Imperial Oil

REVIEW

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ON THE COVER:

To help meet the vastly increased demand for petroleum products, Imperial Oil has been expanding its producing, transportation, refining and marketing facilities as rapidly as building supplies will allow. On the cover is a photograph of a spherical pressure storage tank being built at the Company's refinery at Sarnia.

This is Canada's first fluid catalytic cracking unit, the most impressive of four major units which have been added to Imperial Oil's Montreal East refinery.

AUGUST-SEPTEMBER • 1948

* EDITORIAL

Two important steps toward meeting Canada's great and growing oil needs are reported in this issue of the Imperial Oil Review. The first story concerns large-scale additions to the Company's Montreal East refinery and the second relates to the start of refining at Imperial's new plant at Edmonton.

These two developments have made an important increase in Canada's refining capacity at a time when such an increase was sorely needed; a time of pressing demand for greater and greater quantities of petroleum products.

The added capacity lessens the Dominion's dependence on imported products and makes more secure the continuance of supplies.

The modernization program at Montreal East and the erection of the refinery at Edmonton are two of the latest examples of Imperial's efforts to meet Canada's oil needs. The Review has reported many others since World War II ended—new ships added to the Company's lake and ocean fleets; new pipe lines built; additional tankage built and an intensive search for oil and development of existing fields in Alberta and southwestern Ontario.

Imperial is not alone in trying to bring more oil to Canadians, for the entire industry is working toward this end. Shortages of building materials—notably steel—have delayed and hampered this endeavor but much progress has been made. The delays, however, have meant that the supply of petroleum products in Canada has not yet caught up with the unprecedented demand.

That is not surprising when it is considered that while the oil industry was, as one authority put it, "in a steel strait jacket", the demand was raising to heights far above the heaviest war-time consumption. Canadians now are using twice as much oil as they did in 1939 and three times as much as in 1922. Consumption of petroleum products in Canada last year reached the astronomical figure of 3,500,000,000 gallons.

While the oil industry has made important progress in extending its facilities, the expansion is still insufficient to meet potential demand. It must be emphasized once again that supplies of petroleum products are not yet available in the quantities in which the industry would like to make them available.

The goal of Imperial's expansion program is to be able to supply all customers with all the oil which they desire. The developments at Montreal East and at Edmonton are symbolic of progress toward that goal.
Expansion at Montreal East

Canada's first "cat cracker" and three other major additions to Imperial Oil's Montreal East refinery have increased the plant's capacity to 37,000 barrels a day.

LIKE A SIGNAL BEACON, the flood lights of the 192-foot "cat cracker" flashed down upon the field of gleaming storage tanks and red brick buildings at Imperial Oil's Montreal East refinery on an August night. Earlier that day Canada's first fluid catalytic cracking unit had gone into production.

This event was more than just another step in the technological advancement of Imperial Oil refining methods. The lights also signalized the completion of the major part of an expansion and modernization program at the refinery that has been under way for the past two years and has cost more than $22,000,000.

The new units will increase the production of higher octane gasolines and other petroleum products and so help to meet the extraordinary demands for such products in the area which the refinery serves - Quebec province, eastern Ontario and a portion of New Brunswick.

Another result of adding the new units has been to give permanent employment to about 250 men, the majority of whom were trained for their jobs while construction was under way. This additional staff increases the Montreal refinery payroll to more than 900 men and women.

Besides Imperial employees, more than 1,000 workmen employed by the building contractors were on the refinery site at the peak of construction.

Completion of the program not only makes Montreal East refinery the most modern in Canada but has increased its crude running capacity by 13,200 barrels to more than 37,000 barrels a day.

Construction of four new refining units and auxiliary equipment began at the 200-acre refinery property in the summer of 1946. Most impressive of these is the fluid "cat cracker." The design was developed in the United States during the war to produce high octane gasoline for the Allied air forces.

Other major production units are a 13,200 barrel-per-day crude distillation unit, a light ends recovery unit and a 4,200 barrel-per-day non-selective catalytic polymerization or "cat poly" unit.

Imperial made plans long before VE Day to incorporate at Montreal East the advanced refining techniques developed during the war. It was also decided to expand the capacity of the refinery as soon as men and materials were available for peacetime industry.

What was planned to be done in a little over a year took almost double that time. Material shortages, particularly steel, dogged the efforts of the engineering contractors and held up work. Material requirements included an estimated 18,000 tons of steel, 200 tons of alloy steel, 1,500 tons of cast iron, thousands of valves of varying sizes and hundreds of precision-tooled instruments. Today there are more than 270 miles of pipe on the refinery property. The largest pipe in the new fluid "cat cracker" is four feet in diameter. The smallest is about the diameter of a lead pencil.
The crude distillation unit was the first to be completed. Its first gulp of crude oil was swallowed on April 20th, and the light ends recovery unit began operations June 17th. The "cat cracker" started up in August. The catalytic polymerization unit will be the last completed and will go on stream early in the fall. The 11,000-barrel per-day fluid catalytic cracking unit is equal in height to a 15-story building. It is resplendent in aluminum paint, with shining flood lights on its steel stairways and topped by an aircraft beacon light. Fluid catalytic cracking is the most modern development in the art of cracking, which was discovered many years ago to increase the yield of gasoline from crude oil.

Basically, cracking consists of heating oil under high pressure to a temperature of 900 to 1,100 degrees F. The stock used is usually a gas oil, which has large hydrocarbon molecules. The intense heat and pressure cause the large molecules to break down, or crack, into the smaller molecules which constitute gasoline.

Until the late 1930's, applications of cracking made use of heat and pressure alone. Then attention was directed to the use of a catalyst which would permit control of the cracking reaction for production of a gasoline higher in octane rating. A catalyst is a material which aids or directs the chemical reaction without entering the reaction itself or being changed by it.

This catalytic cracking process subjects the hot oil vapour to the action of a catalyst which has the effect of producing more of the desirable high octane components of gasoline. The catalyst used in the fluid process is an extremely fine clay-like powder which, when properly "fluffed up" by air, steam or other gases, can be made to flow like water or any other fluid. This is the process employed at the Montreal East refinery.

During operations at a modern refinery the "cat cracker" and other refining units produce a mixture of gaseous hydrocarbons. These gases are fed to the "light ends" unit which separates certain desired gases and they in turn are fed to the "cat poly" or polymerization unit.

The process known as polymerization is the reverse of cracking. The small hydrocarbon molecules that make up the gases are joined together to form larger ones by being subjected to heat in the presence of a catalyst. The product is polymer gasoline—a high octane fuel which is blended with the other gaseolines produced in the refinery to improve their octane rating.

Montreal East's new crude distillation unit separates crude oil into gasoline, kerosene, heating and diesel fuels, and gas oil while the residue, or reduced crude, is used in other processes. Gas oil provides feed stock for the "cat cracker". The reduced crude may also be cracked to yield some gasoline and light and heavy fuels or it may be processed for lubricating oils and asphalts.

In addition to the new refining units a water cooling tower capable of handling the 16,000,000 gallons per day requirements of the new units was built at Montreal East and has been in operation for some time now.

The laboratory technician shown here is testing the quality of a gasoline. New equipment at Montreal East is designed to make the high-octane gasoline needed for modern motor vehicles.

A refinery has a maze of hidden and exposed pipes like these below. Montreal East refinery has more than 320 miles of pipes.
To cope with the increased productive capacity of the refinery new storage tanks with a capacity of 2,000,000 barrels have been erected. There are now more than 200 tanks with a combined capacity exceeding 5,000,000 barrels.

Since it began operations in 1916 Montreal East refinery has undergone many improvements and additions to meet changing demands and techniques. Its products have played their part in the growth and development of many large and small centres in Quebec, Ontario and New Brunswick. The refinery was the first in Canada to process asphalt and many of the street and highway surfaces in eastern Canada are paved with asphalt produced in its reducing stills.

The refinery supplied oil products to the armed forces in the later years of World War I. It helped to meet the expanding civilian demands for oil in the 1920's and 1930's and carried its share of the task of providing oil for World War II.

Quality control is the watchword of the modern refinery and many intricate instruments are used in making tests. At the right a technician is using a precise distillation apparatus.

Tons of steel and vast quantities of other materials, like those below, are needed to build or modernize a refinery today.
The refinery's supply of crude comes mainly from Venezuela with a small quantity from the United States. Recently shipments from the Middle East also have been received. Some of the South American oil comes by tanker, a distance of 3,000 miles direct to the refinery's dock on the St. Lawrence River. The dock is capable of accommodating two 120,000-barrel ocean-going tankers along its outer berth and two lake tankers along its inner berth. South American crude is also delivered via the pipe line from Portland, Maine, which has its Montreal terminus just outside the northern boundaries of the refinery property. U.S. crude also comes to the refinery by tanker and pipe line.

Petroleum refining is not a static industry and during the past three decades Montreal East refinery and its personnel have seen many and varied changes. The most recent additions have made the plant the most modern refinery in Canada and Imperial's policy of adopting proven technical developments is symbolized in Canada's first fluid catalytic cracking unit.

Some idea of the construction area may be gained from this panoramic view of Montreal East refinery under a mantle of snow.

Field Report

Public attention for the past year has been focused on the wildcat wells which are being or have been drilled in widely separated sections of Alberta. Many operators are active in this phase of oil exploration and Imperial Oil alone is employing eight drilling rigs on wildcat work.

In some areas geological and geophysical exploration crews have discovered evidence of rock structures in which oil may accumulate far underground. The drilling rigs have been moved in to test these structures and holes have been drilled a mile or more into the earth. So far the majority of these wildcat wells have proved unproductive. Either no oil has been found or it was present in such small quantities that commercial production was not feasible.

This emphasizes that the search for oil requires much risk capital. Each wildcat well represents an investment of at least $100,000—and probably much more—but the only way to prove whether or not the oil is there is by spending this money in drilling.

Since May four Imperial wildcat wells, at Eyot, Tofield, Clyde and Fedorah, have been abandoned. Others, still in progress, are located at Spirit River, Clyde, Artena, Airdrossan, Redwater and Volmer. In addition there is the Northern Foohills Associates Muskeg deep test well in which the Company has a part interest. This well has now reached a depth of 9,600 feet. The Company's wildcat at Artena, 25 miles southeast of Leduc town, recently gave encouraging showings of oil and gas along with some water. Further testing is in progress.

Meanwhile, development of the Leduc-Woodbend oil field continues. At the end of July there were 98 producing wells, one gas well and 13 dry holes. Imperial Oil has completed 65 producing wells and one dry hole and is now drilling 16 wells.

Production from the Leduc field has been curtailed because there are not sufficient facilities to handle the normal output plus the oil from Atlantic No. 3 well which has been running wild since May. Early in July the total production of the field was over 15,700 barrels daily; 7,800 barrels from Atlantic No. 3 and about 8,000 barrels from the other wells. Under normal conditions the field would be producing some 10,000 barrels daily.

The Company's new refinery at Edmonton, which was opened officially on July 17, now receives its crude oil from Leduc by tank truck. A pipe line is being constructed to bring oil directly from the field and it is expected to be operating by October.

Imperial is using eight Company-owned rigs like this to test promising unexplored rock structures in Alberta. Drilling alone will show whether or not these structures contain oil.

Imperial's affiliate, the Royalite Oil Co., which has long been active in the Turner Valley area, recently abandoned its Royalite No. 87 well after reaching a depth of 10,000 feet. The same company is drilling a wildcat well, Crowfoot No. 2, on the Blackfoot Indian reservation some 65 miles east of Calgary.

At the Lloydminster field in eastern Alberta the Company has drilled four wells. Two are producing and two were dry holes. Crude oil from this field is processed mainly for heavy fuels and asphalt.

In an attempt to discover additional sources of crude oil in Ontario the Company is carrying out an extensive drilling program in the southwestern part of the province. This has been moderately successful so far. Two small oil fields and two gas fields have been discovered. Further drilling is under way in the Kimball, Becher and Dante fields.

While the production from the new Ontario oil fields is small—about 200 barrels daily—the new gas fields are helping to ease the shortage of gas in that area.

In addition to the development wells which are being drilled in the recently discovered fields the Company is drilling wildcat wells in the Electric, Whitebread, Corunna and Wheatley areas.
**Ripples of Prosperity**

Even if they find no oil, survey parties and drilling crews bring benefits to the public.

We are constantly hearing of the large-scale benefits which accrue to a country, or some particular area in a country where oil is found. At the moment Leduc is a shining example and we have all read of the sudden affluence which has descended on individuals, the revenues pouring into the public treasury and the widening circle of activity which such a discovery sets in motion, sending ripples of prosperity even into unlooked for places.

One effect of the Leduc development has been to encourage the oil seekers in their efforts to find more oil; efforts which are reputed to entail expenditures of millions of dollars in Alberta alone; efforts which may end in success or costly failure.

We can’t all expect to have oil under our own quarter-section. We don’t all own the minerals, including petroleum, which nature may have secreted under our very feet; but to every denizen of those wide stretches of prairie land and foothills which may be considered as possible oil land, the search for oil, whether successful or not, promises a measure of prosperity and an opportunity to share in the tangible and intangible benefits of pioneering enterprise.

Amongst those benefits which may escape the notice of the casual onlooker are the revenues accruing to provincial governments for the right to seek for oil and the scientific information made available to the governments, at no cost to themselves, as a result of the prospecting companies’ activities. The first is a direct contribution to the public purse and the second is a saving of public money which would otherwise be expended on similar surveys. In both instances the taxpayers should be the ultimate beneficiaries.

Substantial, although not exorbitant fees must be paid for the right to search; bonds must be posted to guarantee the satisfactory completion of the work undertaken. The governments must be given full reports of the results obtained, including survey and geological maps, sub-surface surveys and well logs, information which may be of value in the development of natural resources apart from oil.

On the other side of the picture is the undeniable fact that governments, both federal and provincial, conduct surveys and publish maps and reports which are of great assistance to the oil seekers, but no government could afford to spend such lavish sums on exploration as are made available by competitive private enterprise.

This year Imperial Oil alone is spending a total of about $8,000,000 on the search for new oil fields in Alberta. This amount includes expenses for leasing, survey parties and drilling test wells or “wildcats.” The company has seismograph, gravimeter and surface geological parties in the field seeking underground structures in which oil may have accumulated, and eight Company-owned drilling rigs are at work testing structures previously located.

We are told that it costs up to $2,000 a month to keep a geological party in the field and as much as $20,000 to finance a seismograph party for a like period. Admittedly a large part of that expenditure is swallowed up in salaries of highly specialized personnel, but these scouting parties of the oil industry leave a trail of hard cash in their wake.

They need food; they need gas and oil; though some live in trailer homes others require lodging; in remote places they need pack trains. The cumulative benefits of their passing through are not inconceivable.

This is but a foretaste of what may be expected should these preliminary investigations lead to the drilling of a test well.

If the chosen location is on cultivated land some farmer will be invited to lease part of his acreage.
and the ice cream pedlar will be hard put to it to reconcile the law of supply and demand when the drillers come to town.

It does not require smoke signals to inform the countryside that a well is drilling. News travels fast and mankind, is, by nature, curious. Every weekend will see an influx of visitors to the well site. They will gaze with awe at the towering derrick, listen to the clank of machinery and the hiss of escaping steam.

It will require gas and oil to bring them there and nourishment to stay them for the homeward journey.

More than the operating company are interested in the progress of a wildcat well. Oil scouts and newspaper men will come and go and, if the prospects of success appear as the drilling proceeds, the local men of competitive interests will invade the land offices and beat a trail to the doors of those who are the fortunate possessors of mineral rights.

Even the most remote community will acquire a wider interest. The school children will thumb their geographies with a keener appreciation of what goes on in the far places of the earth because drilling for oil is something they can see for themselves and project into those fabulous countries of which they have read. Perhaps the latent genius of a Steffenson or a Watt may be kindled by the grinding bit and the whirling roOUNTER, or an immature Logan or Connell may get his inspiration by peering over a geologist’s shoulder at some Devonian fossil. Wherever the driller has gone there have been repercussions in the little red school house.

The elders in the community cannot fail to learn something, at first hand, of the economics of oil. They begin to realize the value of a barrel of oil at their back door in comparison with a similar barrel awaiting shipment from Texas or Venezuela to a Canadian refinery and the ultimate effect it will have on the price of a drum of tractor fuel on their own farms.

If the well is a success, they can look at Leduc and visualize their own future prosperity. There will be permanent installations assessable by the municipality; there may even be a new town to bear its share of taxation with consequent easing of the burden on a sparse rural population bitterly carrying the load of municipal improvements, roads, schools, and services; there will be the increased spending power of the industrial influx to set the cash registers jingling in every store. Even those who are not royalty holders will benefit financially.

If the test well is a failure, the local citizens have, at least, their crowded hour of glory to look back on as they garner a stray dollar in the dismantling and shipping of the rig to its next location.

Heavy machinery will have to be hauled to the site and, more often, this demands extensive road improvements to the well site. These roads will be a benefit to the community long after the drillers have left for a well site at a rental which will more than compensate for the inconvenience and loss of crops.

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Any man handy with a hammer and saw may find himself helping to build bunkhouses, toolsheds and storage warehouses at the well location and the local lumber dealer will deplete his stock.

Should the location be on unimproved land there will be trees to fell and logs to haul and, though the contractor may bring his own lumber, there will be every opportunity for cracking up the truck or even harnessing the team and getting on the payroll.

The drilling of an exploratory well is a matter of time and the toolpushers and roughnecks will be members of the community for some months at least. If they are family men they will be looking for accommodation in the nearest town and they will invariably be found to be good and profitable neighbors.

Whether they are married or not they must eat and their appetites are hearty. The butcher and the baker; the garage and the laundress; the movie show

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Joint Action

For 30 years Imperial’s Joint Council system has meant industrial peace and has brought benefits to employees and management through co-operation.

I think, Mr. Chairman, that about sums up what we try to do here. Naturally these councils wouldn’t work if we didn’t have goodwill and active co-operation between employees and management. They have worked because we have had that spirit.”

“Thank you, Jim,” said Chairman Black. “Now I’d like to add, briefly, why these councils were formed. During and after the First Great War, Imperial Oil had a period of very rapid growth. We grew so fast that the old personal contact between Company and employees became impossible—there were simply too many of us. So Imperial formed these joint councils to continue this contact.”

“The first council was formed in 1918 at Sarnia. Early in 1919 there were five—one at each of the refineries we then had in operation. Each marketing division had one in the following year. Since then the number has increased until today there are eight councils in the manufacturing department; 43 in marketing; one in producing; 24 in marine and one in the Toronto executive offices. Canadian affiliates of Imperial have five. Employees of Ioco refinery elected to be represented by the United Oil Worker’s Union, Local No. 3 and the name has since been changed to The United Oil Workers of Canada, Local No. 11.”

“Prime Minister W. L. Mackenzie King helped to develop the joint council plan when he was a young sociologist working on labor problems in the United States.”

“This system gives Imperial employees full democratic representation, but they are free to choose any form of bargaining agency to represent them.”

“The Company does not discriminate against any employee for membership or non-membership in any church, union, society or fraternity.”

“Each council, of course, deals with the problems of the unit it represents and each has developed its own methods of conducting business. There is no written constitution and so the system is more flexible than it would be with a rigid constitution and procedures.”

“Representation through joint councils has brought industrial peace to Imperial employees and their families and has made it possible for the employee and the Company to pioneer in improving working conditions in the Canadian oil industry.”

“Harmonious relations can exist only in an atmosphere of confidence and mutual understanding. Management and employees recognize through these councils that in the long run neither can prosper at the other’s expense. But if we work together, we’ll both prosper. That’s what we’re trying to do—to go ahead together.”

“Now, let’s see what our problems are on today’s agenda...”
Journey’s End

The world’s most travelled refinery settles down on its new site near Edmonton to process crude oil from the Leduc field.

The "world's most travelled refinery" finally settled down on its new site when Imperial Oil's $8,700,000 Edmonton plant was officially opened by Hon. N. E. Turner, Alberta minister of lands and mines, on July 17th. The ceremonies, which were attended by government, municipal and company officials, took place just 17 months after Imperial brought in the discovery well of the nearby Leduc field which has become established as the largest known source of crude oil in the Dominion.

The refinery which was located at Whitehorse, Yukon Territory, during the war, will be in full production at its new location by the end of the year and will process 6,000 barrels of Leduc crude daily. With its present capacity it will serve the northern half of Alberta. To supply a larger area an increase in capacity to 11,000 barrels a day at a further cost of $2,500,000 is under consideration.

It is estimated that the products from the refinery will save Canada about $6,000,000 a year in scarce U.S. dollars by replacing imports.

The discovery and development of Leduc, with its estimated reserves of 250,000,000 barrels, was the inspiration that led to the re-erection of the Whitehorse refinery at Edmonton. Leduc meant that crude oil supplies were available for a local refinery. Demand for products then, as now, was increasing rapidly. More western refining capacity was the answer and Edmonton, 15 miles from the new field, was the logical location.

But Imperial was up against two discouraging factors—that materials, particularly steel, were scarce and that it would take about three years to design and build a suitable plant. The solution was in the Whitehorse refinery which had served its purpose of supplying petroleum products to the armed services in the Territories but since the end of hostilities had been idle. The Company purchased the refinery from U.S. war surplus goods for $1,000,000 and by the mid-summer of 1947 plans to move it from Whitehorse to Edmonton had taken definite form.

Today the crude distillation unit is processing 4,000 barrels of Leduc crude daily while more than 800 men are speeding construction of the other refinery units. When completed it will have a payroll of 300 permanent employees and already 75 are on the job.

It was not until early October last year that the actual work of preparing the site for refinery units got underway. The first move was to build roads throughout the construction area.

Less than 10 months after that initial step, the crude unit was in operation. During this period one of the most colorful engineering and transportation jobs in the history of the northwest was completed.

While the Edmonton site on the south bank of the North Saskatchewan River was being prepared, the riggers and welders of the dismantling crew at Whitehorse worked through the short winter days taking the refinery buildings apart, lowering the lofty towers and cutting the sections into pieces which the movers could handle.

Like ancient Egyptian mummies in silhouette are these steel furnaces of the cracking unit, above. They are part of the 7,000-ton Whitehorse refinery which was transported over the Alaska Highway and then by rail to the Edmonton site, 1,390 miles away.
Some of these pieces, weighing many tons, were loaded on big diesel-powered trucks and carried safely over the tortuous, hilly Alaska Highway in the dead of a Canadian winter. Day and night the big trucks kept rolling until they had delivered their loads to Dawson Creek. There the various pieces were loaded on flat cars for the final leg of the journey to Edmonton, 1,350 miles distant from Whitehorse.

About half of the 7,000-ton refinery came down from the north over the Alaska Highway and the other half was moved by rail to Skagway, Alaska. There it was loaded into the holds of coastal freighters and carried to Vancouver. From Vancouver to Edmonton the refinery parts moved by rail.

Re-assembly at Edmonton was like putting a giant jigsaw puzzle together, but the construction crew had photographs and blueprints to guide them and the sections were numbered to facilitate the work. Re-assembly on the new site has continued without a stop since early last winter.

Thousands of pieces were sorted into unit groups as they reached the "yard" in Edmonton. By early May the first 80-foot tower was up, giving a new look to the skyline east of Edmonton. The crude unit furnace and its tall stack soon followed. Other buildings and refining units rapidly are taking shape during this summer.

The "tank farm" began to appear early in the spring when the first group of 12 large storage tanks were built. These are concentrated on an expanse of ground on the eastern side of the main site.

On June 7 the first Leduc crude arrived for storage at the refinery in preparation for early test runs. Trucks hauled the crude from the field at the rate of 2,000 barrels daily and this was stepped up to about 4,000 barrels by early July. This hauling involved 100 truck trips a day over the 28-mile route.

Mild weather early in the winter helped engineers build the refinery's water intake on the North Saskatchewan River. While a coffer dam held back the icy water, workmen sunk the intake well below water level. Foundations for the pump house were prepared about the same time.

Natural gas lines were laid into the site from mains of the company which services Edmonton with this type of fuel from the Viking gas field. Power lines were run into the area and an elaborate system of water mains was installed.

First unit entirely completed was the crude distillation plant. Test runs were made by this unit late in June and by mid-July, when the official public inaugural ceremony was held, it was functioning smoothly.

When the plant originally was assembled in Whitehorse during wartime, it was built to withstand extreme winter temperatures. This involved enclosing practically all equipment within walls.

Gordon Hill, an employee in the crude distillation plant, is seen starting a heavy naghita pump. He was one of a group of new employees to complete courses to fit them for their jobs.
The first unit of the refinery in operation was the crude distillation plant, above, which is processing 4,000 barrels of oil a day. Completed refinery will process 6,000 barrels a day.

buildings. The same construction is being followed in Edmonton, making this refinery unique among such plants in Canada. Normally, only pumps and control house are completely enclosed.

The plant layout now occupies about 100 acres of the 200-acre plot acquired by Imperial. Crude still being trucked to refinery storage, soon will be delivered by pipe line. The Imperial Pipe Line Co. Ltd. already carries oil from Leduc to a railway loading point at Nisku, eight miles east of the field. Laying of an 18-mile extension from Nisku to the refinery has been started.

By the time the refinery’s daily throughput has increased to 6,000 barrels, which will be within a few months, construction of operating tankage for 600,000 barrels of crude and finished products at the plant will have been completed.

At the refinery four boilers will each generate 60,000 pounds of steam and the plant will draw 400,000 gallons of water a minute from the Saskatchewan river to supply the system of mains running to the various units.

Employment of new staff began long before contractors had the first unit near completion. Some key personnel arrived during the winter and early in the spring the first group of refinery workers had been assembled.

All but about 15 "old hands" were hired locally in Edmonton. Twenty-five men in the processing group completed a six-weeks’ training course in Edmonton and Calgary during April and May. Eight men in the supervisory group spent two weeks on course in Sarnia. All the new employees had training and induction talks covering Company history, conditions of work, Company benefits and the safety program, among other items on the course agenda.

II. H. (Herb) Moor, who joined Imperial soon after graduation from the University of Toronto in 1923, arrived from Sarnia during the winter to take over as superintendent of the new plant.

The chemical laboratory at the refinery will compete favorably with modern labs anywhere in Canada. The lab equipment taken to Whitehorse by U.S. army engineers during the war was the best available and this has been moved in excellent condition to Edmonton. Dan E. Pittard, who came from the Calgary refinery, is chief chemist at Edmonton and his assistant is D. L. Rachlis, who came from Regina.

Every employee of the refinery is playing a part in speeding the processing of Leduc crude so that the public can share as quickly as possible the benefits from that important discovery. While other units rise around it, the crude distillation plant is producing Raso gasoline, kerosene, diesel and heavy fuel oil. A full range of motor gasoline, as well as kerosene, diesel and other products will be manufactured when the cracking unit is completed. The possibility of providing facilities at a later date for the manufacture of lubricating oil is also being considered.

The plant earned its title of "the most travelled refinery" in the world because of its moves from various areas of the United States to Whitehorse, and then to Edmonton. It is destined for a long and active life in its new resting place and probably a more appropriate name for it now would be "the fastest growing refinery in the country" 

A. B. Mettner
Frederick Landis
A. G. Brook

1948 Fellowship Awards

The 1948 awards of Imperial Oil fellowships, valued at $3,000 each, have been made to three young Canadians, graduates of McGill University, the University of Alberta and the University of Toronto. A fourth fellowship may be awarded later.

Those who have received the fellowships are: Frederick Landis, formerly of Montreal, who is now attending the Massachusetts Institute of Technology, Cambridge, Mass.; for research in mechanical engineering; Adrian Gibbs Brook, Toronto, Ont., for research in chemistry; and Arthur Berthold Mettner, Barrhead, Alta., now with the National Research Council, Ottawa, for research in petroleum engineering.

The fellowships are offered annually for application by qualified graduates of Canadian universities and nominations are made by the university which the applicant attends. Each fellowship is worth $1,000 a year and may be held for three years. These awards are designed to encourage post-graduate scientific research by young Canadians. The winners are under no obligation to the Company and the subject of research in the field for which the fellowship is awarded is a matter of arrangement between the successful candidate and the university he plans to attend.

Fellowship winner Frederick Landis was nominated by McGill University. As an undergraduate he held a bursary for three years and in his graduating year was presented with the Engineering Undergraduate Society Emblem Award. After graduation he worked for two years with Canadian Vickers Ltd., Montreal. Previously he had held summer positions at Dominion Engineering Works, Montreal, and as a part-time instructor at the department of mechanical engineering, McGill University. Mr. Landis is now a research assistant at the Massachusetts Institute of Technology where he is also taking courses leading to a Master of Science degree. He intends to proceed to a Doctor of Science degree and will use his fellowship to carry out research in mechanical engineering.

Arthur Berthold Mettner, nominated by the University of Alberta, graduated this spring in chemical engineering. While an undergraduate he received the University of Alberta Board of Governors' Award; the University of Alberta Honours Prize, 1945-1946; and in 1947, the Chemical Institute of Canada prize in chemical engineering for Alberta. In 1947 he was employed by the Defence Research Board, Ottawa. He is proceeding to a Doctor of Science degree and plans to study petroleum engineering at the Massachusetts Institute of Technology.

Adrian Gibbs Brook is a University of Toronto nominee. He graduated in 1947 and received the Regent's Gold Medal in physics and chemistry. During holidays he did research work with Canadian National Carbon Company and the National Research Council. At present he is studying for a Master's degree and hopes to continue to a Ph. D. in chemistry.

The awards were decided by a committee composed of Dr. R. W. Boyle, chairman, director of the division of physics and electrical engineering, National Research Council; Dean J. J. O'Neill, McGill University; Dr. Leon Lortie, University of Montreal; Dean J. N. Finlayson, Dean of Applied Science, University of British Columbia; E. Holt Gurney, Ontario Research Foundation; Dean O'Neill, Dr. Lortie and Dean Finlayson were appointed by the National Council of Canadian Universities and Dr. Boyle and Mr. Gurney by the Company.
The Fraser in Flood

British Columbians will long remember 1948, when swollen rivers burst their banks and brought widespread destruction to the rich valleys.

It is not unusual for the waters of the Fraser River to rise in the spring—this is an annual occurrence. But when the Fraser surged to a height of 107 feet, as it did at Chilliwack this year, and inundated thousands of acres of fertile agricultural land, the event turned into a disaster.

While the Fraser valley with its rich delta lands and luxury population was a focal point for the flood, all British Columbia was torn by raging streams and everlasting lakes. Contributing factors were the unusually heavy deposits of snow on the mountain ranges, a cold, slow spring and then a sudden hot spell. Not since 1914 had floods in British Columbia caused such proportions.

A log of the flood’s progress for the last week of May reads like an old-time movie thriller: 1,000 acres of land flooded at Agassiz; Deadman dike broken; Canadian Pacific Railway main line washed out; navy, army and air force men called out; last rail connection with the east severed and finally a state of emergency declared.

The response to the call for help was immediate. The provincial and Dominion governments, industries and citizens, faced the crisis together. Reserve and regular troops and volunteer workers took over the job of guiding key points and looking after the flood’s victims. The Red Cross set up headquarters in the old Hotel Vancouver and deserve special praise for the assistance given to flood evacuees.

The flood posed particular problems for the oil industry. With railway communication cut and extra supplies of oil required for emergency purposes, the industry had the double duty of trying to get more oil and protecting stock on hand from the flood.

The air force needed additional aviation fuel for the ‘planes that rushed sandbags and troops to stricken areas. The navy, controlling all traffic on the river from H.M.C.S. Antigonish berthed at New Westminster, required oil and more oil for the boats and landing craft used in rescue work.

Imperial and the other oil companies made an all-out effort to meet these emergency demands. The output of Ioco refinery was increased and arrangements were made to bring in refined products from Seattle. At Company warehouses and plants in the flooded regions, stocks of oil were moved to higher ground. Because of the effective precautionary measures taken not a barrel of oil was lost although many of the warehouses and plants were flooded.

Company employees played a full part in flood relief work and when those in the reserve army were called out, Imperial made up any difference in pay.

Imperial agents and dealers along the river turned in and helped with flood control measures. Typical of these men were Pat Douglas, sales agent at Abbotsford and Norm Thompson, Company agent at Mission. Pat was chairman of the Emergency Flood Control Committee of the Sumas Prairie area until the army-navy control took over, while Norm landed the evacuation committee at Mission.

Another Imperial dealer, Art Friesen of Yarrow, was assigned patrol duty on the important Vedder canal which was a vital link in the flood control program.

A log from Vedo, Imperial dealer at Yarrow, checks a dike on the Vedder canal. If the water was slightly, it meant some of the emergency sandbags have broken and will have to be replaced.

Emergency sandbags were used to reinforce the Vedder dikes and one of Art’s jobs was to make sure that these bags held. Art, and the other men who worked with him, spent long wetarya hours on duty, but the Vedder dikes held and the Sumas district escaped the worst effects of the flood.

Imperial rendered a direct service in the B.C. crisis; it also contributed indirectly by making a substantial donation to the British Columbia Flood Emergency Fund—a fund administered by the Red Cross and organized to look after the families made homeless and destitute by the flood disasters.

The turbulent B.C. rivers are calm again and plans are under way to ensure that the catastrophe of 1948 is not repeated. Dominion and provincial governments propose to spend vast sums reclaiming flooded lands, installing pumping systems and building dikes high and strong enough to contain the Fraser at peak levels. The worst is over but for many the ravages of the flood which destroyed homes and farmsteads will never be forgotten.

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Timber Towboats

Busy river towboats bring huge log rafts safely down stream to supply British Columbia’s big lumber mills.

They scuttle around stately ocean liners, helping the big ships into harbor; they push laden barges up and down the coast; they tow huge log rafts: they engage in salvage work and from these and other activities the tugs of British Columbia have earned the name "workhorses of the water".

Most of the fleet of 400 vessels is based on Vancouver, and many of them are kept busy with harbor chores. Others, larger and sturdier, head out to sea.

Still others work up and down the rivers, mainly through the broad valley of the Fraser, with its saw-toothed border of snow-capped mountains. About 75 per cent. of all the British Columbia tugboats’ work is with the logging industry.

These river-boats work in narrow, twisting waterways not as dangerous as the open sea, but considerably more exciting. Practically all their time is spent in towing logs of fir, cedar and hemlock.

About 200,000,000 board feet of lumber comes down the Fraser each year, about half of it from the Harrison Lake area. Guided by the tow boats, the rafts of logs are destined for the mills at New Westminster, Marpole and Vancouver. The rafts are towed by relays of tugs—the farther upriver, the smaller the tug. Twenty to 30 towboats (less frequently called tugs) operate on the upper river.

At the logging camps the logs are dumped into the “chuck” (water) and then made up into flat booms. Long boomsticks, chained together, surround the floating logs, and other long logs called "swifters" are laid across and chained to the boom-sticks. The area between swifters is called a section.

On open waters a tow of logs may amount to 100 sections of up to 2,000,000 board feet in the tow. This size, however, is not practical on the tortuous courses of the upper Fraser.

Booms for the river are of special dimensions. They are pointed at the front to keep the booms from catching upon obstructions such as bridge piers. The pointed bow of a raft is termed a half-section, and the river boom usually consists of six-and-a-half sections. River-towing demands that all sections be arranged in tandem, so that a boom is usually 50 feet wide by 450 feet in length.

Harrison Lake’s log rafts are brought down river by a small lake operator and moored in Harrison Bay. Here the rafts are tied up to “dolphins” (two or more piles in a group) to await the towboat. Then the small tug scuttles back up the Harrison River for its next tow.

The River Chief is a typical towboat working from Harrison Bay to Sumas. In Harrison Bay, the skipper maneuvers his tug close to the head of the first raft, and the mate or deckhand hooks a steel cable to the raft.

Skipper and crew of the towboat need more than navigation lore. They must familiarize themselves with the rapids and the currents, and be able to scamp across a raft of floating logs as nimbly as any logger.

“Didya ever meet a logger that could hold a candle to a towboat man when it comes to runnin’ logs?” the skipper may ask.

The water churns, the tug moves forward and the cable tightens with a jerk. The unwieldy rectangle of brown logs moves forward. Once started, the current assists in moving the logs.

Harrison Lake rafts are constructed to specific width so that they can pass under the span of the C.P.R. bridge across the river. Fifty-foot booms leave only a few inches to spare on either side.

The pointed nose of the boom slides through, and the flexible raft curves, but the second boom usually manages to catch on the pier. The tug unhooks, scuttles back and noses into the side of the boom, gently thrusting it into position, so that it slips downstream.

The clear green waters of Harrison River are soon lost in the muddy swells of the Fraser. As the flood this year proved, the Fraser is completely unpredictable, tearing away the banks and shoving it built up in previous years and piling them up in different places.

The master of the towboat must remember every detail about the river. He must keep a record of when such-and-such a bar became covered with water. He must bear in mind that the river may cut through another "hole" or channel creating an island on which his logs could be stranded.

For these reasons a “fast-water man” is kept on the upper river, and does not convey the raft all the way to the mill. It is hard to get skippers who really know the upper river, and their specialized knowledge is very valuable.

The skipper must watch ahead for his course, and must also continually look behind to make sure the river boom does not become tangled.

Down the Fraser River, a towboat crewman keeps an eye on the log boom often. Whirling cataracts, shifting gravel bars and rocky promontories are all hazards of B.C. river navigation.
that his long dragging tow, straining at the end of the steel cable, is following the proper channels. At times the raft of two booms is stretched out straight upstream. Sometimes it is curved into a semi-circle behind the towboat in the current. It may even form a right-angle in one direction, and a few minutes later be right-angled in the opposite direction. The boom is very flexible. In fact, it often seems like a lashing tail.

Several points on the upper river have been labelled variants of "Calamity Point". At one spot, just below the Harrison River junction, the Fraser runs very fast. The muddy water swirls and boils, with eddies and a strong back-current over against a rock promontory. To avoid going aground, the towboat must swing in where the water runs deeper at the rock, then almost at once, it must twist away so that the boom will pass safely without striking and smashing. In similar manner, the skipper must whip his tow around shoals.

The towboat skipper must know the depth of water over the shoals not only for the sake of his boat, but for the sake of his tow. Some of their logs are eight or nine feet in diameter, and may sometimes need as much clearance as five or six feet. The logs used up-river need only three feet of water to move with the smaller logs. Big logs must wait in the holding booms until a froth raises the river level three to four feet.

In the B.C. climate, towing, like logging, continues all year round. On the upper river, especially, operations are influenced greatly by the depth of water. During winter when the water is at its lowest, two tugs are required to manipulate a single boom through the narrows and shallows and their progress is comparatively slow because of the need for extra caution.

In winter, the tugs go back up-river more slowly, because no shortcuts are available in low water. They must stay in the deep-water channels, and cannot cut across flooded bars as they do when the run-off gets really under way in April and May.

The up-river craft fetch their tugs from Harrison Bay to a point 15 miles down river, where Sumas Mountain rises. The booms are anchored in slack water, snubbed against the dolphins.

At Sumas, head of tidewater, the rafts are again picked up and towed downstream by larger tugs. The lower Fraser, deeper, wider and less spilt by twisting channels, is suited to larger rafts than the upper river. However, there is greater traffic and more need to have the boom under control at all times. Numerous bridges on the lower river demand careful handling of the rafts. It has therefore been found most satisfactory to use two boats to a tow.

From the holding-ground above New Westminster, the rafts are again released, this time to the mills. These mills may be anywhere on the delta islands of the Fraser, in False Creek which cuts into the centre of Vancouver, or along Burrard Inlet to the north of the city.
Almost every type of diesel engine is used in the towboat fleet. The engines vary from light, high-speed diesels to heavy-duty two and four-cylinder types. Fuel tanks range in size up to 3,500 gallon capacity. The River Chief carries 300 gallons in two fuel tanks.

River Chief and River Ace, both of the Harbour Towing Company, are about 42 feet long, single-screw and have diesel engines of about 175 horsepower.

Radio-telephone is standard equipment on the towboats. Each towing company has a specified broadcast time, when office and crew may exchange information and instructions and each skipper makes sure of tuning in for his company’s half-hour.

The men of the towboats are well-paid and are usually cheerful and happy in their work. More than once, a skipper on vacation has taken a job on another towboat as a busman’s holiday. The men are away from their homes a good part of the time, usually from Monday to Saturday. On sea-going tug, which are often out on longer hauls, congeniality—and a good cook—are utterly essential.

Although their cousins on sea-going craft chaff the river crews about “working in the ditch” the towboat men don’t care. Maybe it’s not as dangerous as the open sea but it’s still a man’s work.

Fire-Fighting Drillers

Oil exploration crews turn their portable drilling rigs into fire-fighting apparatus and help to save an Alberta town from destruction.

Oil exploration crews and their equipment turned to fire-fighting and helped to save half the town of Beaverlodge, Alta., from destruction on June 4th. The fire, which swept through the business section, leveled 10 buildings and threatened the entire community before it was brought under control. Damage was estimated at $250,000.

The fire raged for more than three hours through the small Peace River district town. Some 400 local and district volunteers, including members of two Imperial Oil drilling crews and a seismic crew, fought the blaze.

It started in a garage about noon and a lone workman made frantic efforts to halt it there, but within minutes the garage was enveloped in flames.

A strong west wind spread the blaze to another garage, a machine shop, a general store, a meat market and the offices of the town clerk. Soon the centre of the town became an inferno and a general alarm was sent to neighboring towns. Equipment and volunteers from the R.C.A.F., at Grande Prairie airport, the Grande Prairie fire brigade and the town of Sexsmith responded immediately.

Just as the fire had begun to spread Carl Lockhart of Murray and Lockhart, Ltd., the local drilling contractor for Imperial Oil, drove into town to pick up a tire. Sizing up the situation Lockhart turned his car about and raced back to the exploration camp five miles away to enlist help. When he returned with reinforcements the fire was out of control. The smoke-filled air roared with the noise of exploding shotgun shells, paint and canned goods on the shelves of the burning stores.

The Imperial Oil crews had brought water trucks, drill equipment and mud pumps which were speedily pressed into service. These proved to be the determining factors in bringing the blaze under control, as the fire-fighting units at the scene did not have sufficient water-carrying capacity to check it.

The mud pumps were connected directly to the water trucks and the drilling hoses were used to spray the fire. At great risk to both men and equipment, one drill-and-water truck was set up in the center of the road facing the heart of the fire. While this rig poured water on the spreading flames, another pump was set up nearby to shower the men and equipment of the first rig and protect them from the blistering heat.

As the fire-fighters worked, the flames leaped across the road to a hotel and a restaurant. Householders began to move possessions from their homes, but the crews concentrated on this new threat and soon had the fire under control.

The town has a population of 331. It is near the Alberta-Canada boundary, about 436 miles northwest of Edmonton.

The weekly newspaper Herald-Tribune, published at Grande Prairie, paid tribute to the work of the volunteer firemen and said of the Imperial Oil crews—“It is largely due to the efforts of these men that the fire was checked.” A radio station CFPG 5 broadcast said in part—“The Imperial Oil exploration party which was working in the vicinity arrived on the scene after the fire started and worked incessantly to hold the fire in check. . . . Many admiring remarks were heard on all sides on the performance the Imperial Oil boys were turning in.”

The men referred to are employees of two firms of drilling contractors, Mortensen and Smith, and Murray and Lockhart. They left Imperial’s employ recently to set up their own businesses. The fire-fighters included Olo G. Mortenson, Mel Smith, Carl Lockhart, Willy Tinsington, B. Patterson, G. Neufeld, H. G. Coleman, Joe Makoski and J. A. Szewczuk. W. Tony Mason and Milt M. Hamilton represented Imperial’s seismic crew.

Household effects left fire in under control.

The sodalite and smoke still rose, but the Beavertlodge Two of the fire-fighting drill rigs appear in the photo
Moss Mine

Once shunned as waste land, peat moss bags are bringing new wealth to New Brunswick and production of the moss has become the province's third most important mining operation.

The why weather-beaten old Acadian said that 80 cents an hour wasn't bad pay.

In fact—and his white teeth showed as he smiled—it was "very, very good pay, monsieur", when you'd almost broken your back for 20 cents an hour in 1941 and when you'd known real hunger in the 1890's.

He leaned on his peat-cutter's saw—a long curved jagged-toothed blade with an oddly-shaped handle. Behind him three square miles of bog—cine-crossed by 75 miles of ditches—steamed under the warm sun.

Up here, monsieur, you could live like one big millionaire on 80 cents an hour! Were not all the houses painted now? Did not all the people have decent clothes for church, and full stomachs? "Up here" was Shippegan, a community on a point of land which juts out into the Gulf of St. Lawrence from the northeast corner of New Brunswick.

Shippegan and the surrounding settlements for many years were poverty-stricken and hopeless.

Now they are feeling an unprecedented tide of prosperity. Their new-found affluence stems from two sources—the high fish prices brought about by war, and a new industry, the mining of moss.

Ironically, the vast seaco bowls which now produce wealth had been shunned and despised in the past.

They would grow nothing. They were waste. There were potholes in them into which a man might vanish. Tales were told about gho's which wandered across them in the moonlight.

Then, in the autumn of 1939, some engineers from the federal department of mines arrived unannounced. They went through the bags making surveys and they dropped hints that the bleak flat expanses might not, after all, be so worthless.

In January, 1940, H. A. Loverin, chemical engineer of the industrial minerals division of the bureau of mines at Ottawa, issued a report under the title "Peat Moss Deposits in New Brunswick." This told what had been found. It stated: "The bags in the Northumberland and Gloucester counties form an important asset to the natural resources of the province. Some of those examined compare favorably with European bog that produce peat moss on a large scale."

In Springfield, Mass., Conrad Fafard, a former Quebec man, had built up a big business importing peat from Europe and distributing it for agricultural purposes. His brother, F. X. Fafard, had been operating a similar enterprise in St. Guillaume, Quebec.

During the war, they could no longer bring peat from Europe. They had to look elsewhere. F. X. Fafard's search took him to the bureau of mines. He studied the Loverin report and promptly swung aboard a train for New Brunswick.

At Fredericton, the provincial capital, he paused to confer with officials. Yes, they assured him, arrangements could certainly be made for him to obtain a bog.

They took him to Gloucester County to let him shop around. Just outside Shippegan village, he picked the one he liked. That was late in 1941.

In 1942 drainage operations were pressed ahead. That's the most difficult phase of mining moss—getting it dry.

Men and machines went into action digging ditches 10 feet wide and five or six feet deep. Those parallel one another at intervals of 150 feet. Connecting ditches run between them.

The miniature canals, which sometimes have enough water in them to float a canoe, form an impressive picture stretching off into the distance.

Workers move along them with their long sharp saws, hacking thick strips of peat from the banks and placing them on wooden drying racks. It's a tough grind and to earn 80 cents an hour the man must cut two and a half cubic yards, but it's worth the effort, they say.

After drying in the sun and wind—and how long this takes depends entirely on the weather—the peat is loaded on carts, and taken by tractor to a conveyor belt which carries it into the processing plant.

In this plant, which looks from the outside like a small grain elevator, the tobacco-colored moss goes into a huge revolving drum which breaks it apart and pulverizes it. Then it is pressed into bales, bound with corrugated boot-tape, and shipped off to market.

These are three grades. The most finely-pulverized is for horticulture. Mixed with topsoil, it absorbs

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Good Ideas Pay

For Imperial employees, $6,100, for the Company, increased efficiency under the Coin-Your-Ideas plan.

Good ideas have brought nearly $6,100 to 274 Imperial Oil employees who entered prize-winning suggestions in the Company's Coin-Your-Ideas plan. These good ideas have meant savings in time, money and effort and have increased the safety of operations with benefit both to employees and to the Company generally.

In the first year of Company-wide operation, the plan paid a total of $1,100 to four capital award winners and more than 6,000 went to 270 other employees for their valuable ideas.

Winning suggestions must have one or more of four basic features: originality, extent of application, use in fire and accident prevention and in reducing operating costs.

Under the plan, the employees first submit the idea to a local or area committee for consideration. If its merit is established, it is passed on to a departmental committee for award evaluation. While the minimum initial award is $10 and there is no maximum and the suggestion may come on before the departmental committee again for a supplemental cash award. Finally the idea is considered by a central committee which decides the four capital awards of $500, $300, $200 and $100 for the four best ideas of the year.

C. M. Windsor and A. H. Avery of Sarnia refinery shared the major capital award last year; second money went to L. D. Archibald, of the Royalite Oil Co. Ltd.; E. C. Arthur, Montreal East refinery, and W. Johnson, Sarnia refinery, won the third and fourth awards. It is deeply regretted that Mr. Windsor did not live to share the honor of the award. He died at Sarnia last November and the prize money was paid to his widow.

Charles Windsor and Arthur Avery, coke drum cleaners, were working on a continuous crude running unit when their first-prize idea came. They suggested a complete reversal of cleaning procedure from that recommended by the unit's manufacturer. Adaption of this suggestion has resulted in a saving of time and money and has also reduced fire and accident hazards.

L. D. Archibald, a welder in the producing department of the Royalite Oil Co. Ltd., perfected a technique for rebuilding the cutting edges of rock drill bits and reamers. The result has been a longer life for the drilling tools and a nice cash award for Mr. Archibald.

The suggestions submitted by Mr. Arthur and Mr. Johnson have effected improvement in refinery operations. Mr. Arthur recommended lines changes on an atmospheric and vacuum crude running unit enabling it to be operated as two individual units. Mr. Johnson, an operator in a clay filtering plant, suggested a method of saving filter materials and increasing throughput.

The winners naturally found the extra cash quite acceptable. Walter Johnson, planning to be married, used the money to buy a wedding ring for his newly-bought home. But not all winners made specific purchases. Said first-prize winner Arthur Avery: "When you have 11 children and five grandchildren, there are many uses for extra money."

The central Coin-Your-Ideas committee reported a "most encouraging" response to the plan this year. "Both the employees and the Company benefit under the plan," a member said. "The prize winners are richer in cash and their Company is richer in efficiency."
Odds in Oil

The certainty of uncertainty in oil exploration is illustrated by a fast-flowing well which proved a disappointment and a quiet pumper which was a success.

With a roar, Imperial Staples No. 1 well came in violently last January, blowing the heavy drilling tools 200 feet up the hole and discovering the rig with oil. Imperial Danto No. 2, some 90 miles away, came in quietly on April 19th and had to be pumped from the start.

Today the roaring Staples well has petered out and is at present shut in; while the quiet Danto well is pumping 25 barrels of oil a day. The contrast illustrates the "fortunes of war" encountered in Imperial's search for oil in southwestern Ontario.

The discovery well at Staples, near Tillbury, Ontario, received wide attention when it came in with production of 140 barrels of oil per day. The well was hailed as a development which would add Canada's oil supply and for a day or two it attracted almost as much attention in Ontario as the important Leduc discovery near Edmonton.

Yet the well proved to be a disappointment to Imperial's oil men and to those farmers of the district whose hopes of making personal fortunes had risen high because of the publicity which the discovery received. The drillers and the farmers watched anxiously as, within a few weeks, production fell off until it amounted to four or five barrels a day. The Staples, or Tillbury, well dropped from the news almost as quickly as it had jumped to the front pages on the day of the find.

At Danto the situation was very different. There the first well was a dry hole and the discovery well had an unspectacular start as a pumper. There was no gas cap to force the oil from the well. There was little public excitement.

However, Danto No. 2 has maintained a steady rate of production from the beginning. Since then, contractors working the Imperial have drilled another well which had a showing of oil and as this issue of the Review went to press production tests were in progress. A fourth well at Danto was drilling at 320 feet.

Danto, though not a major discovery, brings expectations of further production and of a new source of modest but regular income for the landowners who receive a royalty of one barrel in eight for all oil produced.

At Staples these have been other developments but all of them discouraging. After the first spectacular gusher the next event was on February 28 when drillers brought in a gas well and interest revived.

The third Staples well came in on March 15. Although it was a pumper, initial production was 14 barrels a day and hopes that a field had been discovered rose higher. Within a few days, however, this well was producing little but salt water and operations soon became unprofitable. The well has since been plugged.

The results obtained from the three Staples wells have given Company geologists hope of the success why a "field" which at first looked so promising has been such a disappointment. They now believe that the oil-bearing structure is small but very porous, containing gas in the higher parts with a very narrow fringe of oil down the flanks.

Under such conditions they would expect the wells to have a fair-to-good initial production which would decline rapidly to the point where a negligible amount of oil was being obtained or the wells would start producing water.

This is what has happened with the discovery well. Production of oil dropped below commercial quantities and chances are the well will soon start to produce water, when it will have to be plugged. The second well has already gone to water and the third is a gas well of uncertain capacity.

Behind the story of Staples and of Danto is one essential fact that should be understood. It is that experts believe the southwestern area of Ontario will not be the scene of major oil discoveries or provide large overnight oil fortunes for landowners.

However the district was the source of Canada's first oil production and it is believed that some deposits of petroleum remain to be discovered there. For this reason Imperial is re-surveying the area.

Cable tool drilling rigs are used exclusively in Imperial’s southwestern Ontario program. One of these tools, "bull shoe" which is used in tunnelling and lowering the heavy cable tools...
Imperial Sarnia Launched
Canada's largest lake tanker will join the Imperial Oil fleet in September.

Then woman came clearly: "I christen thee Imperial Sarnia"—and a bottle of champagne cracked against the steel bow.

Axes fell on taut ropes, severing them and releasing the triggers which held the 6,000 deadweight-ton ship on the launching ways. The great bulk of the largest tanker ever built in a Canadian shipyard started to move over the greased ways, gathered speed, and plunged into the launching basin with a mighty splash.

It was all over in a few seconds and the Imperial Sarnia was safely afloat after a perfect broadside launching at Collingwood Shipyards, where her keel was laid last winter.

The ship was christened by Miss Beverly Hewston, daughter of H. H. Hewston, president of Imperial Oil Ltd., and Mrs. Hewston. She was attended by her sister, Miss Margaret Hewston.

The $1,650,000 tanker was designed by Imperial's marine architects and has a length of 390 feet, a beam of 52 feet, a depth of 26 feet and a capacity of 36,000 barrels or 1,925,000 gallons. All-welded construction has been used throughout the hull and superstructure. It is expected that the tanker will be ready for service in September.

The Imperial Sarnia will have oil-fired boilers to power her geared steam turbines of 2,900 shaft horsepower and she has been designed for a speed of 12 knots. Navigation aids will include radar, a gyrocompass and repeaters, electronic fog, echo sounder, ship-to-shore wireless telephone and direction finder. She will carry a crew of 30 men.

The Imperial Sarnia, which will be the largest Canadian tanker on the Great Lakes, will ply between Sarnia, Hamilton, Toronto and Fort William. She is the third tanker which Collingwood Shipyards have built for the Company since World War II ended. The Imperial Collingwood and Imperial London, both 2,600 deadweight-ton canal-sized tankers, went into service earlier this year. All three will aid Imperial's lake fleet in maintaining supplies of petroleum products in areas bordering the Lakes.

At a luncheon which followed the launching, Mr. Hewston said the new ship was the 18th tanker which the shipyard had built for Imperial Oil. The tanker has been named after the city of Sarnia, he added, because Sarnia has long been the site of Imperial's largest refinery and is in many respects the home of the Company.
Personalities in the News

A. P. Machin Appointed Assistant to the General Manager of Refineries—Personnel

Archibald P. Machin, assistant to the general manager of refineries on personnel, served overseas with an engineering unit in World War I. Returning to Canada in 1919 he joined Imperial Oil at Halifax as a clerk. At Halifax and later at St. John, he held various accounting positions with advancing responsibility. During World War II Mr. Machin was on loan to St. Clair Processing Corp. and in 1945 was appointed manager of that company. A year later he took over the management of Polymer Corp., following the merger of St. Clair and Polymer. Soon after his return to Imperial he took over his present position at Toronto.

A. E. Patterson Appointed Assistant Manager Quebec Division

Alexander Ernest Patterson has been appointed to the new position of assistant manager of Quebec division. A graduate in civil engineering from McGill University, he joined Imperial Oil in 1924 as a road engineer in the asphalt sales department. Three years later he was in charge of sales in the asphalt and fuel oil department, Montreal, and in 1924 he was made assistant sales agent in charge of sales in the Montreal area. In 1937 he was appointed district manager for Montreal and the following year became sales manager for Quebec division.

David Kerr Succeeds A. E. Patterson

David Kerr, formerly merchandising co-ordinator of Quebec division, succeeds Mr. Patterson as sales manager for the division. Mr. Kerr started to work for Imperial in 1915 as a clerk in the Quebec office, becoming chief clerk three years later. In 1933 he was appointed resident manager at Quebec City. A series of promotions followed and in succession he became resident manager at Montreal in 1939; manager for Montreal and district in 1942; and merchandising co-ordinator for Quebec division in 1944.

R. G. McKenzie Named Sales Manager Saskatchewan Division

Ralph George McKenzie has been appointed sales manager of Saskatchewan division. Mr. McKenzie joined the Company in 1928 and held various accounting positions. In 1938 he spent several months in Toronto on special duties and returned to Saskatchewan as sales and expense analyst. He joined the Navy in 1941 and for the last 18 months of the war commanded a corvette. Returning to Saskatchewan in 1945, he was made district supervisor. The following year he was appointed assistant general manager of Maple Leaf Petroleum Ltd., Calgary, and shortly afterwards became general manager.

T. D. Kelly Appointed Assistant Manager Maritime Department

Captain T. D. Kelly, O.B.E., former head of the operations division of the marine department, has been appointed assistant manager of the marine department. Captain Kelly, who joined Imperial as a seaman in 1922, became a master in 1929. In 1940, before entering the R.C.N.R., he was mortuary master and assistant maritime superintendent at Talara, Peru. During the war he was commander of H.M.C.S. Prince David. He returned to Imperial in 1945 as operations manager of the marine department. Later he was temporary co-ordinator of executive development.

A. T. Roblin Named Co-ordinator of Executive Development

Arthur T. Roblin, formerly assistant manager of the traffic department, has been named co-ordinator of executive development succeeding Capt. T. D. Kelly, Mr. Roblin joined the Company in 1932 as a seaman in St. John's. From 1932 to 1941 he worked with the St. John's division and at the time of his transfer to Newfoundlad as manager in 1941 he was district manager at St. John's. In 1945 he became a special representative of the general sales department, Ottawa, and the following year was appointed assistant manager of the traffic department, Toronto.

G. R. McMillin Appointed Supervisor of Central Production Control Group

George R. McMillin, formerly assistant superintendent at Imperial refinery, has been appointed supervisor of the central production control group, engineering and development division of the manufacturing department at Sarnia. Mr. McMillin graduated from the University of Toronto in chemical engineering in 1933. Soon after he joined Imperial at Sarnia refinery. After spending short periods at Toronto and at Talara refinery, he was transferred to Imperial Oil in 1939 as chief chemist.

Murdie MacLeod Succeeds G. R. McMillin at Halifex

Murdie MacLeod succeeds Mr. McMillin as assistant superintendent of Halifex refinery. Mr. MacLeod graduated in chemical engineering from the University of Alberta and started to work for Imperial Oil at Calgary refinery in 1938. In 1937 he was appointed chief chemist and production controller at Regina refinery. Six years later he became technical supervisor, western refineries. In 1946 he was transferred to Toronto as secretary of the operating advisory committee, manufacturing department.

J. W. Hamilton Appointed Counsellor and Manager of Law Department

John W. Hamilton, formerly assistant general counsel, has been appointed counsel and manager of the law department. A graduate of the Royal Military College, Kingston, and Osgoode Hall, Toronto, he joined the Company's legal department in 1948 as assistant solicitor. During the war he served with the Royal Canadian Naval Volunteer Reserve as a lieutenant-commander. In 1943 he returned to Imperial as solicitor and two years later was appointed assistant general counsel.
S. J. Vooe Appointed Assistant Superintendent
Process Department at Montreal East Refinery

S. James Vooe was recently appointed to the new position of assistant superintendent of the process department at Montreal East refinery. Mr. Vooe was born at Leicester, England, and came to Canada at an early age. He joined Imperial in 1920 at Montreal East as a loading deck helper. A year later he entered processing operations and held various appointments until 1938 when he was named shift foreman. He became process supervisor in 1937.

L. W. Smith With Company 40 Years

Lloyd W. Smith, who was recently presented with a 40-year service button, was born at Warfield, Ont., and began his career with Imperial Oil in 1938 at Sarnia refinery. Mr. Smith was an operator at the pump house until 1946 when illness made more sedentary work necessary and he took over the duties of clerical on the loading rack. On occasion he has returned to the pump house for special assignments. A new home, which he completed recently, leaves him little time for outside interests.

Paul August Receives 40-Year Service Button

Paul August, resident manager at Brandon, Man., recently completed 40 years' service with Imperial Oil. Mr. August was educated in Winnipeg and joined the Company in 1958 as a warehouse clerk. Successive promotions brought him the positions of order clerk, manager's clerk, assistant manager, warehouse, and resident manager. He is a member of the Kiwanis Club and the Board of Trade at Brandon.

W. S. Flavelling Named Regional Purchasing Agent
at Edmonton

W. S. Flavelling, who has been associated with the Toronto general purchasing department for the past 25 years, has been appointed regional purchasing agent at Edmonton. Mr. Flavelling was born in Hamilton, Ont., and during the war served in western Canada and Alaska as an Equipment Officer with the R.C.A.F. At the time of his discharge in 1945 he held the rank of Flight Lieutenant. He is a member of the Chemical Institute of Canada.

W. Q. Longworthly Named Assistant Superintendent
Regina Refinery

Ward Q. Longworthly, formerly mechanical superintendent of Regina refinery, has been appointed assistant superintendent of that refinery. Mr. Longworthly was born in Regina and served overseas in the First World War. After the war he took a course in mechanical engineering at the University of Toronto, graduating in 1923. He joined the staff of the Regina refinery in 1937. For several months prior to his present appointment, he was acting assistant superintendent.

A seismic survey produces only wavy lines on paper, but to a trained seismologist the lines reveal the rock formations thousands of feet below the surface.
Samples of rock cuttings from an imperial "wildcat" well are checked by a drill crew member. Samples are bagged and labelled for study by geologists.