The REVIEW is published by Imperial Oil Limited in the interests of shareholders and employees. Unless otherwise indicated, material published in the Imperial Oil Review may be reprinted without special permission. Credit lines will be appreciated. Correspondence should be addressed to The Imperial Oil Review, 56 Church St., Toronto, Ontario.

IN THIS ISSUE:

Page
The Trail of '48 .......... 3
Leduc's First Birthday .... 10
Devon Goes to Town ... 14
Canada Takes to Skis ... 16
Oil in Tilsbury Township ... 16
Men for Edmonton's New Industry ... 20
Sweep Rock: The Lake That Became An Iron Mine ... 22
A Man of Pipelines ... and People ... 27
Measure for Measure ... 30
Imperial's New Oil Carriers .. 34-35
Personalities in the News ... 36
Champion Flowermen Visit Britain ... 37
Geological Meet ... 37
The Abraham Sisters .... 38


ON THE COVER

Raymond Moore, instrument foreman, L. Markey, truck dispatcher and Roy Aimes, welding superintendent, are three of the men engaged in moving the Whitehorse refinery 1,150 miles to Edmonton, where the plant will process crude oil from Leduc. The story of the big moving job is told in "The Trail of '48", next page.

Setting enough crude oil and petroleum products to meet Canada's post-war demands is a difficult task. On every hand there are obstacles: Europe's urgent needs, inadequacy of refinery equipment, shortages of tankers, of pipe lines, of tank cars, of casing for oil wells—all but the first stemming back to the steel shortage.

However, the job has been done without notable interruption except in the case of British Columbia, where some oil companies have recently curtailed gasoline sales.

The difficulty there was one of economics. To supplement the output of British Columbia refineries, great quantities of finished gasoline had to be imported, but gasoline could not be bought in the export markets at a price that would permit its distribution and sale to dealers in British Columbia except at a loss. This was because the price to dealers was fixed by the province and had in fact remained at the level of 1938.

For eight months Imperial Oil urged upon the Government of British Columbia recognition of its increasing cost factor—what costs and prices have held since 1938?

Finally, in late January the Provincial Government authorized an increase of 3c per gallon.

This increase was only two-thirds of what Imperial Oil had indicated would be necessary if it could continue to import and sell gasoline without a loss, and so, the Company was obliged to abandon the importation of gasoline and to confine sales to the production from local refineries.

In a statement issued on January 26th, Mr. R. M. Pidgeon, Imperial Oil's division manager for British Columbia, explained why this regretful action was necessary. The statement follows:

"We regret that the 3c increase in gasoline price announced by the Government is not sufficient to warrant our continuing to import gasoline into British Columbia.

"Accordingly, we must discontinue seeking for supplies in the California market.

"Right now gasoline is selling wholesale in Seattle for the equivalent of 17c per gallon, when the larger Canadian measure, duty and sales taxes are taken into account. This is 15c more than the Government has authorized in Vancouver. Yet Vancouver and British Columbia draw supplies from the same source at Seattle.

"Since last May we have been continuously urging the Coal and Petroleum Control Board and the Government for relief from the rising costs of crude oil and imported gasoline.

"Our homes are now running at the rate of approximately two million dollars per year, and the increases announced would not remove us from a losing position.

"We asked for a minimum of 41c per gallon, 3c per gallon represents $725,000 loss per year, which 4c, and would continue us in an unsound financial position.

"We advised the Government repeatedly that falling relief adequate relief we would have to minimize losses by discontinuing importation of gasoline.

"The volume of imports has been constantly increasing with resulting increasing losses. For 1948, imports would have represented between forty and fifty percent of our total supplies.

"We cannot carry on business if we must continue incurring ruinous losses, and as trustees for the many thousands of Company shareholders we have reluctantly decided that there is no alternative to the action which we are respectfully taking."
Fifty years ago the Trail of '48 became a fabled pathway to the north when dreams of quick riches lured men to the Yukon following the cry of "Gold! gold in the Klondike!" Today the famous travel route has traffic of another kind, travelling in another direction and with a new significance.

The Trail of '48 is the description being given to an industrial move down the Alaska highway and involving the transportation of an entire oil refinery to a site 1,350 miles away. It is linked—not with gold and the riches of the north, but with the discovery of oil in Alberta—which will help to provide necessities for Canada.

Along much of the route where adventurers pushed their way north in 1898, trucks and transports are travelling south in a project that will establish an Imperial oil refinery at Edmonton. They are carrying equipment from the refinery which is being dismantled at Whitehorse, Yukon Territory.

The need for this unusual enterprise began when Imperial brought the discovery well of the Leduc field on February 13th last year. On that frosty afternoon an oil production program started which made the Trail of '48 inevitable.

The discovery well was followed in a few months by other good producers. These established Leduc as an important oil field and so nearby Edmonton became the logical site for a refinery to process crude from Leduc and produce the oil products urgently needed in Canada; but the general shortage of building materials was a major problem. Imperial officials turned to Whitehorse for the solution.

There was a disused refinery at Whitehorse. It had been built during the war to supply Alaska with gasoline for military uses when a Japanese invasion threatened. After V-J Day it remained idle, listed for sale but with no very interested bidders.

Last summer Imperial purchased the refinery from U.S. war surplus goods for $1,000,000. The plan was to dismantle the plant at Whitehorse, haul it 919 miles by truck to Dawson Creek, B.C. via the Alaska highway; load it at Dawson Creek for ship-...
must by rail to the new location on Edmonton's outskirts; and reassemble it there.

If this project is completed on schedule the refinery will begin operation at Edmonton by the end of 1948. By that time the initial cost will have jumped to over $7,000,000, it is estimated.

After the purchase, the next step was to arrange for delivery—no routine job. The refinery to be dismantled sprang up on a 100-acre site on the edge of Whitehorse town. The plant equipment was estimated to weigh about 7,000 tons which had to be moved all the miles to Edmonton.

For this assignment, Imperial sent several of its refinery engineers to Edmonton and then completed a contract with W. M. Barnes Company, Los Angeles engineers and contractors. This firm had many of the trained men and the equipment for just such an undertaking. Better still, they were in a position to start the job immediately.

By early fall they had opened offices in Edmonton and Whitehorse and had eight big diesel trucks and trailers on the Alaska highway. Sixteen drivers had wheeled the trucks north from California and more were added to the fleet before the first snow.

By mid-winter close to 300 men were on the payroll. Half of these were preparing the 380-acre site at Edmonton. Another 100 were dismantling the refinery at Whitehorse and the remainder employed on the spectacular trucking operations on the Alaska highway and at the railhead at Dawson Creek.

The whole operation followed a carefully planned pattern. While the refinery disappeared piece by piece at Whitehorse it began to take form 1,350 hazardous miles to the south. And in between, 10 of the biggest motor vehicles operating anywhere in the world drove night and day on the 919-mile stretch of the Alaska highway to keep the pattern developing as plotted.

The trucking activity captured public imagination throughout the northwest early in the project. No larger vehicles ever travelled the famous Alaska highway. These road giants equal any standard model in the world in size and load capacity. They weigh almost 20 tons even when empty. The largest have 21 forward speeds. The dashboard is an intricate arrangement of indicators and switches as baffling to the average motorists as an aircraft instrument panel.

Guiding these mechanical behemoths on the bust of modern highways requires special skill. Controlling them on the sharp curves and mountain slopes of the gravelled Alaska highway requires that same skill plus stamina and daring in ample measure. By spring the drivers of the 10 vehicles expect to roll up about 500,000 miles before the last length of pipe or the last brick is delivered in Dawson Creek.

Right from the start of the job two drivers were assigned to each vehicle. They were charted to reach Dawson Creek from Whitehorse in 50 hours although tire troubles and winter weather forced many of the early hauls off this schedule. Only one stop was planned during each trip. That was for refueling at Muncho Lake, the halfway point.

A few of the American drivers who brought the trucks from California remained to work on the refinery. Their native style of driving seemed to exert a greater influence than the spell of the Yukon. Canadian men, many with wartime experience on the highway, were hired in their place and this hardy group are spending most of the winter right in their vehicles.

Each truck has a box-like sleeping compartment installed behind the cab. Here one driver sleeps or tries to sleep—while his mate keeps the vehicle rolling. With loads of from 40 to 60 tons behind, most drivers find peaceful repose a difficult proposition in their off-duty hitches. For many of them their service at the wheel on this job will be remembered as the Winter of Little Sleep.

Before the first snow fell, tire punctures were the chief cause of schedule delays. With 20 or more tires to a vehicle, the chances of trouble from nails or sharp gravel were multiplied on the daily hauls. When snow did come these difficulties ended but an unusually mild start to the winter added new tribulations. The road became so icy in places the trucks could not operate for days at a time.

The major hazards cropped up mainly because the Alaska highway is no ordinary country road. It is maintained at top condition by Canadian Army Engineers in charge of the job came face to face with one special problem. A 3,000-foot wooden bridge was not considered strong enough to carry the loads made up of the heaviest equipment. The bridge was 115 miles south of Whitehorse where the highway makes a jump across an arm of Tlinlin Lake. The engineers went into a huddle and came up with a unique solution—a bridge of ice.

The ice bridge sounded simple the way these men described it in advance but it involved a lot of work. Snow was to be cleared in a wide path from shore to shore at the crossing, not far from the wooden bridge. Holes were to be cut through ice nearly and pumps were to pour water into the snow-banked trench. Ice was to be built up inch by inch until it was thick enough to bear the heaviest tonnage involved. Approaches of an old ferry site were to be used as runways leading to the ice level at each side.

Preparations for the ice bridge were made but Nature interfered to halt the project. Mild weather prevailed over a long period just when cold was needed for the ice. The engineers found that the bridge could not be built and at this writing still are puzzled about how they are to move a 76-ton tank across the Tlinlin stretch.

Despite these varied obstacles to smooth traffic there were few breaks in the steady flow of equipment. While the "truck skidders" stayed at their wheels for mile after weary mile work crews moved more than a thousand miles apart kept abreast of dismantling and reconstruction.

**Massive tires and heavy chains are needed to keep the trucks moving over the Alaska highway with their 40 to 60-ton loads. Ten trucks will travel about 500,000 miles during the move**
At Whitehorse, the job was made more difficult by the long hours of winter darkness. School children there leave classrooms at 3:30 o'clock in the afternoon to avoid walking home in the dark. Riggers, particularly, had their work days limited to the hours of good visibility. It is considered sound procedure to wait for daylight before scrambling up high towers or along girders several stories above ground which are necessary activities of riggers in tearing down the plant.

One of the heaviest chores came in cutting up the steel framework of the 90-foot-high power plant. Girders were cut into lengths and each piece was carefully numbered to assist welders in reassembly at Edmonton. A caterpillar crane was much in evidence on this work, its 120-foot beam swinging great loads to the ground as though handling toys.

The numerous towers required careful attention when the job was to lower them intact to a horizontal position on the ground. Two special "gin poles" were manufactured right on the spot to lower the largest tower, 146 feet high. These poles, of heavy steel, were made 96 feet long and welded in sections at Whitehorse.

They were erected vertically on either side of the high tower, which then was lowered on supporting cables between the poles by hauling the tower base away at a right angle. The tower was brought down in one piece and cut for shipment to Edmonton.

Dismantling operations were not restricted to any one unit at any one time. The sharp sizzle of welders' cutting tools, the roar of tractors and cranes, the shouts of crew foremen echoed across the valley from all over the refinery site. Piece by piece the whole complicated mass of equipment was piled at a loading area to be picked up by truck. Delicate instruments and machinery were cramped before shipment.

Cameras were brought into use to give an engineering short-cut in reassembly of buildings at Edmonton. Whole exteriors were photographed and each section of Transite walling was labelled in ink on the pictures. These pictures were handed to painters who slotted corresponding markings in paint on the wall sections themselves.

Months later in Edmonton, workers armed with the original pictures as guides had little trouble finding the proper places for each sheet of Transite. The buildings went together like so many huge Meccano sets.

The same careful marking of each piece of steel eased the welders' work at the new site. In the cutting at Whitehorse, the framework of steel was brought down with half-inch gaps where the torch had been applied. At a special welding centre in the heart of the new location these pieces were laid out on forms to the specifications that existed before the dismantling.

Welders then filled in the gaps with steel plates until an entire unit of structural steel was reassembled. A crane picked up the rebuilt unit and hoisted it upright to concrete foundations for the new building. The finishing touches of the welding were applied after the steel was re-erected into the framework of a building unit. The same procedure is being followed in reconstruction still underway.

Reassembling the maze of pipes and tubing and the complicated refining machinery was a much more involved task. A corps of draughtsmen produced thousands of blueprints during the winter and they still are on the job providing ammunition for the technicians.

The last load from Whitehorse should be in Edmonton by early spring. When that equipment is unloaded it will mean the end of travelling for some time for the most travelled refinery on the continent. Its wartime construction in Whitehorse was possible only because various units were acquired from Corpus Christi, Texas; Hamilton, Ont.; Pincher Creek, Cal., and from 2,000 suppliers throughout the United States. All these materials were laboriously transported to Whitehorse and assembled.
It is hoped the first barrel of crude from Leduc will go through the Edmonton refinery's processing system sometime this summer. The $7,000,000 cost of the project would be a most enough to build a completely new refinery. However, the move from Whitehorse will enable operations to begin at Edmonton 18 months earlier than would be possible if entirely new construction had been undertaken.

The refinery is expected to process 4,000 to 6,000 barrels of crude a day. A pipe line already built from Leduc field to the small town of Nisku, south of Edmonton, will be extended to carry crude direct to the refinery. But that still is almost one year away.

Company officials are confident they will reach their objective on schedule. They give the Alaska highway credit for a major assist. Without that road through the northern wilderness the "Trail of '48" would not have been possible. And the enlarged production of petroleum products for Canadian consumers would have been delayed many months longer.

The highway is one wartime development which is paying off with a peace-time role of utmost importance to all of Canada.

Nights are long in the far north and darkness means difficult driving for men like Al Markly (left) and "Smoky" Gray.

Refinery units are kept as nearly intact as possible for the move. Here an entire condenser box is loaded on a low trailer.

Dusty heights are all in the day's work for a rigger, and so Joe Urbanowski of Windsor, Ont., is right at home in high places.

FEBRUARY • 1948
The anniversary of the first producing well at Leduc finds the area firmly established as a major Canadian oil field.

Calgary, the "oil city" of Alberta since 'way back when, with that friendship which is characteristic of its citizens, might well have diverted one of its famous chinooks in the direction of Leduc on February 13th. The warm wind would waft birthday greetings from age and experience to the brush youngsters who were celebrating the first anniversary of Imperial Leduc No. 1 as a producing well.

When the discovery well came in a year ago it brought bright hopes which have been rapidly fulfilled. In the interim Leduc has become established as an oil field that may eventually challenge the faltering Turner Valley as Canada's main source of crude oil.

On Leduc's natal day just one year ago the well site resembled the waiting room of a maternity hospital. Toolpushers, Company officials, government and municipal dignitaries and farmers of the district nervously paced up and down. They weren't biting their fingernails as the chill breeze and sub-zero temperature made mitts a necessity. Mother Nature didn't disappoint them and the roar of blazing gas and oil heralded the birth of a robust well.

Some two months later the arrival of twins, Leduc No. 2 and No. 3 wells, confirmed the fecundity of the Devonian formations and a field was born. Since then progeny in the form of new wells have appeared with such monotonous regularity that Leduc folks have become blasé and take the "birth" announcements in the oil news as a matter of course.

Yet the past 12 months have seen a vital change taking place on the broad farming acres south of Edmonton—something that goes even deeper into Canada's economy than the drills that bite into the Devonian, for here is unfolding the fruition of a long and patient endeavour to balance Canada's petroleum budget and lead her into a new industrial era.

The odds have been nine to one against Canada's oil independence these past years. For every barrel produced from a Canadian well, nine barrels had to be bought and paid for abroad and transported, at no small cost, to meet the needs of Canada's refineries.

Leduc is not yet rolling back that tide. Its 1947 production is barely a drop in the bucket but it is significant as the first appreciable victory in the last decade over the declining production curve. It is a bridgehead to be consolidated and expanded by unremitting effort.

The establishment of this bridgehead was a fine piece of co-operative scientific effort. Reading the tablets of stone on which the Devonian formation had left its life history, the geologists found footnotes and annotations referring to petroleum. By deduction they reconstructed the attitude of the deeply buried sediments and drew conclusions from the logs of wells which had penetrated Devonian strata in the oil hunt.

From this information they were able to say: "Here and here should the search be intensified."

What was hidden from mortal eyes was revealed by the seismograph. The geophysical crew drew their lines and probed deep below the surface, finding corroborations for the geologists' optimism and adding valuable data to their assumptions. The moving finger of their delicate instruments pointed to Leduc and, ultimately, the drill wrote "finsis" to speculation. It was a methodical piece of team work.

Perhaps, on Leduc's first birthday, it would be more appropriate to look at its physical growth rather than to moralize on its underlying significance just as, in a child's earliest years, its progress in inches and pounds is more readily assessed than its prospective value as a member of society.

Den Wilson and B. A. Erickson check the depth indicator while making a "bottom-hole" test on one of Imperial's Leduc wells.
There will be no delay this year because the oil will flow from wellhead to railroad by pipe line. The grain elevators at Nisku will get some competition and the clanging bells and escaping steam of shunting engines will not be as severe as it is dictated by the shipment of grain. The oil crop is harvested on a year-round basis and goes to market continuously.

A year ago the fair-ground at Leduc housed a motley collection of trailers and temporary shelters for the oil field workers and hotel accommodation was taxed to capacity. Now "Devon," the new model housing site is rising.

As Leduc celebrates its first birthday, parts of the Whitehorse refinery are scattered all the way from the Yukon to Edmonton, in trucks or on flats, in a hectic yet orderly procession.

Trucks and railway cars bring in the equipment necessary to continue drilling operations in the Leduc field. These men are unloading heavy drilling equipment at the Leduc station which lies an estimated reserve of one hundred million barrels of excellent crude.

Prevention being better than cure, Imperial's wells from the start have been given restricted production quotas which its engineers consider best suited to ensure the ultimate maximum recovery from the field. Individual well production has varied between 100 and 150 barrels daily.

This self-imposed conservation may seem at variance with Imperial's insistence on the necessity for greater domestic production but a policy of faster production would, undoubtedly, defeat itself in the long run. Now the Alberta Conservation Board has declared Leduc an "Administrative Area" and all wells will operate on a designated quota, as is the case in Turner Valley and other established fields.

Imperial's wells have produced approximately 299,891 barrels out of the total of 327,450 barrels credited to the field at the year's end. The value of this production represents an appreciable saving in the number of dollars sent out of the country for crude purchases.

One-eighth of the amount went to the owners of mineral rights and, whether it ended up in the government coffers or a farmer's pocketbook, it represented that much additional spending power in and about Alberta. Add to that the payroll and material purchases of the operating companies who are drilling the wells, producing and transporting the crude oil and one can readily appreciate that Leduc has a new prosperity.

Last spring the few producing wells had to be shut in occasion because tank wagons could not navigate the mud and gumbo of the Leduc side-roads.

Yet, before another birthday rolls around, this disintegrated hardware will, like the valley of dry bones, stir and assemble into an integrated whole at Edmonton to process Leduc crude.

A popular song says "What a difference a day makes!" That 16th day of February, in the year of grace, 1947, made all the difference between success and failure, pessimism and optimism, for Leduc. In a wider sphere it spurred the jaded oil seekers to new effort and opened new trails in the oil search. It stayed the downward trend of domestic oil production and hinted at a balanced budget in Canada's petroleum economy. It set in motion an ever-widening circle of complementary activity in allied industry and gave promise of adequate and cheaper motivation for mechanized agriculture and other basic producers.

Happy Birthday, Leduc!

Some of the Leduc oil is kept on hand to help produce more oil. This diesel fuel tank supplies oil for diesel-operated equipment.
Devon Goes to Town

A model community is springing up on the Alberta prairie near the Leduc oil field.

Devon, an entirely new community in the Canadian west, will house workers in the Leduc oil field. It will not be a "closed camp" or exclusively an "oil town" in any sense. It will be a third community, taking its place in a triangle of towns with Leduc and Calmar as the others in the oil field area.

Last fall the new town was just an idea. It had no name, no over-all plan and no prospective location. By January, 1948, it was called "Devon"—after the Devonian limestone in which oil was found in the new field—and was rapidly becoming a reality on a quarter section of land on the North Saskatchewan River bank, 15 miles southwest of Edmonton.

Devon is visualized as a modern community of 300 homes, business places, churches, skating rink and schools. The Alberta government town planning commission assisted in the over-all planning of the town layout and the development is in the hands of Central Mortgage and Housing Corporation.

The first winter's program called for 25 homes, one large building as single men's quarters and an Imperial Oil office building. As the work got under-way hundreds of interested Edmontonians motored to Devon to watch the progress.

Devon is unique among western Canadian towns because it will have four oil wells within its borders. Locations for these wells have been selected and anyone planning residence or business in the town is advised that four wells will be drilled there.

Residence in Devon is open to all comers. Anyone desiring to build there may do so after consultation with Central Mortgage and Housing authorities. While the primary objective is to provide homes for oil workers and their families, other newcomers will be welcome. Many businessmen, from hotel operators to butchers, bakers and grocers, have made inquiries about getting established in Devon.

Government authorities have prepared zoning by-laws and other regulations which will give the town a "working basis" as a self-contained community in future. Devon homes will be heated by natural gas piped to the townsite from the Leduc field. Lighting will be supplied by the Calgary Power Company.

As winter ends the first part of the program is nearing completion—the exteriors of the 25 homes are finished and the single men's quarters and office building have been erected. Spring will see renewed activity and the town is expected to grow rapidly during the coming summer.

In the workshop of a Calgary firm, prefabricated houses for the new town of Devon are assembled in sections. The sections are then hauled to Devon by truck and quickly erected.

At the Devon townsite, near the Leduc oilfield, solid foundations are laid for the prefabricated houses. The ground was previously prepared by bulldozer and other clearing equipment.

Devon visualized as a modern community of 300 houses, with stores, schools, community centre, nurse house, and churches. Here one of the first 25 prefabricated houses nears completion.

When decorated, Devon homes will look as attractive and comfortable as this model. These prefabricated houses will be heated by natural gas piped from a gas well in the nearby Leduc field.
Canada Takes to Skis

With its increased popularity, skiing now challenges hockey as the national sport

In this SR winter months the cry of "Track!"—the skier's warning of "Look out, I'm on my way!"—rings through the crisp northern air above ski trails across Canada. On the hills and in the valleys the skiers—tiny specks of red, yellow, green and blue in the distance—swing and bend in rhythmic motion.

Many parts of the Dominion are now recognized as "a skier's paradise." Banff and Jasper in the Canadian Rockies and the Laurentians in the east attract skiers from all parts of the world. There are well-known ski spots in the Maritimes, British Columbia and Ontario. Even on the prairies where it is often necessary to travel long distances to reach suitable skiing country, the sport is acquiring more and more followers.

Considered a novelty in Canada until a few years ago, skiing has become so popular that it soon may challenge hockey as the country's national sport. This popularity was steadily mounting before the outbreak of World War II and it received a further impetus when troops training in ski patrol courses developed an enthusiasm for the activity which they now are continuing as a sport in peacetime.

Jump tours are best left to the experts. To do one with the skill of the skier above requires a great deal of practice.

The word ski comes from the old Norwegian "skids" meaning a long plank of wood split from a log. But a modern ski is much more than a plank of wood and an ardent skier will claim that his ski are infused with his own personality. They are to him what huskies are to the trapper or a horse to a rider.

The manufacture of skis requires great skill. They must be durable yet light and perfectly balanced.

Proper care of skis is important, too. Before each season and at intervals during the winter the skier smooths base wax over his skis to protect the surface from direct contact with the snow. Other types of wax permit the skis to slide easily over the snow under special conditions. These waxes are petroleum products and the oil industry conducts research to determine what type of wax is most suitable for wet or dry snow.

The Scandinavians, particularly the Norwegians, have been the great apostles of skiing. Their ancient mythology honored skiing with a god and a goddess, Ull and Undur, Wherever the hardy Norsemen travelled their skis went with them.

Skiing as a sport is a comparatively recent development. Even the Swiss Alps did not become a fashionable skiing centre until the end of the last century. Frank Harper, in his book "Skiing for the Million" tells of an eccentric Englishman, Colonel Napier, who visited Davos, Switzerland, with his Norwegian butler in 1888. The butler had interested the Colonel in skiing and the two often skied together. One of the butler's specialties was to balance a tray with a cup of tea on it while skiing down the slope near the Grand Hotel.

Singsongs are enjoyed by all on board the Skier's Special. Here happy young Canadians are singing such popular favorites as "Bunchum," "MacNamara's Band" and "One Meat Ball!"

Ski meets are popular events at many Canadian winter resorts. Here contestants receive last minute instructions.

A sense of rhythm enables the skier to swing his body from side to side as he turns and twists on his last moving ski.

16 IMPERIAL OIL REVIEW
Oil in Tilbury Township

In 1922 the Rossllyn well (or M. J. Keck No 1.) was drilled at Staples, Ont., in Tilbury township, about 25 miles southeast of Windsor. The well went down 3,423 feet to the granite and was a dry hole. It never produced oil, but now, 24 years later, it has resulted in the discovery of what Imperial believes may be a new oil field for southwestern Ontario.

This development came because Imperial geologists examined the log of the Rossllyn well and decided that oil might still be found nearby. Further study gave the geologists a probable oil location and the drills have proved their reasoning correct.

Study of the Rossllyn log was undertaken as part of Imperial’s re-survey of southwestern Ontario, in the regions which produced Canada’s first oil fields in the 1890’s.

Imperial Staples No 1 well was started last October 11th by contractor Clarence Carter and its career was unspectacular for nearly three months. Then, suddenly, on the night of Jan. 5th, the startled drillers heard a fast-developing roar as oil under terrific pressure blew up through the hole, raising the heavy drilling tools 200 feet and spraying the rig and surrounding fields.

When the well was brought under control, preliminary tests indicated that it would produce about 144 barrels of 38 gravity oil and about 300,000 cubic feet of gas per day. The well was drilled to a depth of 1,186 feet on the farm of Samuel Lynn, who will receive as royalty one-eighth of every day the well produces.

W. A. Roliff, who is in charge of geological exploration and development work for Imperial Oil in eastern Canada, said that while it is too early to make firm predictions, the probability of an oil field of at least 200 acres is indicated.

Imperial’s current drilling program in southwestern Ontario has been in progress since July, 1945. The program has resulted in the discovery of an oil and gas field at Becher, 5½ miles north of Wallaceburg, and a gas field at Kimball, in Moore township. The Staples well gives indications of being the most important discovery, Mr. Roliff believes.

The Becher field now has eight oil wells, three oil and gas wells and eight gas wells. Fourteen wells drilled in the field were dry holes and two more are drilling. Oil production amounts to about 200 barrels a day and the Becher gas wells, with an open flow of about 17,000,000 cubic feet a day, actually produce 3,200,000 to 3,500,000. At Kimball three gas wells have been completed with an open flow of about 1,600,000 cubic feet of gas per day. Two of the wells were dry holes and two more are drilling.

In addition to developing the fields already discovered, Imperial is seeking others and has seven drilling rigs "wildcatting" in the area between Wyoming, Ont., and Highgate.

The oil production so far obtained is small in comparison with the Imperial discovery of the field at Leduc, Alberta, but every barrel of oil which Canada can produce is important to the nation's economy.

FEBRUARY 1946

Imperial Staples No 1, which the Company hopes is the discovery well of a new field, is being retested for production. Here drillers lower a piece of two-inch tubing into the well.

The latest Imperial Oil discovery in southwestern Ontario is on the farm owned by Samuel Lynn, shown here with two of his grandchildren, Samuel and Allan Wright, sons of Adrian Wright.
Men For Edmonton's New Industry

Specialists are being appointed to head the staff that will operate the refinery now being constructed to make oil products in the Alberta capital.

At “the world’s most travelled refinery” settles down unit by unit at its new site on the outskirts of Edmonton after its long journey from the Yukon. Imperial Oil is assembling a staff to man the new plant.

H. H. (Herb) Moor, from Imperial’s Sarnia refinery, already has been appointed superintendent of the Edmonton refinery and three other specialists have been named to work with him. The next step will be the appointment of department heads who will gather the staff needed to run the plant when it is ready to begin operations on a temporary basis next summer.

The refinery will bring an industry that is entirely new for the Alberta capital. For many years Edmonton has been a base from which exploration parties went out to search for oil in the west but there was no sound reason for a large scale manufacture of oil products in that area. Calgary, closer to the flow of crude oil from Turner Valley, was the logical refining centre for the province until the discovery of the Leduc field last year.

Calgary will remain a refining city but Edmonton soon will share in this form of manufacturing because the development of nearby Leduc has provided an assured source of crude to be processed. The physical equipment for refining will become available as quickly as the move from Whitehorse to Edmonton can be completed.

Although experts must be imported for the work whose experience is essential, the rest of the refinery staff will be drawn from the Edmonton district and trained. This is in line with Imperial’s policy to employ as many men and women as possible from the home area of a centralized operation.

When the refinery begins production this year the initial capacity will be 3,000 to 4,000 barrels a day stepping up to 6,000 barrels a day by the end of the year. A refinery of this size and type usually needs a staff of about 200 but employment at Edmonton will not reach this figure immediately. The staff will be increased gradually as section after section of the new plant comes into operation.

In addition to Mr. Moor, the new superintendent, the specialists already appointed to the Edmonton staff include Eric S. Davis who will be assistant superintendent, Allan F. McLaren, chief accountant, and Ben H. Sherwood, mechanical superintendent. Mr. Davis is now resident engineer and later will become assistant superintendent.

Until recently Mr. Moor was assistant superintendent of No. 2 plant at the Sarnia refinery. He is a native of Toronto, and entered the faculty of applied science at the University of Toronto after two years’ service in the Royal Canadian Naval Volunteer Reserve in World War I. He obtained a master’s degree in 1923 and joined Imperial a short time later.

His first job was “rolling barrels in the barrel house” at Sarnia refinery but he soon graduated to the experimental plant. There he became a foreman and joined the Technical and Research department when it was formed. One of his first assignments was to operate a pilot plant where experiments were conducted on the phenol treating process which was developed by Imperial to improve the quality of lubricating oils.

From 1933 to 1935 Mr. Moor was in France as assistant to a French refining company to start lubricating oil operations at the Port Jerome plant on the Seine river halfway between Le Havre and Rouen. He returned to the Technical and Research department in 1935 to work on a solvent dewaxing pilot plant and finally on the full-size dewaxing unit.

This completed, he worked on the important task of augmenting lubricating oil production to aid in the war effort. In 1943 he joined the staff of Sarnia refinery as assistant superintendent in charge of production at Sarnia’s No. 2 plant.

Eric Davis was born at Dawson City, Yukon Territory and had his early schooling at Dawson City and Macleod, Alberta. Later he attended Upper Canada College, and the University of Alberta, and graduated from McGill University with a Bachelor of Science degree.

After graduation he worked with the C.N.R. as assistant engineer in the maintenance department and assisted in construction of the Central Station in Montreal.

He joined Imperial Oil in 1933, working with the marketing department at Montreal East refinery. Later he transferred to manufacturing operations in the refinery and became mechanical superintendent in 1939. He held this position until 1942, when he was transferred to Sarnia as assistant mechanical superintendent.

Allan McLaren was born at St. John’s, Newfoundland, but grew up in Halifax. In the First Great War he went overseas with the 48th Howitzer Battery, C.E.F., in which he rose from gunner to sergeant. After demobilization he became assistant timekeeper at Imperoyal refinery, than worked on costs and yields at the plant. Steady promotion brought him the position of assistant chief clerk at Halifax before he was transferred to the Comptroller’s department at Sarnia in 1940.

Ben H. Sherwood, a native of Calgary, is a graduate in electrical engineering of the University of Alberta. He joined the Company in 1920 at Calgary refinery. Eight years later he was transferred to Sarnia, where he worked as assistant chief engineer with the St. Clair Processing Corp., which supplied petroleum gases to the Polyneer Corp. for the production of synthetic rubber during the war. In the spring of 1947 he went to Ioco refinery at Vancouver as assistant maintenance engineer.

These are the men who will have the responsibility of putting the new refinery into operation. Their task will be to co-ordinate the units brought piece meal from Whitehorse to achieve efficient production of oil products so that the prairies may have the full benefit of Imperial’s discovery at Leduc.
Steep Rock: The Lake That Became an Iron Mine

Large quantities of high-grade iron ore are being produced from the Lake Superior area to help ease the steel shortage.

FOR THE first time in her history Canada is producing large quantities of high-grade iron ore, the basic ingredient of industrial civilization. This is a result of the war-born development of the new Steep Rock iron range in the wilderness near Lake Superior. Without the war it is probable that the iron ore would still be at the bottom of a lake, for Steep Rock is at a site that not long ago was covered by 150 feet of water. War-time needs speeded the engineering achievement that drained the lake and permitted the mine to open in 1941.

In the first year of its operation Steep Rock became the chief Canadian producer; half a million tons of ore were obtained. Production jumped to 800,000 tons in 1945 and to approximately 1,200,000 tons last year.

High-grade iron ore, burned with coke in a furnace, produces steel which, because of its strength, versatility and relatively low cost has become essential to modern life. Steel is required for construction, for machinery, and for almost endless list of familiar things—locomotives to car openers, from office buildings to kiddie cars. Industries across the Dominion, particularly the petroleum industry—have been seriously hampered by the steel shortage of the past several years and if steel had been more plentiful the transition from war conditions to peacetime adjustment would have been more rapid.

Accordingly, in making iron ore more plentiful, Steep Rock is a hopeful sign that Canada eventually may find important relief from the lack of steel which has hamstrung industry.

Steep Rock's development passed through three stages in arriving at the present producing mine, with its railroad and thriving company town.

The first stage was concerned with exploration years ago followed by diamond drilling which located the ore beneath the lake. The second solved the engineering problems concerned with emptying the lake and the diversion of rivers. Finally, when the lake bed was exposed, there was the task of washing the covering clay and gravel from the ore and then, when it was uncovered, cause the problems of open-pit mining, and of sorting, loading and transporting the ore to market.

The exploration phase goes back as far as 1892 when geologists reported indications of iron ore in the Steep Rock region. Diamond drills probed it for it in 1902 but the drillers missed the ore.

In 1910 Julian Cross, a Canadian prospector with headquarters in Port Arthur, became impressed with the boulders of high quality iron ore found on the south shore of Steep Rock Lake. Further investigation led him to the conviction that the main ore body lay under the 15-mile stretch of the lake but he spent eight fruitless years trying to finance a company for exploratory drilling.

The threat of war changed the outlook because it became apparent that new sources of iron ore would have to be found and developed. Backed by the late Joseph Errington, a company was formed early in 1938 and soon winter drilling was begun through the ice that covered the lake. Early efforts produced nothing but criticism from outsiders. Soon, however, the critics were silenced by the discovery of a body of high-grade ore nearly a mile in length.

But the drills that discovered the ore also found veins of water that would flood any shaft placed to mine the ore by usual methods. The only solution was to drain off the 150 feet of water in the lake.

This, it was estimated, would cost $10,000,000 and even with iron ore at its highest price in history the project did not seem a good risk. By 1942 the long-range outlook in North America, as far as reserves of high-grade iron ore were concerned, had become so critical that the United States and Canadian governments became interested and it was possible to raise funds and obtain the priorities necessary for the equipment.

The engineers' first problem was to block off the Seine River which fed Steep Rock Lake. Because this stream drained 1,800 square miles, the task was a big one. It was accomplished by damming the eastern portion of the lake and cutting diversion channels to carry the water around to the north through a ridge and into the Seine again below the mine site.

Finlayson Lake, which formed part of the channel, had to be lowered 58 feet and this was done by cutting an 8-by-10-foot tunnel through solid rock under the lake and blowing out the plug with dynamite.

Most of these projects were completed in 1943 and by the end of the year Steep Rock Lake was divorced from its water supply.

The lake still contained about 118 billion gallons of water of which at least 70 billion gallons had to be removed before mining could be started. It was obvious that ordinary pumps would take too long.

The answer was found in specially built centrifugal pumps which were mounted on barges. Fourteen of these pumps started emptying the lake in December, 1943, at the rate of half a billion gallons a day. The lake level dropped an average of 7 1/2 inches a day and by the next June the south end was dry.

The water had been removed but the ore still lay under 85 to 150 feet of clay and gravel. The engineers attacked this overlay, blasting it out with water under high pressure. They used the water that was being pumped out of the eastern arm of the lake and then sent it to headers to build up pressure and then fed it into oversized hoses.

Streams from the hoses washed the overburden from the bed. Then the debris-laden water was
pumped to a distant area where the material was allowed to settle. In the clay were large rocks and these were handled by steam shovel crews who kept up a constant race with the hydraulic strippers until the job was done and Steep Rock was ready for production.

While this work was in progress, the Ontario Hydro-Electric Power Commission built a line from Port Arthur to Steep Rock Lake. The Canadian National Railway built a spur line from Attikokan to the mine crusher and loading terminal, and the Dominion Government commenced construction of ore docks at Port Arthur.

Ore production began in May, 1945. Diesel-powered shovels took over, scooping up ore with four-cubic yard bites and loading it into heavy trucks of 16-ton capacity. The trucks take the ore to be crushed and screened before being dumped into railway cars for the 140-mile haul to a loading dock at Port Arthur.

At Port Arthur the ore is tumbled down into the holds of lake freighters for shipment to the steel mills on the lower lakes. The ore bodies in the Steep Rock range explored to date are estimated to contain 73 million tons of ore which average 60 per cent iron. When reports are received from further exploration the ultimate potential may be many times this figure. Much of the ore is in large lumps which can be used directly in open hearth furnaces to produce steel without pretreatment and hence the ore commands premium prices.

Steep Rock Iron Mines, the operating company, plans to open another large pit soon. There are other geological areas which will lend themselves to future development.

The development of Canada's iron resources will help conserve precious U.S. dollars. Up to the present, this country has been deficient in iron and steel. For example, during the last hundred years Canada has produced only one-half of one per cent of the total iron ore produced in America. In recent years, all the proceeds of Canada's gold industry have hardly been enough to pay for the iron and its products imported into this country.

The export of iron ore from Steep Rock to the United States will benefit the Canadian economy to the extent of $7,000,000,000 American dollars annually. These figures can be checked when the mine reaches a production of 2,000,000 tons per year.

There are other factors which may prove to be of equal importance to the local and national economy. The enterprise at Steep Rock has helped business generally and has provided jobs for many Canadians.

The mine has a current payroll of over $1,000,000 per annum; the Canadian National Railways collected revenues of approximately $1,500,000 on last year’s shipments and lake steamer companies collected a further $1,400,000.

The population of the Atikokan and Steep Rock community has already grown from about 300 in 1943 to over 1,300 in 1944. As the population expands still further, new homes and offices will be needed. It is estimated that when construction costs, labour and supply difficulties cease to be an obstruction to normal building activities, the community will need progressively 1,000 new houses to accommodate a population which will expand to 5,000 to 7,500 people concurrently with the expansion of the mine's production.

The enterprise at Steep Rock has demonstrated already that Canada has high grade iron ore deposits which can be mined and sold at a profit. This fact justified the efforts required to overcome unprecedented physical difficulties.

Steep Rock is in the same general area as the Mesabi Iron Range in Minnesota, North America's most famous iron ore deposit which has had a major effect on the growth of the United States as a highly industrialized nation. Mesabi may prove to have a parallel here in Canada through the development of the Steep Rock iron deposits and the establishment of the necessary industries.

Hopper gate and chute winches which control the ore as it comes from the loading dock into a bigger at Port Arthur are greased every week, using the special equipment shown here.

The Steep Rock loading terminal with its covered conveyor at the right, handles all processing involved; crushing and screening the ore as it is loaded into cars for the 140-mile haul to Port Arthur where it is shipped to steel mills on the lower lakes.

February 1948
of a steel industry at the "Head of the Lakes" may follow.
Moreover, the high grade iron ore deposits of the Mesabi range are showing signs of exhaustion. Although Mesabi still has enormous reserves of low grade iron ore, the Canadian deposits will prove increasingly important to the steel industry on this continent.
For these reasons the discovery of iron ore in Canada has attracted widespread attention. In 1947 Canada has produced a record volume of almost two million tons of iron ore, of which about five hundred thousand tons came from the Helen Mine of the Algoma Steel Corporation and the balance from Steep Rock, both deposits in the Lake Superior area. In addition to the Steep Rock range, a very large iron ore deposit has been found in northern Quebec which is now being prepared for development.
These two ranges may have a profound effect upon Canada's future, suppling the furnaces that make steel and helping to overcome the shortages that are an obstacle to progress. The oil industry will welcome the development of this new and important industry which may soon be able to provide steel for the storage tanks, pipe lines, drilling gear, tank ships, tank cars and other equipment so necessary to its operations.

Brought to Fort Arthur by rail, the iron ore pours into the holds of a lake freighter to continue its journey to the steel mills.

A Man of Pipelines ... and People

PIE PLINES and people have been the dual concern of John R. (Jack) Simpson during his association of more than 35 years with Imperial Oil. Mr. Simpson, who recently left the Company on extended leave pending retirement, has many interesting and satisfying experiences on which to reflect. He was in charge of Imperial's pipe line activities for the past 11 years and shared in major achievements of construction and maintenance. During the war he played a part in helping to track down a group of Nazi spies. But most of all he likes to remember that he was one of the officials who prepared the foundations for Imperial's present Thrift Plan under which annuities, insurance, and other measures provide security for Company employees.
He is one of Imperial's best known men not only because his work involved projects in many parts of Canada, the United States, and South America but because of his personal philosophy.
"Ever since I joined the Company it has been my ambition to know everyone in the organization and to inject the human touch into our relationships," he said recently.
Although he eventually became president, vice-president or director of many companies associated with petroleum supply, Mr. Simpson did not begin his business career with an oil company. Instead, his first job was with MacKenzie, Milne and Company, a hardware firm in Sarnia. He had been born in Hamilton but his family moved to Sarnia when he was a youth and he had been educated there.
Mr. Simpson quickly came in contact with the oil industry, however, because the hardware company dealt in oil well supplies. The young man began to take an interest in petroleum which was rapidly becoming a vital commodity with the development of the automotive trade. Finally he joined Imperial's Sarnia refinery staff in 1913.
He first worked as a gauger in the refinery but soon was moved to the manufacturing office. He then was placed in charge of stocks at Fort William and became assistant chief clerk before he was transferred to Toronto in February 1921.
In Toronto he co-ordinated costs and yields for all Imperial refineries and over the years held positions of increasing responsibility. His interest in people led to a natural association with the security plan for
keeping Sarnia supplies moving to Halifax," he pointed out.

Perhaps the most dramatic incident in Mr. Simpson's career came with the arrest of three Axis spies operating out of Detroit during World War II. An alert Transit and Storage pipe line waker, who noticed two men and a woman acting suspiciously, telephoned a coded message to his boss in Toronto.

Mr. Simpson acted immediately and made a quick trip to the scene of the operations. He learned that the spies had been tapping a private telephone line to Canada, which paralleled the pipe line, and were obtaining the names, times of arrival, and cargoes of tankers docking on the east coast loaded with oil for the pipe line.

Mr. Simpson worked with the U.S. Federal Bureau of Investigation and before long had a federal agent who was having dinner at an inn—at the table next to the enemy agents. Arrests and convictions followed swiftly and the spies were placed in United States jails.

Thereafter, a code system was devised so that tankers were known only by numbers. Even the operators, even if they could succeed in tapping the line again, could obtain no intelligible information.

The period following World War II brought even greater demands on the pipe lines as Canadian consumption of petroleum products rose to unprecedented heights with no leveling-off evident in sight. Plans for expanded pipe line capacity have been seriously curtailed by shortages of pipe and other materials, but Mr. Simpson and his colleagues have been able to devise ways of increasing capacity with materials at hand.

In 1956, when Mr. Simpson was appointed president and director of the Montreal Portland Pipe Line Company, the pipe line system was already a well-established and successful operation. Mr. Simpson was able to build on the foundations laid by his predecessors and to expand the company's operations to meet the growing demands of the oil industry.

One of the most significant developments during his tenure was the expansion of the pipe line system to include new terminals and storage facilities. Mr. Simpson was instrumental in bringing about these changes, which helped to ensure the continued success of the company.

Mr. Simpson retired from the company in 1974, having served in various capacities over a period of 40 years. His contributions to the oil industry and to his company were immeasurable, and he is remembered with great respect and admiration.

In recognition of his many years of service, Mr. Simpson was honored with the presentation of the annual award for outstanding service in the oil industry. This award is a fitting tribute to a man who dedicated his life to the development and growth of the oil industry in Canada.
Measure for Measure
The gaugers in Imperial's refineries help efficient production by maintaining a constant check on the volume of oil products

Ever since the first exchange of land, goods, or services the question “How much have I and what is it worth?” have been on men’s lips. From these questions the science of measurement has developed to give answers in dollars, sterling, millimeters, yards, bushels, tons, miles, kilowatts, horsepower and in scores of other specialized units.

All industry today recognizes the importance of accurate measurement. This accuracy is essential to the oil industry in particular because oil is a business that handles vast amounts of a necessary commodity. In such big amounts a tiny fraction of a total may represent an imposing quantity of oil and a minute error may result in loss or waste on a large scale.

For this reason the petroleum industry maintains groups of measurement specialists in all branches of its operations. The gaugers in a refinery are one such group.

The gauger spends all his time answering the question “How much?” His working equipment consists of a measuring tape, a plumb bob, and a thermometer and his job is to determine how much crude oil comes into the refinery and how much goes out in refined products.

His measurements form the basis of the refinery accounting system. They also are a check on production efficiency because differences indicated in gauging records can lead to the detection of mechanical trouble in the refinery units that produce oil products.

In a large refinery, such as Imperial's plant at Sarnia, 20 gaugers work day and night shifts measuring the contents of tanks, tank cars and tank ships.

In gauging a tank, the gauger climbs the stairs to the top, opens a roof manhole and unwraps his steel tape which is mounted on a reel with a handle. The square brass bob, attached to the end of the tape, acts as a weight, pulling the tape down to the level of the liquid in the tank. A hole, drilled in the lower end of the bob, prevents splashing.

When the bob and tape are in position, the gauger measures the distance between the surface of the liquid and a mark on the roof manhole. (If the bob has been in the liquid it will be wet to that depth and this measurement is taken into account.)

The gauger measures the amount of liquid in the tank simply by comparing the tape reading with tables which supply information about the tank's capacity. The tables were compiled when the tank

How much oil is in this big tank? Head gauger Willard Burgess and Glen Lambert climb the stairs to measure the contents.
was built and make accurate allowances for the space occupied by heaters, support columns or bracing within the tank.

In short, the guauger actually measures the empty portion of the tank (called outgasp) and by subtracting this from the tank’s capacity obtains the volume of the liquid.

These operations must be precise because in tanks that are 120 feet in diameter a calculation of one-eighth of an inch can mean a difference of about 800 gallons.

Less obvious to the layman is the fact that varying temperatures can have a profound effect upon the volume of a quantity of oil. Under increased heat oil expands and increases its volume; with a drop in temperature the oil contracts. An error of one degree in measuring oil temperature can mean a difference of 1,700 gallons in an 80,000 barrel tank.

The gauge must deal with the fact that 80,000 barrels of oil occupy much less space in a tank on a cold winter day when the oil has contracted than the same amount of oil occupies in the heat of summer which brings expansion. Accordingly his temperature measurements are an important factor in his work.

To obtain the temperature of the liquid, the gauge attaches a thermometer to his tape or to a cord; lowers it to the bottom of the tank and draws it up again. A cup at the base of the thermometer catches some of the liquid and holds it around the bulb so that the thermometer is not immediately affected by atmospheric temperature.

Usually an average reading, obtained by moving the thermometer down and up through the liquid, is sufficient. Sometimes it is not, for some crude oils stratify in tanks—separate out into different layers—and sometime products do the same, as when hot liquid is pumped into a tank containing cold product. In these circumstances two or three readings are taken. Extra readings may also be necessary when the contents of the tank are heated.

In these operations a standard temperature is needed as a reference. This has been set at 60 degrees Fahrenheit and the volume readings taken by the gauge are converted to this standard by use of tables.

In addition to temperatures, the gauge must be prepared to deal with sludge or water which may be encountered in the tank. Neither have an effect on the finished product as long as they are recorded by the gauge.

Sludge which may have settled at the tank’s bottom will interfere with the accuracy of the measurements. Accordingly, the gauge removes the bob from his tape and attaches it in place a shallow flat-bottomed metal cup. He lowers this cup gauge into the tank and when it reaches the liquid he measures the distance. Then with a deliberate flick of his wrist, he upsets the cup which sinks through the liquid until it reaches the level of the sludge. There a slight pause occurs while the trained gaugers recognizes as the time to take another tape reading from which he can calculate the amount of sludge present.

Crude oil may contain water which is removed in refining but which is a factor to be considered when the gauge takes his measurements.

When water is present in a tank the gauge uses the tape and bob again. The bob is smeared with a chemical paste which turns from a dark olive to red when touched by water where water touches it.

The paste-covered bob is lowered to the bottom of the tank, and the portion immensed in water readings while the part in the petroleum product is unchanged. The bob is graduated in fractions of inch. So the gauge measures the reddened part and obtains the depth of water.

The procedure is different where tank cars and barrels are concerned. Here the gauge uses a “thief.” The thief is used not because the gauge expects to find water, but to make sure the product is water-free.

The thief is lowered to the bottom of the tank car and dips in a sample from the lowest point in the car. If present, water is easily detected when the thief is turned upside down and the sample flows into a glass bulb.

Sampling is closely allied with gauging; for the quality of a crude or product is just as important to the refiner as is the amount as the gauging is itself. Both are important factors in ensuring fair measure for purchases and sales and in bringing quality products to the customer at low prices.

Before leaving the refinery, tank cars are loaded for impurities. If any are found, they are removed. This feature is called a “blind.”
Imperial's New Oil Carriers

The Nisku Pipe Line Now is in Operation Carrying Oil from the Leduc Field to the Railway

The first tank car at the Nisku terminus of the Imperial Pipe Line Co. Ltd. was sent on its way by G. M. Blackstock, chairman of the Alberta Board of Public Utilities' Commissioners. He is seen in the picture at left opening the valve that caused oil from the Nisku pipe line to flow into the tank car.

The loading rack is 320 feet long enabling eight tank cars to be loaded on one track of the quarter-mile siding. An average tank car holds 200 barrels and can be loaded in 20 minutes.

The Launching of the 'Imperial London' Means Another New Tanker for Great Lakes Transportation

The Imperial London, second of three tankers being built to add to Imperial's Great Lakes' Fleet, was christened recently by Mrs. J. R. White (shown in the picture at right) wife of J. R. White, vice-president of Imperial Oil in charge of transportation. The Imperial London and her sister ship Imperial Collingwood, which was christened in September, each have a maximum capacity of 24,000 barrels. A third and larger ship, the Imperial Sarnia, is expected to be launched in June.
Personalities in the News

G. L. Macpherson Heads Ontario Engineers

George L. Macpherson, manager of Imperial’s engineering and development division of the manufacturing department, has been elected president of the Association of Professional Engineers of the Province of Ontario. Mr. Macpherson has been a member of the association for 10 years and a member of the council since 1944. He was elected vice-president last year.

George Macpherson joined Imperial in 1922. In 1935 he became assistant chief engineer and chief engineer in 1943. Mr. Macpherson’s title was changed last May, when the engineering and development division was formed.

Capt. T. D. Kelly Named Co-ordinator of Executive Development

Captain T. D. Kelly, who was formerly head of the operations division of the marine department of Imperial Oil Ltd., has been named Co-ordinator of Executive Development. Captain Kelly joined Imperial as a seaman in 1922 and in 1929 became master of his ship. Before entering the R.C.N.R., in 1940, he was mooring master and assistant marine superintendent at Talara, Peru. During the war he was commander of H.M.C.S. Prince David which took part in the Aleutian campaign and three invasions. He was mentioned in dispatches and was made a Commander of the Order of the British Empire. He returned to Imperial in 1945.

W. G. Sexton, President and General Manager of Imperial Pipe Line Co. Ltd.

W. G. (Whit) Sexton, formerly chief engineer at Transit and Storage Co., is the new president and general manager of Imperial Pipe Line Co. Ltd., with headquarters in Edmonton. Mr. Sexton was born in Halifax and was educated at Nova Scotia Technical College and Massachusetts Institute of Technology. He joined Imperial in 1921 at Sarnia, serving in various capacities in the refinery, engineering and accounting departments. In 1938 he was transferred to the United States with Transit and Storage Co., which operates pipe lines from Ohio and Michigan, supplying crude to Sarnia refinery. During World War II he served three years in the U.S. navy, returning to Transit and Storage in December, 1945.

Dr. N. W. McLeod Receives U.S. Highway Research Award

Dr. Norman W. McLeod, asphalt technologist for Imperial Oil, recently received the U.S. Highway Research Board award for the most outstanding technical paper presented in 1946. The award, made annually, is highly regarded and this is the first time that it has been won by a Canadian. Dr. McLeod’s paper was entitled, “Airport Runway Evaluation in Canada.”

Dr. McLeod has been with Imperial since 1938. He has also been a consultant for the Canadian department of transport since 1945 and has served as director of a large investigation of airport runway design methods.

N. S. Pringle Receives 40-Year Button

Neil Sutherland Pringle recently received his 40-year button for service with Imperial. A native of Winnipeg, Ont., he joined the Company in March 1906 in the boilermaker’s department at the Sarnia refinery where he has since remained. His first job was passing rivets, but with greater experience he became a first class boilermaker. As Imperial expanded he was assigned to construction work and spent some 15 years erecting storage tanks in various cities. On his return to the refinery he was appointed foreman of the boiler shop in charge of outside construction.

Champion Plowmen Visit Britain

Canada’s champion plowmen have just returned from a tour of the United Kingdom where they were able to study at first hand British methods of farming and plowing.

The trip to Britain was awarded the successful contestants at the International Plowing Match, held at Kingston, Ont., last October. Their expenses and those of their coach-manager, W. L. Clark were paid jointly by Imperial Oil Ltd. and the Sault Ste. Marie Co. of Canada.

Imperial Oil offered free trips to Britain for winners of first and second places in the “Eumo Tractor Class.” First prize was won by Glen McPadden of Millbank, Ont., and the runner-up was Russell Baun Hare of Nanticoke, Ont. Alfred Brunton and John Capt von were the winners of the Sault Ste. Marie Co. of Canada.

The champions travelled extensively in the British Isles. Besides competing with British plowmen and visiting their farms, they were able to see many famous places.

In this picture they are seen as they started from Toronto. From left to right are: Alfred Brunton and Russell Hare, front; John Capt, Glen McPadden and coach W. L. Clark.

GEOLeSTIS MEET

Imperial Oil geologists took part in the convention of the Geological Society of America held recently at the Chateau Laurier hotel in Ottawa. More than 800 scientists from North America’s industrial laboratories and universities attended. Here, three delegates are being registered by Y. O. Fortier. From left to right they are: Dr. A. T. Lank, Toronto, chief geologist of Imperial Oil Ltd., Dr. C. A. Dobbin, president of the American Association of Petroleum Geologists, and Dr. G. W. Hopplin, vice-president in charge of exploration and development for Imperial.
The Abraham Sisters

Pioneers among Imperial's women employees, Sarah and Martha Abraham now are living in retirement at Sarnia.

THE ABRAHAM sisters of Sarnia went to work for Imperial at the turn of the century when women employees in the oil industry were as rare as the new-fangled automobile. They made careers for themselves in jobs where few, if any, women had ever been employed before in Canada.

For the past 14 years the sisters have both been living on pension in retirement but as pioneer employees they maintain a keen interest in the Company's affairs.

Sarah Abraham was the first woman worker engaged in manufacturing operations in an Imperial refinery; Martha was among the first group of women. Sarah became Imperial's first forelady; and, again, Martha followed her sister in a similar position. Both remained at work for more than 33 years, sharing in the activities that helped Sarnia's refinery develop into the largest in the British Empire.

Their start with Imperial was a natural development because their cousin, the late Florence Smith, had been the first woman stenographer hired by the Company and worked at the Sarnia refinery across the street.

Living in retirement in Sarnia, the Abraham sisters divide the household chores, enjoying work in their immaculate kitchen.

The sisters are United Church members. They saw the cornerstone of Central United Church (then Methodist) laid in 1882.

FEBRUARY • 1946
The street from the Abraham home. Just as Miss Smith had been the first woman in the office, Sarah Abraham became the first woman in the manufacturing plant, starting in 1897 as a candle-maker.

As other girls joined the candleworks department among them Martha in 1900—Sarah became their mentor and eventually was appointed "foreman." She held this position with increasing responsibilities until she retired in 1931. Martha retired from her job as foreman in 1934.

The sisters have continued to live in their old home. They drove a car until two years ago and toured many of the eastern United States. They often visit Toronto, Montreal and Niagara Falls and Sarah recently returned from a California trip.

In Sarnia they spend their mornings at housework, occasionally rising at five o'clock to give the rooms a special cleaning. In the afternoons and evenings they do their shopping or visit Sarnia homes.

Both have always enjoyed good health and they have many interests. They attend Devine Street United Church and also have a long association with Central United Church. Their warm friendliness has in return brought them a host of friends in their native Sarnia and beyond its limits.

After a shopping tour, Martha and Sarah return to the house which has been their home for 56 years. Across the street is part of Imperial's refinery where they were pioneer workers.

Imperial tankers bring many of their oil cargoes to Canada from South America. Here a pilot comes alongside the Imperial Quebec to guide her to the oil loading dock at Car later, Venezuela.
Outlined against a snowy river and mountain, a rigger directs the crane which is moving pipe from the power house at Whitehorse refinery.