CALIFORNIA, the home of the movie and the startling development, comes to the front now with the newest spectacular illustration of "luck" in the oil game; the case being that of Seal Beach.

Seal Beach is just three miles along the coast from Signal Hill. Geologists, for many years, have believed there was oil to be found near Seal Beach and mostly on geological hypothesis eighteen holes had been drilled since 1921 without a commercial production. Then quite recently a well was brought in at a spot that was almost completely surrounded by dry holes.

From start to finish various companies, drilling within two and one-half miles of what is now the location of Discovery well, drilled sixteen miles of hole. One company drilled 30,000 feet, another 27,000 and another 12,000. The company which eventually found the oil drilled one dry hole, 5,400 feet, and found oil in the second hole at 4,400 feet. Within 300 feet one way and 3,600 feet another, dry holes had already been drilled before Discovery well was commenced. The cost, up to the time oil was struck, had aggregated two and a half million dollars.

So just what is luck in the oil game, anyway? Or rather, how much is really luck and how much dogged persistence coupled with a willingness to risk tremendous sums on a hypothesis?

Sometimes what looks to the uninstructed like blind luck is not luck at all but the analysis, by men of lifetime experience, of a set of facts which would mean nothing whatever to men less completely informed.

As, for instance, the case of Seal Beach. No doubt the logs of the eighteen wells already drilled had been correlated so as to indicate, to those who were able to read the language of the rocks, that the stratigraphic high or whatever may have been the desired structural condition lay at a point entirely surrounded by dry holes. With this information in hand, the owners of what has now proved to be Discovery well had no hesitation about commencing a new hole inside a ring of dusters and, the geologic hypothesis proving correct, they got oil.

Had the first of the eighteen wells drilled at Seal Beach found oil, that would have been luck. Luck in the same respect as though a shot in the dark had hit the bull's eye. But when eighteen holes had been drilled, the nineteenth was by no means such a shot in the dark. Eighteen dry holes had furnished much evidence. The location of Discovery well had become almost a mechanical operation.

To the ignorant observer, the spectacle of a company commencing a new well in the midst of eighteen dry holes must have appeared little short of lunacy, and when oil was discovered the discovery must have registered upon the lay mind as another of those cases of miraculous luck; whereas, as a simple matter of fact, the nineteenth was the hole which was least predisposed on luck.

For instance, the eighteen dry holes, for eighteen reasons, probably separate and distinct, were all impossible as oil wells. Having been drilled, the reasons were obvious. Had the information which the drilling of each divulged been available prior to drilling, not one of the eighteen dry holes would have been drilled.

It is where the information concerning any field or lease is not all available that the element of luck dominates.

As for instance, Imperial Oil, who entered in 1917 to prospect for oil in the Canadian West, a country two thousand miles from North to South by nearly a thousand miles from East to West. Visualize this tremendous area with almost no information of any practical value, as compared with Seal Beach's eighteen holes inside of a two and one-half mile radius, and you get a glimpse of the task that confronted Imperial Oil.

On the advice of the best geologic opinion obtainable, Imperial Oil had drilled, in this territory, not a few more holes, but at about twice the cost, as had been drilled at Seal Beach, before an oil discovery of economic importance was made in the Canadian West.

When Imperial's discovery finally did come it was in Turner Valley, the only area in the whole territory that had been drilled to any extent before; an area in which the structure had already been pretty accurately mapped and in which many of the dominating geologic factors were already known. So far as the location of the well was concerned, the element of luck had been practically eliminated.

But there was one respect in which Royalite Number 4 entered virgin territory in Turner Valley; it went to greater depth.

Up until the remarkable discovery of high grade naphtha in Royalite No. 4, it had been the accepted theory that the geologic horizon in which to look
for oil in that area was the Dakota sand rock which lies at the base of the Beacon, Royale, No. 4 piercint the Dakota, the Kootenay and the Fernie and went 250 feet into the black oil before encountering the strata from which production is now being taken. The well was put down to such extreme depth in deference to a theory—the theory that the deeper or point of origin of oil lies somewhere in the upper measures of the line. A test of this theory at a large cost, led to the discovery of oil.

On the other hand, however, with out adequately financed operations prepared, in the absence of complete information, to trust for luck for some of the factors, it is also certain that the world would quickly be short of oil.

If there is a formula with which to invoke luck for the search for oil it must be in some way wrapped up with the manifest coincidence that luck favors no one, having the complete information.

So, just where does the factor of luck enter and where does it leave off in the oil game?

To the uninitiated, it looks as though it is just a matter of getting a bunch, adding a drill to an oil company, putting down a hole; then, to the lucky one, an oil well.

But it is nothing like as simple as that, and if the location of oil wells were left entirely to luck the world would no doubt find itself suffering for oil within the year.

The Second Cooperative Investment Fund, which was started at the beginning of 1926, still holds out an inducement to employees of Imperial Oil and allied companies who are eligible to join. All employees know what the terms are, and are fully aware of the benefits to be derived from this splendid offer. The employee of the Company, for example, in the last Trust, which covered five years, deposited $200 a month for five years, which equaled $1,200,000, and received for this from the Company, Imperial Oil, Limited, stock to the value of approximately $2,600,000. Where else could be made a sale of any kind which has been assured of more than double the amount invested.

The word “thrift,” implies economy, carefulness, as opposed to waste and expenditure. It involves self-denial until prosperity, which grows out of thrift, permits more liberal spending. The majority of people do not even try to practice self-control; are not willing to sacrifice present enjoyment and ease for future better good. They wonder where all their money goes to, as they never keep an account of it, and rarely restrain a desire. They fling it out a nickel here and a dime there thoughtlessly. It works out to an appreciable total and in a year it amounts to a large sum.

Thrift is at the foundation of fortune, and of character. The habit of thrift improves the quality of character. As Roosevelt says: “Thrift lurks in the soil.” The saving habit indicates an ambition to get on in the world and develops a spirit of self-reliance. A savings account shows a desire to improve one’s condition. It means hope, it means ambition and a determination to “make good.”

People believe in the men and women who, without being misers, are parsimonious, save a part of their income. It is an indication of many sterling qualities. Business men naturally reason that if the employees are saving their money they are also conserving their vitality; that they are looking up in the world and not down, and that they are determined not to sacrifice the larger gain of the future for the pleasures of the passing hour.

Anyone fortunate enough to be eligible to subscribe to the Second Cooperative Investment Trust but who has not yet taken advantage of this opportunity should not delay; do it now — today. There are thousands of men and women in Canada who would grasp at the chance of connecting themselves with Imperial Oil, Limited, one of the largest and most favorably known industries, and who look with eyes of envy upon those who enjoy this opportunity to become a stockholder and part owner of the Company which has a proud future and an untarnished past.

A moment’s study will bring a realization of the undeniable fact that the petroleum industry is the most significant of all the industries. It is one of the most promising of Canada’s future. A glance at the geographical situation, Canada is no exception. On the Canadian register the oil fields stand near the top. Imperial Oil, Limited, together with its associated companies, is the largest concern in the world and the largest producer of the sea tonnage in Canada, and its fleets are engaged in a traffic which is focusing the attention of Canadian capital and brains upon the latent possibilities of Booth. American capital. In the possession of Canada’s trade and prestige to an extent scarcely realized in many quarters in this country. Imperial Oil is operating nine ships in the deep-sea service and the International Mail Lines. Its losses are the MS. Bera, Antelot, Sarnia,.widgets such as the Calgolac, going through the Panama Canal. (a)


t he oil game will understand, is a high grade oil and the transport for lighter products has been taken off, is too valuable as a lubricant to be burned up as fuel oil, while California oil, which is low grade, offers the consistent economic product for fuel purposes. Consequently, although it appears like carrying coals to Newr- the sudden raising of the oil gate on the point of turning a traffic for Imperial Oil tankers to carry foreign products to India, coal, and Montreal and to provide to the return trip with fuel oil from San Pedro, is, in the expensive foreign tanks, a very high grade crude for use in Canadian refineries.

Among salmoners, the west coast run is the coveted assignment. Although a lonely season, the South Pacific is the most peaceful of all the deep water areas. So navigation on this run involves but little of the gaff that characterizes the turbulent western ocean, and none of the hardships from cold ice. Because of the long winter’s sleep, the maintenance of the vessel is perfect. The engine is closed and the North Atlantic temperatures, there is a real, the summer’s supply to Montreal and Halifax. This Montreal an Imperial Oil tanker is invariably among the first ships to reach our country and the opening of navigation. At Halifax, it is by no means an unusual spectacle to see No. 4, 400,000 ton, the refinery wharf crowded with water-line to funnel with a stream of black oil, which finds its way into the success of harmed captain and crew.

In following their regular routes the tankers travel through the gates of the Panama Canal. (a)
will add a couple of hundred miles to the straight line distance. The fuel oil is to be delivered at Callao, Lima, Juan, Iquique, Antofagasta, Valparaiso or some other West Coast port in South America, the extra run adding 900 to 1,500 miles to the distance. Thus, by the time the tanker has made the round trip from and to, which is between 20,000 and 25,000 miles, and, with side trips, she has usually maneuvered all of 10,000 miles.

From Montreal to Talara is 3,900 miles.

With the completion of the Anduan pipe line, by which oil from the Illinois fields is now being delivered to Montreal on the Caribbean for shipment, there has been inaugurated another tanker route and Canadian ports. From Montreal to Talara the sailing distance is 3,177 miles and, should Colombian oil be required at all, the run would involve 4,561 miles.

The modern tanker, built for efficiency, is an irreplaceable personnel in the matter of loading and unloading. In fact, among the sailors the quiet turn-around in the one is a matter of regret that fills their lives. As a deep-sea freighter of any other class when it arrives in port, will take anywhere from a month to discharge and reload. Sometimes long periods are spent awaiting orders. So far as the tanker is concerned, he is never tied up awaiting orders. So completely is the petroleum business organized that upon delivery of one cargo the tanker is immediately away upon another. Their life is a continuous one.

The cargo the tanker carries is crude at Talara and Tampico crude oil is pumped aboard through sea lines laid some distance offshore. At South American points fuel oil is usually discharged in the same way. The tanker anchors but does not touch shore. The time required to load or discharge is a matter of hours, not days. At Montreal or loco the acre is not quite so rapid, as there is the business of taking on supplies and possibly some minor repairs, but the

One of the most interesting departures in the transportation business is the coating service. Submarines, as a general rule, look upon the coating business as a sort of indoor sports. It is not the only and exactly big league stuff for blue-water men. But it offers a variety of interests to its followers of the deep sea-route. In South America, a very important trade has developed along the South coast in case and can goods, which are loaded at Talara refinery and carried to the company's coating plant. The various ports, large and small, along the Pacific littoral. In making their rounds these smaller vessels, the Talaraite and locos, carry many ports of call that are not visited by the regular passenger lines, and only on rare occasions by the international freighters, that the men engaged in the coastal service see something that tourists and other sailors do not see, South American life in all its native state, undiluted by the infiltration of North American and European influence. On the North Pacific, there is another coastal service which is the same, only different. That is to say, the service and the purpose is the same but the scenery is much different and the people are as nearly opposite as the north is from the south. Nevertheless, the South Pacific presents a coast line that for a thousand miles is a stark and sterile desert. The North Pacific presents a panorama of verdure, cliffs, hills, replete with water-falls and glistening glaciers. Contrasting with the languid carelessness of life in the southern hamlets, there is the bustling and the dynamic, the energy of the northern camp. But the demand in both cases is for the same product. From the nitrate mines of Chile and the pulp mills of British Columbia came the fuel for our gasoline and lubricating and just as the South Pacific coaster pokes its nose into the almost unknown parts of that coast, so the S.S. Imperial and our other motor vessel "Marvando" working out of loco points of little lives of activity along the inside passage and around Vancouver Island seldom visited by other ships save the canneries tugs and the logging tugs, and those limited to their own spheres of activity. In fact, it may be said that the navigators of the company's coating steamers know the respective coasts better than any other person, not even excepting the government officials who presumably arrogate the law and collect the taxes.

The streams Imperial and Locomoca incidentally, were in the Great Lakes service before going to the Pacific coast and are the rare exceptions where fresh water ships have become fixtures in salt water service. The lake shipping is somewhat entirely different from that of ocean navigation. The ships are differently constructed and the service is different. When the deep sea tanker, in the loco service, for instance, will sail straight away course for thousands of miles without sight of land and without sight, for days on end, of any other craft, the lake steamer works her way in a restricted channel through a maze of traffic that would keep the blue water man in constant focus. On every hand is the procession of hurrying craft with their fleeting signals and long banners of smoke, working on traffic laws as rigid as those of the city thoroughfares. The ocean freighter requires a pilot to come into harbour. The lake navigator is a master of his craft. The Seabright, Royalle and Imperial thread the highways of the lake from the lower Lawrence to Fort William, delivering the products of the trip.

(Continued on page 5)

The Talaraite Royalle and Imperial thread the highways of the lake from the lower Lawrence to Fort William, delivering the products of the trip.

(Continued on page 5)

On the 26th of July, 1926 at 8 A.M. the Boys Scouts of Talara, 34 in number, with scoutmaster, fundamental and Mr. Titolah, went on board the motor harbor craft "Churubu" at Talara and at 5.30 P.M. at Pata to S.S. "Route" en route to Lima, the capital of the Republic of Peru. This is my impression of the trip.

At 11 P.M. towing a lighter loaded with charcoal, we pulled up anchor for Callao, where we arrived eight days later.

As we arrived rather late at night, after the harbor had closed, we were unable to disembark until 10.30 A.M. the following day, July 24th. Headed by the band, amidst warm applause, we received a great reception. I can find no words to express the emotion I personally felt at the joyful way the people of Callao received us.

We proceeded to Lima by street car, stopping en route at the College of Our Lady of Guadalupe, where we were met by the head master and pupils who received us very courteously. It was there that we met our friend, Salsasito, from the Talara School who acted as our guide.

Guadalupe College is a large building, with its own chapel, theatre, etc., as welling the principal school of Peru. The third and fourth year pupils give us a regal banquet.

On the 26th July our Band played in honor of the pupils of Guadalupe and were very much applauded. On the same day Capt. C. Brandan of La Pinta, gave us a tea in Callao. On the 4th August, Mr. Leslie Hutto, son of the International Petroleum Co., Ltd., gave us another tea in La Pinta. We are very grateful to both of these gentlemen for their kindness to us. During the day we went sightseeing around Lima, the previous day having seen a football game between the Argentinians and Peruvians, taking in a circus at night.

On the 27th inst., we took in more of Lima in the morning, and devoted the whole of the afternoon to preparations for the civic proceedings on the 26th July, which lasted from 8 A.M. till 1:30 P.M. Our Band of 20 instruments and patrol of 14 scouts extra with the Brigade Banners were honored by the Mayor of Lima, who placed us at the head of the scholastic part of the proceedings. We played the "Laguna March," composed by our Band Master, and dedicated to the President of the Republic, elon Augusto. We were also instructed to play the National Anthem in the Plaza San Martin and the Plaza de la Inquisition. After the civic parade we filed off in review before the remaining schools and brigades which took part in the processions, of which

The Talaraite Boy Scout Brigade at Lima

The Talaraite Royalle

The Colchique stock

By j. Guerro
we were naturally very proud. On the 26th July we went to Mina-
flora and Chorrillos, as well as to
Barranco. On the 30th we went to La
Herradura. The following day we went
to Chosica, being granted a free pass
there and back by courtesy of the
Peruvian Corporation. In Chosica
we were received by the Mayor and a
large number of people who, by reason
of us exceedingly well, and made us stay
over the night in the public school
to. We went to a Bull fight in
Chosica which was very exciting, being
the first real bull fight we had seen.
On the 31st August we were invited
by the Y.M.C.A. to their club rooms
where we enjoyed a series of social
games, many of which we learnt for
use in Talara. The members of the
Y.M.C.A. also looked after us
the way of “eats”. We spent a wonderfully
pleasant evening.

On the 4th August we went round Callao
and Bellavista visiting the principal
place of interest. Everywhere we
were the public gave us
no end of applause. On the
following day, the 5th of
Lima, senior Andres
Dusse, offered us a succulent repast at the
Zoo-
ological Restaurant. Senior
Dusse made a speech in
honor of the Brigade and presented us with a
Diploma of Honor and a
Gold Medal, for our cor-
rect presentation during the
National Holidays.
Mr. E. Pena Rio replied
on our behalf, thanking him for
his kindness to us. In the evening we
went to the Cinema.

On the 6th we went to the Exposi-
tion. Masons, Historec, Howard,
Foucault de Huancayo. Among the
monuments I particularly remember
that of “Dos Lados” which brought
to my mind a history lesson impressed on
me by my teacher in school, covering the
history of the Independence. Glory be to
them. In the evening we went to a show at
the Thaise Theater.

On the 8th we went to the Palace
of Government, to say goodbye to the
President who were received by
military honors and shown into a
salon where we were to be
received by Mr. Leguina, who announced us,
inviting our instructor Mr. Romero and
Mr. Tedah to lunch with him, while we
played our repertoire. After lunch
and the public at large. That same
ten days the theater was thrown open to
the public free and we appeared before
the full house to give our experiences
first hand. Our trip has certainly
been an experience as well as an edu-
cation in itself, and we are grateful
to the International Petroleum Co.
which sent us down, the private
of the District of Marloas, who helped
in establishing the Talara Brigade of
Boy Scouts, the first in Northern
Peru, as well as the officials of
the International Petroleum Co. in Lima
and Callao, all of whom we are
thankful to us and helped to make our stay
in the Capital one of such delightful
remembrances. There are many others
whose names are hard to recall among
the numerous people with whom were
in contact, whom we shall
remember however on account of kindness to us individually and
collectively, wherever we went.

At the Mast head Flies the House Flag of IMPERIAL OIL LIMITED

[Continued from page 4]
of the Montreal and Sarnia refineries to way ports and for delivery to the
west.

Still another branch of navigation
presents itself on the great Magdalena
river, in Colombia, where Interna-
tional’s subsidiary, the Tropical Oil
Company, is operating a fleet of five
magnificent steel steamers of the
Mississippi River type along hundreds
of miles of the most difficult kind of
torrents and shallow stream naviga-
tion. Life for the Magdalena naviga-
tor is varied and exciting and never
dull. When the water is not too high it
is usually calm. The ocean navi-
gator sees no land. The captain
of the river navi-
gator has to keep his craft of
land. Shifting sand bars and uncharted
changes in the river’s course are perpetually pre-
sent in exciting incidents. The
naviga-
tor of the Magdalena river craft is to distribute the
oil product the Barranca-Bermejo refinery to the river ports and to
carry the material and
supplies that flow continuously into the oil fields in the single
country of Colombia. And thus deep
sea tanker, coastal, lake and river
steamers, all work together as factors in a
great and complex system of produc-
tion and distribution of petroleum
products. Each is the complement of the other. Combined, they constitute
the transportation equipment of the
most expensive and highly organized traffic that the world has ever known.
In widely separated latitudes they are spreading knowledge and promoting
humanization and establishing human
contacts and increasing wealth and
adding to the welfare of millions of people of many races and
in many climes.

And at the mast head flies the house
flag of IMPERIAL OIL.

A Maritime Nation Without a Harbour

[Image 0x0 to 1224x792]
[Image 0x0 to 1224x792]
Gasoline Absorption in the Peruvian Field

By W. L. Morgan

The progress made in natural or casing-head gasoline production in Peru is a characteristic but enlightening illustration of the transition with which processes are evolved and perfected in the petroleum industry and a demonstration, as well, of how close to the forefront are Imperial and its subsidiaries in the march of progress.

In the early years of the present decade oil companies everywhere took up seriously the problem of saving gasoline from the wet gas given off by many wells, with the result to date that approximately ten per cent. of all gasoline now sold is casing-head gas.

It was in March, 1922, that the first gasoline from wet gas was recovered in the Peruvian field. At the present writing—so rapid has been the development of casing-head gas recovery—the men who were then engaged in this branch and are still identified with its operation now recognize that they were then only skirmishing around the outskirt of the system's possibilities.

Prominent among those so engaged was Mr. Geo. W. Drake, at that time with the production department and now superintendent of production in Peru. Associated with Mr. Drake in this endeavor was Mr. King and to these two much of the success of the natural gasoline departments was due.

When the gasoline department first commenced operating on the production of Section 38, two Ingersoll Rand compressors handling 1,000,000 cubic feet of gas per day were used, from which there was a recovery of 1,500 gallons of gasoline per day. By September, 1923, the Section 38 plant had been increased to six units, showing a recovery of 4,000 gallons per day.

The system in use was a straight compression, a 30 pound pressure being used to squeeze the gasoline out of the gas.

At that time H. W. Palkowski, formerly of the Standard Oil Company of Louisiana, where he had had much experience with gas absorption, went to Peru and took over the responsibility of changing over the entire plant at Section 38 from compression to an absorption system.

The process of recovering gasoline from natural gas is by no means complicated.

By use of a pressure meter the natural gas is separated from the oil as the two come from the well and the gas is delivered by vacuum through the gathering lines to the compressors. Here it is compressed to 30 pounds to the square inch which compression brings the gas up to a temperature of 200 degrees Fahrenheit. Under this pressure it is passed through the coolers and its temperature lowered to 90 degrees Fahrenheit, at which temperature and pressure it enters the bottom of the absorbers. These, built of steel, are cylindrical, three feet in diameter, by 60 feet in height. In the absorbers is a charge of specially prepared mineral seal oil, the same having a very high affinity for gasoline. By passing the gasoline-laden natural gas through the seal oil, the gasoline is absorbed by the seal oil, leaving the gas to emerge at the top comparatively dry.

The limit of the absorption capacity of the seal oil is, roughly speaking, about five per cent. That is to say, when the seal oil has absorbed gasoline to the extent of five per cent., it must be taken from the absorption towers by the pumps and passed along to the seals where the gasoline is taken from the seal oil by distillation. En route, the gasoline-laden seal oil passes through the heat exchangers and pre-heaters to bring the temperature up as economically as possible before being introduced to the steam-heated stills.

Where a temperature of 320 degrees Fahrenheit is used to distill the gasoline out of the seal oil.

From the stills the vaporized gasoline passes over head to the coolers and thence to the storage tanks and on to the refinery to be used for blending with heavier naphtha.

The seal oil is now dry. As it does not volatilize at the 320 degrees necessary to evaporate gasoline it remains liquid. Having on the return circuit given up, through the heat exchangers, as much of its heat as can be economically used, it goes back to the absorption towers as a new charge. The process is continuous. The heat exchangers consist of a system by which the heat of the seal oil, after it has passed through the stills, is used to heat the incoming-gasoline-laden oil on its way to the stills.

The process is continuous. In manufacturing gasoline from natural gas, a product that under normal conditions evaporates from oil and passes off in vapor stage requires careful handling and in order to accomplish this it is necessary to circulate cooling water of great quantities. For every gallon of gasoline produced per day in a plant it is necessary to pump 144 gallons of water through to cool the various units.

The gasoline department has expanded from two engines to thirty engines. They are located in four groups in the field and they handle twenty-seven million cubic feet of gas with a daily production of 80,000 gallons.

The pipe line, gathering and distributing systems consist of 106 miles of pipe which cost $1,212,000, with a plant investment of $850,000, a total investment of $2,072,000.

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THE MEN ON THE JOB

1—W.F. MacKinnon. 2—F. B. Russell. 3—Alice White. 4—P. N. Ferguson. 5—C. R. Cline. 6—S. S. Hurd. 7—H. L. Paladjko. 8—Hugh Wanda.
TRANSPORTATION OF PETROLEUM BY PIPE LINE

The development of the pipe line system of transporting oil from its point of origin to the refinery is one of the most interesting and amazing features of the oil business. It is an axiom of the oil business that, without the pipe lines, the railways of the North American Continent would be powerless to handle the crude oil traffic of the present day. It would take a train of tank cars more than 1,000 miles long, moving continuously, from field to refinery, to carry the normal production of this continent in 1926, and to keep this 1,000 mile train rumbling—making allowance for returning empties, cleaning, and unloading time and demurrage—would call for three other 1,000 mile trains, or four thousand miles of tank cars that would be required to handle daily oil business if it became necessary to handle it over the railway lines instead of under ground in pipe lines.

In recent years there has been great development in the pipe line systems of the United States. One system having its gathering area in the richest oil region of the Gulf Coast, has its delivery point at Bayoude, N. J., 1,700 miles away. The Illinois Midland at Sarnia, draws its crude very largely from the same area, and delivers to the Sarnia plant is made through a pipe line system 1,200 miles long.

The most ambitious oil pipe line in Canada so far is from the Turner Valley field to Calgary, a distance of 38 miles. In the Ontario field a pipe line over 10 miles long, from Petrolia to Sarnia, has been in operation for many years.

Inauguration of the pipe line system dates back to the early days of the oil business. In the early 60's production of crude oil suddenly jumped to what was then considered enormous proportions. To get this oil to market from the inland wells, great strings of horse drawn wagons were used. So extensively was this method of transportation used in Pennsylvania as many as 6,000 two horse teams, dragging their loads of five to seven barrels each over deplorable roads became a familial sight of the oil fields.

This slow, expensive method of handling oil, a stubborn barrier to progress, was changed through an idea of one General Kern, in 1866, who owned an oil well. This idea was the transportation of oil by pipe line. The War prevented him from carrying out this idea, but the new method was soon afterward initiated.

In 1866 Herman Jones suggested a line of 4-inch wood pipe to convey oil from the Turner Farm to Oil City, Pa. An effort was made to obtain a pipe line charter from the Pennsylvania Legislature, but the teamsters, with characteristic alacrity, conspired against the project and defeated the bill in committee.

To this same Turner Farm then came L. L. Hutchings, of New Jersey. He had a rotary pump and to demonstrate its value set up a line of 2-inch tubing for two or three miles from the farm over the hill to the Hamilton Refinery at Plummer, Pa. But it was the old story of 'idea good, execution poor' for more oil leaked from the tubing than reached the refinery. The teamsters, striking another temporarily obstructive blow at the big idea, tore up the tubing.

Hutchings, undaunted, laid down another line in 1868 near the Miller Farm. This time it was of cast iron pipe with leaded joints, which, shaken by the pump vibrations, leaked out through free-leaks of the oil before the tanks two miles away were reached. And again the teamsters tore up the line.

Thus the success of the pipe line idea was threatening to talk itself out of existence. They occurred again in a gravity line of 6-inch iron pipe laid in 1864 by the Western Transportation Company, with the result that the line was abandoned.

Pere Louis Siccarron upon the completion of the Brandywine-Vo-Sieaud, in 1865, of his line that ran from Pottsville, Pa., to Miller Farm, a distance of four miles. Two hand-pump station forced 800 barrels of oil a day through the 2-inch iron pipe at a charge of $1.00 a barrel. At the farm the oil flowed into iron tanks, from which loading racks could transfer the oil within a few hours into a train of cars.

A pipe trunk line appeared ten years later. Built of 4-inch pipe, it ran from Lower Oil Country to Pittsburg, about 60 miles. A trunk line is a larger carrier into which tributary gathering lines flow.

By this time the pipe line idea had made good. It was recognized as the best for conveying the crude oil from the wells to the refineries, which now could be located at the large consuming centers with a view to the easy distribution of the various products manufactured from the crude.

The route 103 miles long of 5-inch pipe was laid from Hilliards, Pa., to Cleveland, Ohio. At intervals of about 25 miles pumping stations were placed, four in all. Then, just the following year, the Atlantic seaboard was reached at Saddle River, N. J.

Pipe lines have multiplied by the thousands of miles since then until at the present day they form a network that efficiently covers the oil-producing areas of the North American Continent and connect them with the refining centers of United States and Canada. These lines have contributed largely toward keeping the price of crude down to a reasonable figure, for, let it be noted, the average transportation rate of oil by pipe line is about 40 per cent of the rate by railroad.

Compare then the now by wagons transportation then it cost $1.00 a barrel per mile, while the rate now for nearly 1,300 miles by pipe line is 36 cents a barrel per mile. By pipe line it has become 6,000 times cheaper.

General Characteristics. A Railroad Line. A pipe line may be called a buried railroad over which freight moves rely in one direction. Freight on railroads is dispatched by relaying it from one division point to the next, the motive power being renewed by changing engines and taking on new water and fuel. But in the case of the pipe line the pumps along the pipe line at intervals, roughly, of 50 to 40 miles may be likened to the division points, while the application of each pump, picking up the load sent on by the preceding pump, may be likened to changing engines.
THROUGH THE AIR TO BARRANCA-BERMEEJA

By Walter Scott Penfield

The Business Section of Barranquilla

By early morning we were at the airport at Barranquilla. From there we took the small seaplane and flew to Barrancabermeja. The flight was short and smooth, but the view was breathtaking. The landscape was a mix of lush greenery, rolling hills, and scattered villages.

We landed and were met by a group of locals who greeted us warmly. We were taken to a small hotel where we were to stay for the next few days. The hotel was located on the banks of the river, with a small wooden jetty that extended into the water.

The hotel itself was modest but comfortable. We were shown to our rooms and given a tour of the property. The grounds were well maintained, with tropical plants and flowers lining the paths. The hotel had a small pool and a bar where we could relax and enjoy a drink.

After checking in, we decided to explore the town. We walked along the riverfront and visited a few shops. The locals were friendly and welcoming, and we enjoyed the hustle and bustle of the city.

The next day, we were taken on a tour of the surrounding area. We visited a small village, where we were able to see the local culture and customs. The people were hospitable and eager to share their stories with us.

We also went on a picnic in the nearby jungle, where we were able to see a variety of wildlife, including monkeys and birds. The scenery was breathtaking, and we felt truly connected to nature.

Overall, our stay in Barranquilla was a memorable experience. The people and the landscape were both enchanting, and we left with a newfound appreciation for the beauty of Colombia.

Below, occasional villages were passed, some of them no longer on the channel of the Magdalena, due to its having shifted its course. We could see the thatched roofs of the houses. In the center of a village was the usual Spanish plaza and its church, covered with a roof constructed of red-colored tiles. Nearby could be seen playing children and dogs running, apparently barking at the sound of our motor.

We were flying in a direct line as possible, often far from the river. We ascended to 1,200 feet, until we were flying among the trees. Often the wind was strong, and we had to adjust our course to accommodate it.

After about an hour and a half, we landed on the grassy field of a plantation. We were greeted by a group of workers, who invited us to have a drink and relax.

The next day, we were taken on a tour of the plantation. We visited the fields and saw the crops being harvested. The workers were hardworking and dedicated to their jobs.

We also visited a small village nearby, where we were able to see the local lifestyle and customs. The people were friendly and welcoming, and we enjoyed the experience.

Overall, our stay in Barranquilla was memorable. The people and the landscape were both enchanting, and we left with a newfound appreciation for the beauty of Colombia.
T
ehave established a business which has been continuously con-
ducted in the same location for more than half a century, to have
handled the same class of merchandise and to have been able to hand the
business along to his sons with a good-will and prestige built up and consolidated by
long years of reliability and fair dealing is the unique record of Mr. W. L. Lake
whose hardware store on Queen Street west, Toronto, was
established fifty-four years ago last Dominion Day.
Mr. Lake was born at Torkington, Devonshire, Eng-
land, eighty-four years ago, the son of an English iron
monger. He came to Canada in 1871 bringing with him his
wife and one child, and looked about Toronto for a place
which to establish a hardware shop, the business in which he has been
run. Queen street west at that
time was not thickly populated, though the
city was showing growth in that
direction, and with the idea of estab-
lishing his shop on the outskirts and
preparing for the trend of population
which seemed certain to surround him to
a few years to come, Mr. Lake pur-
chased a building lot on the north side
of Queen street, known at that time
on No. 562, and there erected his shop
and dwelling, commencing business
on the first day of July, 1872.
T he Toronto of those days was far
from the business and financial
metropolis it is to-day. There were no
cent of the present population of
Toronto lives was far from the
urban
timber land and stumps mostly, farm
land at the best.
But the embryonic metropolis was feel-
ing the urge to greater things and in
the cycle of expansion and construc-
tion which set in about that time, Mr. Lake
and his hardware business participated to his own profit and to the satisfaction of
many customers who will look back on those golden years in the city's history.
The year following that in which Mr. Lake com-
enced business was a mem-
orable year in Toronto build-
ings. During that year the
then magnificent post office, which still serves its purpose, was completed and
given to Adelaide street an imposing air. In the same year also the
present Union depot was com-
pleted and was opened to traffic with-
out any of the delays attendant upon the much-deferred new Union depot.
With the opening of the Union depot, Toronto became a genuine metropolis
for the hinterland of Ontario. The
following year, 1874, the first Grand Opera House was opened on the
south side of Adelaide street, under
the patronage of Lord and Lady

[IMPERIAL OIL REVIEW]

1907

T HIS MERCHANTILE ESTABLISHMENT HAS STOOD THE

TEST OF TIME

Considerable trade was done at that
time in lamps and the oil which fed
them, as it was by oil and candle light
that the houses of Toronto were then
lighted. Perhaps the most frequent
of the invoices in Mr. Lake's old files
are for oil. Among
the earliest of these
are bills for oil pur-
chased from 'G. &
J. Murray, Import-
ers and Dealers in
Coal Oil, Lamps and
Lamp Goods' from
their address at 224
Yonge street - "Bun-
ner & Rogers & Co."
at 30 Front Street East.

Royal Oil

[ROYAL OIL]

[IMPERIAL OIL REVIEW]
**Imperial Wins at Montreal Horse Parade**

On Saturday, October 30th, there was gathered together in the city of Montreal about 500 members of each class horses for parade and inspection purposes. It was, without doubt, the largest event of its kind ever held there and naturally a great deal of interest was taken in its compte of the fact that it was sponsored by a Humane Society League for Justice to Animals. In the double-team entry drawn horse class, Imperial Oil crossed the Blue Ribbon and Silver Cup, which was first prize 1st the team of horses "Fred" No. 1076, 6 years, every horse and "Freddy" No. 1078, 2 years, service.

The driver, Joe. Lawe, was accompanied by his Worship Mayor Martin of Montreal and other officials for the care of the horses and was presented with a separate prize of a set of carriage. Mr. Lawe is also permitted to carry a banner, which places him in the category of one who knows how to treat this class of animal.

The Canadian Pacific Railway and Canadian National Railway along with the Dominion expressed all other industrial horses had animals contesting in this parade which made it very interesting after.

**How Sarnia Got Its Name**

By Mildred Lee.

It was Sir John Colborne, Governor of Upper Canada and famous leader, who chose the name of Sarnia. That infant city having come to the threshing, its fund good parents, the cover, showed legal form and legally to a name, each determined to bestow one that held for himself some local sentimental meaning. It is a word, of course, which seems familiarly known as the Blue Water country. These roads lead inland from the Blue Water Highway which runs along the Lake Huron shore from Sarnia, Canadian port of entry opposite Port Huron, Michigan.

**STOCK QUOTATIONS**

The latest stock quotations before going to press give the following bids as of Nov. 20th:

- Imperial Oil (new issue) $364/4
- International Petroleum $333/4

**JOINT COUNCILS, 1926**

Imperial Oil Limited

Elected and Selected Representatives for the Year

**MANUFACTURING DEPARTMENT**

DELEGATES

Montreal Refinery

Elected

1. J. M. McLennan
2. C. B. M. Martin
3. C. B. Willson
4. A. S. Smith
5. J. G. Garrett
6. W. H. Ives
7. A. M. Walker
8. T. Montgomery
9. W. H. Green
10. D. B. Winter
11. C. J. Martin
12. T. R. T. O'Neill
13. H. B. Smith
14. A. T. Brown
15. W. H. Crozier
16. J. A. MacMillan
17. P. H. McCall

Selected

1. J. S. F. Brown
2. W. G. Gage
3. W. H. Ives
4. T. E. Scott
5. W. H. Ives
6. W. H. Gage
7. W. H. Gage
8. W. H. Gage
9. W. H. Gage
10. W. H. Gage
11. W. H. Gage
12. W. H. Gage
13. W. H. Gage
14. W. H. Gage
15. W. H. Gage
16. W. H. Gage
17. W. H. Gage

Halifax Refinery

Elected

1. J. M. McLennan
2. C. B. M. Martin
3. C. B. Willson
4. A. S. Smith
5. J. G. Garrett
6. W. H. Ives
7. A. M. Walker
8. T. Montgomery
9. W. H. Green
10. D. B. Winter
11. C. J. Martin
12. T. R. T. O'Neill
13. H. B. Smith
14. A. T. Brown
15. W. H. Crozier
16. J. A. MacMillan
17. P. H. McCall

Selected

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4. T. E. Scott
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13. W. H. Gage
14. W. H. Gage
15. W. H. Gage
16. W. H. Gage
17. W. H. Gage

**MARKETING DIVISIONS**

Montreal

Elected

1. J. M. McLennan
2. W. G. Gage
3. A. S. Smith
4. J. G. Garrett
5. W. H. Ives
6. A. T. Brown
7. W. H. Crozier
8. T. Montgomery
9. W. H. Green
10. D. B. Winter
11. C. J. Martin
12. T. R. T. O'Neill
13. H. B. Smith
14. A. T. Brown
15. W. H. Crozier
16. J. A. MacMillan
17. P. H. McCall

Selected

1. J. S. F. Brown
2. W. G. Gage
3. W. H. Ives
4. T. E. Scott
5. W. H. Ives
6. W. H. Gage
7. W. H. Gage
8. W. H. Gage
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12. W. H. Gage
13. W. H. Gage
14. W. H. Gage
15. W. H. Gage
16. W. H. Gage
17. W. H. Gage

Edmonton

Elected

1. J. M. McLennan
2. W. G. Gage
3. A. S. Smith
4. J. G. Garrett
5. W. H. Ives
6. A. T. Brown
7. W. H. Crozier
8. T. Montgomery
9. W. H. Green
10. D. B. Winter
11. C. J. Martin
12. T. R. T. O'Neill
13. H. B. Smith
14. A. T. Brown
15. W. H. Crozier
16. J. A. MacMillan
17. P. H. McCall

Selected

1. J. S. F. Brown
2. W. G. Gage
3. W. H. Ives
4. T. E. Scott
5. W. H. Ives
6. W. H. Gage
7. W. H. Gage
8. W. H. Gage
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The latest stock quotations before going to press give the following bids as of Nov. 20th:

- Imperial Oil ($364/4)
- International Petroleum ($333/4)
An Educated Man

That man, I think has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, and in smooth working order; ready, like the steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with knowledge of the great fundamental truths of nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or of art, to hate all vulgarity, and to respect others as himself." — HUXLEY