest provide a wider range of possibilities for commercial flying than sections less favored by even temperatures and fair weather. The Texas Company's Shreveport base is strategically situated on the direct line of the present Southern Transcontinental Airways route.

Wings Incorporated operates a fleet of airplanes to combat the boll-weevil, the leaf worm and other insect pests which descend annually upon the cotton crop in swarms, and, unless exterminated, eventually destroy the plants.

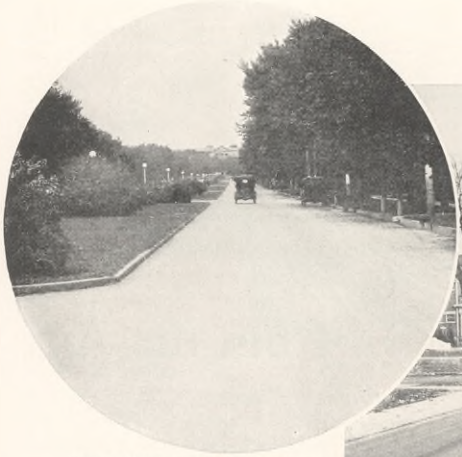
Crop-dusting, or the chemical treatment of the cotton plant with calcium arsenate, through the medium of spray guns mounted on low-flying planes, has become a preventive measure of vital importance to the growth of one of our staple products. Airplanes distribute the poison while flying at a low altitude and traveling at the rate of about 120 miles an hour. By this highly efficient method almost the entire expanse of the cotton belt is adequately covered. The distinct superiority demonstrated by the airplane in comparison with the former antiquated method of spraying by hand has proven a boon to the long-suffering cotton planter.

The Shreveport Refinery is located on what is known as the Ardis Tank Farm on the south bank of the Red River and adjacent to the city on the east; its accessibility has given it the distinction of being one of the most ideally situated terminals in the country. It is a logical stop-over for flyers traversing the southern transcontinental course; the added proximity of several of The Texas Company's storage tanks makes it one of the easiest airports to locate from the air. The most unusual feature of

(Continued on page 32)

Hangar at the TEXACO *Airport, Shreveport*

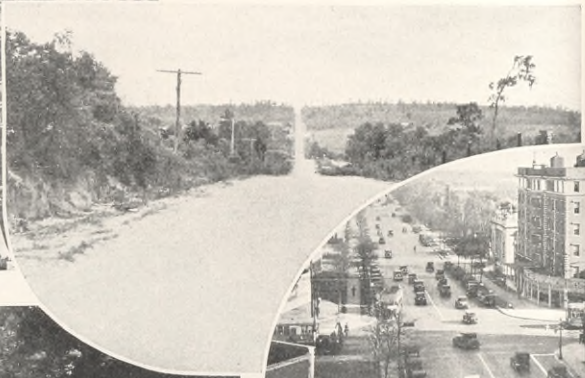
TEXACO ASPHALT



Lincoln Highway, Kearney, Nebraska

View of Superior Avenue in Dayton, Ohio, Paved with Texaco Sheet Asphalt

Baltimore Street, Baltimore



Texaco Sheet Asphalt, Long Branch, New Jersey

Part of State Road, Pasco County, Florida

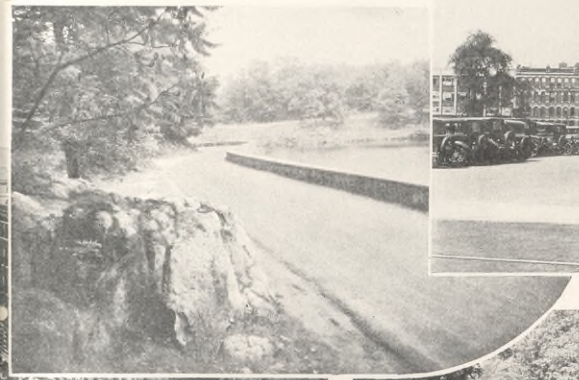
In Kansas C

At Your SERVICE

Texaco-Surfaced University Avenue, a Main Highway of Toronto, Canada

Texaco Road in North Carolina

Busy Salem Square, Worcester, Massachusetts



Near West Point Military Academy

, Missouri

Green Bay Road at Lake Forest, Illinois

The Science of Showmanship

Behind the Scenes at Our Texaco Exhibits

ARTHUR LEFEVRE, JR.

IF you have ever attended an exhibit of any kind —and who among us has not?—you may have had occasion to wonder why the people seemed to group themselves in front of one or two displays and, for some reason or another, ignore the others.

The explanation that some are good while others are not is true enough, but inadequate. The reasons for it are numerous and interesting, just as the entire study of exhibits and displays is interesting.

In considering displays of TEXACO products—or of any product, it must be borne in mind that one is necessarily limited by the flexibility of the material exhibited and the dimensions of the exhibit space. Harmony and contrast of colors is an important element. In selecting material for our decorative purposes, it is important always to keep in mind that the exhibit is to bring TEXACO products to public attention as forcibly as possible.

In order to focus the attention of the crowds upon The Texas Company's exhibits, skill must be exercised to invent or utilize some attention-riveting device whereby the exhibit attracts visitors, prompts questions and gives us the desired entrée to conversations concerning our products. We must, figuratively speaking, exhibit in a different key from the displays which surround our own.

THE TRADE MARK

A sign, or signs, must be so placed that there will be no doubt that the exhibit is that of The Texas Company. The prominent display of our trade mark is advisable, in order that those whose attention is attracted by the exhibit consciously or unconsciously acquire and retain a mental impression of the relation of our name or trade mark to petroleum products, or to the product of particular interest.

There are a number of devices employed to attract favorable attention to our exhibits. One unique device, the Film Display, graphically illustrates "the lubricating film that gives the perfect seal." Motor oil continually flowing in an unbroken film, demonstrates impressively the excellent body of TEXACO motor oil and its capacity to form a perfect seal in piston cylinders, and demonstrates it clearly.

In this exhibit, the oil is circulated by means of a small pump driven by an electric motor. The flow is regulated by adjustment of by-passes, or shunts, inside the main pipe line. Oil is pumped from a reservoir through the pipe and into a shallow basin, falling over its edge in the form of a thin film and confined between two vertical wires.

The Easy Pour Display employs a Handi-Grip can held by a hand and suspended by wires. A constant stream of oil flows from the can into a container below. This is somewhat perplexing at first, but is readily explainable. The continuous flow is obtained by pumping the oil from the container up through a glass tube, concealed at all times by the descending flow. The oil is pumped to the top of the concealed tube, where it flows over and falls again into the container.

A SECRET DISCLOSED

This particular display always proves intriguing. The writer recalls an occasion when a florid-faced gentleman, carrying a walking stick, stood for several minutes before one of these exhibits, not at that time enclosed in a glass case. Perplexity was stamped upon his face. Suddenly, and before attendants could spring forward, he swung his cane through the stream of oil. His surprise at seeing the glass fly was quite as great as the irritation of the exhibitors, who had to suspend operations until the tube was replaced. The florid-faced gentleman apologized profusely, but his glee at having discovered the secret of the display was evident.

In the Steel Ball and Glass Tube Display, four glass tubes, each 33 inches long with an inside diameter of 1¼ inches, are filled, respectively, with Light, Medium, Heavy and Extra Heavy TEXACO motor oils. The tubes are placed in a horizontal position and a steel ball, exactly 1⅛ inches in diameter, is inserted in each tube. The framework is then inclined and the steel balls, in forcing their way through, show the full body and viscosity of the oils.

TEXACO BEFORE YOUR EYES

TYPICAL COMPANY DISPLAYS

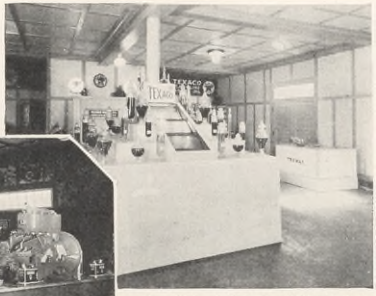
Bubble Display, Showing Tubes Filled With Oils

Ice Display: Oil Staying Fluid in Cake of Ice

Steel Ball and Glass Tube (Left), and Easy Pour Displays

Railroad Lubricating Oils

(Below) Texaco Motor Oil for the Automobile



The Texaco "Waterfall" Display

(Left) Texaco Oils for Interurban Trolley Lines

(Right) Lubricating Oil Family: Graded Oils

Our Ice Display shows twelve-ounce sample bottles of the various grades of TEXACO motor oils, in galvanized iron frames, and frozen in a three hundred pound cake of ice. The ice is placed on a wooden rocker and the ensuing see-saw motion shows that the oils have remained fluid.

In Bubble Displays, compressed air is forced through glass tubes filled with oils. The difference in size, type, and the rate of speed of the bubbles rising in the oils indicates clearly their viscosities.

On several occasions our exhibitors have been amused to observe that certain sporting gentlemen in the audience have found it interesting to make bets among themselves as to the bubble which will rise first. To the writer's best knowledge, the stakes are never very high, but the excitement among the onlookers often reaches a fever peak as the bubbles race one another to the top.

Since the publication in the July-August STAR *of the article, "So You're Going to the Coast?", this editorial sanctum has been deluged with demands for articles on other tours. In this issue, Mr. Kallman, Manager of the New York Sales District of The Texas Company, takes us on some short trips through his district, unfolding the numberless beauties of our own "near East"*—EDITOR.

Service Station in New York City

Through Our New York District

Motoring Hints for the Last-Minute Vacationer

W. L. KALLMAN

PROBABLY no automobile tour which suggests itself through the medium of our new TEXACO maps offers the colorful possibilities of that covering the New York District of our own Sales Department. For those whose vacations may come a trifle late this year and for those to whom a new trip is always interesting, a visit to each town or city in that district in which is located a bulk distributing plant of The Texas Company should be both pleasant and instructive. You will find a perennial panorama of natural beauty before you, as well as a thorough view of the extensive facilities of our Company in this part of the country.

Garden City, Long Island, Bulk Station

We start from New York City, a city containing five boroughs; each a city in itself and served by The Texas Company from four bulk storage stations, three located on the waterfront and one inland on Long Island. The Company's Northern Sales Territory, which includes the New York District, has its headquarters in New York City.

Manhattan Island, because of the relatively high valuation of its real estate, offers little opportunity for the operation of service stations. It has been estimated that eighty per cent of the gasoline consumed in traversing its thoroughfares is dispensed in garages. Manhattan is served by tank trucks from the Company's waterfront stations at Long Island City and New Rochelle. Brooklyn, with a population of two million, is served from the Company's Long Island City bulk station and Bronx borough from its bulk station at New Rochelle. A delightful day's tour can be accomplished on Long Island, famed for its splendid suburbs, summer resorts, the duck and the potato. One hundred and forty miles long, with excellent roads, Long Island is served by eight bulk plants.

Let us now drive north along the east bank of the Hudson River, through the Adirondacks and return by way of the Finger Lakes of the Empire State.

Westchester County, a commuters' paradise, is well covered with TEXACO service stations and is served by bulk plants at New Rochelle, White Plains, Mount Kisco, Peekskill and Danbury, Connecticut. In traversing Westchester County, we pass over the

Texaco Bulk Station at New Rochelle

Filling Station in Westchester County

Boston and Albany Post Roads, historic mail routes now in modern concrete highway garb. Westchester County's parkway system is one of the finest in the country.

Our northerly progress by way of the Albany Post Road takes us through Poughkeepsie and Hudson or through the Harlem Valley, Dover Plains, Millerton and Chatham, in all of which TEXACO bulk plants are located. Poughkeepsie, as we know, is famed for its Vassar College, its varied industries and as the center of river traffic of the early days; Hudson for its cement mills and farming countryside.

Albany, capital of the Empire State at the head of the river, is the eastern terminus of the New York State barge canal. The Texas Company operates a bulk terminal within its limits and TEXACO products are shipped from our Bayonne Terminal by barge to the Albany Terminal. All northern New York and most central New York bulk stations are supplied by tank car shipments from Albany.

At this point, we may detour in a westerly direction and strike the Mohawk Valley, the railroad "water level" route paralleling the New York State barge canal. We pass, successively, through Schenectady, the seat of Union College and the home of the power companies, Johnstown and Gloversville, the manufacturing center of the glove industry. Proceeding further, our route includes Utica, Syracuse, Rome and Oneida, thriving cities in the heart of the rich agricultural district of central New York. Returning, by way of the Cherry Valley turnpike, we pass through the former tribal territory of the Five Nations, the Heldeberg Mountains, and complete our circle at Albany. At almost every stage of our journey we find The Texas Company represented.

Our tour is now routed in a northerly direction along the upper stretches of the Hudson River and through the Adirondacks to Watervliet where the Company maintains a bulk station serving the city of Troy. From Hoosick Falls we drive to Saratoga Springs, the site of General Burgoyne's surrender, which was conceded to be the turning point of the American Revolution, and now the mecca of horse racing. Still further north we pass Glens Falls and Granville, the latter furnishing the world's supply of slate. At the southern end of Lake Champlain we view the ruins of old Fort Ticonderoga and, proceeding along the shores of this lower of the Finger Lakes, we arrive at Plattsburg and Rouse's Point, the official customs entry port and a gateway to Canada.

From Ogdensburg, near the Thousand Islands and Carthage, the center of the paper making industry, we pass through Oswego, Rochester and Lockport on our way to Buffalo and Niagara Falls. The

Newark, New Jersey; Texaco Bulk Station

Red Star and the Green T is prominently displayed on bulk and service stations along our route.

We proceed then to Geneva and Ithaca, the latter the site of Cornell University. Elmira and Binghamton lead us to the legendary haunts of Rip Van Winkle in the Catskill Mountains. Turning south we traverse the west bank of the Hudson River through Newburgh, Monticello and Spring Valley to the New Jersey approach to the Holland Tunnel. From there it is but a few minutes to our starting point in New York City.

Our automobile as a means of transportation is now discarded temporarily for the airplane. We fly west over Newark, Passiac and Morristown, cross the Delaware River into Pennsylvania and, looking over the side of the plane, we see TEXACO trade marks

Texaco Service Unit in Buffalo

on storage tanks at Easton, Allentown, Stroudsburg and Towanda. In the coal mining districts we observe them at Wilkes-Barre, Bloomsburg, Lehighton and Pottsville. In the Susquehanna River valley we pass over them at Williamsport, Milton and Harrisburg. Flying in an easterly direction, we soar above Reading and finally descend at the Company terminal at Marcus Hook, Pennsylvania, where we find that southern New Jersey and almost the entire state of Pennsylvania are served from this terminal.

Bulk Station at Harrisburg

We are off to an early start next morning and, skirting the shorefront of Delaware Bay, we fly above Camden, Cape May, Atlantic City and, at a higher altitude, Hammonton on the famous White Horse Turnpike. Banking for the turn, we see Bradley Beach spread out below us, and proceeding north, we pass above Red Bank, Perth Amboy and Elizabeth, alighting at the Newark airport.

On the surface once more, we start on the final lap of our tour. We pass through the Holland Tunnel and along smooth stretches of roadway to Newark, New Brunswick, Trenton, Philadelphia, Lancaster and York, stopping for the night at Gettysburg. Next morning we are on our way to Chambersburg and into the hills of the Appalachians where we traverse a network of winding roads and, upon descending the western slope of the range, we arrive at the TEXACO bulk station at East Liverpool, Ohio.

Bulk Stations in Pennsylvania: Lancaster (Left) and Reading

We are now inside the eastern limits of the Chicago District. At this point your tour may be continued through the middle West under the guidance of our representatives in the Chicago District.

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★

Texaco Service Station in Chambersburg

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Seventy Years Backward

ZACK T. SUTLEY

ZACK T. SUTLEY

Zack T. Sutley is one of the very few survivors of the crew who worked on the Drake oil well, the first well ever drilled for crude oil. It was located near Titusville, Pennsylvania, about a mile from the Sutley home.

Mr. Sutley, now a resident of Oklahoma City, Oklahoma, has written his reminiscences expressly for The STAR. *Photographs used to illustrate Mr. Sutley's article were loaned The* STAR *by Charles R. Galbrath, of Franklin, Pennsylvania.*—EDITOR.

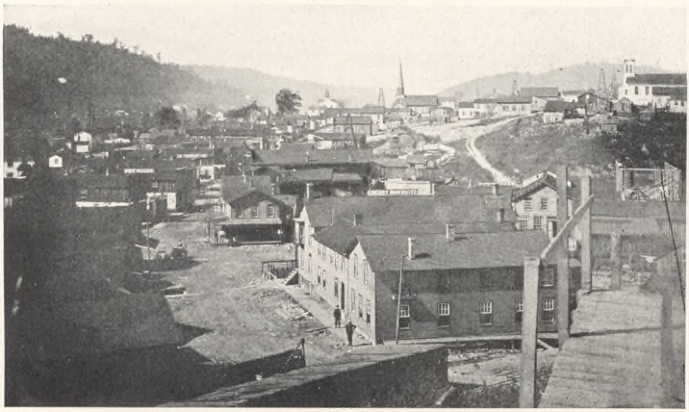
OIL! Oil! An oil well! Plenty of cause for excitement that summer morning as the magic word flew from man to man of the crew. The well, which had given so much trouble for several months and which last night had been nothing but a hole in the ground, was nearly half full of a thick, dark, liquid substance and was producing oil.

Did we see visions of automobiles speeding over the roads, and airplanes roaring through the air above us? Nothing of the kind. We saw better oil for machinery and better axle grease for our wagons; no one thought of a filling station or an oil millionaire. This was not some place in Kansas, Oklahoma, Texas or California some time in the 1920's. It was in Pennsylvania in 1859 at Drake's well on Watson's Flats, below Titusville—the first oil well.

But my interest in oil had begun at an earlier date, for I had gone with my father to get oil at the spring on the Hamilton McClintock farm. Long before white men had settled in this region the Indians had procured oil from this spring and others in the vicinity, using it for liniment and other medicinal purposes. After the spring had come into the possession of the McClintock family, oil had been secured by stretching rolls of heavy woolen goods across the creek into which the spring flowed. With the ends held on opposite sides of the creek and the blanket lying on the water, it became saturated with the oil which covered the surface of the creek below the spring. The oil was then pressed from the blankets and sold for lubricating purposes.

My father had taken me with him on a trip to the spring and he had bought oil with which to make an axle grease by mixing flour with it to give it body. Few people thought of using it for lighting because of the disagreeable smoke and odor, and at that time candles were the only form of artificial illumination used outside of the larger cities. The country people used tallow candles and tallow dips, and the moulds for making them were a part of every household equipment.

My interest in oil wells began in the fall of 1858 when some of the men in the neighborhood came to get my father to assist in building a derrick. Colonel Drake was going to drill a well with the hope of finding oil in the ground. I suppose the idea of getting it in this way had been conceived by the drilling of wells in which salt water was brought to the surface to be evaporated, for such wells supplied nearly all

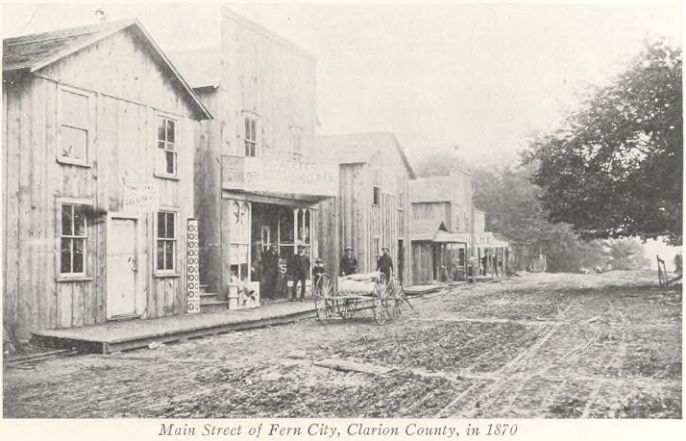


Rouseville About 1868, Showing the Famous Cherry Run Hotel in the Foreground

the salt that was used then, and derricks had been used in drilling them. A number of these salt wells along the western slope of the Alleghenies had been spoiled for salt production by the presence of rock oil and this fact had probably suggested the idea that oil could be brought to the surface by penetrating deeper than the brine.

I have never heard any reason given as to why the first well was drilled on Watson's Flats. Records show that a general interest in oil both as a medicine and for lighting was developed during the few years preceding the Drake well, and that a company was formed to drill for rock oil. This company secured some hundred acres on Watson's Flats, bordering Oil Creek, but their first well was unsuccessful and little was accomplished until the company was reorganized and Colonel Drake was placed in charge of operations.

Until the discovery of oil, lumbering had been the principal industry of western Pennsylvania, and farming was carried on where the land had been cleared. But there was still plenty of timber to supply local mills, and the lumber used in oil operations along Oil Creek came from the adjoining hill sides, as did the derrick material for the Drake well.



Main Street of Fern City, Clarion County, in 1870

The entire derrick was built lying on the ground before any attempt was made to raise it. The base was about sixteen feet square and four pine poles sloped to about four feet square at the top. The braces were all mortised into place and the sills of oak timbers, flattened on each side with a broad axe, had a hole about three inches by eight inches at each end into which the poles were fitted.

The derrick completed, the side lying on the ground was raised so that one sill could be fitted to the frame and ropes were attached at the top. It was then raised from the ground, beginning at the smaller end, and props were placed beneath. Gradually it was raised until the whole derrick was at an angle of forty-five degrees with the larger end still resting on the ground. Men pulled on the rope attached to the upper side and, as they lifted it, the props were placed to hold it until it was nearly vertical, the rope on the lower side held ready to keep it from toppling over. Slowly it was pulled up. The weight of the lower part brought it into an upright position, and the two free ends of the poles were eased into their place in the holes in the sill. Pulleys for handling the drill cables were suspended in the top of the derrick. The bull wheel, sampson post, walking beam, and other parts were installed and the derrick was ready for the drilling to begin.

For several days I had been with my father while he was at work on the derrick and, when the drilling was started, I was hired to drive the team, which, travelling in a circle in the same way that horses furnish the motive power for a hay baler or a feed grinder, provided the power for drilling. The horses moved a horizontal wheel whose motion was converted into an up-and-down movement by a second wheel which meshed at right angles with the one the horses pulled. The walking beam was attached to the upright wheel and the tilting motion necessary to operate the drill was secured.

Colonel Drake encountered many difficulties from the beginning, and his inability to obtain the necessary funds was not the least of them. Several times the work was suspended for this reason and though they erected the derrick in the fall of 1858, it was late in August of 1859 before the well was "brought in."

The salt well operators had followed the general practice of digging an open pit down to bed rock, and then using the drill. Loose deposits were especially deep along Oil Creek, however, and despite all efforts, the sand was continually caving in and filling the pit. Capable workmen were hard to get and still harder to keep, for work on the salt wells was easier and pay more certain.

Finally, early in '59, Drake hit upon the idea of driving an iron pipe to the solid rock and then operating his drilling tools through the pipe. The use of cement to shut off the flow of water was unknown in that day, and for the purpose the drillers used what they called a seed bag. A long poke or tube

was made from cowhide, being in most cases as long as the hide would permit, and this was drawn over the casing which was to be lowered to a depth a little below the water level. After binding the lower end of the poke to the casing, for a space of about four inches, with a stout tarred cord, the space between the hide and the casing was filled with flaxseed. The top of the poke was wrapped with the tarred cord, to hold it firmly against the pipe. Then the casing with the seed bag on it was lowered to the desired point and, the water swelling the seed, the poke bulged sufficiently to shut off the water effectively.

Typical Oil Center at the Peak of the Boom

After a number of failures, the iron pipe was forced through fifty feet of sand, which had presented an almost impassable barrier to the old method of digging in an open pit. While the drillers were no longer troubled by caving sand, they made slow progress, and two or three feet a day was the best they could do. When at a depth of about sixty-nine feet, they returned to the well one morning to find it contained oil, but there was not enough gas to force the oil from the earth, and the drilling was continued.

There was not so much excitement as curiosity in the neighborhood when the news went abroad that oil had been found in the well. Residents of the countryside visited the well to watch the operation of drilling and carried away the crude petroleum in pans and vessels. But there were not many uses for oil at that time, particularly in the rural districts, and though it was known that rock oil would ignite easily, I do not think anyone in our neighborhood had attempted to use it for lighting. Doubtless in other parts of the country, experiments had been made toward using petroleum and for refining it, as the discovery of oil in the Drake well was soon followed by the erection of a number of small refineries in the vicinity. Kerosene, as a fuel, soon supplanted the candles and tallow dips.

The news of Drake's success spread rapidly and people from all parts of the country poured into the Oil Creek region to work on new wells, for at once everyone was carried away with the idea of getting rich quickly; derricks were put up and wells drilled as if by magic. For a few years farming was almost abandoned as the work at home was left to the women, while the men and boys worked in the oil fields. There were derricks to build, wells to drill, refineries to be operated and means to be provided for transporting the oil to markets.

In a short time, cooperages sprang up in the surrounding towns as barrels were needed in handling the oil, and they furnished additional employment. New towns, whose commercial life depended upon the oil industry, grew up rapidly. Watson's Mill, which had been a country store and post office, became Titusville; Belle's Furnace, which once had been a village boasting an iron furnace, a grist mill, a hotel, and a boat landing but which had been almost deserted before the oil boom, became Oil City, a busy and thriving community.

Almost every oil farm boasted a store and post office and was dignified by a name. Petroleum Center, Rouseville and Funkville, and Rynd Farm marked the location of drilling operations. The peaceful valley which two years earlier had been occupied with its farming was filled with a spirit of restless activity, and hardly recognizable as its former self. Up and down the creek, tall derricks towered above the engine houses and board shanties, for steam soon replaced horse power in drilling, and hustling towns replaced the green fields and pastures.

The practice on the part of oil operators of obtaining oil leases rather than purchasing the land on which tests for oil were to be made, came into existence with the Drake well and was borrowed from the salt makers, as the salt wells were usually drilled by men who had leased the land on which they worked. High prices for oil leases in a newly discovered oil producing field are not peculiar to the present day, for exorbitant prices soon became the fashion along Oil Creek.

Stories were current then, as now, of fabulous prices demanded for leases, some as high as one thousand dollars an acre. At different times, my father owned three tracts of land in the Oil Creek

Reynolds Wells on Oil Creek Above Oil City

field. We were living on a small timbered farm, about a mile and a half west of the Drake well at the time father and I worked on it. Later we moved to a smaller farm of about seventy acres several miles below the Drake well. We were living on this tract during the heyday of the oil boom and I remember one day when Captain Marsden, one of the most successful operators, came to negotiate with father for a lease on our land, that already had one producing well. He asked father what he wanted for the lease.

"Seventy thousand dollars," said my father.

"William," said Marsden, as he sat on his horse and stroked his long beard, "I'm a man of few words. I'll give you sixty thousand."

But father would not take that amount and Marsden rode away. Later wells in our neighborhood did not prove so productive and father finally sold all but two and one-half acres for twenty-five thousand dollars, retaining the tract which had been leased. With this money, he bought a farm of 244 acres near Petroleum Center which still remains in the family. Altogether, seven wells were drilled on our land, and father received one-fourth of their production as royalty.

The Drake well had to be pumped from the beginning and never produced any great amount of oil. Its greatest value was in proving that oil could be secured by drilling, and in originating the plan of driving a pipe through the loose soil above solid rock as a conductor for the tools, and to prevent cave-ins. Many of the first wells had to be pumped, but the idea of drilling more deeply grew as the work progressed, in hopes that a deeper well would bring the oil to the surface. On the Jim Tarr farm, in 1861, the idea was put to a test and at a depth of four or five hundred feet, the "third sand" was pierced with a result never experienced before in oil history. Without warning, the drilling tools were hurled high above the derrick and a stream of oil gushed out with such force that it could not be controlled for several days. This was even more startling than Drake's discovery had been, and the oil boom received a new impetus as everyone began digging deeper wells in hopes of finding a gusher.

CAPT. A. B. FUNK

The best wells were found along Oil Creek below Watson's Mill. First came the Funk farm, then the Washington McClintock farm, next the Egbert farm, the Hayes and Story farms, the Jim Tarr farm, the Blood farm, the Rynd farm, the Culbertson McClintock farm, the Buchanan farm and the Hamilton McClintock farm on which the famous oil spring was located and which extended to the Bell Furnace property and dam.

Little was known about extinguishing the fires that were not uncommon during the first years of oil history, and often they burned for weeks. The most spectacular fire I ever witnessed was on the Jim Tarr farm. A gusher caught fire and burned for several weeks, lighting up the surrounding country until one could read a newspaper more than a mile from the well.

In winter, oil was placed in barrels and loaded into wagons. Within a short time, hundreds of wagons with five to seven barrels each traversed the roads daily from the producing fields to Oil City where the loads were transferred to barges and floated down the Allegheny to Pittsburgh, which became the distributing point. The roads which had at their best been poor, soon became almost impassable. I have driven loads of oil through thin yellow mud that came to the hub of the wheels, and above the horses' knees.

The oil was hauled by teams the year round to local refineries, but when the river

A Pond Freshet: Oil Boats at Oil City

was free of ice, the oil was pumped into tanks from which it was allowed to run through pipes to the barges at the landings. A demand for barges followed the drilling, and timber prices soared. I recall that my father sold four trees suitable for barge gunwales and received two hundred dollars for them.

Oil Creek was too shallow during most of the year to afford transportation for the log drives, and artificial freshets had been used by the lumbermen for years. The idea was borrowed by the oil men, barges replacing the logs, but they had to make arrangements with the mill owners, who had the previous water privileges, for the use of their dams to float the barges. Often several thousand dollars was paid for the accommodation and the lumbermen made more money from their dams than they had made with their logs.

"Freshet days," advertised so that as many boats as possible might take advantage of the high water, became holidays to the people along the creek. Not only oil operators but farmers and village people accompanied the barges to Oil City, or Pittsburgh.

By 1866, the main railroad systems had run branch lines into the Oil Creek district, which partially solved the transportation problem until pipe lines were built. Then much of the prosperity which the Oil Creek region had enjoyed was destroyed. There was little need for teams and drivers, and none for barges and barrels. The country people went back to farming and even the oil fields gave less income to the land owners, for many of the wells had ceased producing.

People who had barely made a living on their hilly farms became millionaires, and the whole valley prospered. New machinery and blooded stock were put on the farms, new houses were built and children were sent away to higher schools when they had completed the grammar grades. Most of the young people attended the Normal School at Edinboro, and during my attendance there, an amusing incident occurred which was characteristic of sudden wealth acquired in the oil fields.

JIM TARR

One of our neighbors profited immensely from the oil on his farm, and he was said to have received a million dollars from his wells. While that may have been exaggerated, he had become very wealthy and, though he was one of the most illiterate men I have ever known, he wanted his children to have an education. They too went to Edinboro. After one of his visits to the school, the president asked me one day if I knew the man and what kind of man he was. I said he was a good man and honest but had very little education.

"I found that out," said the teacher, "He asked me how Mary was doing in school, and I told him very well, except in her music, and she did not seem to have a capacity for that. Her father was much concerned and answered, 'Buy her one, damn it, I can pay for it, and I want my girl to have just as good as any other girl has!' "

The oil field opened by Drake continued to produce for many years, long after the boom was over. Many of the wells, however, had been pumped from the first and the gushers quickly subsided. The flow from some of the wells decreased to such an extent that they were abandoned by the operators, and the leases reverted to the original owners who often derived a large part of their living by "milking" the wells. Oil was allowed to accumulate until there was enough to be baled out and emptied into a barrel. Some wells produced no more than a barrel a week but many did better, and as there was no cost and not much labor connected with the process, it was easy money.

The Famous Two Dans' Restaurant, Social Center of Fern City, and (Above) Dr. M. C. Egbert

The oil industry which originated with the Drake well in 1859 has experienced many changes since that time, and very few of the men and women who lived along Oil Creek then are living today. Even many towns which grew like magic with the oil boom have disappeared. In 1915, I visited the Oil Creek field and found nothing at all on the sites of once busy villages. Petroleum Center, which once had a thriving population of five thousand, was marked only by a railroad station and one other building. That also might have been moved away had it been built of lumber instead of brick.

I have seen photographs of the Drake well that show the derrick with clapboards placed cross-wise between the poles but that must have been done after I had left the vicinity as I have no recollection of the derrick enclosed in that fashion. When my father and I worked on the well the four vertical poles were the only supports for the cables and they were joined together at the top and base of the structure.

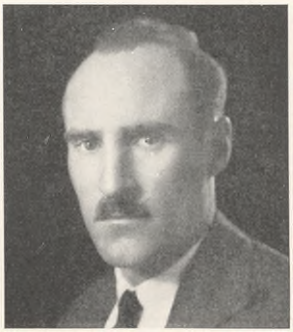
It has been my privilege to see the oil industry become one of the greatest in the world; the newspapers and magazines carry news of discoveries of new oil fields in parts of the country in which we, at that time, did not think oil would ever be found. The oil operators today use certain instruments to find out whether oil exists in the areas they explore. In my time, this was largely a matter of guesswork, as we depended upon the oil coming to the surface to show us where to drill.

Oil is now shipped to foreign countries in tankers that carry more crude and refined oil in one cargo than we could produce from one well in a month. Many refineries have been built and pipe lines carry the oil from the wells to be refined and placed in storage or sent to the markets. A far cry indeed from the early days when oil was produced and refined by archaic methods and the markets were at our back doors! And perhaps now my readers will understand why, every once in a while, I marvel at it.

The Blood Farm on Oil Creek About 1860

Charles S. (Casey) Jones, president of the Curtiss Flying Service Inc., is an aviator of many years' experience. He made his first flight in 1911 when a classmate at high school purchased a machine and he has been flying consistently ever since. He entered the Army air service at the outbreak of the war, and made a distinguished record at the front with the 96th French Pursuit Squadron and as instructor and later officer in charge of the pursuit school at Issoudun, France. Upon his return to this country, he allied himself with the Curtiss organization and has since taken part in practically all national air races, winning, among several others, the American Legion Derby. In 1926 he took a first and second at the Philadelphia National Air Races. He has to his credit 3500 hours flying time.

The organization of which Mr. Jones is head is now establishing operating bases in 25 important cities throughout the United States, and its activities will include all classes of commercial flying operations. He is a member of Colonel Charles A. Lindbergh's technical committee for the Transcontinental Air Transport.



BLANK-STOLLER

CHARLES S. (CASEY) JONES

Sky-riding in Skirts

It Seems That the Ladies Are Up in the Clouds

CHARLES S. (CASEY) JONES

LET'S not commence a discussion of women in aviation with an argument as to the relative merits of the weaker sex as opposed to what is generally referred to as the stronger. I think everyone is willing to concede that the males are frequently the pioneers. But women follow pretty close in their wake, and in matters of aviation, they are close indeed.

U. & U.

THEA RASCHE

A few weeks ago probably the biggest victory was won for women when the Fédération Aéronautique Internationale, which is the recognized ruling body for aviation, declared that hereafter separate records will be maintained by that organization for women, and that they will be accepted as having official standing, regardless of how they compare with the records of men flyers. That action was expected automatically to establish three records by women for endurance, speed and for altitude, and it should offer women flyers generally a little more renown than is represented by a story on page one of some of our palpably enthusiastic newspapers.

Most women who regard flying as the greatest sport in the world have thus far been content to fly for their own personal pleasure, or for exhibition purposes. There were, at last report, 65 women licensed to fly in this country, yet none of them make it a commercial enterprize in the aeronautical sense of the word. Forty-seven of them are licensed to take up private ships, ten to carry passengers within ten miles of designated fields, and one licensed to carry baggage or messages but not passengers. Women in foreign countries have the jump on our own in aviation matters but I don't believe it will last long. The United States is in deadly earnest about its aviation today, whether for sport or business.

One major reason why women are advancing in aviation is because the opportunities once held out to men alone are being held out today to both men and women. Two states—Tennessee and West Virginia—are making arrangements to offer free

U. & U.

AMELIA EARHART

P. & A.

LADY BAILEY

flying courses to any college student, either man or woman, who wishes to take them. Flying clubs are being organized. The municipal airport has passed the fad stage and is becoming a necessity.

A recent newspaper article quoted Jesse Lankford, chief of the licensing section, aviation branch of the Department of Commerce, who seemed to see a better day dawning for women flyers and who also seemed to have good reason for it. "They haven't had a chance," Lankford said. "So far they haven't stood an equal show with men to earn the necessary money to learn to fly—nor to fly after they know how. Once they learn, they learn in a man's way, and they are just as good pilots."

Of course the economic angle of it does not always apply; aviation is in many instances a social hobby, and society women are taking to it heartily. Unlike most things of that kind, it begins to look as though flying had a pretty good hold on permanent social popularity.

You don't have to be an aviator yourself to admire the nerve some of the women have as pioneers. If your memory concerning aviation matters is good, you will recall Harriet Quimby who, in 1913, flew across the English channel in a Bleriot monoplane at a height of 1500 feet. Miss Quimby, the first American girl to hold a pilot's license, was credited thereby with the first officially recognized flight by a woman in a heavier-than-air machine.

Since that time a lot of them have passed across the glamorous pages of air history, and some have stuck there. The names of Ruth Law, the Stinson sisters, Amelia Earhart, Thea Rasche, Lady Bailey and Lady Heath, Mrs. Keith Miller and Ruth Elder are a few. Lady Bailey soloed in a tiny plane from Cape Town, South Africa, to London—a distance of 18,000 miles; her plane crashed twice. When she arrived she was awarded the women's international trophy by the International League of Aviation. Lady Heath, who holds several unofficial records, is in this country promoting interest in aviation among American women.

P. & A.

RUTH ELDER

WIDE WORLD

BOBBIE TROUT

P. & A.

VIOLA GENTRY

WIDE WORLD

MARJORIE CRAWFORD

U. & U.

ELINOR SMITH

The adventures of Mrs. Keith Miller, the diminutive Australian aviatrix, probably surpass them all. Accompanied by Captain W. N. Lancaster of the Royal Air Force, she set out from London for Australia in October, 1927. They were brought down by a sandstorm in the desert between Palestine and Bagdad. A cobra crawled into the cockpit at the flying field at Rangoon and did not make an appearance until the plane was skimming along 2000 feet in the air half an hour later: Captain Lancaster, piloting the plane at the time, could not reach far enough to strike it. Mrs. Miller suddenly sprang forward and stretched the cobra with one well-directed blow. I don't know exactly what she hit him with, but it did the trick.

The last 500 miles of their trip was over a largely untravelled stretch of the Pacific. Uncomfortably near the middle of it, the motor started to wheeze and the plane to descend. About a hundred feet from the water the motor began to hit evenly again and the plane swept up into the air. An ocean air-bath, however, was merely postponed as an experience for Mrs. Miller: Last year she and her companions were picked up off Hampton Roads, Virginia, after the escort plane in which she was riding took an unannounced dip into the ocean. The plane landed right side up and stayed that way.

Miss Earhart, in addition to her transatlantic flight, soloed across the continent from New York to Los Angeles. On one or two occasions she has made forced landings to effect minor repairs to her plane. She rolls up her sleeves on such occasions and does the mechanical work herself. Ruth Elder to some extent has passed from the aviation to the cinema news columns. An attractive, personable girl, she will always be a credit to flying.

Mrs. Phoebe Fairgrave Omile of Memphis is an aviatrix-heroine in

P. & A.

LADY HEATH

every sense of the word. During the Mississippi flood period she transported medical supplies and foodstuffs to isolated districts, and on several occasions braved the dangers of that stricken area with doctors and nurses for the relief of the needy. She was the only woman entered last year in the Ford Reliability Tour, from Detroit to Los Angeles. Ruth Nichols of Rye, New York, is the girl who made the non-stop flight from New York to Miami, Florida. She is licensed to fly both sea and land planes and may, if she chooses, carry paying passengers.

We hear every day of new exploits by the younger women in the field. Bobbie Trout and Elinor Smith are forever waging a friendly war for various records, and Viola Gentry and Marjorie Crawford have won their spurs creditably.

We have just finished reading about the women's air derby from Santa Monica, California, to Cleveland, where the National Air Races have been in progress. The sheer grit displayed by Mrs. Louise Thaden, who drove her plane to victory, as well as the courage of the others who fought to the last ditch, is a fine indication of the trend of aviation on the part of women today. We are familiar with the objections the women made to the proposal of male pilotage; it is a healthy sign. It promises that women, insisting on equality with men and getting it in more instances than they are apparently aware, demand equality in aviation. I expect to see them get it.

P. & A.

MRS. PHOEBE OMLIE

Our women flyers take their bitter with the sweet. They have run the same pioneering risks, achieved the same laurels, and they continue to label it the most enchanting occupation of all. The spirit of camaraderie that exists in flying is shared by men and women alike. We men are frequently dazzled by their grit and their determination, and I hope we may be pardoned if our feeling toward them is often one of complete reverence.

UNDERWOOD & UNDERWOOD

MRS. KEITH MILLER AND CAPT. W. N. LANCASTER

FROM THE GROUND UP!

Dorris Williams, of the Producing Department at Wichita Falls, Texas, claims the distinction of being the first woman flyer of The Texas Company. She recently completed her first solo flight with the minimum amount of dual instruction, and is being hailed as one of the nation's budding aviatrices.

The mysteries of flying and the beginner's aeronautical hopes and fears are revealed in an intimate, newsy fashion by Miss Williams herself in the October issue of The STAR.

OUR WHO'S WHO

J. J. SMITH, author of the article concerning TEXACO asphalt, has charge of advertising and publicity for the Asphalt Sales Department, acting in this capacity since early in 1926. He served two terms as his department's representative on the Board of Governors of The Texaco Association of New York, and, for the past three years, has been active on the staff of the Association's publication, "Tex-Echoes." Mr. Smith has been with The Texas Company ten years. He is twenty-seven years old, is married and has two children. He is a native New Yorker.

MACK THOMPSON, a frequent contributor to these pages, whose article, "There's a Silver Lining," appears in the current issue, furnishes the following interesting data with regard to himself:

"The subject was born in Fayetteville, Arkansas, in a year not remote enough to be a topic for boastful comment. He served as adjunct professor of Electrical Engineering at the University of Arkansas during '07 and '08, taking a degree in 1908. Filled with the urge of achievement in a romantic background as suggested by the swashbuckling stories of Richard Harding Davis, he adventured to the Canal Zone upon graduation, and assisted with the construction of the Gatun Locks. One unfortunate day he had an encounter with the wrong kind of mosquito, and the upshot of the affair was that the responsibility for building the Canal was once more shifted to the broad shoulders of Colonel Goethals.

"He entered the service of The Texas Company at Port Arthur in 1919 as Electrical Engineer; married Julia Zellner, a home town girl, in 1920; came to the Casper, Wyoming, Works at the time construction was begun on the refinery in 1922; was appointed Power Engineer in 1926, and Plant Engineer in 1928.

MACK THOMPSON

J. J. SMITH

A. S. BAILEY

"He does not hunt or fish, but reads thrilling detective stories; suffers an inferiority complex while playing bridge, and thinks a birdie is a sort of canary. His evening peace is regularly shattered by the youthful exuberance of a son, Franklin, aged six, and a daughter, Betty Ann, four.

"His hobbies are Science and Philosophy with a special predilection for the new Quantum Theory, Relativity, and Tensor Equations. He will discuss these subjects glibly with the milkman or the paper boy, but really knows next to nothing about them."

ARTHUR LEFEVRE, JR., who contributes the article on The Texas Company's exhibits and displays, is active in advertising and exhibit work and, in these connections, has supervised the erection and construction of many Fair exhibits and other displays, developing for the Company several novel advertising devices. He is Assistant President of the Texas Editorial Association and has been identified with its activities for a number of years. Mr. Lefevre is a graduate of the University of Texas, is married and has three children. Born in Baltimore, on October 1, 1890, his family moved to Texas, while he was less than a year old, where he has since resided. He entered the service of The Texas Company in 1913 in the office of THE TEXACO STAR, of which his father, the late Arthur Lefevre, Sr., was then Editor. He served as its Editor from March, 1928, until February, 1929, when the office of Company Publications was removed from Houston to New York.

A. S. BAILEY, whose article on our new West Texas pipe line begins in the current issue, is Vice-President and Assistant Manager of The Texas Pipe Line Company, a subsidiary of The Texas Company. Mr. Bailey entered the service of the Company in the barrel house at Port Arthur Works, where, as he puts it, he "took an extensive course in barrel-rolling under Professor E. C. Follett, then noted for his ability to get more box cars loaded per man than any other individual." Mr. Bailey earned quite a reputation for himself in those early days by organizing and managing some of the best TEXACO baseball teams ever gotten together.

Upon his graduation from the barrel house, Mr. B. E. Hull, President of The Texas Pipe Line Company, essayed what Mr. Bailey characterizes as "the impossible task of transforming me into an engineer, thereby marking what was probably my only failure in an otherwise successful career with The Texas Company.

"After leaving Port Arthur in 1912," Mr. Bailey adds, "I was somehow accepted as a student at the University of Cincinnati, returning later to The Texas Company, where I went to work in the Terminal Division with Mr. L. R. Holmes. I went to Casper, Wyoming, in 1926, and finally returned to Houston last year."

Mr. Bailey, whose article will be concluded in the October issue of The STAR, wishes to acknowledge the assistance of Messrs. Bruyere, Wolf, Catlin, and Jackson for information used in its preparation.

Fighting the Boll-Weevil

(Continued from page 15)

the field from the standpoint of safety is the exceptionally large landing area which provides an unobstructed take-off in eight directions and permits descending planes to taxi a considerable distance before coming to a full stop.

The TEXACO airport at Shreveport at present furnishes accommodations for visiting flyers, who make stop-overs to re-fuel or to effect minor repairs, or, as in many cases, merely to stretch their legs. The city, however, has under consideration plans for the erection of a municipal terminal equipped for day and night flying, and the United States Army is contemplating a site for the establishment of its Third Attack Wing base on the north bank of the Red River, directly opposite the airport.

Captain Frank M. Hawks, holder of several transcontinental non-stop records and superintendent of aviation activities of The Texas Company, approves Shreveport's landing field, making it his headquarters on his frequent visits to southern territory in connection with the Company's business.

TEXACO ACROSS THE SKY

The log of the Spokane Sun God, round trip coast-to-coast plane which established another record for TEXACO products.

MY GRANDFATHER, BUFFALO BILL

Jane Cody Garlow, first woman employe of The Texas Company at our Cody, Wyoming, works, tells her own story of the dauntless frontiersman.

And many other interesting features in the OCTOBER issue of THE TEXACO STAR

TEXACO SERVICE STATION AT JERICHO, VERMONT, NOTABLE ACCESSORIES OF WHICH ARE TWO TAME BLACK BEARS OWNED BY THE PROPRIETOR, WHO APPRECIATES ANIMALS AND THE NOVELTY OF HAVING TWO SUCH AS THESE AROUND

TEXACO *at home···*TEXACO *everywhere*

TEXACO Golden Motor Oil in the crankcase of your car means a smoother, more responsive engine *all* of the time!

A sudden hot spell today—Texaco has that clear full body which will not break down at *any* engine temperature. An unusually cold snap tomorrow—Texaco flows freely and lubricates effectively even when water freezes.

Carefully selected crudes and special refining processes make Texaco free from gummy residual tars—free from "gritty" carbon-forming elements. It is pure as it looks, full bodied as it feels.

Keep a five gallon can handy in your home garage. And if you should need motor oil on the road you can always get the same golden-pure Texaco wherever you may be in any of our 48 States, under the Texaco Red Star with the Green T.

TOUR WITH TEXACO!

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TEXACO PETROLEUM PRODUCTS

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FULL BODY

CLEAN-CLEAR-PURE