Refineries using what is known as the skimming process can get the principal by-products with a higher per cent gasoline and also the lubricating oils, wax, coke and asphalt content.

A plant using the skimming process reduces one barrel (42 gallons) of crude from the Brinestown field, will get approximately 11 gallons of gasoline, 4 gallons of naphtha, 5 gallons of kerosene, 2 gallons of gas oil and 12 gallons of fuel oil.

To convey some idea of the value of the two principle by-products, gasoline and fuel oil, statistics show that during 1923, 26 per cent of petroleum products was gasoline and it accounted for 15 per cent of the money value of all products, 27 per cent of the petroleum was fuel oil, yet it represented only 57 per cent of the total fuel consumed.

In the refining of crude petroleum at a plant using the skimming process, the crude is run through a condenser and the normal temperature at which this condensation is determined by its gravity. For instance, a crude with a gravity of around 400 degrees, the crude will reach 150 degrees at the point of condensation, will be around 58-60 gravity. A crude with a gravity of approximately 50-52 gravity, as the temperature increases the kerosene vapor rises and after this is condensed it will be around 45 gravity.

The last vapor to rise from the crude will be gas oil, which runs around 30-34 gravity. The remaining oil in the still is what is used as a fuel oil and is usually around 24 gravity.

You will note that all the different grades of oil are extracted in the same manner, simply by bringing the crude to the proper temperature so that the light will give off the vapor and after this is condensed, the grade is determined by its gravity.

The question is often asked, "why do we not burn crude oil in our locomotives?" The first answer is because of the price, crude costing from 50 to 60 per cent more than fuel oil. The next reason is due to the flash point of the crude. By "flash point" it means at what temperature the oil will flash. This test is made by placing a small quantity of the oil to be tested in a metal cup, raise the temperature gradually and at every 5 degrees a small flame over the oil. Whenever the vapor rising from the oil flashes or free momentarily, you can readily see what the vapor will be in flashing crude as a fuel. It is necessary to heat the fuel oil from a cracking plant to about 120 degrees and the oil from a cracking plant to about 150 degrees in the locomotive tank in order to get the best results. The higher degree of heat required for the cracking fuel is due to its lower gravity, requiring more heat to get it to flow to the burner freely. This is due to the fact that fuel oil from a cracking plant has the lubricating oils, wax, grease, black oil, etc., removed. Leaving the oil to be used as a fuel around 18 gravity, that does not flow freely without considerable heat. As an example of the difference between a refinery using the skimming process and one using the cracking process, the skimming plant will get approximately 50 per cent fuel from the run of crude while the cracking plant will get only about 15 per cent fuel oil. After they have removed the oil by-products it is possible to get by this method, however, this does not decrease the heating value of the fuel, it is reduced due to the fact that heavy fuel from the cracking plant runs just as heavy as the fuel from the skimming plants. In fact, it is generally conceded that at the larger refineries, that they get better results from the heavy fuel oil under their own boilers.

The chief impurities found in fuel oil consist of water or brine and asphalt. The brine, or water, very materially diminishes the heating value and interferes with the mechanical use of the oil.

Some of the advantages of oil over coal on the locomotive are enumerated as follows: Handling cost reduced in the way of less fire knock, coal passers, etc.; oil placed on the locomotive tank cheaper than coal; ease of control, ignition and regulation. Time saved at terminals in getting engines hot, oil in storage does not diminish in calorific value as does coal and there is little danger of spontaneous combustion. The refuse from the combustion of oil is insignificant in the ease of disposal. Loss from right-of-way fire eliminated.

To give some idea of the amount of fuel oil we are consuming on the Frisco, during September we used an average of 5,343 barrels, or 274,460 gallons daily. This represented 24.5 per cent of the total fuel consumed.

Most of us are familiar, to a certain extent, with the cost of coal and realize that it has steadily increased during the last five years, but statistics on the petroleum industry indicate that in 1915, the average cost of digging a well was $3,159 while in 1923 it had increased to $20,362 per well drilled. Regardless of this increased cost per well, the total production for January, 1924, in the United States, was 1,903,966 barrels per day from 386,265 wells, or an average production of only 6% per barrel per day per well. In addition to this it will probably interest the more speculatory employer to know that 24 per cent of all wells complet ed in the United States are dry holes.

Petroleum is very aptly described as follows: Handling cost reduced 1923, 26%; cost of drilling a well increased during the last five years, 26.5%; cost of drilling a well increased during the last five years, 11; cost of drilling a well increased during the last five years, 18%.

I am power.

I travel the locomotive over mountains and desert. The swift automo bile is my duaghter, the stealthy submarine and the slantly-glide my ships. I soar in the clouds whenever men would fly in a machine or in the majestic floating airships. The stately submarine and the stately liner go their ways by my permission. I whirl the spindle in a thousand mills and you can have a seat in a multitude of busses. My strength never flags. Pack loads of a thousand miles. I am speed. Whenever men would fly in a machine or in the majestic floating airships. I am speed. Whenever men would fly in a machine or in the majestic floating airships. I am speed. Whenever men would fly in a machine or in the majestic floating airships. I am speed. Whenever men would fly in a machine or in the majestic floating airships. I am speed. Whenever men would fly in a machine or in the majestic floating airships.

(Continued on next page)
Mechanic at Birmingham Writes of the East Thomas Shops

Down at Birmingham, and over the rest of the system as well, they are mighty proud of those new Frisco shops at East Thomas, and with reason, for the shops are among the most and best equipped to be found on any railroad.

E. M. Flaherty, whose "regular" work is that of a mechanic in those shops, but whose introduction to you shall be as one of the valued reporters for this Magazine, wrote us the other day, telling of the shops and says, "So that our fellow-workers may know how well we are fixed down here.""

Further into the yards is the roundhouse, a monorail, running to the shops, you would be impressed with the writer's headquarters. About 25 feet north at the machine shop is the blacksmith shop, with its forge, furnace, and a new, 2,000-pound steam hammer. To the right of the blacksmith shop are the bathrooms for the engineers, firemen, and machinists. In this same building are offices for the various shops foremen and call boys. To the right of this building are the fuel tracks where they coal and sand the locomotives.

"Northwest of the boiler room is the machine shop. About half of the machinery is new. We have a good tool room in this shop, too, which is the writer's headquarters. About 25 feet north at the machine shop is the blacksmith shop, with its forge, furnace, and a new, 2,000-pound steam hammer. To the right of the blacksmith shop are the bathrooms for the engineers, firemen, and machinists. In this same building are offices for the various shops foremen and call boys. To the right of this building are the fuel tracks where they coal and sand the locomotives."

"Leaving the roundhouse, and about 30 feet north, we come to the boiler washing plant, which is up to date in every way. About 30 feet north of this plant is the engine and boiler room. The engine room is a most up-to-date arrangement, having all the latest devices. In the boiler room are two large tubular boilers (only one fired at a time), the coal elevator and an ash conveyor. You can see, with this equipment, these are thoroughly modern."

"The roundhouse has 20 stalls, 3 of which are drop pits. On visiting the shops you would be impressed with the cleanliness, too, everything is well kept. All of the top of the roundhouse is a monorail, running to the monorail is a motor driven with a capacity of 4 tons. The roundhouse has a diameter of 100 feet. Including new vises on iron stands, set in concrete between every other stall, and a large building in which is the store-room, general and equipment, these are thoroughly modern.

"Northeast of the boiler room is the machine shop. About half of the machinery is new. We have a good tool room in this shop, too, which is the writer's headquarters. About 25 feet north at the machine shop is the blacksmith shop, with its forge, furnace, and a new, 2,000-pound steam hammer. To the right of the blacksmith shop are the bathrooms for the engineers, firemen, and machinists. In this same building are offices for the various shops foremen and call boys. To the right of this building are the fuel tracks where they coal and sand the locomotives."

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The "Passing" of the Dear Old Clinton Line

By R. F. McGLOTHIAN

"Two back in eighteen, eighty-five
That seen of vision, much alive,
Conceived and planned a steam rail
Road, on which the farmers might unfold.

Their surplus wheat and corn and logs
Likewise their crop of walnut logs.
To be transported market-bound.
White gold and silver dig abound.

The plot seemed wise, it promised well.
The bonus for the project fell.
In variations did they plan.
The railroad thought to make some coil.

And so the "Clinton Line," all new,
Was built by workmen good and true.
The pride of all, both far and near.
Until it served for day and year.

But now, alas, it's growing gray.
You ask me? No it didn't say.
And why to state, the "C. & I."
Has attained over the word success.

And so it seemed both wise and good.
By those who best have understood.
To come at once to its relief.
Although it causes pain and grief.

A railroad cannot long survive.
No matter how its friends may strive.
Unless its resources exceed
Expenditures for things of need.

But somehow this could never be,
Although we've struggled manfully.
And its present fame is collapse.
They "Princeton" it. "The Best, perhaps.

Though we have never ceased to toll,
And often hounded by misfortune.
In spite of all to render aid.
The pull has largely been upgraded.

For when a balance has been struck
It seemed the road was out of luck.
And though we've scratched 'em "the old age announces its decline.

Its engines, steadily once they say,
Though running still, have had their turn.
And soon (we pause just sure to weep).
We'll see 'em in the old scrap heap.

Its box cars, once a joy and pride,
With justice hold on either side.
Announced the fact, did also stress its title, "K. C. & I."
But time with them has blazed its part.
No longer a work of art;
They're serving still as best they may.
Transporting tone and loan of clay.

They say there's nothing in a name.
But when with purpose to do fame.
A hallowed way with little will,
Who kills himself that he is "I."

Decided whether others stand aloof.
To dub our railroad "leaky road".
We think it nothing more than fair.
To them (we quote), "Give him the air."

You ask us why the cry of pain,
Instead the reason to quite plain.
For through the years, some twenty-three
We've reaped a happy family.

Together we have trudged along.
One laborer not unnoticed song.
But ruthless hands came into play;
The Princeton tore our pilgrimage down.

And so the time has come to part.
It truly gives us pain of heart.
To close the hand, to my ally.
And brush away a tear or two.

We're going forth, don't know just where.
We hope twill be where skies are fair.
Where man by man is understood.
In terms of one great brotherhood.

Our hearts are sore, are broken quite.
It's time for me to cease to write.
And may the day make my song.
The final word to all, "good-bye."

You ask my future? I'll tell you.
The ants have treated me quite well.
And while the years have quickly sped.
Old Father Time has gently said:

"You've reached your three score years and ten.
The time allotted unto men.
The shelf for you, your name is read.
Will henceforth grace the Pension Roll."

New Year Resolutions
H. F. Shives

By the Ellis this appears in print.
The gladness Christmas festivities
And the New Year holidays, with all
The resolutions, both good and bad,
Will have passed into history.
The year just gone has been a good year,
Yet while fraught with many of the circumstances and short comings which are the common lot of all mortals, we should put the past behind us and each one try to profit by the misadventures made during the year, whatever of wrong or right we have displayed as a sleeping stone to a higher state of perfection.

Let's all try to be a little more considerate to our neighbors, being always uppermost in our mind that "he who serves serves best served."
Practice the spirit of friendly cooperation and mutual helpfulness in our work.
Let's all strive to make our railroad the best in the southeast by rendering efficient and loyal service both to our employee and patron, as is it to those who own our allegiance, our employee for our jobs and our patrons who provide the necessary funds which provide to make our checks possible each pay day.

L. B. Pochner is Veteran Railroadman

L. B. Pochner, general lumber foreman with the Pyro Lines has been with the company approximately 15 years. He has spent the greater part of a long and useful life in railroad work and has shown noteworthy qualities to parities to assist the early days of railroadism.

Mr. Pochner was foreman at Oklahoma, Kansas, for the Santa Fe Railroad in 1882. In 1888 he went to Tuscumbia and joined the present department of the Santa Fe, working there until 1884 when he was transferred with the lumber department of that road, working there until 1886 when he was transferred with the lumber department with the Pyro lines as lumber foreman.

One of the letters which Mr. Pochner wrote was received in 1884 from W. W. Buell, then superintendent on the Santa Fe. The letter is:

"Dear Mr. Pochner:

I have been specified to you, the 8th of the date in this letter, all the years I have been under your jurisdiction, since you have been in charge of the road, it has been to your duties as foreman to the men in charge of the road, it has been to let our service of your own election and in good standing."

W. E. Bertha Promoted to Auditor of Freight Accounts

W. E. Bertha, recently appointed auditor of freight accounts, upon Mr. Ferguson's promotion to general freight agent, entered the service of the Pyro Lines as deputy freight clerk.

Following his elevation to rate clerk, he was successively assistant chief rate clerk, chief rate clerk, chief clerk, receiving clerk, chief receiving clerk, chief clerk, chief receiving clerk, chief clerk, chief clerk, chief receiving clerk, chief clerk, chief receiving clerk, chief freight agent, and on October 15, 1934, was appointed to the present position.

Besides having a wide acquaintance with the railroad business, Bertha is surrounded with an excellent "cabi" of men in his department.
Storm and Sleet Halt—but Do Not Conquer Frisco Service

YEARS from now, when some of those whose photographs now appear on the "Frisco Folks" pages of the Magazine, are themselves proved great ones, they will still be talking of the "Great Storm of 1924." And coupled with the reminiscence of that storm—one of the worst in the history of the great Southwest—will be the story of what the Frisco men did to keep the service going through that atom.

On December 17 and 18, the entire Southwest—in fact practically the entire nation—was placed in the grip of the coldest weather in many, many years. And with the icy cold came sleet and snow and rain. 

Heralded by a rain on December 17, the rain freezing as it fell, the storm broke. Beautiful, it is true, but beauty seemed, as if in desperation, to accept their unwonted load and finally now and then means actual discomfiture of man with one sweep of his hand. Old King Winter, with tons of ice. Beautiful, it is true, but beauty is a fine, it is true, but beauty seemed, as if in desperation, to accept their unwonted load and finally now and then means actual discomfiture of man with one sweep of his hand. Old King Winter, with tons of ice. 

The Telegraph Department at Springfield, Miss Jillian Lillian L. Reichenbach, typist, all night, was on the job of filling the lines. Monday morning, Wednesday, December 28, Vice-President Titley stated that in all his experience he had never seen a pole or line wire so badly damaged. There were about 800 poles down on the Southwestern, Western and Central Divisions and 200 on the Northern. 

And through it all comes the great bright spot of real Frisco cooperation. Crews worked harder than ever they had worked, staying on duty to the limit, carefully handling train orders from the Reformation. Crews worked harder than ever they had worked, staying on duty to the limit, carefully handling train orders from the Reformation. 

The word went forth, first appearing on the Western Division, between St. Louis and Springfield, wire, where wires were reported broken and trees hanging across the lines. Four linemen worked between those points all day Monday, and as soon as the lines were reported clear, the work train was put into service, and five linemen and a crew of section men left Springfield. Other linemen and gangs were sent out as quickly as possible. 

Five Notable Books

What will be interesting is that the list of books is not confined to those published last month) pictures the life of Constantinople in the eighth century. "A Friend of Caesar" tells of Mediaeval life. "The Friar of Wittenberg" covers the period of the Reformation. The whole series is published by The Macmillan Company.

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Isn't It the Truth?

It may be a mansion, it may be a small pump. 

It may be a farm with an old broken pump. 

It may be a palace; it may be a flat; it may be a room where you just hang your hat. 

It may be a house, with a hole in the roof. 

Or a marble hotel with a man at the door. 

It may be exclusive, or simple, or swell; it may have grand fixin's, like cur- 

sives. It was a splendid example of the co-operation that was going on, and a fine example of loyalty, cooperation and interest. It was a splendid example of the co-operation that was going on, and a fine example of loyalty, cooperation and interest.

"God Wills It" is a story of Mediaeval life. "The Friar of Wittenberg" covers the period of the Reformation. The whole series is published by The Macmillan Company.

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"A Friend of Caesar" deals with the period of the Reformation. The whole series is published by The Macmillan Company.

Miss Edwards Returns

Miss Edwards, who had been ill for some weeks, has returned to her desk in the passenger traffic department. Miss Edwards is the reportorial representative of the Magazine in her department. 

Charles E. Boren, Locomotive clerk in the office of H. L. Worman, has left the service of the Frisco Lines to enter the real estate business in Florida.

Pittsburg Company Appraises Service

W. J. Conner, vice-president and sales manager of the Pittsburg, Kan- sas, Elevator Company, recently wrote to Agent W. E. Smith, at Springfield, thanking him for quick service. 

Mr. Conner said, "We want to con- gratulate you upon the cooperation of your office force in promoting a better feeling between the Frisco and its patrons. We are having good service in Pittsburg, and at first we were complimenting ourselves on our personalitat, which we thought we had, but we have become con- vinced that it is a real thing to give good service to all your patrons. We are certainly proud that our in- terventions.

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Widow Jones

Widow Jones on the repair truck, imagined he could do

A moment's work beneath the car Without the flag, so blue.

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Man and Service

On the stroke of the clock when a man enters the service of a corporation he becomes an investment. That is, he is hired and paid with the thought that he will, by his labor, return to his employer the value of his wages and something in addition, interest as it were, on the money paid him.

The man who works automatically, never looking for anything better or using his head to any extent, is a losing item in the scheme of things, and his product goes on the debit side of the ledger.

The man who takes pride in the way he does his work and is looking forward to the day when he will assume the duties of a bigger job, is a paying investment, because he is not only performing that service which is expected of him, but is gaining an education which is the most valuable asset a man can have.

Let each man take an inventory of himself. If he finds himself wanting in any particular, see if by some means that want cannot be overcome and his value increased.

And the reward will come many times over, rest assured of that.

State Experiment Fails

A study of the state bakery business in New South Wales, made by the Chicago Tribune, has shown that the state-owned enterprises have not been successful.

The experiment began in 1922 with the state bakery, which supplied bread at a loss. Mr. Gibbons says the state bakery was leased to a private company with an option to buy. The state's attempt to handle the timber business, he says, also ended in failure, losing more than $1,000,000 in ten years.