TEXACO STAR

The DEVIL'S TOWER
BELLE FOURCHE RIVER, WYOMING

VOL. IV FEBRUARY 1917 No. 4

Applying Crater Compound to one of the big Tractors on the biggest Ranch in Texas

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THE TEXAS COMPANY

HOUSTON CHICAGO NEW YORK

Agents Everywhere

NOT HIS JOB

"I'm not supposed to do that," said he
When an extra task he chanced to see;
"That's not my job, and it's not my care,
So I'll pass it by and leave it there."
And the boss who gave him his weekly pay
Lost more than his wages on him that day.

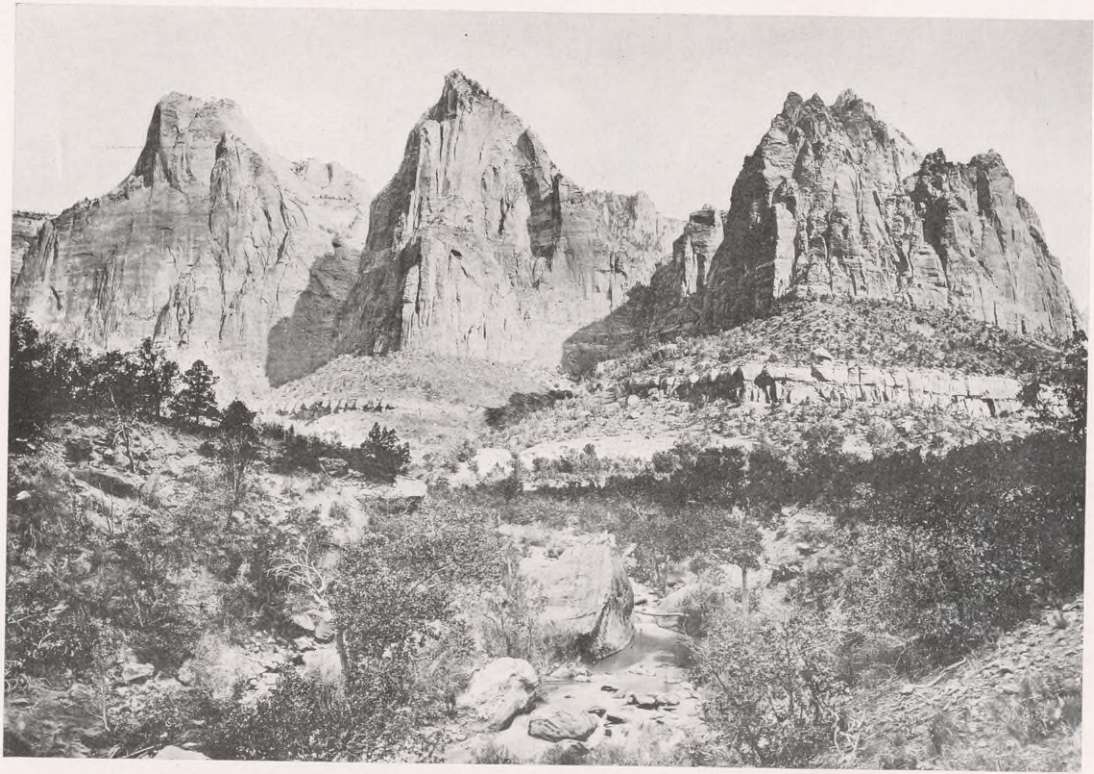
"I'm not supposed to do that," he said,
"That duty belongs to Jim or Fred."
So a little task that was in his way
That he could have handled without delay
Was left unfinished; the way was paved
For a heavy loss that he could have saved.

And time went on and he kept his place
But he never altered his easy pace,
And folks remarked on how well he knew
The line of the tasks he was hired to do;
For never once was he known to turn
His hand to things not of his concern.

But there in his foolish rut he stayed
And for all he did he was fairly paid,
But he never was worth a dollar more
Than he got for his toil when the week was o'er;
For he knew too well when his work was through
And he'd done all he was hired to do.

If you want to grow in this world, young man,
You must do every day all the work you can;
If you find a task, though it's not your bit,
And it should be done, take care of it!
And you'll never conquer or rise if you
Do only the things you're supposed to do.

—*Edgar A. Guest*



Three Buttes. A western scene where the strata are being rapidly washed away. The land was once level above the tops of the buttes. The eroded material from these regions has been washed down and deposited to form the Gulf Coast country. Each stratum in one of the buttes is found at the same level in the other buttes.—*Photo. by Hillers, U. S. Geol. Serv.*

TEXACO STAR

VOL. IV FEBRUARY 1917 NO. 4

PRINTED MONTHLY FOR DISTRIBUTION TO EMPLOYES OF
THE TEXAS COMPANY

"ALL FOR EACH—EACH FOR ALL"

ADDRESS: TEXACO STAR, 311 THE TEXAS COMPANY BUILDING, HOUSTON, TEXAS

THE FRONT COVER of this issue shows one of nature's monuments in Southeastern Wyoming. It represents a geological formation entirely different from the stratifications described and illustrated in the interesting main article which enriches this number of the *Texaco Star* with an expert presentation of the essential geological facts that should be comprehended by everyone who is intelligently interested in the oil business. As the article is confined to structures related to the formation and reservoiring of petroleum, the cover design supplements as well as adorns. The color plates were engraved from an oil painting made from a photograph, and the colors are true to nature—a fine result secured by competent advice and comparison with original paintings made in the same region. Mr. Geo. W. Vos, in charge of art work in our Advertising Division, who has made most of the cover designs since the beginning of the *Texaco Star* in November 1913, especially desires that credit for the painting reproduced this month be given to his assistant, Mr. Kurt Lieder, to whom we are indebted also, in whole or in part, for our front covers since the middle of last year.

The geological feature thus pictured is in Indian country and its Sioux name means in English "Devil's Tower". The Indian looked with superstition on all things he did not understand. If the thing was immense in its origin or features but not dangerous, the name applied generally referred to the good deity, or God; if it was rugged or accompanied by mysterious noises, the name attributed it to the bad deity, or the Devil. The rocks falling from this tower, the danger of ascent along its side, and the lightning flashes about its summit awed the Indians and made them conceive this feature as some work of the Devil.

The Devil's Tower is no uncommon structure in the various activities of geological agencies. The place in which it stands once had many strata laid one above the other over those that are now at the surface, and there were volcanoes in this region with their vast tubes or necks extending from immense depths to the surface. Lava came through these great circular tubes and flowed out over the surface. When this activity ceased, the tubes or channels for the flowing material remained filled with molten lava, which on cooling formed great plugs of dense rocks. When the lava sheet covering the country surrounding one of these plugs of igneous rock wore away and erosion of the softer sandstones and shales continued through ages, carrying away the material of these strata to be spread out again on the bottoms of lakes and seas, the hard plug was left projecting as we see it today. This "Devil's Tower" is therefore a monument which has stood through geologic ages. Probably a million years have passed since it was first formed as a hardened plug filling the volcano's tube after the flow of its molten lava ceased.

* *

The general features of the Black Hills in the Devil's Tower "quadrangle" are thus described (in part) in *Folio* 159, *U. S. Geological Survey:*

The Devil's Tower quadrangle presents some characteristic features of the Black Hills topog-

raphy, mainly of the sloping plateau of the flanking sandstone ridges. This (plateau) is deeply cut by the valley of Belle Fourche River and its numerous side branches . . . . . In this area are the highest lands of the region, the altitude being 5,800 feet in the southeast corner of the quadrangle. There is a rapid descent of both ridges and valleys to Belle Fourche River, on which the altitudes are 3,940 feet at the southern margin of the quadrangle and 3,640 feet at the eastern margin. In the portion of the quadrangle east of the river there are long sloping ridges and outlying plateaus, the latter capped by masses of Dakota or overlying sandstones. (See page 8, bottom of right hand column.) West of the river there is rapid rise to a general plateau, capped by this same sandstone, ... constituting the divide between Belle Fourche and Little Missouri rivers. The front of this plateau is deeply incised by numerous canyons, and it rises irregularly from the Belle Fourche in long slopes, interrupted by many local breaks due to the cutting of small streams. On the top of the plateau rise the Missouri Buttes, a mass of igneous rock, forming a small group of prominent summits, of which the highest reaches an altitude of 5,372 feet. The most notable feature in the region is Devil's Tower, which rises on one of the ridges west of Belle Fourche River. It has a tower-like form, nearly circular, and is about 100 feet in diameter at the top. Its sides are nearly vertical and it has an altitude of 5,117 feet, or about 600 feet above the sandstone platform from which it rises.

* *

A correspondent from one of the New York Offices mentions a matter that deserves the attention of all who have been negligent on this point:

In the New York Office we are required to pay on an average $3 to $4 weekly on account of insufficient postage. This causes delay in mail reaching us; for instance, mail that should reach us early in the morning is not delivered until the first part of the afternoon, and mail that should be delivered in the afternoon is not delivered until the next morning, if insufficiently stamped.

* *

In time, perhaps, mankind may be wise enough to let trade take its own course, find its own channels, and regulate its own proportions, etc. At present, most of the edicts of princes, placaerts, laws and ordinances of kingdoms and states for the purpose prove political blunders, the advantages they produce not being general for the Commonwealth, but particular to private persons or bodies in the state who procure them, and at the expense of the rest of the people.—*Franklin.*

* *

In order that we may all have prosperity it is one of your solemn duties to make wise political decisions.—*Frank A. Vanderlip.*

* *

It would be well to 'watch our step' if there is even a modicum of truth in the statement by Madison Grant:

We have nearly succeeded in destroying the privilege of birth; that is, the intellectual and moral advantages a man of good stock brings into the world with him. We are now engaged in destroying the privilege of wealth; that is, the reward of successful intelligence and industry; and in some quarters there is developing a tendency to attack the privilege of intellect and to deprive a man of the advantages of thorough education.

President Butler, in his latest report of Columbia University, says:

What is now being attempted all over this country is to train youth in a comprehension of civilization which has historic and easily examined roots, without revealing to them the fact, and often without even understanding the fact, that modern civilization has roots. Phrase-making and vague aspirations for the improvement of other people are now supposed to be a satisfactory substitute for an understanding of how civilization came to be what it is.

* *

I think it was Robert Louis Stevenson who has said, "mankind live not by bread alone, but also by catch-phrases." Certainly the majority are satisfied by phrases regardless of the *facts*. For example, "first class" and "second class" railway coaches would not be tolerated in this country, but call them *Pullman* and *day coach* and it is all right. Or, what is the difference between a "league to enforce peace" and a "defensive and offensive alliance"?

* *

The majority rules.—After the recent elections in which the national guardsmen from a number of states voted while on the Mexican border, there was a tie of the voters at home between two candidates in Long Island, N. Y. The decision depended on one guardsman whose vote was slowly traveling homeward. To end the suspense, they telegraphed the absent sovereign inquiring how he had voted. He wired back that he did not remember.

* *

The stars and stripes and the cost of living will soon be raised in Danish W. Indies.—*Brooklyn Eagle.*

CRUDE OIL PRICES AT WELLS

February 1, 1917

Pennsylvania	$3.05	Caddo Light	$1.70
Mercer Black	2.43	Caddo Heavy	.85
Corning, O.	2.38	Vivian Heavy	.85
Cabell, W. Va.	2.35	Vinton	1.00
Newcastle	2.23	Jennings	1.00
North Lima	1.78	Spindletop	1.05
South Lima	1.78	Sour Lake	1.00
Indiana	1.63	Batson	1.00
Princeton, Ill.	1.82	Saratoga	1.00
Illinois	1.82	Humble	1.00
Canada	1.98	Goose Creek	1.00
Somerset, Ky.	2.18	Corsicana Light	1.70
Ragland, Ky.	1.00	Corsicana Heavy	.85
California Light	.90	Petrolia	1.70
California Heavy	.73	Electra	1.70
Mexico	.20 to .40	Markham	1.00
		Kansas and Okla.	1.70
		Cushing	1.95
De Soto Light	1.60	Healdton	.90
Crichton Light	1.30	Thrall	1.70

Knowledge of domestic economy saves income; knowledge of sanitary laws saves health and life.—*Charles Kingsley.*

* *

Economically the so-called independent woman is important and rates high. She earns money—that accounts for her rating. I wonder how many men enjoy working just for themselves? The independent woman does that. Sometimes she has parents or a husband to support, but for the most part she works for herself. I am speaking of the independent woman past thirty years of age, the ones who probably will be independent forever. One sees them by the thousands—well dressed, dependable—but the dead look in their eyes tells the discerning observer that the most of them would give away their wonderful independence in the twinkling of an eye for something *real* to live for. There is a good deal of sentimentalizing nowadays over the racial waste of war, of industry, and disease. But what have the sentimentalists and pseudo-scientists to say of the racial waste of a normal and decent class of women? I have met a great many of these women—stenographers, saleswomen, teachers, librarians—and it is the tragic truth that they are a restless and embittered class. A vast number of these decent, efficient women are real women: they have emotions and the right desire for a mate and a home. They have been cheated of a woman's normal life, just as much as if they were medieval nuns or the victims of war.—*Marjorie Sutherland.*

* *

Her Love-Potion.—A young woman who thought she was losing her husband's affection went to a seventh daughter of a seventh daughter for a love-powder. The mystery-woman told her:

"Get a raw piece of beef, cut flat, about an inch thick. Slice an onion in two, and rub the meat on both sides with it. Put on pepper and salt, and toast it on each side over a red coal-fire. Drop on it three lumps of butter and two sprigs of parsley, and get him to eat it."

The young wife did so, and her husband loved her ever after.—*Tit-Bits.*

* *

Beautiful women without religion are flowers without perfume.—*Heine.*

* *

A gloomy truth will prove a better companion through life than a cheerful falsehood.

* *

A well of truth is seldom a "gusher."

Once, where a prophet in the palm shade basked,
A traveler chanced at noon to rest his mules.
"What sort of people may they be," he asked,
"In this proud city on the plain o'erspread?"
"Well, friend, what sort of people whence you came?"
"What sort?" the packman scowled. "Why, knaves and fools."
"You'll find the people here the same," the wise man said.

Another stranger in the dusk drew near,
And pausing, cried, "What sort of people here
In your bright city where yon towers arise?"
"Well, friend, what sort of people whence you came?"
"What sort?" the pilgrim smiled. "Good, true and wise!"
"You'll find the people here the same," the wise man said.

—*Edwin Markham.*

LIFE WISDOM

The wisdom of the wise and the experience of ages may be preserved by quotation.
—*Benjamin Disraeli.*

Prejudice, which sees what it pleases, can not see what is plain.—*Audrey De Vere.*

Try to be right as well as sincere.
—*Haweis.*

No one is wise at all times.—*Pliny.*

A fool must now and then be right by chance.—*Cowper.*

Every man has a sane spot somewhere.
—*Stevenson.*

The happiness of a man in this life does not consist in the absence but in the mastery of his passions.—*Tennyson.*

Those who seek for something more than happiness in this world must not complain if happiness is not their portion.—*Froude.*

Man and woman are the two notes without which the human chord is not possible.
—*Mazzini.*

Blood is thicker than water.—*Scott.*

He who has set his heart exclusively upon the pursuit of worldly welfare is always in a hurry.—*DeTocqueville.*

A man is commonly either made or marred for life, by the use he makes of his leisure time.—*Jeremy Taylor.*

It is hard in this world to win virtue, freedom, and happiness, but still harder to diffuse them. The wise man gets everything for himself; the fool from others. The freeman must release the slave, the philosopher think for the fool, the happy man labor for the unhappy.—*Richter.*

Canyon Diable, in the wonderful Navajo country of Arizona. It is easy to understand from this view how a well located on the plateau would pass through a succession of beds.—*Photo. by Darton, U. S. Geol. Serv.*

THE GEOLOGIST IN THE OIL BUSINESS

E. G. WOODRUFF

Chief Geologist, Producers Oil Company

The views presented in this article were loaned by authority of the Director of the U. S. Geological Survey, from its collection of more than 50,000 photographs. The author acknowledges his indebtedness to the Director and those who took the pictures.

We hear the word "geologist" used frequently by men interested in oil fields and see it printed many times. We know that some oil companies will not take a lease unless a geologist says it is good; whereas others will not employ a geologist. What should a geologist do; what can he do? are questions all of us ask.

For many years geologists have been studying the earth to see how it is made, and to see how water and oil and gas flow and accumulate underground. To find out these things they have studied what changes have taken place. We have learned that the earth is hot inside and hotter the deeper it is penetrated. From this and other facts we reason that it was so hot at first that it was melted. It is cooler now and continues to grow colder. It is hard on the outside; therefore we infer that a solid crust formed on the outside since the beginning. After this crust formed, part of it was washed into lakes and ponds and oceans where the sediment was deposited as sandstones, clays, shales, limestones. Most of us have seen the way these strata are laid down. Some pictures are presented to illustrate the way the beds lie. In the frontispiece, observe how the strata lie one above the other. All beds were stratified in this horizontal or nearly horizontal way when they were formed. The strata shown in that picture have been cut by streams and exposed. In such cases the geologist can measure each bed near the edge of the canyon and learn the kind of material from which it was formed. All oil bearing formations are stratified, but generally the stratification is less regular than that shown in the pictures on page 2 and this page.

The geologist's business is to find under what conditions regular strata can be ex-

Picture taken by W. E. Lockhart, Treasurer of the Producers Oil Company, showing F. E. Kistler (standing), one of our lease men, and companions in a canyon in West Texas, where regularly bedded strata are exposed. This formation, which is now in high dry country, was once part of the sea bottom and afterwards lifted to its present position.

pected and where irregular beds prevail. The driller knows that regular sands are found in Pennsylvania, Illinois, and Oklahoma, and that irregular ones are found in Texas. The writer has been asked, "If we drill in certain places what kind of strata will be found?" To answer this we have gone to exposures like those shown in some of the pictures, studied them, and given a good estimate of what may be expected.

As we have stated, in the beginning the earth was very hot. When a hot body cools it shrinks. Of course, as the inside of the earth cooled it shrunk away from the shell, and the shell was forced to buckle or break to fit the inside. When it buckled it produced folded strata with flexures like those of the mass of schists shown in the picture at the bottom of this page. The upward folds are called *anticlines* and the downward folds *synclines*.

The anticlines are important to the oil operator because he has found that nearly all of the oil is in such folds of the earth's crust. This condition holds good in Pennsylvania and West Virginia. In Illinois the LaSalle anticline is well defined. In Kansas the Augusta and Eldorado fields are anticlines. The Glenn Pool and Cushing fields in Oklahoma are known to be on anticlines, and in the Healdton region there is one main anticline and one or more smaller ones. Electra and Corsicana are anticlines. In the Gulf Coast country oil is in domes, but as a dome is merely a round uplift rather than a long one the rule of oil in anticlines holds good. In Wyoming the anticlines are so clearly shown that many of them can be determined by a trip over the surface. Most of the big production in California comes from anticlines.

Can the geologist find these anticlines? Some places he can and some places he cannot. Look at the two pictures taken near Hancock, Maryland, showing sections of anticlines where streams have cut across them. Note how the strata, which were once flat, have been lifted into an arch. If the river had not been there it would be less easy to locate the anticline, but still simple as the two pictures taken by Stanton and Spencer show. If they were covered a little more, careful work would be required. In such a case the geologist would select some prominent bed and run levels on it. If he finds this stratum rising, then flat, then lower, he knows he has passed over an arch (or anticline) in the strata. Or again, some of the strata may have been covered, but by locating the outcrops and measuring the amount and direction of their dip the anticlines can be worked out. This is the thing most geologists are doing. As it has been found out

Mass of schists, showing flexures. Rocks originally laid out level are crumpled in this way by the stress caused by the earth's contraction.—*Photo. by Hillers, U. S. Geol. Serv.*

Anticline near Hancock, Maryland. The river cutting across this anticline has exposed at this point the arched strata. *Photo. by Russell, U. S. Geol. Serv.*

that oil is not found in the downward folds, the synclines also should be located so as to be avoided.

Drillers frequently report that faults have been encountered. It has been found that when the buckling becomes too close the strata break and one side drops below the other, or if the break is at an acute angle strata on one side may slide over the other side. Either sort of break is called a *fault*. These cause trouble and must be located. (See p. 10.) Sometimes they aid in

Anticline near Hancock, Maryland, where the strata of the anticline are sharply bent. Oil and gas are found at the top of a stratum, while water would be found down the flanks of the anticline below the top of the arch.—*Photo. by Russell, U. S. Geol. Serv.*

Anticline in Dakota sandstone, West Fork of Boulder Creek, Livingston Quadrangle, Montana. The Dakota sandstone is an extensive formation spread in fresh water over parts of what are now North Dakota, South Dakota, Montana, Wyoming, Colorado, Nebraska, and Kansas. Exposure of the sandstone shown in this picture has been made by erosion at a point where the giant forces of nature had lifted the strata into an anticline. The cutting away of surface beds exposes the Dakota sandstone, which appears as a thick dark line in the photograph. Note that here oil might be expected for a long ways down the right hand slope, but that water would soon be encountered on tne left side, because the latter pitches down quickly. Such a stratum is what the geologists call a key-bed.—*Photo. by Stanton, U. S. Geol. Serv.*

An anticline of quartzite (sandstone cemented with silica) which shows that not all anticlines are evident. In this case the geologist would run levels on some key-beds to determine which way the structure lies, it being often necessary for him to hunt patiently among the timber to find his key-bed—*Photo. by Spencer, U. S. Geol. Serv.*

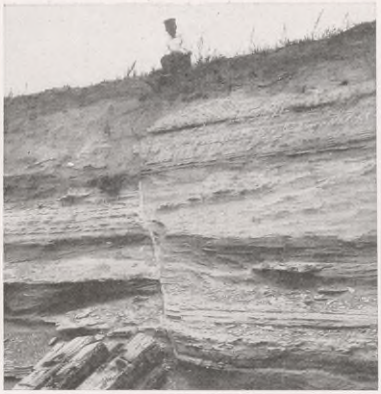
the search for oil because seeps may occur along them. If a fault extends to an oil reservoir below, oil may seep along the crack and come to the surface, thus indicating that there may be oil reservoired below. Sometimes we suspect that all of the oil stored below has escaped along these faults. There are many maps in our files made by Producers' geologists which show where the faults are, how long they are, and

A syncline, or trough, in the strata as seen at Hollywood colliery, where excavation of rocks shows the lay of the strata. *Photo. by Hardin, U. S. Geol. Serv.*

Fault in sandy shale, one mile southwest of Little River Gap, Chilhowee, Mont. A fault is a break in strata where one side has dropped past the other. Sometimes one side is then slid over on top of the other. When a fault occurs the dropping of the one side causes the ıars which we call an earthquake. The San Francisco earthquake was caused by a fault which occurred near the city over a line 40 miles long.—*Photo. by Keith, U. S. Geol. Sert.*

how much one side slipped past the other.

I am often asked why gas and oil are so generally found in the anticlines. Suppose the anticlines are large and the strata consist of alternating layers of sand and shale. Now, the sand is formed of little pieces of rock. Frequently some man looks through my microscope at a sample of sand and exclaims, "Why, sand is just fine gravel!" He is right about it. These little rock grains lie in a miscellaneous way and do not fill all of the spaces. There is more space around these sand grains than we commonly suppose. I tested one sample of sand a few days ago and found that more than one-third of the specimen was just open spaces, and that for every three feet in thickness of bed there is room for one foot of pure oil. The fluid is all around the sand grains. Now, suppose the sand bed has a cap over it and is folded in an anticline. If the stratum is full of gas and oil and water, the lightest one, the gas, goes to the top; the next heaviest, the oil, is next below; and the water is still below, pushing upward if the water is under a head. This is what happens, and the reason why the geologist is hunting for anticlines is because the water has driven the oil and gas into them. If a well is drilled in the top, gas comes until it is exhausted, then oil, and finally water.



A fault in sandstone south of Crawford, Nebraska. *Photo. by Darton, U. S. Geol. Serv.*

Conditions are not always so simple as those afforded by regular strata. See how irregular the strata are in the photograph by Campbell of a cliff at the mouth of Laurel Creek, W. Va. A well sunk at the right of picture would miss many of the beds at

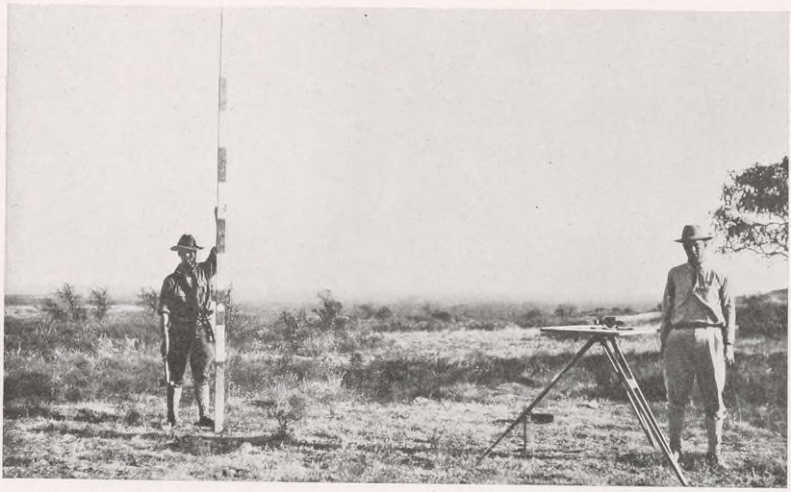
Cliff at mouth of Laurel Creek, Summers County, W. Va. This picture shows how irregularly some formations are bedded. The small lenses of rock, called "Lentils", are not continuous, but "pinch out", which illustrates how a well at one point may pass through a formation which would be missed by another well only a short distance away.—*Photo. by Campbell, U. S. Geol. Serv.*

the left because the beds are lenticular and pinch out. For this reason oil sands found in one well are missed in a nearby one. At such places there is no reason to blame any one for not finding the sand, It is at one location and not at the other. A better view of the same idea is presented in the next picture, where a bed of sand is thick near the middle of the picture but pinched out to the left. No geologist can tell in advance where these lenses are. All he can do is to tell the operator in what kind of strata lenses will be found so that he may know the kind of chances he is taking.

Due to the irregularly bedded formation shown in this picture, the logs of two wells drilled at the left and at the center would be similar for top and bottom, but different in the middle.

On several occasions the writer has been taken to places called "gas blowouts." The picture of Bell Butte, N. M., shows a similar formation. It seems difficult to believe that this was not "blown from the bowels of the earth," but it was not. Note how the strata project all around the hill. Formerly they extended over the whole area and have been washed away. Besides, think of the enormous confined gas pressure that would be required to lift such a hill. To do such work the gas must be released suddenly. Sudden release very seldom occurs. All of our gas escapes are seeps, not blowouts. Not only hills but also depressions are called gas blowouts. The writer has visited many "gas blowouts" and has never found a single one which originated by a sudden release of the

Bell Butte, near Bell Ranch, New Mexico. This is the top of a formation which is sometimes called a "blowout", or an "upthrust", but which is truly only a remnant of strata which formerly covered the country and have been in the main washed away.—*Photo by Lee, U. S. Geol. Serv.*



A geologist and his assistant, with instruments used in their work. The geologist has a stadia rod, and the assistant stands by a planetable on which is an alidade, used in determining elevations.

gas, except where the gas was encountered in wells. Erosion generally produces the features which are called "blowouts."

How does a geologist work? He goes to the area offered for lease and makes a general examination to locate rock outcrops, to learn what kind of strata there are, and to see if they present any beds which can be followed far enough to show the structure. If he finds a sharp anticline he can locate the top with hand instruments. If he finds flat or gently inclined strata he takes his assistant and instruments and runs levels on these strata. If these levels show the strata to dip in one direction over the area, there is no anticline; but if the levels show the strata to rise over part of the area and then turn and fall away from the crest, there is an anticline and the structure is favorable for the accumulation of oil. Running these levels and determining the structure (lay of the strata) is the chief work of the geologist.

It is the geologist's first purpose, then, to find the kind of structures in which petroleum is generally found and to determine how big they are. It is also his business to keep the operator away from unfavorable features, like synclines, buttes, and other forms which have been taken for gas blowouts. In some places the geologist can work these things out, in some places he cannot. If he is honest, he will report that nothing can be told from the surface, where the strata are covered, and leave the practical man none the worse but exactly as he was before geology was tried.

The lines of geological work considered thus far are more or less practical, but the geologist is not confined to these lines. He is also working in experimental and theoretical lines to find the origin of petroleum and how it flows and accumulates underground. We have an abundance of evidence to show that the oil did not originate in the pools where we find it, but flowed from some other source. We have searched for that source and are continuing the search. Evidence is accumulating to show that much of the oil comes from vegetable debris (parts of plants) buried in the mud, when the strata were being deposited. This mud when compressed is the shale. These beds have been buried and subjected to geological processes which have developed the oil. Other processes have squeezed or forced the oil out of the shale and carried it into the sands, porous limestone, or other

reservoir rock. We also have evidence that much of our petroleum comes from animal remains buried in the same way as was the vegetable debris.

One of the practical sides of these studies is that the geologist is finding how thick, extensive, and rich the oil producing strata are in order that he may tell whether much or little oil may be expected to have drained into the pools. In some of the Producers' reports the geologists are saying, "This structure is on the edge of a small basin and the oil producing beds are thin; therefore, only a little oil may be expected in this structure."

The matter of the reservoiring of oil is interesting in another way; namely, if the oil is reservoired, what will happen when all of the oil is taken out of the pools? To this the geologist has only an unpleasant answer: when that time comes the petroleum industry is done. We are now taking from the earth the stores which have accumulated during the ages. Probably a little is being made, but the quantity added in this way is so small that there are only a few thousand barrels added to the stores within the space of one hundred years. Some of our geologists have gone so far as to estimate the life of the various pools. This is important, we think, because the kind of machinery to be installed should depend on the amount of oil to be obtained.

There are various other ways in which the geologist is trying to assist the operator. The driller is sending in his samples and the geologist is examining them under the microscope to see if the cuttings are really sand. The author recalls one sample which was pronounced by the driller an excellent water sand, but puzzled the operator because it had no water in it, though it came from a water saturated country. The microscope, which magnified twenty times, showed the specimen to be cuttings from gypsum which was so tight the water could not enter the bed. The samples are also being carefully tested with chemicals to see if they contain oil which did not show in the mud.

The results of the work seem to be that the geologist is discovering what he can really do in helping to locate and develop pools, and the operator is finding out how far he can trust the class of men formerly considered theorists without losing money. We are getting together, working together. We hope it is to the benefit of both.

Burton-Schwartz Cypress Co., Perry, Fla.—American Cranes—Crater Compound on all gearing and wire ropes for two years
See, also, "Departmental News"

SAFETY AND SANITATION

V. R. CURRIE
Chairman Central Committee of Safety

SAFETY IS EFFICIENCY.—Safety is efficiency, because the safe worker is a person that has studied out all the problems of the job, understands all its features, does not fear its so-called dangers, because the dangers do not exist to him. He is the careful, thoughtful worker, and he is therefore able to turn out more work, with less energy, without the mental strain, because he has no fear, and worry does not go along with his work. He is a part of the efficient machine that we all are working for, realizing that, if we can just turn into its proper channel the energy that is expended, we will be a much more prosperous nation and we will come nearer to that happy state of brotherly fellowship.

We have never yet seen a safety movement fail when the proper spirit was carried out, that of sincerely wishing to benefit others. Safety work will always continue, and the one reason is, that it pays, and pays well, consequently it becomes an economic question as well as an efficiency one.

With all genuine safety workers the financial is lost sight of, and in fact is never quoted, except to superior officers, as the work has become a gospel of life saving, and they are inspired with the idea of saving the most valuable thing in this world, human life and limb, which once lost can not be recovered. They are imbued also with the plan of making better men and women out of our careless, thoughtless friends, by teaching them to think and to think right. This makes contented workers, prosperous cities, successful business corporations, and real success, as it is profitable to all.

We are well aware of the loss in production following a serious or fatal accident, whether it be an industrial plant, a railroad, or a traction accident. We are also well aware of the bad advertising such an accident gives.

The courteous man is always the efficient man; also, as courtesy is one of the best assets that any corporation can have, all need this feature brought out, from the president down to the most modest employe; it costs so little, it pays so well, and the satisfaction of giving well repays the giver.—*H. I. Brownell, Public Safety Engineer, Chicago.*

BY THE WAY

William J. Tyrrell, bookkeeper at our Atlantic City, N. J. Station, sends the following bit of experience concerning Crater Compound in the hope that it "may be useful as a hint to our salesmen, and of interest to many of our stations throughout the universe":

Crater Compound used on joints or connections of any kind that gasoline or crystallite travels through eliminates any leakage or loss of the product. On many tests made of this—by applying it to the female connection of a tank car before pumping its contents into storage tanks, and various other tests—I have found it very successful.

* *

A little gear one day did cry,
I'm tired of living and powerful dry;
The boss-man he don't seem to care,
How long I last nor how bad I wear.

My pains and aches will never cease,
On account of all this common grease;
And now my finish can't be far,
For they actually greased me with old Pine Tar.

But they'll regret this some day, sonny,
For a new one like me nowadays costs money;
And they'll wish they had given me better care
And tried to eliminate all this wear.

But he's still on the job; for a guy came around
With a gear soothing syrup called Crater Compound,
And this same little gear says: "Now I'm some 'Tater',
For I'm all stuck up with a nice coat of Crater."

—*W. G. Craig, Salesman, New Orleans District.*

* *

New Book Needed

A certain company, manufacturers of gasoline engines, is said to have received from a customer this letter:

Gents: The gas engine you sent me stops when theres nothing the matter with its that's the trouble. It wouldent bee so bad if it stopped for some reason and anybody knows theres reasons enogh for it to stop. I received the book which you sent me which is named What Makes the Gasoline Engine Go. I aint read it yet because whats the use reading it when I dont care what makes the gasoline engine go as long as it goes which mine dont only occasionally. What I want to know is What Makes the Gasoline Engine Stop. If you got a book called

Captain Jonassen of the good ship *Texas* shooting the sun to determine his latitude.

Island Saint Thomas, one of the Danish West Indies recently bought by U. S. A.

that send me one. I want to know what makes my gasoline engine stop when everything is O K and nothing is the matter except that it must be a rotten engine.

* *

The trouble with society is, its operations makes too many sweet little girls think they are happy when they are only excited.—Geo. M. Bailey.

* *

"John" said she, as he settled down for his afternoon nap, "I've got a lot of things I want to talk to you about."

"Good!" said her husband affably. "I'm glad to hear it. Usually you want to talk to me about a lot of things you haven't got."—*Michigan Gargoyle.*

APHORISMS OF THE TEXACROW.

Street scenes in Charlotte Amalie, chief town of Saint Thomas Island—Photographs taken by P. D. Shields, of Lubricating Division, on a trip to South America

Brother, you have had a kindness shown you,
It was not given to one alone,
It was a gift for faithful service,
And it was cheered in many a home.
Think not of self or any greed,
For we reap what others sow;
Look upon thy brother's need,
Let it cheer another's woe.

—*John Wall, Cooper Foreman, Norfolk Terminal.*

U. S. Army motor trucks at Fort Sam Houston, San Antonio, Texas
The lubrication of Army trucks and aeroplanes is a matter of great importance

These photographs, by Eng'r-Salesman H. D. Gohlman, Jr., give some idea of the number of Army trucks at Fort Sam Houston

Special heating and soaking devices by means of which Texaco Crater Compound is applied to power chains of Army trucks. Mr. Gohlman has given special attention to the lubrication of Army trucks, and through the co-operation of officers exceedingly satisfactory devices for applying Crater and Thuban Compounds have been invented.

DEPARTMENTAL NEWS

The Managers of the respective Departments have assigned to the gentlemen whose names and addresses are here given the duty of sending to the *Texaco Star*, on or before the twenty-fifth day of each month, reports of new appointments, transfers, removals, resignations, promotions, and other items of departmental news of general interest. Suggestions and information for this purpose should be sent to them before the twentieth day of the month. All are invited to co-operate.

Pipe Line Dept.	A. M. Donoghue, Houston
Natural Gas Dept.	D. P. Harrington, Fort Worth
Fuel Oil Dept.	E. B. Joyner, Houston
Refining Dept.	C. K. Longaker, Houston
Marine Dept.	E. C. Macmillan, Port Arthur A. R. Weber, New York
Legal Dept.	J. S. Ballard, Houston
Treasury Dept.	Lee Dawson, Houston
Comptroller's Dept.	B. E. Emerson, Houston P. A. Masterson, New York
Sales Dept., S. Territory	M. G. Jones, Houston
Sales Dept., N. Territory	S. Slattery, New York
Export Dept.	J. B. Nielsen, New York
Purchasing Dept.	J. E. Byrne, New York
Railway Traffic Dept.	J. W. Painter, Houston
Producers	Delbert Leggett, Houston

PIPE LINE DEPT.

On Jan. 2, 1917, born at the home of R. J. Daniel, a baby boy. This makes four "jacks" for Bob and one "queen".

R. L. Estill, timekeeper in Humble District, has been transferred to Houston accounting office, W. H. Lester succeeding at Humble.

J. K. McGoldrich, recently foreman of our Cushing District in Oklahoma, has been appointed Pipe Line Superintendent with headquarters at Tulsa.

H. Fowle, Superintendent at Houston, is convalescing after a ten days' attack of rheumatism.

J. G. Quinn, Superintendent at Wichita Falls, has gone to Mineral Wells to recuperate after a hard year's work. Jim being a baseball fan should have waited until March, when the Giants commence their spring practice, and be there to gaze upon many of his ideal players.

REFINING DEPT.

The Texas Company employes who are members of Company "L", 3rd Texas Infantry, desire to express, through the medium of the *Texaco Star*, to President Lufkin and other Company officials our appreciation of their regard for the welfare of their militia employes, as shown by the half pay granted militiamen during their service on the border.

Not only have the funds thus provided assisted us through what would have otherwise been a time of serious financial difficulties for many of us, but also it has tended to give us a new incentive for work when we return to our places in civil life. We feel that this action of The Texas Company has formed a new bond between employer and employe which should be of mutual benefit, to the company by increased loyalty of its men, to the men by increased confidence in themselves and in their standing with The Texas Company.

Camp Scurry, *Harry F. Stuckey*
Corpus Christi, *Eugene B. Kershner*
Texas, Feb. 1, 1917. *F. H. Borden*
Committee for The Texas Company Employes in Company "L".

H. T. Box, of the office force of Case and Package Division, Port Arthur, and Miss Madaline Wingender were married at Beaumont, Dec. 21, 1916. We wish them a happy and prosperous married life.

A meeting of the Chief Clerks of Northern Terminals was held in New York Jan. 15 to 17. Chief Clerk B. W. Williams of Mobile was in New York and attended the meeting. Superintendent L. R. Holmes expressed the Company's appreciation of the results obtained by the Chief Clerks during the past year.

Charles Barlow has severed his connection with the Company to accept an executive position with another corporation in their main office at Chicago. Mr. Barlow had been with The Texas Company since April 1912, and by close application to his work in the New York Terminal Division Office acquired a position of responsibility. Every man in the office was sorry to see him go, as he had done much towards establishing the pleasant atmosphere of the New York Office. As a little remembrance for the many things he had done for the employes in the office, they presented him with a handsome traveling bag, Mr. Amundsen making the presentation speech, expressing the sentiment of the office most appropriately.

Bayonne Terminal appointments, *etc.:*

Louis Nalitsky has been re-employed in his old position as clerk in the Stock Dep't. The boys and Louis were glad to meet again.

Frank H. Mitchell transferred to our Shipping Dep't from Portland Terminal.

Michael J. Gilsenan, formerly with the Central Railroad of New Jersey, is a new member of the Shipping Dep't.

Edward P. Farrell, formerly with Hatters Fur Exchange, New York, and Henry Krick, added to the Stock Dep't force, the latter as stenographer.

Harry M. Ross and Norman H. Plumb are new members of the Cost Dep't.

H. E. Slocum has succeeded A. J. Poole, resigned, in Time-keeping Dep't.

V. C. Brennan, new member of Time-keep. Dep't.

Howard Ford transferred from Switchboard Operator to Messenger. Miss Grace Delores MacBride succeeded as Operator.

E. C. DeGarmo, of our Storehouse force, transferred to Norfolk Terminal.

Harry Baum is no longer connected with the Bayonne Laboratory.

The Texaco Bowling Team of Bayonne Terminal are making a good showing in the Industrial League, winning 10 and losing 5 games, with a chance for first place, being now tie for third place. John Ellsworth leads the team with average of 174; Fred Rade, second, 164; Arthur E. Ford, third, 153. Arthur E. Ford has high score, 207; Rade, 205; Ellsworth, 204. G. G. Scullin has honor (if any) of being low man of the league with score 87.

Water shipments by The Texas Company from Port Arthur, Texas, month of January, 1917:

DATE	VESSEL	BARRELS	DESTINATION
		Refined.	
4th	S.S. Texas	68,984	Delaware River
4th	S.S. Northwestern	22,152	Bayonne, N. J.
5th	Brg. Tulsa	7,743	Mobile, Ala.
6th	S.S. Hoth. Newt'n	26,801	London, Eng.
7th	M.V.Pennant	32,096	Charleston and Jacksonville
8th	S.S. Neuquen	13,036	South America
8th	S.S. San Silvestre	57,375	Dartm'th, Eng.
10th	S.S. Vimeira	50,209	South Africa
11th	S.S. Lompoc	70,725	Dart'mth, Eng.
14th	S.S. Alabama	28,746	Bayonne, N. J.
15th	Brg. Tulsa	7,899	Amesville, La.
18th	S.S. New York	74,665	Norfolk, Va.
19th	S.S. Vennachar	41,657	France
19th	S.S. Hermione	47,525	Portishead
20th	S.V. T. F. Pollard	5,191	South Africa
23rd	S.S. Louisiana	29,405	Amesville, La.
23rd	S.S. Gerolamo Ulloa	4,524	Italy
23rd	S.S. Texas	71,304	Bayonne, N. J.
25th	S.S. San Lorenzo	101,361	Hull, Eng.
25th	Brg. Tulsa	8,044	Amesville, La.
25th	S.S. Florida	11,696	Providence, R. I.
25th	Brg. Dallas	17,196	Providence, R. I.
29th	S.V. Gwen. Warren	2,556	Jamaica
30th	S.S. Louisiana	29,388	Providence, R. I.
30th	S.S. F. Luckenbach	20,056	So.America
31st	S.S. Georgia	51,149	Bayonne, N. J.
31st	S.S. Ume Maru	25,357	China
Miscel.	Dock Deliveries	13,311	
		940,151	
		Crude.	
3rd	S.S. Bowden	2,946	Cuba
4th	S.S. Texas	6	Delaware River
31st	S.S. Georgia	12	Bayonne, N. J.
		2,964	

Total: 943,115 barrels.

SALES DEPT. S. TERRITORY

Houston District. — The lubrication of tractors is of especial importance at this season, and the following excerpts from a report by Engineer Salesman H. D. Gohlman, Jr. will be interesting. In December Mr. Gohlman, accompanied by Agent H. C. Dennett, of our Kingsville, Texas Station, visited a section of the great King Ranch, near Kingsville, to demonstrate the application of Crater Compound:

Mr. Dennett and I visited King's Ranch this morning and met Mr. Posey, Foreman of the machinery of the Kingsville Ranch. He was out in a section of land that was being plowed. All of the plowing on this ranch is done with traction engines, and they are now operating five: two 60-40 Twin City Tractors, each drawing 9 disk plows, plowing at depth of 8 to 9 inches; two 60-40 Holt Caterpillar Tractors, one drawing a harrow and the other drawing 7 disk plows plowing at depth of 5 to 7 inches; and one 15-30 Baby Twin City Tractor, drawing a harrow. The King's Ranch is using Texaco products exclusively on their farm machinery, but they were not using our Crater Compound at all.

Mr. Posey, Mr. Dennett, and I went to the tractors to apply Crater Compound. I had with me a 25-lb. pail of Crater Compound and a paint brush. The first tractor to receive its application was a 60-40 Twin City. Mr. Posey wanted me to apply Crater to the large gear on the rear wheel, so with the help of several Mexicans and with rags and gasoline we cleaned the gear until all the old grease and dirt was off. I then built a fire, warmed the Crater, and applied the first coat with my brush. I put the Crater on rather thick, and as the teeth of the gear were clean it adhered readily. I explained to Mr. Posey that the metal must be absolutely clean for the first coat, but afterwards it could be applied by pouring it on from a can after warming up a bit.

The next tractor to receive the Crater Compound was a 60-40 Holt Caterpillar. The drive gear was cleaned as for the Twin City, and the initial coating applied with the brush. The track of the caterpillar was then cleaned and covered with Crater. The lubrication of the track of the caterpillar tractor had not proved successful heretofore, as the dirt picked up while the tractor was in motion mixed with the grease and cut the track worse than if not lubricated at all; and for this reason Mr. Posey would not lubricate. I explained to him the action Crater Compound had on dirt mixed

Engineer-Salesman H. D. Gohlman, Jr. demonstrating application of Crater Compound to tractors on the King Ranch near Kingsville, Texas

with it, that Crater completely surrounded each particle of dirt and prevented it from cutting. I applied Crater Compound to both tracks by putting it on the sprockets, and Mr. Posey says he believes it is "the stuff for the tracks". I then cleaned the large gear of the Baby Twin City tractor and applied Crater Compound to it in the same way. Mr. Posey seemed well pleased with the action of the Compound on the gears, and especially well pleased with the way Crater sticks to the teeth of the gears.

Dhoris (3 years old), daughter of Agent J. W. van Nieuwenhuyse, Carrizo Springs, Texas

C. W. Leavitt, of District Office, and Miss Dura Clare were married February 1st at the bride's home. We all wish them prosperity and happiness.

A beauty spot in the back yard of Agent Wade Cowan's Station at Fort Worth, Texas

Dallas District.—Last month the American Well & Prospecting Company, in Corsicana, telephoned to our Dallas Station that they had overlooked ordering Ursa Oil, had only one pint, and would have to shut their engine down in two hours unless we could get a barrel of Ursa Oil to them on the Interurban Express. The Interurban had just left, and to help them out we sent our warehouseman with 5 gallons of Ursa Oil on his motorcycle to Corsicana. We believe all will agree that this is an example of Texaco high grade service.

Warehouseman Geo. Hackler, making a delivery from Dallas to Corsicana, 61 miles, in less than two hours in order to serve a customer's urgent need

Oklahoma District.—At the Elks Carnival, a big annual event held in Oklahoma City the week before Christmas, The Texas Company had one of the prettiest booths ever gotten up. It attracted much attention and comment. Salesman A. M. Kinney deserves the credit for this excellent display, as the booth was decorated by him and was in his charge.

Gen'l Lub. and Specialty Salesman T. E. Meece opened the new year by closing the largest lubricating contract ever made in Arkansas.

We wish to compliment Agent R. J. Crane of Chickasha, Okla. Station on the future orders he has sent in.

This team and wagon won the blue ribbon or first prize in a recent Street Carnival at Fort Smith, Ark.

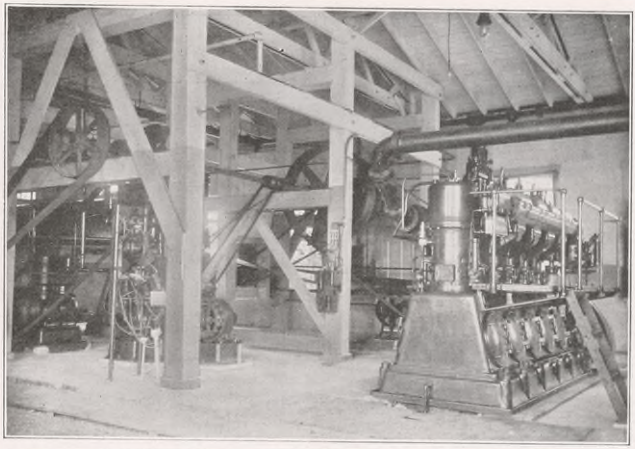
Appointments and transfers:

B. L. Sweat, formerly Traveling Agent at Hugo Station, transferred to Woodward, Okla., where he will endeavor to make that new station as successful as Hugo Station has been. F. A. Affleck, formerly of Houston, succeeded Mr. Sweat at Hugo.

R. J. Crane, promoted from Clerk and Warehouseman to Agent at Chickasha, Okla. Station, succeeding O. J. Brown resigned. M. A. Tilbury, promoted from Tank Wagon to Clerk and Warehouseman.

J. W. Hinch, promoted from Stake Wagon Driver to Clerk and Warehouseman *vice* D. Looney resigned, and B. H. Anderson employed as Stake Wagon Driver at Durant, Okla.

W. L. Crow, Clerk and Warehouseman, and J. T.



K. G. Morley and Son's Raw Water Freezing Plant, McGehee, Ark.

The equipment of this raw water freezing plant and its thoroughly satisfactory lubrication with Texaco lubricants are interesting. The equipment includes one 120-h. p. Diesel engine, one 40-ton ammonia compression system with a York Ice Machine, a 25-ton raw water freezing system, and an air compression and a dehumidifying plant. The photograph was kindly given by Mr. Morley.

This plant has been in operation for two years, and the Diesel engine has been lubricated with Texaco Ursa Oil from the time it started up. The engineer of the plant states that it has been necessary to make only one adjustment on bearings since the engine began operation, and that he does not know any other oil as good as Ursa for this type of engine.

Jones Stake Wagon Driver, McAlester, Okla. Sta.

C. C. Kirkpatrick, Tank Wagon Driver at Enid, Okla. *vice* W. M. James resigned.

G. W. Gardiner, Stake Wagon Driver at Muskogee, Okla. *vice* D. F. Brandon.

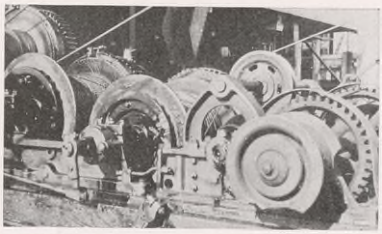
R. L. Cooper, Clerk and Cashier F. S. No. 2 Ft. Smith, Ark.

Jim Witt, Stake Wagon Driver at Woodward, Okla. Station.

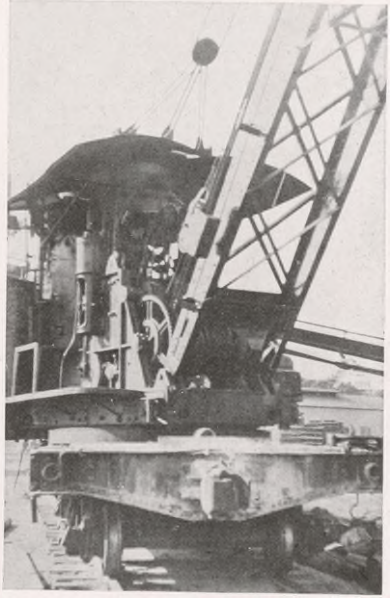
New Orleans District.—A. F. McConnell, City Marine Salesman, is attending the Marine Engineers Convention at Washington, D. C.

Salesman and Collector Sam Harlan, Jr., recently succeeded in closing several good lubricating contracts, and Salesman M. A. Dyer continues as usual to "bring home the bacon".

A son, Gordon B., arrived January 21,



Burton-Schwartz Cypress Co., Perry, Fla.—Log Loader and Skidder Machine—All gear and wire ropes have been lubricated with Crater Compound for two years



Burton-Schwartz Cypress Co., Perry, Fla.—American Crane, Gearing and wire rope lubricated with Crater Compound

See, also, page 13

Yaryan Rosin & Turpentine Company, Brunswick, Ga.—View of the Plant during recent reconstruction, including officials and operating force—Texaco lubricants have proved their efficiency and economy in this big factory

1917, at the home of Mr. and Mrs. R. B. Satterlee, Shreveport, La.

We congratulate Agent T. J. Porteous of Plaquemine on his recent marriage.

E. J. Morris, Jr. has entered the service as bookkeeper No. 5, District Office.

C. A. Emling, appointed Agent at Arabi, La. Station *vice* M. L. East, transferred.

The application of about 2,500 squares of Texaco Roofing has just been completed on the Schalmette sheds of the New Orleans Terminal Company. The contract for this was secured by Salesman G. Musson.

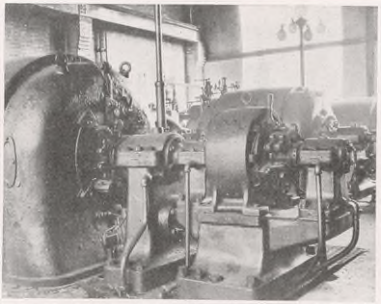
Birmingham District.—On December 14, 1916, W. P. Waite, of District Office force, and Miss Nell Ellis Law were united in marriage at the bride's home in Lincoln, Ala. Congratulations and best wishes.

Charles Leach, salesman, headquarters Birmingham, *vice* W. L. Neill resigned.

Chief Accountant W. F. Murdy has resigned; C. S. Adams succeeds, promoted from General Clerk. Mr. Murdy will engage in business in Texas, with the best wishes of his many friends here.

Atlanta District.—F. K. Dorrance, who is to have charge of roofing and specialty sales in this district, succeeding Craig Harris transferred, is welcomed here by his many friends.

Atlanta District employes are enthusiastic in their appreciation of the recently paid bonus, and all wish to express their thanks for this thoughtfulness and consideration on the part of the Company.



Yaryan Rosin & Turpentine Company, Brunswick, Ga.—Generator end of one of the turbines lubricated with Texaco Cetus Turbine Oil

Appointments and changes:

C. M. Watkins, Clerk at new Tampa, Fla. Station.

N. T. McElroy, Clerk Savannah Station, succeeding C. S. Bennett transferred to Warehouseman.

W. H. Moore, Clerk at Rome, Ga. Station.

Tank Wagon Drivers:

E. N. Miller, Atlanta, succeeds F. L. Tuggle resigned.

J. B. Law, Savannah, succeeds O. W. Williams resigned.

R. M. Stephens, Milledgeville, Ga., succeeds E. C. Hearn deceased.

W. F. Tinsley, Spartanburg, S. C., succeeds W. L. Brown.

J. E. Floyd, Jacksonville, Fla., succeeds R. A. Wood transferred to Houston District.

C. L. Hatchell, Florence, S. C.

E. B. Peterson, Motor Truck Driver, Jacksonville, Fla.

P. D. Warner, Motor Truck Driver, Sumter, S. C.

SALES DEPT. N. TERRITORY

New York District.—Every one is pleased with our new quarters on the first floor. We have had a constant stream of visitors and have heard many congratulations. It is a pleasure to work in such surroundings.

Agents and salesmen of Albany Territory held a meeting on Jan. 11. With congratulations on their work for 1916 and enthusiasm for the prospects of 1917, all claimed that they were going to have the prize territory in New York District the coming year.

The Yonkers Motor Oil Campaign, instituted by Representative McKibbin of White Plains territory, has been completed with highly satisfactory results, both immediately and as an advertising medium. The campaign will now be transferred to Mount Vernon.

The five new filling stations in Bayonne territory have already had direct effect in converting the public to the use of Texaco products, increasing materially the gallonage of Bayonne Station and influencing larger users to make inquiries as to our products, to say nothing of the advertising value derived from the attractive buildings and surroundings.

In the Equipment and Construction Division, R. M. Roberg has been appointed General Assistant; S. L. Burton, Assistant in Charge of Construction Work; J. M. Vangelder, Assistant Engineer in Charge of Design and Drafting.

O. J. May demonstrating proper way to make initial application of Crater Compound to a chain—Engineer Howard Cooper standing at left of Mr. May—Snap-shot taken at the Tractor Exhibit, Minnesota State Fair

Nilson Tractor, winner of plowing contest at Minnesota State Fair—This tractor used Texaco Ursa Oil, Crater Compound, and Cup Grease—Mr. May is at the wheel, Mr. Cooper seated on the running-board

Boston District.—We regret to announce the resignation of Representative A. F. Noble, in charge of Sales in Metropolitan Boston, who left us Jan. 15 to accept service with another company. The District extends wishes for his future success. Mr. Noble has especially requested that he be remembered to his friends in the Company from Port Arthur, Texas, to Portland, Maine, and it gives us pleasure to transmit his message. Mr. Noble was succeeded by F. F. Hale, and the territory formerly covered by Mr. Hale will be divided between L. M. Henderson and F. R. Slater as Representatives, the former with headquarters in District Office, the latter at Burlington, Vt.

Hunting for rabbits—Thelma May, 4 years old, daughter of Agent John Charon, Woonsocket, R. I. Station

On Jan. 6 the agents and salesmen in territories covered by Representatives Noble and Hale inspected Providence Terminal, over which they were shown

The Hearn Oil Company, representative of The Texas Company in the cities of Wilmington and Middletown, Del., handle Texaco gasoline and kerosene and almost exclusively Texaco lubricants. This photograph shows Mr. C. P. Hearn, the head of the Company, and employes at their first annual meeting on New Year's Day, 1917, at the City Club in Wilmington. The Hearn Oil Company has an enviable reputation in its territory, and it is a privilege to have such a body of men linked with the name *Texaco*, standing above all thimgs for *Quality* and *Service*. We extend congratulations to such a successful customer, with hearty hopes for continued success.

carefully by Sup't Sandford. Stress was laid on the handling of the bulk and package stock and case goods. After the inspection, a meeting was held. A good Sales talk was followed by informal discussion, and then Sup't Reinhardt outlined policies for 1917, and especially Mr. Tipper's campaign for advertising Texaco motor oils and greases, requesting that every possible effort be made to secure the necessary distribution. Representative Knight gave a talk on Transmission Lubricant, outlining tests conducted by him.

On Jan. 18 salesmen and agents under Representative A. E. Whitehill's jurisdiction, including agents in Maine and New Hampshire, inspected the Portland Terminal and held a meeting in the evening. After a general discussion of competition in their territory, Representative Hale related the method by which he was able to secure the business of one of the best equipped garages in Boston against great odds; and Mr. Hitchcliffe, tankwagon driver at Lowell, Mass., stated a method whereby he was able to obtain 75% of the kerosene business from the Italian trade in his city.

On Jan. 13 Buchner Chapter of the Crater Compound Club held a meeting in the United States Hotel, Boston. Officers were elected for 1917: President, F. H. Knight; Vice President, A. M. Bruce; Secretary, G. Macnamara; Treasurer, L. M. Henderson.

Appointments and changes:

A. J. Carniaux, of New York, Supervisor of Structures, headquarters Boston Dist. Off. will look after buildings, tanks, pipe lines, pumps, driveways, *etc.*

A. D. Murray, promoted from Operating Inspector to Representative, will supervise his former stations and also Attleboro, Mass.

N. W. Philips, Jr., Agent Commonwealth Avenue Filling Station, has resigned to accept a position elsewhere. His many friends in The Texas Company extend best wishes for his success. C. E. Patch, promoted from assistant to Agent, succeeds Mr. Philips.

Edward F. Silk has entered the service as Clerk in District Office.

Philadelphia District.—Automobile Show Week was celebrated in Philadelphia Jan. 12-20 at the Commercial Museum. The exhibition far exceeded anything of the kind ever before shown in this city. The Texas Company's exhibit was a good one, and a special play was made to familiarize the public with Thuban Compound as a Transmission Lubricant. This was done by showing Thuban in a regular transmission under working conditions, which proved to be of much interest to the many visitors.

The Philadelphia District Employes take this means of expressing to The Texas Company their sincere thanks for the generous bonus allowed to all those entitled to receive it.

F. Guery Smith returned from the Mex-

ican border, whereupon he decided to get married and have war for the rest of his life, having had enough peace while in the vicinity of Mexico.

Salesman W. J. Little is the proud father of an 11-pound baby boy.

Appointments and transfers:

Lub. Engineers J. T. Snow and H. B. Joseph to Philadelphia, and W. A. Edmundson transferred to Boston District.

Van Horn Foulke, from ledger man to Traveling Accountant.

Leo Coll, from Ass't Agent Broad St. F. S. to Dist. Off. Stationery department.

Raymond Stewart, stenographer and assistant to F. E. Taws, of Motor Equipment.

Robert McAllister, assistant in Motor Equipment.

Herman L. Parks, Agent Pocomoke, Md.

A. F. Christopher, Agent Hurlock, Md.

Howard Long, tankwagon driver Perkasie, Pa.

Norfolk District.—J. D. Austin, Agent at Maxton, N. C., was instantly killed on Jan. 13 when the tank wagon which he was driving was struck by a passenger train at Patterson's crossing, about two miles south of Maxton. Mr. Austin made us an exceptionally good agent, from a personal as well as from a business standpoint, and the entire District, deeply touched by this sad accident, extend to his family heartfelt sympathy.

Employes throughout the Norfolk District wish to express their appreciation of and thanks for the generous gift which was presented to us in the form of a bonus on Jan. 15, 1917.

Appointments and transfers:

Lub. Eng'r H. W. Salbador, transferred from New York to Norfolk District.

J. G. Mould transferred from Construction Division, New York, to Sup't of Permanent Structures, Norfolk District.

Elmer Beall, Fuel Oil Man, Richmond, Va.

In Dist. Off.: G. R. Garrison, transferred from Coupon to Ass't Voucher Clerk; W. H. Jones, appointed Coupon Clerk; J. M. Brennam, Record Clerk; J. L. Shallcross, Ledger Clerk; W. H. Moore, Ass't Clerk for Sheet Reporting System; W. J. Sullivan and R. L. Skeeter, stenographers.

Chicago District.—The stork visited the home of Mr. and Mrs. F. L. Richardson on Christmas, leaving an 8-pound baby girl. Mr. Richardson is Agent at Desplaines, Ill.

Appointments and transfers:

S. F. Lentz, on Chicago District Engineering Staff. Mr. Lentz was formerly Testing Engineer for Bessemer Gas Engine Co.

Salesman R. B. De Lacour, St. Louis, resigned.

Billie Heffron, from Dist. Off. File Clerk to Chicago, N. Kingsbury St. Station.

Wm. F. Simpson and Harry Jespersen, in Accounting department.

Arthur A. Imig, Clerk, Desplaines, Ill. Station.

Geo. J. Kuebler, Jr., Tankwagon Solicitor, Chicago, resigned.

EXPORT DEPT.

Again the elusive Cupid has invaded this Department. He has succeeded in introducing to membership in the Order of Benedicts Ass't Sup't Kern B. Fontaine, of the Australasian Division, who was united in marriage with Miss Edith Knoblauch of Minneapolis, Minn., Jan. 9, 1917. Also E. C. Spelman, of the South American Division, and Miss Helen Mahaney were married at Athens, Pa., on Thanksgiving Day. That these young couples will have no occasion to "cast (Texaco) oil 'pon troubled waters", is the wish of their friends in the Export Department.

E. V. Madden, formerly with Indian Refining Co., has joined the staff of the Export Dep't, and sailed Feb. 10 for Cape Town where he will be connected with The Texas Company (So. Africa) Ltd.

Lub. Eng'r G. F. Cecil, of The Texas Company (So. Amreica) Ltd., Rio de Janeiro, was recently in the U. S. visiting some points of especial interest from a lubricating standpoint.

M. D. Greer, who recently accepted a position with Anglo-Norwegian Shipping Agency, has returned to his old position as Sup't of our Shipping Division.

H. A. Lampman, recently located in the Far East, has entered the service as assistant to the Department Agent of the Export Department.

N. C. Bruun, Mechanical Engineer, has joined the staff of the Export Dep't, Asiatic territory.

J. Norman Parker is no longer connected with The Texas Company.

W. G. Moore left Jan. 6 for Jamaica.

B. F. Wright has returned from Bombay, India.

M. A. Horrigan, traveling auditor, has returned from Havana, Cuba, after making an audit of that District.

C. G. Romans, traveling auditor, has returned from an extended trip through the West Indies.

RAILWAY TRAFFIC DEPT.

"Please publish this exactly as written, regardless of apparent errors:"

Mr. E. M. Martin, Car Distributor, Traffic Department, has just returned to Tulsa, Oklahoma, where he states transportation conditions are deplorable to say the least, and becoming more demoralized daily. Emanating from a source that cannot be divulged at present, we are made cognizant that his trip to Chicago was resultant in more than his merely participating in the usual holiday festivities, and it appears he was the principal at a nuptial ceremony. Deponent further sayeth Mr. Martin advises he was glad to severe his relationship with bachelors, and join the benedicts. This irregardless.

SUGGESTIVE INDEX OF CURRENT ARTICLES

THE MAIN INTEREST IS INDICATED BY CLASSIFICATION OR BRIEF COMMENT

Journals cited are gladly loaned, if in our library, to persons connected with the Company. The journal or journals called for will be sent by return mail, unless in the hands of some one who has made a previous request—and in the latter case, as promptly as possible. Please give full and exact mailing address.

SALES Using Complaints to Win and Hold Business, by George B. Cortelyou—*System*, Jan. 1917.

To Put an End to Sales of Gasoline Tonics—*National Petroleum News*, Jan. 1917.

How to Determine the Market for Your Product, by Herbert M. Maxwell—*System*, Jan. 1917.
First of a series of articles that will describe how some of the most successful sales directors analyze their selling problems to make sure they are getting all the sales they should get.

LUBRICATION Lubrication of Bearings, by Wm. Knight—*American Machinist*, Nov. 16, 1916.
Special reference to recent investigations: formulas given.

FUEL OIL Oil Fuel in New England, by Charles H. Bromley—*Power*, Dec. 19, 1916.

EXPORT Direct Exporting, by Walter F. Wyman—Book, Published by *Business Training Corporation* of New York City.
"Comprehensive and masterly work."—*Leslie's Weekly*.

ENGINEERING Better Industrial Plants for Less Money, by Harold V. Coes—*Factory*, Jan. 1917.
Various methods of contracting and supervising.

PRODUCERS Storing and Measuring Oil from a California Gusher, by Geo. D. Roalfe—*Engineering News*, Dec. 7, 1916.

Measurement of Petroleum, by E. Langarice, M. E., Member of Mexican Technical Commission For Petroleum, I and II—*Petroleum Age*, Nov. and Dec. 1916.

Shale Beds Hold Future Supply of Oil—*National Petroleum News*, Jan. 1917.

GENERAL Working Efficiency—*Industrial Management* (formerly *Engineering Magazine*), Jan. 1917.
"Is the thing called 'efficiency' a dream or an industrial necessity? What does it mean to the wage earner, the manufacturer, and the consumer?"

Practical Costs, by Earl S. Clark—*Industrial Management* (*Engineering Magazine*), Jan. 1917.

The High Cost of Labor that Comes and Goes—*Factory*, Dec. 1916.
How to maintain the working force without wholesale hiring and firing.

Menace of Unproductive Labor, by Wm. H. Barr—*Manufacturers' News*, Nov. 17, 1916.

The Present Labor Situation (more than a score of articles)—*The Annals of The American Academy of Political and Social Science*, Vol. LXIX, Whole No. 158, Jan. 1917.

Review of the Geology of Texas, by J. A. Udden, C. L. Baker, and Emile Boese—Bulletin of Bureau of Economic Geology and Technology, University of Texas, 1916, No. 44.

Charley Chaplin surpassed—Burt E. Hull, Jr., at age of 14 months

It Looked Like a Cry for Help

I took this snapshot in a junk dealer's yard. As you can see, this pile is mostly made up of worn-out or broken gears.

It certainly looked like a cry for help. So I asked the junkman where they came from, and learned that he had bought them from a large concern in the near neighborhood.

I broke all speed laws getting there, and told them how

Texaco Crater Compound
Saves the Gears

They gave me a chance to make trial applications on some of the machines.

Before I finished, the foremen from different departments were around me, clamoring for CRATER on their machines. It didn't take long for this gear lubricant to prove itself. They could see that it didn't throw off and everyone noticed how much quieter the gears were.

I guess the only man around these parts who didn't appreciate my visit was the junkman.

Some of the gears were running in a steam bath, but that didn't make any difference to CRATER COMPOUND. It stays on the gear teeth, even when exposed to water, high heat, furnace fumes, or flying dust. It won't throw off, and keeps a wear-checking film of lubricant on the teeth under great pressure or speed.

CRATER works equally well on all kinds of gears—spur, herring-bone, or worm drive. And it only takes a short trial to show you how smoothly CRATER treated gears run.

Crater Jones

P. S.—Let me send you enough CRATER COMPOUND to show you some real gear lubrication. We will send it to you on a make-good basis. You'll pay for it only after it makes good. It always does

THE TEXAS COMPANY

HOUSTON CHICAGO NEW YORK

Offices in Principal Cities

This ad. is one of a series appearing weekly in the "American Machinist." "Crater Jones" uses a page a week to tell of successes with Crater Compound. He tells in a simple, direct way how Crater saves machine gears. We cannot help but believe that "Crater Jones" is a valuable adjunct to the Texaco sales force, as some of the largest and most prominent manufacturers of machines and machine tools have written him for tests and, as you know, a test of Crater Compound always means more sales.