The TEXACO STAR

Vol. XVI JANUARY 1929 No. 1

accession no. 4653 Arthur Lefevre, Jr. aug. 5, 1941

The TEXACO STAR

PRINTED MONTHLY FOR DISTRIBUTION TO EMPLOYES AND STOCKHOLDERS

Vol. XVI January 1929 No. 1

"All for Each—Each for All"

Address: The Texaco Star, The Texas Company, Houston, Texas

Expansion

Early in December The Texas Company concluded a contract with the Louisiana Land and Exploration Company, involving the development of about 2,000,000 acres of land lying across the southern portion of Louisiana.

Ten domes on these properties have been located with geophysical instruments, nine well within the boundaries of these lands and one other partially within.

In exchange for the exclusive right to produce oil from these properties, The Texas Company agrees, under certain conditions, to further explore these areas and to drill the domes already located. It also agrees to assume the bonded indebtedness of the Louisiana Land and Exploration Company, amounting to $1,800,000.00, $800,000.00 of this, however, to be recoverable out of one-half of the first royalty oil produced and profits of the Louisiana Land and Exploration Company.

These lands are a part of the large acreage assembled during the past few years by E. F. Simms, of Houston, Texas.

About 80% of the domes discovered in the Gulf Coast of Texas and Louisiana, upon drilling, have been found productive.

R. C. Holmes,
(January 5, 1929.) *President.*

The Export Petroleum Association

By C. B. Ames, Vice President

For a long time a number of American companies have been engaged in export trade in petroleum products. In carrying on this trade, they have met the competition of a rather compact group of foreign companies, but there has been no organization of the American companies, enabling them in any way to act collectively in meeting this competition. Under these circumstances, it has been felt for some time that an export association, organized under the Webb Act, would be beneficial to the American industry without being injurious to foreign consumers. Accordingly, the Export Petroleum Association has been organized and up to this time 15 companies have joined the Association. The names of the companies and their nominees to serve on the Board of Directors of the Export Petroleum Association are as follows:

Atlantic Refining Company	W. M. Irish
Cities Service Company	F. R. Coates
Gulf Refining Company	G. R. Nutty
Marland Oil Company	D. J. Moran
Richfield Oil Co. of California	C. M. Fuller
Shell-Union Oil Corporation	J. C. van Eck
Sinclair Consolidated Oil Corpn.	H. F. Sinclair
Standard Oil Co. of California	K. R. Kingsbury
Standard Export Corporation	W. C. Teagle
Standard Oil Co. (Indiana)	R. W. Stewart
Standard Oil Co. of New York	C. F. Meyer
The Texas Corporation	R. C. Holmes
Tide Water Associated Oil Co.	Axtell J. Byles
Union Oil Co. of California	Paul N. Boggs
Vacuum Oil Company	G. P. Whaley

It is expected that other companies which are engaged in export trade will join the Association.

The permanent officers of the Association have not yet been selected by its Board of Directors, although Gilbert H. Montague, of New York, has been appointed General Counsel of the Association, and also a Vice President to act in an executive capacity pending the selection of a permanent organization.

It is hoped that through this organization some of the unnecessary duplication of marketing facilities and other wasteful and unsatisfactory marketing practices which have prevailed in our domestic markets may be avoided in at least some of the foreign markets, thereby relieving the industry of unnecessary burdens, which should result in benefits, both to the industry and the consumers.

A Hint to Texas Corporation Stockholders

Men should patronize themselves. The stockholders of The Texas Corporation occupy the same position towards their Corporation as does the stockholder of an investment trust towards the diversified holdings represented by his single stock certificate. It is all related in the following enlightening advertisement by an investment trust in the *Wall Street Journal* of New York:

"The Profits of Everyday Living"

"Here is a typical man's day. At breakfast, toast that contains Fleischmann Yeast and flour from wheat reaped with an International Harvester—oranges that paid freight to the Atchison—possibly bananas brought in by United Fruit. He steps into his Buick, stops at a TEXACO filling station and has Prestone put in his radiator.

"At the office, he snaps on a Mazda Electric Lamp, tells the stenographer to make reservations on the Twentieth Century for Thursday. At lunch, he has National Biscuit crackers—and on his way back stops at Woolworth's for a ball for his youngster.

"In the evening the Radiola brings him the latest world news. He writes a personal check for his household expenses on the Bankers Trust Company of New York.

"Can you imagine a safer, surer investment than a composite stock drawing profits from the everyday life of this typical man? That composite stock is . . . . . which owns stocks in a group of American Corporations serving the daily needs of America and the world."

From a letter of a The Texas Corporation stockholder, Gray Knapp, trustee for an estate owning stock, to O. P. Munson, Manager of the Company's plant at Rutland, Vermont, come the following illuminating and constructive excerpts.

He says: "For a long time I have wondered if the average owner of The Texas Company knew very much about his property other than what he saw of its advertising or through his individual use of its products. As an interested stockholder-owner of the Company I am eager to have every stockholder show effective interest looking toward a larger market for its products. Such interest can be fostered and built up by acquainting the stockholders with their property, interpreting to them individually what their interest can do to increase sales as well as goodwill.

"If each individual stockholder in your territory could see the Rutland station as I saw it, understand what it was doing and express that knowledge to his friends and acquaintances it could not but increase the use of Texaco gasoline and oil in your district."

He also says: "Methods of bringing the picture of the business to a stockholder's attention, showing him how his interest can be utilized for the Company's benefit, hence his own, can be worked out. Why not inform each stockholder of what the Company sells, how service is given; bring him pictures of plants, refineries, distributing stations, service equipment on land and sea and in the air?"

In another part he writes: "I have only roughly sketched the idea. The stockholder is no longer merely a source of capital funds, a unit for assessment or dividend receiver. He is more—an individual power who in the group, buys his own products, urges others to do likewise and also, through employe participation, helps to manufacture and distribute his own goods. For his own good the stockholder is interested, to what extent depends upon how his relationship is interpreted so as to manifest itself. I make these comments after considerable thought and observation. It seems to me they merit consideration by those officials of the Company whose object it is to direct all the people who make for a fulfillment of the service which is the Company's slogan."

© Photo by Blank-Stoller, Inc.

R. Ogarrio

The new Vice President in charge of production

Although Rudolfo Ogarrio was born at Juarez, Mexico, and educated in the United States, he really enjoys the distinction of belonging to one of the most remarkable of old world races. His ancestors, on both his father's and mother's side, were Basques, his father's line coming from the Spanish Basque country in the Pyrenees Mountains where, for centuries, they lived and died in the village of Ogarrio, which means "Place of Rocks," and which takes its name from the family itself. On his mother's side he descends from a distinguished French family of the city of Bayonne named Daguerre, a name which evidently at one time meant "From the War." It was one of the members of this family, indeed, who invented the daguerreotype and gave it its name. Although one of the smallest races in Europe in point of numbers, the Basque people have, since time immemorial, shown themselves to be a race of champions. Even in athletics they are prominent, the present outstanding French tennis players, Rene Lacoste and Jean Borotra, being Basques.

Mr. Ogarrio's grandfather, Col. Alexander Ogarrio, came to the United States after the Franco-Prussian War of 1870. Shortly after his arrival he became an intimate friend of General Grant, and through General Grant he became a contractor for the United States Army in the Southwest. His life was an extremely adventurous one, and on many occasions he guided his fleet of prairie schooners around hostile tribes of Apache Indians. The highways from New Orleans to El Paso knew well his commanding figure. Later in life he went to Mexico and his son became Commissioner of Internal Revenues in the administration of President Diaz.

The younger Ogarrio—who is only forty—was born so near the border of the United States that he quite naturally went over to San Antonio to attend Saint Louis College. It was there that he prepared for the course in civil engineering at Massachusetts Institute of Technology at Boston, Massachusetts. After three years of study at this institution he went to the Sheffield Scientific School at Yale University, from which he was graduated in 1909. Thereafter he worked on engineering jobs in Mexico, serving as engineer for the Department of Public Works in Mexico City.

In 1916 Mr. Ogarrio joined The Texas Company as Assistant Engineer at Tampico, Mexico. Late in that year he was transferred to Houston, Texas, where he worked on the preparation of plans for the Company's Tampico Works and Mexican pipe lines. Returning to Tampico in 1917, he served as engineer until all of the facilities which the Company was constructing in that country were completed.

(*Continued on page 8*)

The Tennessee Gasoline Price-Fixing Act

By HARRY T. KLEIN, General Counsel

The United States Supreme Court on January 2, 1929, handed down a decision in the cases of *Albert S. Williams, Commissioner of Finance of the State of Tennessee, et al.* v. *The Texas Company and Standard Oil Company of Louisiana*, affirming the decrees of the District Court for the Middle District of Tennessee in both cases.

These Courts hold that doing of business in gasoline is not a business "affected with a public interest" and that the State Legislatures are without constitutional power to fix the price at which gasoline may be sold. The General Assembly of the State of Tennessee enacted into a law Senate Bill 282, which received the approval of the Governor of said State on April 8, 1927, which bill was entitled: "An Act to regulate the gasoline industry; to regulate the fixing and charging of prices of gasoline and prescribing a method for determining at what prices gasoline dealers may sell gasoline; to prohibit rebate and discrimination; to create and establish a division of the Department of Finance and Taxation to be known as the Division of Motors and Motor Fuels, fixing the duties of the Commissioner of Finance and Taxation and of the Superintendent of such Division with respect to the regulation of sale prices of gasoline, to provide for the issuance of permits to gasoline dealers under the rules and regulations prescribed by the Division of Motors and Motor Fuels; to provide penalties for the violation of this Act; to levy and collect an additional tax on gasoline dealers; and to authorize a judicial review of the orders of the Division of Motors and Motor Fuels."

The Texas Company, the Standard Oil Company of Louisiana, and several other oil companies brought separate suits in the Federal District Court for the Middle District of Tennessee to enjoin the State officers from carrying out their intention to enforce this Act and to institute criminal proceedings for its violation, and to have the Act declared unconstitutional and void. The District Court granted an injunction. Appeals were prosecuted by the State of Tennessee in the cases of The Texas Company and the Standard Oil Company of Louisiana to the United States Supreme Court.

In its opinion affirming the decrees on appeal the Supreme Court says in part:

> It is settled by recent decisions of this Court that a State legislature is without constitutional power to fix prices at which commodities may be sold, services rendered, or property used, unless the business or property involved is "affected with a public interest." *Wolff Co. v. Industrial Court*, 262 U. S. 522; *Tyson & Brother v. Banton*, supra; *Fairmont Co. v. Minnesota*, 274 U. S. 1; *Ribnik v. McBride*, 277 U. S. 350. * * * * *
>
> In support of the Act under review it is urged that gasoline is of widespread use; that enormous quantities of it are sold in the State of Tennessee; and that it has become necessary and indispensable in carrying on commercial and other activities within the State. But we are here concerned with the character of the business, not with its size or the extent to which the commodity is used. Gasoline is one of the ordinary commodities of trade, differing, so far as the question here is affected, in no essential respect from a great variety of other articles commonly bought and sold by merchants and private dealers in the country. The decisions referred to above make it perfectly clear that the business of dealing in such articles, irrespective of its extent, does not come within the phrase "affected with a public interest." Those decisions control the present case.

Counsel for the State argued that even if the price-fixing provisions be held invalid, other provisions of the Act should be upheld as separate and distinct for the reason that Section 12 of this law declared:

> That if any section or provision of this Act shall be held to be invalid this shall not affect the validity of other sections or provisions hereof.

After discussing the various sections of the Act providing against rebating and discrimination, for the establishment of the Division of Motors and Motor Fuels, the issuance of permits and the levy and collection of an additional tax on gasoline dealers, the Supreme Court concludes:

> Accordingly, we must hold that the object of the statute under review was to accomplish the single general purpose which we have stated, and, that purpose failing for want of constitu-

(*Continued on page 8*)

Petroleum in Antiquity

Early Origins of an Industry

By JAMES TERRY DUCE, Consulting Geologist

To most of us the petroleum industry is something new and in our minds, we date its foundation back not over seventy years; yet, as a matter of fact, we find that a trade in petroleum existed in remote antiquity, and that the most ancient races used petroleum for a variety of purposes. Before the advent of man petroleum had a great attraction particularly for animals, as seepages are frequently associated with salt water. The geologists of the Company have many times observed the wallows made by wild animals around seepages of oil where they came to coat themselves with oil in order to drive away the insects which plagued them. So it comes about that in some of the larger seepages of liquid asphalt, quite large animals are mired. In Colombia, for instance, a tapir has been observed caught in a sticky crude oil. At Rancho La Brea near Los Angeles, California, an ancient seepage contained the bones of thousands of animals, many of which are now extinct. Among them are the skeletons of the great sabre-toothed tiger, the great ground sloth, the mammoth, and even birds such as the eagle and a long extinct peacock.

It is probable, therefore, that primitive man was well acquainted with seepages of petroleum and asphalt, and we may well imagine some savage on the Mesopotamian Plains pitching his canoe with asphalt from the seepages near Kirkuk. To him this occurrence of inflammable material issuing in streams from the earth must have been a most remarkable phenomenon, which he was quick to connect with magic and religion so that many places where seepages occurred were sites of fire temples where the fire god was worshipped at eternal flames. Natural fire temples were among the wonders known in many parts of the world, and among the most famous of them was the Temple of Zoroaster at Surakhany; and Sviatoi, or the Holy Island, received its name from its connection with this worship. These temples are now in the midst of the most important oil fields in Russia, and the burning seepages there have been a subject of veneration by the fire worshippers for ages. Another famous example is an ancient fire temple which is said to have existed at Yenangyaung, Burma, where the eternal flame was supplied from the natural gas seepage. Similar temples have existed in India, and possibly also in China and Japan.

Names for petroleum, therefore, early took their place in the languages of ancient people so that it is not strange that the learned Sir Boverton Redwood, in the introduction to his treatise on *Petroleum and Its Products* enumerates no less than twenty-one names for it, all of which have come down from antiquity. The name petroleum comes from the Latin words *petra*, a rock, and *oleum*, oil. It does not, itself, occur in Classic Latin, and probably originated in the Middle Ages. The Germans, in modern times, used a similar expression translating it "erdoel," meaning earth oil. Perhaps the earliest of terms referring to petroleum is naphtha, a Persian word which is sometimes spelled nafta. It appears in many of the place names found in the Near East, for instance Naft Khana and Maidian-i-naftek, and in these cases usually has direct reference to seepages of oil. In ancient Greek we find the word asphalt, which can be traced back to Babylonian origin, for which another exceedingly old name is bitumen, used in both Sanskrit and Latin. The first records we have of petroleum, or its products, however, were found in the religious narratives of the Near East. In the Chaldean account of the flood, we find the words *kupru*, meaning asphalt, and, *iddu*, meaning petroleum. Hersis Adra, the Chaldean Noah, states, in speaking of the ark, "Three measures of pitch I used in calking, and three measures of petroleum I brought inside the ark." A tablet of the time of Sargon, the First, states "Mighty King, King of Agade am I. My mother was a princess, my father I never knew. My father's brother dwelt on the mountain of the town Azurbiranu which lies on the banks of the Euphrates. My mother, a princess, conceived me; in secret she brought me forth. She placed me in a little basket of rushes; with pitch she closed the door. She set me in the river which did not drown me." This probably refers to the method of boat construction, still in use on

FIG. 2, BUST OF MANISHTUSU
Eyes set in asphalt

the Euphrates, by which baskets made of reeds are coated with asphalt from the seepages along the river. In the Bible there are several references to petroleum and asphalt; for instance, in Genesis we are told regarding the Tower of Babel "slime had they for mortar," which refers to the fact that in Mesopotamia bricks were laid in asphalt procured from the seepages of the Babylonian Plain. Slime is the Biblical word for asphalt.

The Vale of Siddim, we are told in Genesis XIV:10, "was full of slime pits," which is a reference to the seepages that exist along the shores of the Dead Sea. In Joab XXIX:6 there is a verse which states that "the rock poured me out rivers of oil," and in Deuteronomy XXXII:13 it speaks of "oil out of the flinty rock." It has been thought by some scholars that these last references are to olive oil, as the olive tree grows on rocky hillsides; but in a region where seepages are so frequent as in Palestine and Mesopotamia, it would seem more logical to believe that these references were to petroleum seepages. Another Biblical reference which may refer to petroleum was when Noah pitched the ark within and without, for Noah's pitch may have been asphalt from some ancient seepage. Besides the references in religious books, archeologists have found many evidences of the use of petroleum or asphalt in the Near East. It was, we know, for instance, a source of black paint, and was used quite freely in mural decorations by the Egyptians and Assyrians. Jewels were set in it, and, in some cases, it was used to set eyes in statues. Dr. E. J. Banks in his explorations between the Euphrates and Tigris Rivers in Syria discovered a marble statue of Lugal-Daudu, King of Adab, one of the early Sumerian rulers who lived about 3000 B. C. This statue had eye sockets inlaid with mother-of-pearl, which was set in asphalt. The bust of an early Sumerian ruler, Manishtusu, King of Kish, who lived about 2600 B. C., was found in the course of excavations at Susa, Persia, where it is supposed to have been carried by an Elamite conquerer in the 12th century, B. C. Of this bust, M. de Morgan states, that "the eyes were composed of white limestones, and were held in their orbits by the aid of bitumen." Nebuchadnezzar laid a pavement of stone set in asphalt about the middle of the 5th century, B.C. The Egyptians used asphalt for a number of purposes, the most important was that of preserving the human body in their mummies. It was their custom to coat the body, and very frequently the wrappings in which the body was encased, with liquid asphalt which was probably obtained from the seepages along the Red Sea. And it is interesting to remember that the basket in which Moses was placed among the bulrushes was daubed "with slime and with pitch," which may very well have referred to asphalt.

In the pages of Greek and Roman writers, we find an extraordinarily large number of references to petroleum and asphalt. Herodotus informs us of the asphalt carried down the waters of Is, a river which discharges into the Euphrates near Kirkuk. He also states that "At Ardericca is a well which produces three different substances, for asphalt, salt, and oil are drawn up from it in the following manner: It is pumped up by means of a swipe, and, instead of a bucket, half a wine skin is attached

to it. Having dipped down with this, a man draws it up, and then pours the contents into a reservoir, and being poured from this into another, it assumes these different forms: the asphalt and the salt immediately become solid, but the oil they collect, and the Persians call it Rhadinance; it is black, and emits a strong odor." This is probably the first reference to producing operations found in literature. He also mentions the oil, or rather asphalt, on the Island of Zante and says, "I myself have seen the asphalt drawn up out of a lake and from water in the Zacynthus; there are several lakes there, the largest of them being seventy feet every way and two orgyoe in depth. It has the smell of asphalt, but, in other respects, it is better than the pitch of Pieria." This last place mentioned by Herodotus is in Albania, and he here refers to asphalt deposits which occur near the wells now being drilled by several oil companies to explore Albanian deposits.

Zeno also describes the use of asphalt in Media where he says that "bricks are laid in solid asphalt." Many other classical writers mention oil or asphalt. Hippocrates refers to asphalt in his treatise on *Airs, Waters, and Places*; Aristotle describes rather minutely the Albanian deposits; Hannibal of Carthage described first the use of petroleum in Greek fire; Diodorus Siculus of Sicily, describes the deposits of Sicily and also those of the Dead Sea, and writes, too, of the trade carried on in the petroleum of Sicily (which continued on down through the Middle Ages) and also states that "natives gathered the asphalt along the Dead Sea and carried it to Egypt where it was sold to those who made a trade of embalming bodies;" Strabo, Plutarch, Josephus, and Tacitus, all describe the deposits of Albania; Dioscides refers to the Dead Sea as Lake Asphaltites; and Pliny the Elder, in his famous *Naturalis Historia*, makes many interesting observations regarding oil. He states of asphalt, for instance, that "it must be shiny and black, otherwise it is adulterated with pitch." He refers to its use for many medicinal purposes and recommends its use for sores, boils, colds, coughs, asthma, blindness, epilepsy, and, in fact, most of the ills of the flesh. He also states that it is sometimes obtained by scraping mummies taken from tombs, and he experimented with the use of its lighter forms as an illuminant, burning Sicilian oil in lamps. But among the most interesting pages in classical literature are those that appear in

FIG. 1, LUGAL-DAUDU, KING OF ADAB—AS TYPE OF SUMERIAN
Eyes set in asphalt.
© *J. B. Lippincott Company* 1918.

Plutarch, where he describes the life of Alexander the Great—when this King visited Kirkuk, in the district of Ecbatana, he was particularly struck with the gulf of fire which streamed continually from an inexhaustible source, and he admired also a flood of naphtha, not far from the gulf, that flowed in such abundance it almost formed a lake. A story is also told that in one part of the celebration attendant upon his arrival the natives scattered along the street drops of naphtha and when night came set it on fire, so that the street in a moment was all aflame. Plutarch also tells of the discovery of oil by an attendant of Alexander on the banks of the Oxus, which may be the first reference to the oils of Tcheleken. It is described thus: "There came out, which diffird nothing from natural oile, having the glosse and fatness so like as there could be discovered no differense between them."

But, by far, the most striking use of petroleum in the early times was its employment in

the manufacture of Greek fire. Far back in antiquity we find liquid fire of some sort was employed in the defense of cities and in some cases in attacks. We are told by the Encyclopedia Britannica that bas-reliefs in Assyria represented the use of liquid fire; and at the Siege of Platea in 429 B.C. the Spartans attempted to burn the town by piling against the walls wood saturated with pitch and sulphur and setting it on fire. In the recipes of Vegetius A. D. 350, naphtha or petroleum is included in many of the formulas for making inflammable substances for use in military enterprises. This petroleum was probably brought from the Baku regions to Constantinople. During the reign of Constantine Pogonatus 648-685 A. D., an architect named Callinicus invented a wet Greek fire which was thrown from siphons; and this substance containing naphtha was a decisive factor in defeating the two attempts of the Saracens to take Constantinople. The art of compounding it was among the jealously guarded secrets of the Greek emperors of Byzantium, and for this reason, it was given the name Greek fire by the Crusaders. The secret of its preparation vanished with the fall of Constantinople in 1453 and was not revived again, although similar types of flame throwers were used on the western front during the Great War. The fall of Constantinople in 1453 really marks the end of the classic period and the beginning of the Renaissance which was to have such an important effect on the peoples of Western Europe. Before this time there was already established a trade in petroleum products. It was an important munition in the magazines of the armies of ancient times. It had much use as a preservative. It was also employed for such diverse uses as calking ships, setting jewels, and laying pavements and walls. We do not know with absolute certainty that it was used for lubrication, but there is evidence to show that it was used as an illuminant. The roots of the petroleum industry, therefore, go back into the very dawn of history. Certainly to the emperors of Byzantium, petroleum was important in a military way even as it is to modern armies, and we can well imagine some learned Byzantine writing a disquisition on the importance of conserving the supply of this most important munition.

Influenza Prevention

The Public Health Authorities throughout the country are still issuing warnings against the epidemic of influenza. It has nowhere been very serious but it has been very general, troublesome, and costly, involving a tremendous waste of time and health. It is wise to take precautions immediately rather than when it is too late. Doctors say that precautions are extremely simple and easy to follow. The most important of them are:

1. Keep out of crowds.

2. Make a special effort to keep in good physical condition by proper diet, exercise, and sleep.

3. If you feel a cold or grippe coming on, take care of yourself at once rather than putting it off.

4. Avoid people who are known to be ill with influenza.

(Continued from page 3)

In November 1918 Mr. Ogarrio was appointed Assistant General Superintendent of the Refining and Pipe Line Department of The Texas Company of Mexico, S. A. In January 1919 he was promoted to the position of General Superintendent. In January 1922 he took over the additional duties of General Superintendent of the Producing Department. In 1923 he was assigned to the supervision of exploration work in Panama and Venezuela, and in January 1925 was appointed Manager of the Texas Petroleum Company which had been organized to operate in these countries. In December 1925 Mr. Ogarrio was called to New York as Assistant to D. J. Moran, then Vice President in Charge of Production.

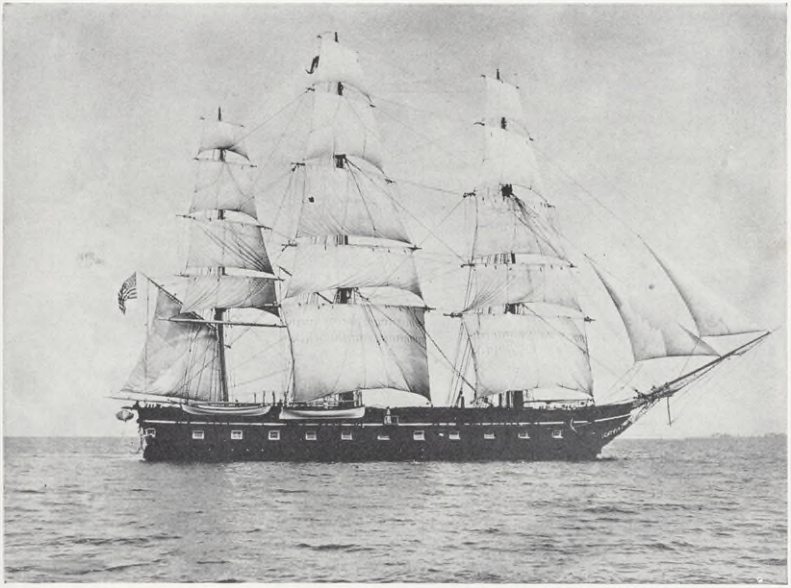
(Continued from page 4)

tional power to effect it, the remaining portions of the Act, serving merely to facilitate or contribute to the consummation of the purpose, must likewise fall.

Justice Holmes dissented. Justices Brandeis and Stone concurred in the result.

American Merchant Training Ships

By ARTHUR M. TODE, Superintendent Technical Division, Marine Department

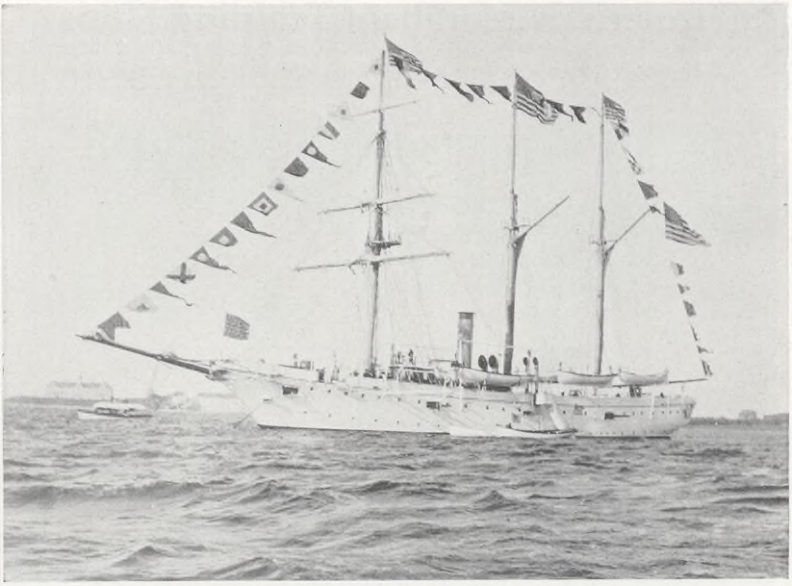


Training Ship "St. Mary's" (1874-1908)

After the close of the Civil War efforts were made to establish Nautical Schools as provided by the Federal Government through an Act passed in 1874. They purported to give the American boy a sound scholastic and nautical education in order to fit him more ably for the duties of the mariner.

New York was the first state to avail itself of the Act. A full-rigged vessel was secured from the Navy Department and, in December 1874, under the direction of the New York City Board of Education, the gangway to the New York Nautical School was put out. The new schoolship was the 766-ton vessel, *St. Mary's*. This vessel was a veteran of the Mexican War, originally fitted with a battery of twenty guns, and had served with the Pacific and Asiatic squadrons. On one occasion she defended the harbor of the City of Valparaiso from bombardment by a Chilean man-o'-war. The *St. Mary's* did duty as a training ship until 1908 when she was condemned. A junk man in Boston bought the old veteran and after stripping her of all valuable appurtenances, he then burned the hull for the copper it contained. Thus do we, in America, the richest country in the world, dispose of our historical relics. The *Constitution* has been doomed to ignominious junking numerous times, always being saved at the last moment by popular subscription. English ports are filled with their grand old ships—from the three-tier square-riggers of Armada days to veterans of Trafalgar.

After the passing of the *St. Mary's*, a more modern gunboat was secured. This was the



U. S. S. "Newport"—Present Training Ship of the New York State Nautical School

composite steel and wood barkentine, *Newport*, which is still doing duty today as the New York Merchant Marine Training Ship. The U. S. S. *Newport* is a vessel of 1010 tons, and is better adapted for a schoolship than its predecessor, because it is both a sail and steam vessel, thereby permitting instruction in Marine Engineering and Electricity. This is important. The age of the full-rigged ship laboring under royals and stunsails has passed. The day of the *Flying Cloud* and the *Dreadnaught* type of ship is over. There is no more locking the topsail halyards, no more sending sailors aloft in freezing weather to feed the gilded horse at the main truck with a wisp of hay, no more routing men out at the three-o'clock-in-the-morning bell to send spars up and keeping them working until eight o'clock at night sending spars down. In those days, the men became disgusted and were often forced over the side and ashore without pay only to be rated as deserters. The boys who start out on a seafaring life now are so much more closely and humanely hedged about that much of the hardship is taken away from life at sea.

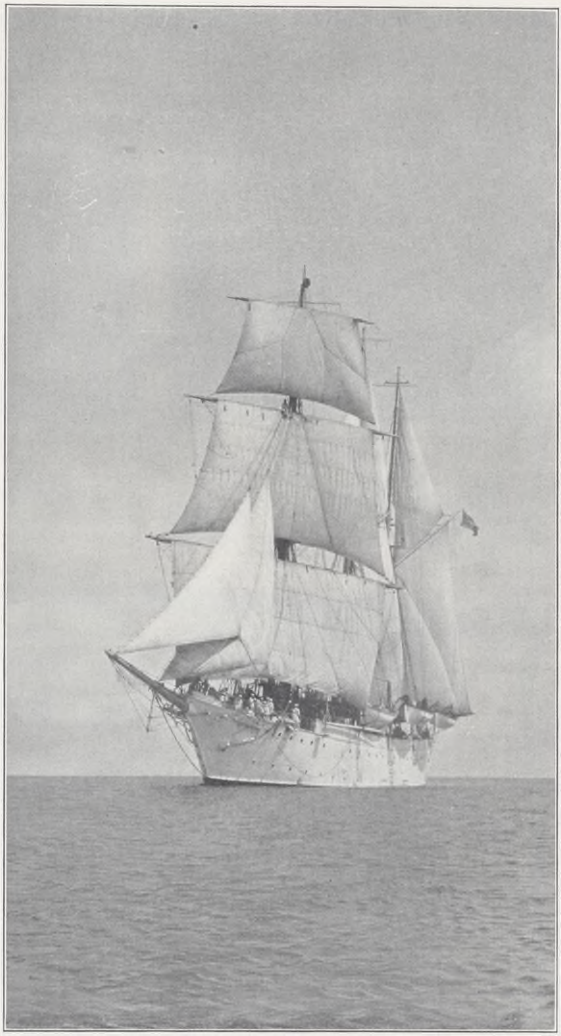
The Training Ship *Newport* is powered with a 1000 H.P. triple-expansion engine receiving steam from Scotch boilers. As is customary in Naval practice, her steam and electric auxiliaries are laid out in duplicate. A modern steering gear, wireless equipment, telegraph communication, submarine signal receiving set, Sperry Gyro-compass, etc., are included in her apparatus for the training of the engineer cadets. Her complement consists of 110 cadets, appointed after competitive examination throughout the State of New York, and officers, instructors, and crew to the number of 30. Applicants must be between the ages of 17 and 21 years, must have graduated from high school, be of sound constitution and free from all physical defects, of good character, and must genuinely want to follow the sea.

The instruction on board the American Merchant Training Ships, in both deck and engine room departments, is carried out by Merchant

Marine or Naval officers selected for their particular qualifications. The subjects embraced are Mathematics, Seamanship, Naval Construction, Navigation, Astronomy, International Law, Ships' Business, *etc.*, for the Deck Department cadets, while Marine Engineering in its various phases together with Thermo-dynamics, Principles of Mechanics, Machine Shop Practice, Engineering Mathematics, are taught the Engineering cadets. The courses aboard the Training Ships are rigidly upheld during the intensive two years of theoretical and practical work.

It is of interest to observe that instruction in petroleum and its products in the three Nautical Schools is supplemented by the use of a complete set of fuel oils, lubricating oils, *etc.*, furnished by The Texas Company, together with courses of instruction prepared by the Chief Engineers of the Training Ships.

The boy who starts off to sea, either aboard one of the Training Ships or aboard a regular merchantman, expecting that he is going to wear kid gloves when he pulls on a rope, and hoist an umbrella every time it rains, will have some hard rubs at first. But if he takes hold of everything with a will, tries to do all that he can, studies, shuts his eyes and ears to some of the things he sees and hears, he is going to make a success of going to sea—if he sticks to it. One of the first things taught on board the Training Ships is to obey, implicitly, quickly and without asking the reason why. This done, learning to command will follow as a



School Ship "Newport" in the Northeast Trades

natural course. A poor officer makes a poor crew.

The graduates of the Nautical Schools form an important part of the United States Naval Reserve. During the World War, hundreds of them were enrolled as Commissioned Officers in the armed forces of the country and many distinguished themselves during hostilities and engagements. Captain Emory Rice in command of the S. S. *Mongolia* sank the first submarine after the United States' entry into the war, and Captain John H. Boesch successfully defended the Azores from submarine attack while Master of the U. S. S. *Orion*. Captain Herbert Hartly, late in command of the S. S. *Leviathan*, Captain Paul C. Grening, of the S. S. *President Harding*, rescuer of the S. S. *Ignazio Floria* disaster, Captain Schuyler F. Cummings, who saved the survivors of the S. S. *Vestris* while commanding the S. S. *American Shipper*, as well as many other prominent seafaring men, are all graduates of the course given aboard American Merchant Training Ships.

Fifty years ago, even twenty-five years ago, if a young man from New York or Cape Cod desired to satisfy his longing for a seafaring life, it was necessary—except in a few cases where apprenticeships were available—for him to offer his services as a cabin boy or ordinary seaman and take his place in the forecastle. Under the rough and ready conditions of earlier days, he obtained a knowledge of navigation as best he could. Now, in the Nautical Schools, the States have wisely provided for the young man who desires to follow the sea. He can obtain a well-rounded nautical education in a systematic, intelligent manner, under good shipboard conditions and under instructors who are men of the highest standing in their profession.

All properly directed efforts to re-create the American Merchant Marine and to restore it to the high plane it held so long, presuppose the existence of sources for the training of the modern officers needed. Our distinction in the days of sail was the product of methods, wasteful sometimes, and always rough, but of methods best suited to the environment. Since the substitution of motor power for canvas, other conditions have entered and it is now agreed that those conditions are most usefully satisfied by a preliminary education on board seagoing training ships.

Inspection

New York's Automobile Show

Twenty-ninth Annual Exposition of Motor Cars

Photo by N. Lazarnick.
Center of main floor

Photo by N. Lazarnick.
View of second floor

The twenty-ninth Annual Automobile Show, sponsored by the Automobile Chamber of Commerce, opened in New York City on January 5 and continued for one week, drawing thousands of interested onlookers and buyers to the Grand Central Palace. For the last several years this annual exhibition of motor cars and accessories has become more and more of a show in the theatrical sense of the word. No longer is it but a technical and commercial convention for manufacturers. It is still that, but now, as people of the United States, especially the women, have become interested in the automobile and have become better versed in the subject, there is a broader appeal. This year's show, with its luxurious appointments and spectacular presentation, is the greatest that has ever been held. Veteran motorists are interested in the exhibits as illustrating the latest in automotive efficiency and elegance. Many of them go to buy if they think that the improvements they see justify trading in the old car. Thousands of others, of course, merely go to see. For them the whole thing is an entertaining show. To some of these people who come with an open mind the cars sell themselves and in turn they become the motorists of next year's show.

This year there was more to see than ever before. The new cars outdid their predecessors in beauty of color and design, excellence of performance and ease of riding quality.

The automobile is in a period of refinement. Many cars, heretofore mere black buggies designed primarily to transport, are blossoming out in colorful raiment. In the matter of finish there was a variety ranging from nickel plate to alligator skin and the cars were shown in a setting suited to their peculiar characteristics. A rich brown carpet—11,000 square yards in size—was woven especially for the show and the pillars on the main floor were covered with a greenish-gold damask. One innovation which added convenience and splendor was a grand staircase which led from the main floor to the mezzanine, where many of the more expensive cars were shown. New departures in lighting and interior decorating were in evidence everywhere. Hanging above the fork of the grand staircase was a specially executed tapestry of grand proportions.

Among the 300 models, representing 46 makes of cars, there were five European automobiles, coming from France, England, and Germany. One of the English cars had twelve cylinders; the French models were of both six and eight cylinders. All reflected a fine attention to detail both in design and engineering. This was the first year that foreign automobiles were exhibited at the National Show.

Of the American chassis on display, 53 were six-cylinder cars, five had eight cylinders of the V-type arrangement, while 34 had eight cylinders arranged either in tandem or as con-

ventional straight eights. Five cars were mounted on four-cylinder chassis, one of them being an imported model of the cycle car variety. The four-cylinder cars, with the exception of the cycle car, all have four wheel brakes, three bearing crankshafts, and wheel bases approximating 102 inches.

The engines of all this year's four-cylinder cars are of L head construction; and with the exception of five makes, this also applies to the six-cylinder engines employing poppet valve design, the exceptions being all of the valve-in-the-head type. The average bore of the four-cylinder engines is 3.5 inches, with a stroke of 4.3 inches; six cylinders average 3.4 inches, stroke 4.7 inches; while the eight-cylinder engines average 3.2 inches bore and 4.6 inches stroke.

With the exception of sixteen engines of six cylinders, all motors use seven main bearings, and of the eight-cylinder engines four use nine bearings and the balance five main bearings.

§ *Photo by N. Lazarnick.*

A main floor open space

The vibration dampener, long popular in European automobile design has been very well adapted to American requirements, and is found embodied in twenty-eight engines, while eighteen engines use the counter-balance crankshaft.

Oil filters have become almost general as well as crank case ventilation, the latter usually of the down draft type.

Fuel pumps are seen on a number of the new cars, usually replacing the vacuum tank. Lighter and better metals are the rule. Better workmanship is noticeable on every side; details have received painstaking attention. Chassis are noticeably clean in appearance and reflect a marked smartness; coil and battery ignition is general. Three cars are equipped with double ignition.

Clutches are of the dry disc type with two exceptions, where an oil bath is used. Clutches are larger, with greater care being given to increasing their normal life.

Brakes are found on all four wheels actuated either mechanically or hydraulically, and are usually of the expanding type. The parking brake is usually on the propeller shaft, braking through the rear wheels only. Several examples of contracting band brakes on all four wheels are still in evidence, but are afforded better protection by splash guards than has been the usual practice in the past.

Frames are heavier to offset the stresses imposed by car speeds made possible by the latest cars. Steering wheels are mostly flat surfaced, of moulded rubber composition over a metal frame; controls of lights, spark, and throttle are usually carried in the centre of the steering wheel at the top of the post.

Instrument boards are usually illuminated by concealed lights, often employing tinted bulbs to add to the softness of the general effect.

The most striking improvements have been made in appearance. The manufacturers know that pleasing body lines are highly important from a sales standpoint and equally important from the standpoint of the purchaser. As the number of women buyers increases this importance grows daily.

More and more cars are being converted to the low-hung chassis, thus reducing the center of gravity and enabling the designers to achieve graceful, sweeping lines, which are now the vogue. From the radiator cap to the tail-light the newest models are the embodiment of speed and grace. Also fashionable this year are wire wheels. In most makes, however, wooden spokes are still standard, so there is an extra charge for wire ones. Discs are still in evidence. But in all the appurtenances and trappings more originality is being brought out. The visor and windshield treatment is becoming less standardized. Fender wells with tailored covers are also popular and lend snap to the entire car. The fenders themselves are receiving more attention than before, generally having a well crowned full guard, often with a wind breaker pressed at the front ends of the forward fenders. Chromium plated radiator shell and full complement of lamp and ac-

Photo by N. Lazarnick.

The grand staircase

© Photo by N. Lazarnick.

View of main floor

cessories add to the richness of practically all the cars.

The interiors of the cars are as appealing as the exteriors and include fittings and accessories that are bound to appeal to the feminine taste. Form fitting seats made of plush, mohair or broadcloth enhance the beauty and comfort of the car. Arm rests and silk assist cords are now found in almost all models and are considered common conveniences. Internal fittings have been beautified and made artistic in keeping with the general pace of improvement. These are of silver or bronze or a combination of the two, wrought into the most artistic effects possible and include ash receivers, clocks, vanity cases, vases, *etc.*

Added to the comfort of the cars is roominess. The cars of yesterday that afforded ample head room often appeared top-heavy while those of more pleasing appearance failed to give sufficient head room, even for a graceful stoop. In recent years this condition has been corrected, allowing sufficient clearance for the person of average stature, and permitting a graceful stoop for those who are taller. To do this, without infringing upon the artistic appearance of the car, it was necessary to lower both the floor of the car and the running board, which has been done by a specially designed frame and smaller wheels. Cars which are reasonably short in length have been provided with sloping seats, which are made adjustable to meet the needs of shorter and taller occupants.

Although the new cars have been designed with comfort as a major issue, the factor of safety has, nevertheless, not been overlooked. Ample vision has been provided, while special care has been taken to so arrange the interior of the car and its fittings as to reduce reflection to a minimum. The new seats, affording sufficient leg room, not only provide comfort for the driver, but also cover the safety element,

(*Continued on page 26*)

From the balcony above the grand staircase

§ *Photo by N. Lazarnick.*

Shanghai's Welcome

Feast Offered by Texaco Agents to Company Visitors

By R. L. DRAKE, General Superintendent Case and Package Division, Port Arthur, Texas

The Chinese title to the accompanying photograph reads: "A Welcome Feast given by the agents of the Shanghai District in honor of the representatives from the New York Office. Memorial Picture taken on October 12, 1928."

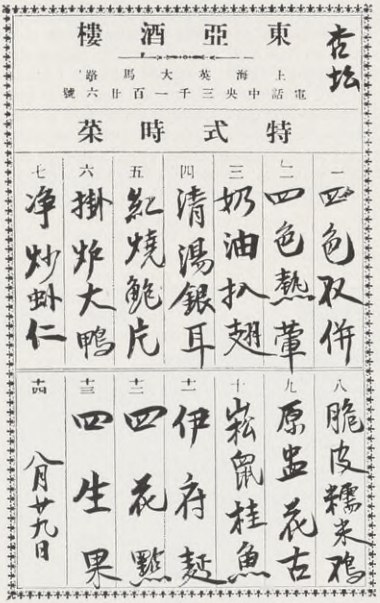
The "Foreigners" are, from left to right: A. Jones, Chief Accountant for China; P. F. LeFevre, Assistant General Manager for China; C. H. Hanscomb, Assistant General Manager for China; J. V. Murray, Assistant to the Management, Export Department, New York; H. M. Herron, Assistant Manager, Export Department, New York; R. M. Worley (standing in center of second row) Marketing Assistant, Shanghai; R. L. Drake, General Superintendent, Case & Package Division, Port Arthur, Texas; C. Boesholm, General Manager for China; Wm. Kunstadter, Chief Accountant, Export Department, New York; N. F. Xavier, Manager Lubricating Oil Sales, China.

The Chinese gentlemen, standing in second row, left to right, are: Mr. Chow; Mr. Wu (Tungchow); Mr. Chen (Haimen); Mr. Liu (Shaohing); Mr. Foong (Nantao); Mr. Chen (Soochow); Mr. Chen (Kashing); Mr. Kiang, District Manager, Shanghai District.

The Chinese gentlemen, third row, left to right, are: Mr. Yue; Mr. Wu (Soochow); Mr. Seng (Lanchi); Mr. Sung (Hangchow); Mr. Wang (Soochow); Mr. Chen (Ningpo); Mr. Chen (Changchow); Mr. Wu (Nantao).

Over here in Shanghai these Chinese Agents did not invite us to a Welcome Feast; we were invited to a Chinese Chow. That is quite the proper name for a banquet and, believe me, the affair was some banquet even as these functions go in China.

The Agents of the Shanghai District are the Chinese who are distributors of Texaco



Menu for Thirteen Course Chinese Chow given by the Shanghai Chinese Agents carrying on their own business in Texaco products in and around Shanghai.

One of the four cold mixed dishes under No. 1 was a serving of boiled eggs of a rich brown and greenish color, the result of a six months' stay in lime. Really quite tasty.

Bird's-Nest Soup and Creamed Shark's Fins leave nothing to be desired as a change in diet and while No. 8, Rice in Hard Skin of Chicken, is a hand-to-mouth affair and a little difficult to keep intact, it is one of the fifty-seven ways of serving the ever-present rice.

products. Many of them are wealthy men owning their own establishments, often selling other lines and covering a rather considerable territory.

Very hospitably, they invited us to this chow which, particularly to those of us who had never attended one of these affairs before, was novel, interesting and enjoyable. It gave us an opportunity of meeting these Chinese gentlemen on their own ground and enjoying an evening with them in their own way of entertaining.

The chow was served at one of the best Chinese restaurants in Shanghai. We were seated at three round tables, we "foreigners" being divided among the tables. Of course, we used chopsticks (as best we could) for it was those or nothing. Knives, forks and spoons would have been very much out of place. As each course was served, and there were thirteen courses, the platters were placed in the middle of the table and we helped ourselves, eating directly from the platter or, if we preferred, serving the food to a small dish and eating from that. There were many delectable dishes we had never partaken of before. The bird's-nest soup and the shark's fins were quite good. These as well as other items might be added to American menus and at least add interest to the list. Perhaps you have never eaten Peking Duck? Well, that's a choice piece of fat duck skin rolled in a doughy pancake with a dressing something like H. P. sauce on it. We took a second helping of this. We did justice to each course. During the evening, and quite a long evening was consumed, we were entertained by Chinese fiddlers whose music on their two-stringed fiddles

played with the horsehairs of the bow between the strings was unique. As was quite proper for such an elaborate banquet, we also were entertained with several vocal numbers by very high-class "sing-song" girls who sang to the music of the fiddles. Following the custom at such affairs we circulated during the meal between tables, paying our respects to those seated at other than our own tables.

Between courses we learned and played the Chinese game of "Fingers." There are two players who face each other. Simultaneously the players quickly raise one hand in front of each opponent and shout out a number. A certain number of thumbs and fingers have been raised and the player who properly guesses the sum of thumbs and fingers raised on the hands of both players wins the play, and the looser must take a drink as a penalty. (But this is China!) The Chinese are very quick at this game and get much amusement out of it.

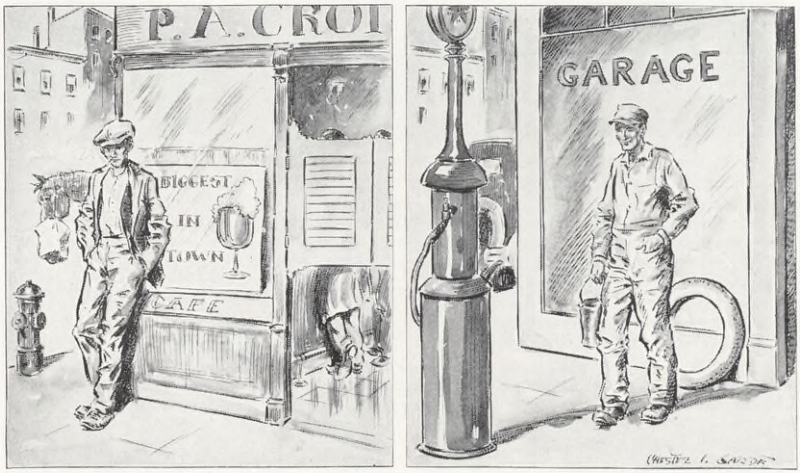
They sprung another on us, also. Lighting a match they stuck the lower end in an apple and started passing this around the table, the idea being to pass the apple to the next guest before the match goes out. If the match blows or burns out while the apple is in your hand you lose and must suffer by taking another drink. (But, I repeat, this is China.)

If you like your wine hot, not warm but hot, you are in line for a Chinese chow, and if your champagne appetite is now being satisfied with beer a Chinese chow would appease the appetite and not disturb the beer arrangement, for both drinks are served at one and the same time.

There must need be some outward body refreshment during the lengthy course of such a meal, so at opportune times steaming hot Turkish towels are passed around with which one can wipe one's face and hands. Here's an idea which the Ritz might take on to help improve the service!

H. M. Herron, Assistant Manager, Export Department, New York, responded to the toast to the visitors, thanking the agents for their hospitality. The remarks were translated into Chinese by Z. S. Kiang.

To those seeking something different in foods and flavors, I recommend a Chinese Chow.



The Corner Filling Station. Then and Now

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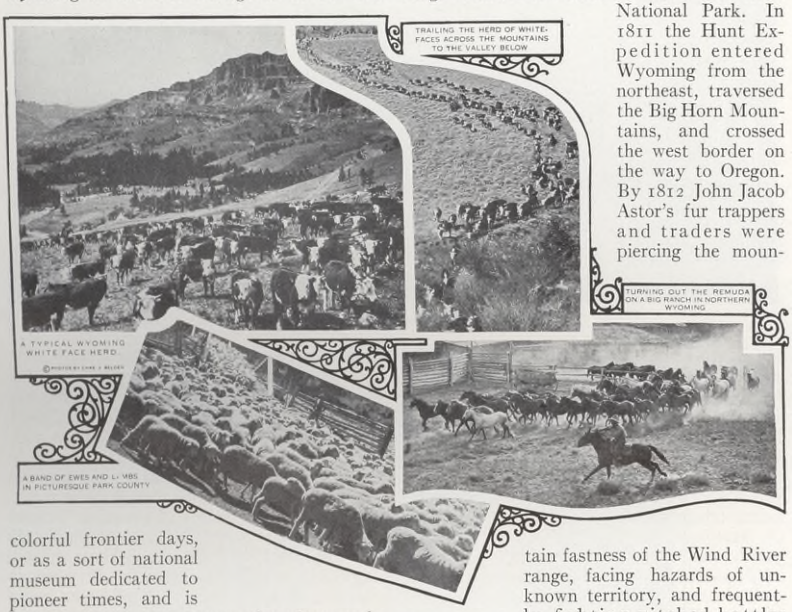
Wyoming

Land of Versatility

By MACK THOMPSON, Casper Works

When Wyoming is mentioned the average American citizen immediately visualizes covered wagons, painted Indians, buffalo stampedes, the Pony Express, and the wild, free life of the range country. Figuratively, he reserves Wyoming as the last stronghold of the old colorful frontier days, or as a sort of national museum dedicated to pioneer times, and is prone to deprecate any suggestion of encroaching commerce that would tend to dispel the romantic halo. Yet in a few decades this richly endowed State has evolved an agriculture and an industry.



Wyoming literally sits on top of the world, shedding waters to the Gulf of Mexico, to the Pacific Ocean and to the Gulf of California. Her history begins at the dawn of the nineteenth century just after the Lewis and Clark Expedition had been commissioned by Congress to explore the unknown Northwest. There followed three-quarters of a century replete with tales of action and adventure as thrilling as any in the pages of American history. In 1806 John Coulter, a member of the Lewis and Clark Expedition, discovered that magic domain now known as the Yellowstone National Park. In 1811 the Hunt Expedition entered Wyoming from the northeast, traversed the Big Horn Mountains, and crossed the west border on the way to Oregon. By 1812 John Jacob Astor's fur trappers and traders were piercing the mountain fastness of the Wind River range, facing hazards of unknown territory, and frequently fighting pitched battles with hostile Indians that swarmed in the region. Captain Bonneville made his venture into Wyoming in 1832, and was so intrigued with the West that he remained for several years. The facile pen of Washington Irving has made these early periods of Western history immortal in his stirring tales of the first intrepid explorers. In 1842 General Fremont, under the guidance of Kit Carson, discovered the famous Fremont Peak which lifts a snow-capped crest to an elevation of 13,730 feet

Branding calves in a corral © *Photo by Chas. J. Belden.*

above sea level. A few years later the great exodus to the Pacific coast established the Oregon Trail running the length of the State from east to west. Thousands of home seekers in an endless succession of caravans traveled this dangerous and arduous route to Oregon, California, and Utah. The Pony Express, which shortly antedated the first transcontinental telegraph line, made a picturesque page of American history. Buffalo Bill, then a youth, was its most famous rider. The story of President Lincoln's inauguration was first carried across the continent by the Pony Express. In Wyoming the news was flashed from one rider to another at Fort Bridger, in the southwestern part of the State. The completion of the Union Pacific in 1869, the first transcontinental railroad, marked the beginning of the epoch of rapid colonization, agriculture, mining, and industry.

There still lingers a touch of the old West. Today tribes of the Shoshones, Cheyennes, and Crow Indians roam over large areas; cowboys, bronchos, and roundups are still important institutions. The Teton Mountains, that spectacular range which resembles the Alps more than any other mountain system known, rear their icy summits in picturesque contrast with the plain and plateau portions. Wyoming has the greatest game preserves left in the United States. What sportsman is not familiar with that hunter's paradise—the Jackson Hole Country—where bands of moose, elk, deer and other wild animals quench their thirst at nightfall in the placid waters of beautiful Jackson Lake? Hundreds of miles of scenic mountain streams teem with game trout. These unusual attributes combine to make of Wyoming a playground and a vacation land for an entire nation, and have evolved that unique institution peculiar to the State and known as the "dude ranch."

The great natural resources of the State consist of extensive deposits of oil shale, asbestos, cement, clay, bentonite, chromium, and iron. In fact, within the confines of the State there are no less than 150 distinct minerals and commercial clays now geologically listed. Wyoming produces more iron ore than all the other Rocky Mountain States together. It ranks second in the sheep industry, producing twenty-five million pounds of wool annually

A CLOSE UP OF THE GRAND TETON IN THE TETON RANGE. THE PICTURESQUE MOUNTAIN ROAD SEEMINGLY RUNS ABRUPTLY INTO THE BASE OF THE MAJESTIC PEAK. IT IS PURELY AN OPTICAL ILLUSION. THE FOOT OF THE MOUNTAIN IS MILES AWAY FROM THE POINT WHERE THE ROAD DISAPPEARS IN THE PINES.

ONE OF NATURE'S SUPERB MASTER-PIECES IN WESTERN WYOMING—JEANNETTE PEAK AND STRING LAKE

A SCENE IN MOVIELAND, WITH REAL WYOMING INDIANS.

A SPLENDID SCENIC HIGHWAY BETWEEN BUFFALO AND SHERIDAN

OILED ROAD, ALBANY COUNTY.

from three million head of sheep. Eight hundred thousand head of fine-bred beef cattle range the plains and foothills. Wyoming is the sixth State in the production of crude oil. Some twenty-odd million barrels are garnered annually from almost forty distinct oil fields. The Oregon Basin field near Cody promises to become one of the most important black oil producers. Casper, a refining town in the central part of the State, has the distinction of shipping more cars of refined oil by rail than any other city in the world. Due to its topography Wyoming has potentially over one million horsepower of energy available in her streams. The coal reserves are known to exceed the almost inconceivable total of a thousand billion tons. Reserves of natural gas aggregating billions of cubic feet are conserved and piped to industrial centers for consumption.

AN ELK HERD ON THE WINTER FEEDING GROUND IN NOTED JACKSON HOLE COUNTRY.

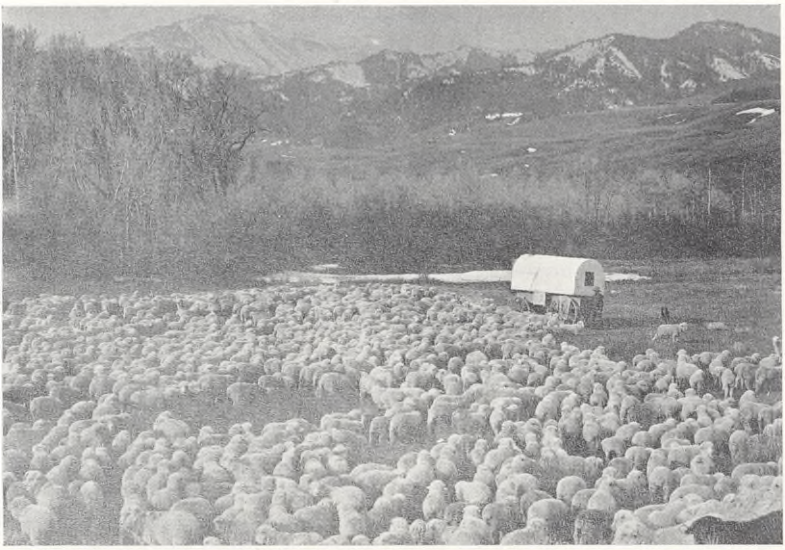
COWBOYS BREAKING CAMP IN THE MOUNTAINS READY TO LEAVE ON THE ROUNDUP.

SUNSET AT THE WATER-HOLE. A BAND OF OUTLAWS WHO CHALLENGE THE WORLD'S CLEVEREST COWBOY RIDERS AT THE CHEYENNE FRONTIER DAYS.

There is no timber famine in Wyoming. Federal forest reserves occupy thirteen percent of the State's area. Among these famous reserves is the Medicine Bow National Forest where the Indians celebrated their annual bow-making festival long before the Oregon Trail was blazed through the State. Another reserve is the Big Horn National Forest. The Big Horn peaks were worshipped by the Indians. On Medicine Mountain is the "Medicine Wheel" built so long ago by early aborigines that even legendary history is lacking. Other reserves are the Hayden National Forest, the Washakie National Forest, the Teton National Forest, the Wyoming National Forest, the Shoshone National Forest, and the Black Hills National Forest. These wooded areas represent an aggregate of fifteen billion board feet of timber, most of which is in the graceful trunks of growing lodgepole pines.

The Federal highway system for the State comprises 3,023 miles. The State highway department has completed 1,200 miles of surfaced roads, and an additional 800 miles have been graded to Federal aid standards. The highway department is now engaged upon a comprehensive experimental program with asphaltic road oils. It is believed that these experiments will revolutionize the technique of road building and will give Wyoming a network of excellent roads unequalled in any country with a population density of only 2.5 persons per square mile.

The altitude varies from a minimum elevation of 3,125 feet to a maximum of 13,785 feet with a mean elevation of approximately one mile above sea level. This elevation eliminates those intervening humid strata common to lower altitudes, which absorb the germ destroying components of the sun's rays. Thus Wyoming is constantly bathed with pure dry air, and the therapeutic rays of a vitalizing sun. Bacteria, microbes, germs, and parasitic life in general cannot thrive in such an environment. Proof of Wyoming's healthfulness is evidenced by the fact that during the



A shepherd's home and flock © Photo by Chas. J. Belden.

World War her service men stood first in the army records for physical perfection. Hot waves are unknown, while the cold waves are infrequent and are of short duration. The chilling effect of a cold wave is surprisingly modified by the low humidity prevailing at all times. During the hot summer months when a large proportion of the nation's inhabitants are sweltering in sultry and unrefreshing naps, the Wyomingites are sleeping restfully beneath their blankets. The average annual temperature at Casper is 49°, and the average precipitation is about 13 inches.

The benefits of the salutary climate are not confined to persons. The same advantages of pure air and unfiltered sunlight make possible the growth of superior crops of vegetables, grain, and hay. Certified seed potatoes, peas, and beans are grown on a large scale for shipment to other sections of the country.

The long sunny days and cool nights are ideal for the production of a superior quality of water-white honey that tops the market and that has a national reputation for its delicious flavor.

However, Wyoming's production of sweets is not limited to honey. Another important crop is the sugar beet, which averages a high yield per acre and ranks at the top in sugar content, containing 15.2% sugar. Several sugar factories in the State take the raw beets as they come from the field, extract and refine the sugar, and pack and distribute thousands of bags of the finished product each season.

It is a well known fact, paradoxical as it may seem, that usually in the land of the cowboy, canned milk must be requisitioned for the matutinal coffee. But Wyoming is an exception to this rule, since her dairy business exceeds five million dollars annually. Creameries, cheese factories, and ice cream manufacturing plants dot the countryside.

The cool, dry climate with periodic low temperatures is peculiarly adapted to the growing of rich glossy furs. For over a hundred years, since the day of the pioneer trapper, there has been a premium on fur grown in this region. The cultivation of the silver fox and of the chinchilla hare is fast becoming an industry of considerable importance.

The total value of crops raised is over thirty-five million dollars annually. The soil is rich in the mineral plant foods, and readily grows such exacting crops as alfalfa and the nitrogen-

gathering legumes. As an index to the inherent fertility of the soil a five-year comparison may be cited wherein the corn yield per acre in Wyoming is higher than Oklahoma, Kansas, Colorado, Montana, New Mexico, and most of the southern States.

Thousands of acres are under irrigation, but over two million acres susceptible of irrigation remain to be put in cultivation. In addition to numberless private irrigation projects are the Federal reclamation projects. The Shoshone project in northern Wyoming and the North Platte project in the eastern section furnish water for irrigation from ample streams supplemented by impounded waters in the great Shoshone, Pathfinder, and Guernsey reservoirs. The Riverton project is now under construction, and when finished will make possible the intensive cultivation of many additional fertile acres.

The great diversity of Wyoming's natural advantages could not be suggested comprehensively without mention of the great mineral hot springs at Thermopolis. These are the largest in the world. Their curative power was known to the Indians long before the advent of the white man. The waters are especially potent in the treatment of rheumatism, heart and circulatory diseases, and almost miraculously aid many pathological conditions of the body. Thousands of patients receive the benefits of these healing springs annually.

What was perhaps the most daring political experiment in American history—though it may appear commonplace to our modern sophistication—was initiated in Wyoming. As far back as 1869 when Wyoming was created a territory, the women were granted the ballot by legislative act. Thus Wyoming was the first political unit to grant suffrage to women, and to pioneer the way for the forty-seven other States to recognize the political equality of women. The commendable social and political emancipation of women is taken today as a matter of course. But consider the radical innovation established by those pioneer legislators back in 1869. Again in 1925 Wyoming achieved a greater distinction in this respect by being the first State to elevate a woman to the position of chief executive.

(*Continued from page 16*)

giving proper area for rapid manipulation of foot-pedals. Automatic windshield cleaners have been provided which in some cases clean the entire surface of the shield, while in others they are electrically heated as a measure against sleet and ice, representing an added item of safety for both occupants and pedestrians.

The past year has witnessed some real strides towards solving the problems, which in the past have been more or less vexing, related to cold weather driving. Radiator-protection shutters, both hand-operated and operated from the dash, have been developed and improved upon; freeze testers for use in connection with checking up on anti-freeze mixtures, and radiator heaters, which attach to any ordinary light socket in the garage—all contribute their share to the pleasure of the motorist and the safety of the equipment. Heavy robes for warmth when driving in cold weather are no longer necessary for the modern car is properly and uniformly heated by hot air from the engine.

In addition to the improvements that have been added to the motor itself, there has been a considerable betterment of the electrical equipment of cars, simplifying the system and providing against short circuits from rain or dampness. There have also been decided changes made to the carburetor, which tend to improve both the starting and acceleration.

The necessity for constant clean oil has prompted the installation of oil filters on practically all of the cars and the automotive industry is coming rapidly to the universal practice of supplying all bearings with oil under pressure. Aluminum is the popular material for use in piston rings, and there has been an increase in the use of an oil ring at the bottom of the piston, which not only holds the skirt firm but prevents excessive oiling above the piston. Car vibration has been materially reduced through the use of better and heavier propeller shafts, and practically all rear axles are of the semi-floating type. A further well directed improvement is noted in gear shifting, practically all models providing for an easier and quieter shift than has heretofore been in use.

These are some of the more salient improvements which have come to the motor car, and which have helped to transform it from a clumsy, more or less unsafe, and uncomfortable thing to an adjunct of human civilization possessing definite grace, beauty and control.

(*Concluded on top page 28*)

New Stock

Clerical Labor of the Issue

Only those employed in the Transfer Department of a large corporation have any conception of the tremendous amount of clerical detail connected with a new stock issue. The recent stock issue by The Texas Corporation involved the receipt and handling of about $53,000,000. Thousands of certificates and fractional warrants were received through the mail, exclusive of certificates brought in personally by stockholders and brokerage house representatives. An additional clerical force of over 75 clerks was required to handle this work. Because of the fact that a stock issue must be completed on schedule, transfer clerks with experience are preferred. They are mostly secured from other large corporations which have recently put out stock issues, and these additional temporary clerks pass from one corporation to another, a band of itinerant workers handling in each job stupendous amounts of negotiable securities.

The addressograph machine plays an important role, stamping names and addresses on lists of subscribers, ledger sheets, envelopes, subscription warrants for full shares, etc. It seems almost human as, with its selector device, it unerringly skips the names of stockholders whose warrants are not for full shares, fractional warrants being issued to "bearer."

The routine in itself is simple, but requires a great deal of work because of the checking and re-checking to insure absolute accuracy. First comes the preliminary training of clerical division leaders, who in turn train assistants; then the subscription rights are mailed to the stockholders with return envelopes enclosed. The stockholder fills in the blank, returning it together with a check. If additional fractional warrants are to be purchased, the order is executed, or a sale made. A distinctive envelope is provided for subscribers to the new issue. These envelopes, which may be sorted out quickly and classified, are opened by mail clerks who pin together securely the contents of each envelope. It is then passed to an experienced clerk who scrutinizes the contents of each envelope. He sorts them into pigeon holes marked: Buy, Sell, Regular Subscriptions, Irregular, Special. The contents of each pigeon hole are passed to the division handling the buying, or selling, *etc.* They are classified again in the subscription acceptance section as to New York Exchange, Money Order and currency, personal and out of town bank checks clearing in two days, and personal and out of town bank checks clearing in more than two days. After tabulation, the checks are deposited promptly, and in the case of checks clearing in two days, subscription certificates are indexed and released for mailing in six days, on checks clearing in over two days certificates are mailed twelve days later. Where legal complications exist, or stockholders do not follow instructions, special handling is necessary. Endorsements require special attention and are passed on legally. Experts examine all irregular and special cases, conducting the necessary correspondence.

A reserve supply of fractional warrants is kept on hand by a custodian. Buying and selling prices are computed daily, fluctuating with the stock market price for rights. A complete record is made of every warrant. If the corporation buys the warrant a check in payment therefor, bearing a full explanation on its face, is mailed to the seller. If the warrant is received with a check for the purchase of additional fractions to make a full share, a warrant for the additional fraction is taken from the supply on hand and a warrant for a full share in lieu thereof is issued to the purchaser, together with a check for refund, if any. The accounts of the buying division and the selling division must balance perfectly every day.

Stock certificates are signed with the aid of the signagraph, which registers twenty signatures simultaneously. Twenty stubby black pens, two rows of ten each, flutter across the paper like so many black birds pecking at grain. With the aid of the signagraph a rapid writer may affix his original signature to a maximum of 25,000 certificates per hour.

Notice

The editorial and publication offices of *The Texaco Star* will be removed from Houston to New York beginning with the March issue.

All communications in connection with *The Texaco Star* should, after March 1, be addressed in care of The Texas Company, 17 Battery Place, New York, N. Y.

(*Continued from page 26*)

It has been a long and rough road from the early models of 1904 to the present day car, but those far sighted individuals who were devoted to the development of the industry kept unremittingly at their tasks, preferring to solve the pertinent mechanical problems related to the automobile before they gave thought and attention to the item of grace and beauty.

Some estimates have placed the production of new motor cars during 1929 at 6,000,000. This is in addition to the countless cars already in operation. To produce happiness and contribute to prosperity, this vast fleet must be kept running—must be serviced and fueled. There must be an unrelenting spirit of service and coöperation on the part of the industry which makes possible the fuel that furnishes the motive power and the lubricants that prevent friction. The automobile has thereby presented the oil industry a problem to solve.

The Wilmington Terminal

The Texas Company recently purchased, along with other properties, the terminal of the Galena-Signal Oil Company of Texas at Wilmington, North Carolina, immediately adjoining a tract of land acquired by The Texas Company in 1922. The combined properties will be known hereafter as our Wilmington Terminal. It is situated in New Hanover County, four miles south of the City of Wilmington, fronting on the Cape Fear River and thirty miles from the Atlantic Ocean.

The land covered by our earlier purchase has a most interesting history, for the records reveal that a portion of it was part of a grant of land made by King George II of England to Christopher Bevis in the year 1735, and another portion is part of a similar grant made by the same King in the year 1737 to Thomas Clark.

These properties passed down through the years, until in 1836 the old Clark grant was sold to the Wilmington Marine Hospital Association for the purpose of providing thereon a home for sick and disabled seamen. This association, through lack of funds, was unable to carry out its plans, and in 1855 the rights to the land were turned over to the Seamen's Friend Society, a similar association incorporated to improve the living conditions of seamen and care for them when sick and disabled. Here the new society maintained a hospital and pest house for a number of years, abandoning it when the U. S. Government established a marine hospital in Wilmington. The society held the property until 1918, when it was sold to the U. S. Shipping Board, Emergency Fleet Corporation, to form part of a shipyard known as the Caroline Shipyard Tract.

The Bevis grant passed from private hands to The Fidelity Trust & Development Company in 1913, when it was made part of the Sunset Park development. In 1916 it was sold to the Wilmington Savings & Trust Company, which in 1918 released the property to the Emergency Fleet Corporation. The Shipping Board was, therefore, the first owner of the combined Bevis and Clark grants, composing 34.5 acres. It constructed a number of wooden buildings, a wet dock four hundred and twenty feet long, trackage, and several concrete roads. Seven or eight concrete ships of about 9,000 tons capacity were constructed and launched from this yard before it was closed down.

In 1920, the Shipping Board sold the properties to the George A. Fuller Company, who thereafter sold it to the Maryland Wrecking Company from whom we acquired it in 1922. At that time the buildings had been razed and the dock was in poor condition. The wet dock was destroyed by fire early in 1928. No improvements were made from the time the Fuller Company purchased the land up to the present date.

The adjoining property, which we recently acquired from the Galena-Signal Oil Company of Texas, is located adjacent to and south of the aforementioned property. This tract comprises approximately seventy acres of land and about twelve hundred feet of waterfront property. Improvements consist of a pierhead one hundred feet long by sixteen feet wide, together with a three-hundred-and-thirty-foot approach, several galvanized iron and concrete buildings, a steel loading rack, three ten by thirty-foot horizontal tanks, four tanks of ten thousand barrels capacity, two tanks of thirty thousand barrels capacity, several railroad spurs and storage tracks, a ten-thousand-gallon elevated water tower, and many other

View of Wilmington Terminal taken from dock—note marine ways of former shipyard

items of a minor nature including four marine ways and many massive concrete foundations.

The depth of the present channel in the Cape Fear River from the ocean to Wilmington is twenty-six feet, with a two-and-one-half foot rise of tide to Wilmington. Commercial interests of Wilmington and of the State of North Carolina have been attempting to have this channel deepened to thirty feet at mean low water, and there is a petition now before the Board of Engineers to that effect.

There is a concrete road from the City of Wilmington into the plant. The property is served by the Atlantic Coast Line Railroad, with a switch running into the plant.

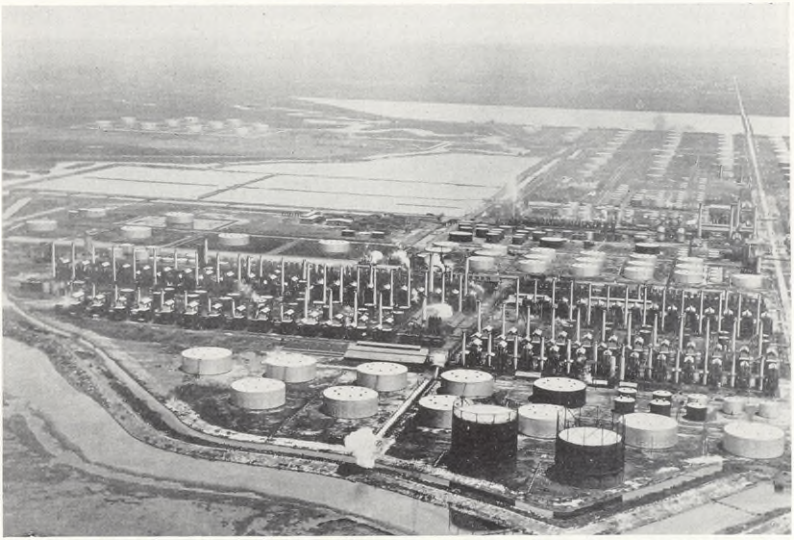
Wilmington is a city of 37,700 population, according to the 1926 census, and the largest city and the chief seaport of North Carolina. It is served by the Atlantic Coast Line and Seaboard Air Line Railways, being the headquarters of the former railroad. It is a city rich in tradition. It was first settled in 1730 and named New Liverpool. In 1739 it was re-named in honor of Spencer Compton, Earl of Wilmington. During the Revolution Lord Cornwallis had his headquarters there. In the Civil War it was the center of intercourse between the Confederacy and foreign countries, the haven of blockade runners. Fort Fisher, a heavy earthwork on the peninsula between the ocean and the Cape Fear River, was an important fortress for the Confederacy. In January 1865, it was the objective of a combined naval and land attack by Union forces under the command of General A. H. Terry, which resulted in its capture, with a large loss of life on both sides.

View of Wilmington Terminal looking towards Cape Fear River, Wilmington, N. C.

The City is situated conveniently to the largest fertilizer, cotton, molasses, sugar, and potato distribution centers of the South, and has port revenue collections in excess of $7,000,000 per annum. There are approximately one hundred and fifty different products manufactured in the city and vicinity, the combined value of which is in the neighborhood of $20,000,000 a year. The lower harbor has a well protected anchorage basin of three thousand feet in length and nine hundred feet in width. The combined water and rail transportation facilities afforded, together with the fact that the city is the converging point for six major State highways, augur well for Wilmington's industrial future.

Wilmington Terminal, being situated between our Norfolk and Charleston Terminals, fits in very nicely as another link in the chain of plants along the Atlantic Coast.

Port Arthur Works' Water Supply



Port Arthur Works' reservoirs

The Zuider Zee of Holland, on which boats sail and sometimes capsize, is not so deep as the reservoir at the Port Arthur Refinery. This reservoir lake is so big that on windy days it is covered with white caps.

How many people know of the tremendous quantity of water needed to operate a big oil refinery? How many know that water is used at all in the refining of petroleum?

For the Port Arthur Refinery of The Texas Company, there are 521 acres of land devoted to water storage—seven distinct reservoirs with an average depth of five and a half feet. But this is not enough. Even now a big dredge is throwing up levees for a new reservoir, covering 185 acres more.

One asks: Where does all this water come from, where does it go? There are many sources of supply, many destinations. From deep wells situated on the property come 10,000,000 gallons a day; the Neches River supplies 20,000,000 gallons. Daily over 2,000,000 gallons are purchased from the Neches Canal Company. The total of these constitutes a minor portion of the water received. The major portion comes from drainage and rainfall. When an inch of rain falls at the Port Arthur Refinery, the Company's reservoirs are swelled 17,000,000 gallons.

Most of the water, about 40,500,000 gallons daily, is used for condensation. 2,448,000 gallons are used every day for boiler feed water and over 1,000,000 gallons are consumed daily for miscellaneous purposes. On the West Side alone 40,000 gallons per minute are used, enough to supply a city the size of Houston. All this water, before being used, must be filtered and purified, and for this there are plants at the reservoirs.

When the newest reservoir is completed, the total capacity will be 1,192,746,030 gallons; and the levees require constant vigilance with all this water toiling at them, slowly undermining and washing them away. In the case of reservoir No. 7, the largest, a wooden breakwater had to be built to keep the levee intact.

These reservoirs do not supply drinking water, as this is secured from Hatton Farm. An average of 432,000 gallons is consumed daily for drinking purposes and to water ships.

The Log Cabin Service Station

Novel filling station architecture at Great Falls, Montana

At the intersection of 9th and Center Streets, Great Falls, Montana, stands Service Station No. 4, one of the most attractive Texaco stations in the Northwest. Its design is appropriate to its location; for while it is within a few blocks of the center of the city and on its principal thoroughfare, it is on the famous Park to Park Highway, the name signifying the National Highway between Glacier and Yellowstone National Parks. The structure is in keeping with the design of the hostelries and other buildings found in both Parks and emblematic of nature's beauties in the rugged scenic wonders of Montana. The logs used were hewn especially for use in this building and the mounted heads of deer and elk adorning the gables of the structure were the prized trophies of some of Great Falls' sharpshooters.

Great Falls is a modern city of 28,141 inhabitants, situated at a point where the Sun River empties into the Missouri in Central Montana. Three large power plants operated by the Montana Power Company furnish heat, light and power not only for the city, her street railway system and municipal operations, but also for the large smelters and mines at Anaconda and Butte, seventy cities and towns throughout the State, and the Chicago, Milwaukee, St. Paul & Pacific Railroad. The Volma power plant at Great Falls is the second largest of its kind west of the Mississippi River. Great Falls' copper wire mill, the only one of its kind in the west, and the electrolytic zinc plant, the largest in the world, are both owned by the Anaconda Copper Mining Company.

California Activities

The Service Station and Garage Clean-up Campaign, which the Sales Department inaugurated to extend from October 1, 1928, to March 31, 1929, is showing results. Already an improvement in the general appearance of Texaco outlets has been noted, and, as the campaign progresses, there will be an even greater improvement. Recently a questionnaire was prepared to assist the judges in their selection of winners. Questions deal mainly with service station equipment upkeep.

An added spurt to the campaign was furnished through the efficient coöperation of the Sales and Advertising Departments, which in one day ornamented every Texaco gasoline pump in the Pacific Coast Territory with a new label, calling attention to the fact that Texaco is a high-test gasoline at no extra price.

The activities of the Producing Department are at present concentrated at Santa Fe Springs. Here the program calls for the drilling of approximately thirty wells. Objectives of these wells are: the Nordstrum Zone which ranges from 4900 to 5500 feet, and the Buckbee Zone which ranges from 5600 to 5900 feet. Thus far, two wells have been brought in. They are; Matern No. 2-7, which started in at 4400 barrels and settled, in one month, to 3950 barrels, and Matern No. 3-11, which came in for about 1000 barrels during December. Both were drilled to the Buckbee Zone. Foster No. 1-4 at Signal Hill, drilled to a depth of 6100 feet, is producing about 2500 barrels daily. The Company has one wildcat well under way. This is at Garden Cove, Crawford No. 1, at present at a depth of 3000 feet. The Crawford lease is about midway between the towns of Santa Fe and Anaheim.

Million-Barrel Wells

The Texas Company has in the United States twenty-four wells which have produced over a million barrels of oil each. Their total yield is nearly 42,000,000 barrels and their total current production is at an approximate rate of 15,000 a day. Of the twenty-four, The Texas Company (California) has thirteen wells in the million-barrel class. The Fellows field in California has nine wells of this distinction. One of them, Fee No. 79, has the largest yield to its credit, having produced a total of 3,328,000 barrels since its completion. West Columbia field in the South Texas Division ranks next to Fellows with a contribution of five million-barrel wells. One of these is the famous Abrams No. 1, which has yielded more than 3,000,000 barrels since its completion in July 1920 of which 1,300,000 barrels were produced in the first forty-six days. As most of the flush production was $3.00 a barrel oil the value for that short period of time was approximately $3,900,000.

In the South Texas Division, the Hogg No. 58 well, also at West Columbia, has produced 3,120,800 barrels since May 1921, when it came in. This has set a record for The Texas Company in the Gulf Coast. The present output of this well is 800 barrels of pipe-line oil a day. There seems to be every indication that Hogg No. 58 will ultimately shatter the record of Fee No. 79.

Bowers No. 1 in the Texas Panhandle was the most recent well to go over the million-barrel mark. It was completed on January 8, 1928, and had produced a million barrels by November 30, the same year.

The next latest was Cowden-Anderson No. 1 in the Church and Fields pool, Crane County. This well came in on September 10, 1927, and had yielded 2,614,000 barrels of oil by November 30, 1928. It now produces 5,000 barrels a day.

The prodigious performances of these wells are exceptional. In the United States there are approximately 325,000 producing oil wells. Of this total The Texas Company has 6,775. The average daily production of all the wells in the United States is less than eight barrels of oil a day. The average of The Texas Company's wells is slightly under twenty barrels a day.

American Petroleum Institute Notice

The American Petroleum Institute has put out a special notice concerning the National Code of Marketing Practices for Refined Petroleum Products. The notice was as follows:

"The Federal Trade Commission has announced that it will hold its petroleum industry trade practice conference to receive recommendations for a national code of marketing practices for refined petroleum products at 10 o'clock a. m., Monday, February 11, 1929, in the Ballroom of the Statler Hotel, St. Louis, Mo.

"Commissioner Edgar A. McCulloch and Director of Trade Practice Conferences M. Markham Flannery will represent the Commission at the hearing."

A true high test premium gasoline — *and no added price*

¶ Winter is testing time for gasoline. ¶ When other gasolines are stubbornly resisting the action of the carburetor the *new* and *better* Texaco vaporizes readily. ¶ The quick getaway that you obtain even at this time of the year with Texaco shows the value of this high test gasoline. ¶ The smooth starts and the rapid response to the accelerator are the natural results of a "low boiling point" and a "low end point" with an "even, close distillation range." ¶ Exacting scientific operations, rigidly controlled in our various refineries, insure the same high quality in every State and in all seasons. ¶ Try this real high test gasoline. Drive in today wherever you see the Texaco Red Star with the Green T. ¶ Fill your tank — enjoy premium performance at no added price.

THE TEXAS COMPANY, TEXACO PETROLEUM PRODUCTS

The NEW *and* BETTER

TEXACO GASOLINE

Forms a Dry Gas

DRY VAPORIZED

The *new* and *better* Texaco forms a *dry gas*, a perfect, *vaporized* mixture of gasoline and air, which burns cleanly and completely, leaving no trace of raw liquid globules of gasoline to dilute the motor oil. *Dry gas* gives smooth, even power at all times.

WET ATOMIZED

Wet gas is *atomized* gasoline, a mixture of gasoline vapor and drops of raw liquid gasoline. These drops resist the action of the spark, make starting difficult, burn unevenly, and tend to destroy the lubricating value of the motor oil.