Imperial Oil Review
Vol. 37 No. 4
December, 1953

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On the Covers
When Artist Harold Town was illustrating our story on page 16, "Brilliantly Burns The Candle", he also sketched his impression of an early Spanish candle-
まり for our cover. Purely as a coinci-
dence, he used was to obtain the effect. The original drawing was done on ordinary news paper with crayons and specially-
ground sticks of carbon and lamp oil. This was placed face down on paper and transferred with a hot iron. Windmills on the news paper produced the marbled background.

Five-year-old Claudia Skinner (on inside front cover) is perched. Her sister, William C. Skinner, was pleased with the "Christmas tree" on his lap but it certainly is not the kind she's used before. It's an old man's Christmas tree, a collection of pipes and vases which contained the flow of crude oil from the well brought into production by Imperial Oil on October 30. Mr. Skinner owns the mineral rights for his farm which is located about a mile out of Viaduct, Man.

December '53

Editorial

A Good Year in Exploration

At the old year ends, people in the oil business are being asked: "How successful was the search for oil in Canada during 1953?"

A complete answer isn't possible yet. The men who hunt for oil were at work right up to the closing hours of the year and it takes months to decide the importance of some finds.

As usual, much of the work in the last half of the year remains to be assessed and the results may not be fully established until well into 1954.

But already it can be said that 1953 was a more than usually successful year in finding oil in Canada, even if only the most conservative estimates prove correct. And if the optimists are right, it may rank with the best years in the history of the search in this country.

For one thing, the rate of increase in new reserves appears to have been higher than in 1952. In the first six months alone, western Canadian crude reserves increased by nearly 300 million barrels after allowing for the production of some 35 million barrels during the same months. And among recent discoveries—in the Peace River area, in Alberta, Saskatchewan and Manitoba—some may turn out to be major fields in the 100 million-barrel class. On this list, however, is the Imperial discovery at Snydoy, west of Saskatoon, which disclosed the first important source of light gravity crude in Saskatchewan.

There appears to have been a slightening of some oil industry activities during the year, in contrast to the rapid increases of other recent years. It seems probable that the final summary of the industry's record will show there was a drop in geophysical survey work and in the number of rigs engaged in exploratory and development drilling.

There were varied reasons for this but one interpretation could be that Canadian oil activities have been going through a period of stabilization.

Imperial's president, J. R. White, mentioned this interpretation in a recent address and defined some of the factors that will govern the oil search in 1954 and future years.

"The full development of Canadian oil resources," Mr. White said, "will not be accomplished on a boom basis but rather by a continuing program over many years as experience in other areas of the world has so well demonstrated. It is a fact that exploration of this large prospective area (in western Canada) is still in its infancy and in the next five years since Leduc, we have barely scratched our ultimate oil reserves."

"We know the area is geologically attractive," said Mr. White, but he pointed out that a continuing flow of capital and effort is needed to find the oil that is believed to be there. "That flow of capital will depend on the return this area promises compared to other oil areas or, even, other industries."

DECEMBER '53
The fabulous Ungava iron deposits were found amid bleak desolation, but the biggest civilian airlift in history has helped the growth of two large towns, great docks, huge hydro projects and the first major North American railway in half a century.

Some months ago a pilot from Arabia had an astonishing experience. He was on his way to the United States from the Middle East by way of Britain, Greenland and Labrador. He had completed all the first parts of his journey without trouble but he over-shot the great Goose Bay airport in northern Labrador. He found himself lost in the night over the wild, twisted, empty land of Ungava—lost, and with less than half an hour's gasoline in the tank. Then, when his prospects seemed as black as the land below, the lights of a modern airstrip miraculously beckoned him down to safety.

After he landed the pilot kissed the ground.

The unexpected landing field was Maniheek airport, 324 land miles north of Seven Islands on the St. Lawrence river, in the heart of the richest iron country on the continent.

The lights of Maniheek—one of 13 fields and strips now linking Ungava with civilization—glimmer like symbolic beacons in the bleakness of Labrador's wasteland. For in the Ungava area, just underneath the black spruce, and the gray Caribou lichen and the orange sprigs of Labrador tea, 418 million tons of iron reserves lie waiting to be mined. The airports are just one of the many startling changes brought about by the new iron discovery in a country once thought so useless that Jacques Cartier, the explorer, dubbed it "the land God gave to Cain".

Besides creating two major towns, two huge hydro plants, and a quarter-mile of dock area, the Ungava iron development has sparked the biggest civilian airlift in history and the first major North American railway project in the past century.

The father of these developments is the Iron Ore Company of Canada, a joint U.S.-Canadian venture which has under its wing a small army of subsidiaries and allied companies (including four construction firms and two bridge-building organizations). The two main subsidiaries are the Quebec North Shore and Labrador Railway, whose diesel-driven trains will soon link the ore-fields with the docks at Seven Islands; and the Hollinger Ungava Transport Co. (commonly known as HUT) whose aircraft are at present the only method of exit or entry into the vast, wrinkled plateau where the iron deposits lie.

The absolute necessity of the HUT airlift to Ungava underlines the importance of petroleum products in the big iron development. HUT's planes burn up a million gallons of aviation gasoline a year. But the project as a whole used 12 million gallons of oil products in 1953.

"Without oil," says William H. Durrell, the general manager of IOC, "this project would be impossible."

Oil products have been used in every possible way: in spraying blackflies, impregnating railroad ties, fueling flame throwers to cut ice jams, powering drilling machinery, cooking flapjacks and even for..."
cleaning overall. Two of HUT’s biggest aircraft are employed solely as tankers to ferry oil, in thousand-gallon freight loads, into the thirsty construction and drilling camps.

This airlift is one of the many astonishing things about the iron country. It has been operating for seven years—every scrap of food, every stick of furniture, every piece of machinery from bolts to bulldozers has to go in by air, in quantities up to 300 tons a day. Sometimes the planes take off at the rate of one every five minutes from the airfield at Seven Islands which has clocked more take-offs per day than Dorval, near Montreal, Malton at Toronto or Edmonton airport.

From 70 to 75 pilots are constantly on HUT’s payroll headed by a burly, serious-faced man named Charlie Hoyt. Hoyt is peculiarly fitted for the job for he was the wartime commander of the famous RCAF transport squadron 164 which maintained an earlier airlift to help build Goose Bay. He makes his headquarters at Mont Joli, the railroad on the south bank of the St. Lawrence river, across from the rapidly growing port of Seven Islands. Hoyt’s gang are all crack pilots. They include such men as Hank Gates of Halifax, a veteran bush pilot with 20 years’ experience, and others who learned their flying outside of Canada such as a ruddy-cheeked Englishman named Reg Reynolds, winner of two DFC’s and two DSO’s as an RAF ace.

Hoyt’s fliers keep the airlift operating to the heart of the mining area. Some 350-odd miles to the north of Seven Islands lies the frontier town of Burnt Creek, the temporary capital of the $235 million mining project.

Burnt Creek consists of an uneven line of make-shift bunkhouses and Quonset hut offices struggling along the rutted mud of a thoroughfare correctly dubbed “the richest main street in the world”. For after the town was established, a group of workmen testing out a drill discovered that the future iron capital of the continent was on the most valuable ore deposit of all. As a result the entire town must be moved to a new site at Knob Lake, a few miles to the south, where a sea plane base and airfield are already in full operation. At the suggestion of Premier Duplessis, the new town will be named Schefferville after Bishop Scheffer.

At present Burnt Creek is one of the busiest towns of its size anywhere. Its citizens—drillers, geologists and construction men—often work 14-hour days and seven-day weeks.

The town is on the same latitude as Edmonton and Copenhagen but Burnt Creek has 50-below weather each winter, and usually a snowstorm or two in July. In spite of the almost constant roar of planes it is an isolated community with few social amenities, except the magazines and papers flown in from outside and the two movies a week. Yet to many men who’ve spent six years in the bush, Burnt Creek is still “civilization”. It is equipped with central heat, electric light and running water, a chemical laboratory and has a resident doctor.

By the winter of 1951-52, 15 men had brought their families to Burnt Creek. One of these was Norman Delmage, the plain-spoken mechanical superintendent who has been in the town for almost six years. He doesn’t pretend to prefer it to life outside but makes the best of it aided by his bright young wife and baby daughter, Lynn Marie. In the summer of 1952 Delmage almost lost his life trying to rescue David Claxton, son of Canada’s Minister of National Defence, when the young man drowned in the river.

In the vicinity of Burnt Creek there are other tiny pinpoints of civilization growing larger and steadier by the month. There are the airfields at Menibek (30 miles to the south) and at Knob Lake. A great power project is nearly completed at Menibek Rapids, where the flow is a million gallons a second. At the North end of the half-mile tunnel railway engineers have dug through a mountain side 11 miles out of Seven Islands. Underground are 418 million tons of iron ore waiting to be shipped by the railway to the docks on the St. Lawrence river.
and its almost insurmountable obstacles is being rapidly linked to Seven Islands by a railroad. The railroad builders, for sheer tenacity, rival the CPR's famous William Van Horne.

Since 1949 construction men have been boring, blasting, blasting and bridging a 358-mile right of way through some of the toughest country on the continent. It begins to look as if they will complete the job on schedule and achieve their slogan of "Iron Ore by Fifty-four". This means that late in the year hundred-car trains, each powered by four diesel engines, will be running ore to the new docks on the St. Lawrence at the rate of 30,000 tons a day. Six of these trains at a time will speed up and down the track and pass each other on sidings built every 20 miles along the right of way.

The steel is being laid by a complex construction arrangement. four firms brought together to do the job and operating under the jaw-breaking title of Cartier-McNamara-Manning-Morrison-Knudsen, or more simply CMMK.

Jack Clark, CMMK general manager, and the men who work with him have plenty of problems. Most of the right of way, for example, had to be stripped of muskeg—that aposy conglomeration of vegetable matter that carpets the northland. Under the muskeg for 180 miles, was a layer of granite-hard frost that had to be breasted. And under the frost was more trouble: the shifting sand of an old lake bottom. These obstacles are being met plus others caused by the mountains and the gorge. The conqueror's evidence can be seen along the right of way. Just 11 miles out of Seven Islands, before the railroad can reach the turbulent, salmon-stocked Moisie river (the "noisy Moisie" the construction men call it) a mountain of solid rock bars the way. A tunnel, half a mile long has been bored through the mountain. On the other side the railroad leaps a dizzy gorge on a 706-foot trestle of orange steel. Then the tracks are nestled into the cliffs whose dynamited flanks soar a sheer 40 to 100 feet above the right of way. The roaring water is another 100 to 150 feet below. For the next 140 miles the railroad climbs wearily toward the plateau of iron. Finally it reaches its maximum height of 2,000 feet above sea level. From then on the going is easier.

Before the job is through, 100,000 tons of steel rails will have been laid by the polyglot crew of Quebeckers, Newfoundlanders, Texans and prairie workers who have poured into Ungava in search of long hours and high pay.

The railroad, the airt lift and the iron have transformed Seven Islands which had been just a little fishing village on the north bank of the St. Lawrence. It was named Sept Isles more than three centuries ago by Jacques Cartier (for the seven pinnacles of rock that guard the entrance of its natural harbor). Next year the railroad will start to disgorge its ore into the new docks just outside the town. From here an endless stream of freighters will carry it down the river to the Atlantic coast up the river (via the proposed St. Lawrence Seaway) to the steel mills in the heart of the continent.

For three centuries Seven Islands slumbered. Its population never exceeded 600 and half of those were Indians from the nearby Montagnais Reserve. Now the population is nearer 5,000 and Seven Islands bears all the distinguishing features of the classic frontier boom town: rocketing real estate prices, speculators turned into millionaires, hopeful newcomers arriving every day, big talk, big deeds and plenty of entertainment. So far the town has got along with absolutely no sewage or water system—they may be installed by the time you read this. But there are three hotels, three taverns, two cocktail bars, a nightclub and about 60 taxicabs. And there is very little crime in the community.

If Seven Islands has little crime, still the name of the town figured prominently in one of Canada's most fantastic murder cases. Mrs. Alfred Guay was on the Seven Islands plane flying from Quebec City when it was blown up by a bomb as plotted by her husband. Guay once conducted a jewelry business in the town.

Seven Islands has better claims to fame than the Guay case. One comes from the wealth that is being accumulated there. A town in which a single lot can...
Joe Mackenzie, one of Seven Islands’ oldest citizens, claims half-white ancestry but lives on Indian reservation.

For three centuries Seven Islands was only a remote little fishing village. Today it is a boom town with 5,000 residents. The hotel contains 24 rooms, each with a bath; it has a cocktail lounge and a private club and is solidly booked up for weeks in advance. Marceux drives a Cadillac and would still be flying his own plane (purchased from former U.S. Vice-president Alben W. Barkley) if it hadn’t cracked up.

Like some other Iron Ore Co. employees in Seven Islands, Jack Layden, personnel manager, has gone into business for himself. A good-looking RCMP veteran, he owns a sizable chunk of property on Main street, half of the Rivoire theatre and to boot, serves as mayor of the town. Other people have part-time interests in all kinds of enterprises—everything from night club entertainment to operating laundermats.

It is evident that the town’s population is as colorful as it is varied. A former hard-rock miner, Howard Robinson, manages the airfield and IOC townsite. An ex-jewelry salesman, Bill Morency, manages the Clarke Trading Co. (which acts as Imperial’s agent in the town). Morency, like most of the populace has an interesting background. He’s done everything from homesteading on the prairies to running a sawmill owned by “Legs” Diamond, the notorious U.S. bootlegger-racketeer.

Joe Mackenzie is one of Seven Island’s oldest citizens and town characters. He is a grizzled native with long curly hair, a straggly moustache and dark sun glasses who claims half-white ancestry but lives on the Indian reservation. Another familiar figure is Chief Mathieu André, who started the great Ungava iron find by bringing ore out of the wilderness and who now roves the same wilderness as a helicopter prospector.

Seven Islands is a town run on oil, as the big tankers at the docks show. Because wood is expensive—up to $20 a cord uncut—most homes are heated by oil. When the railroad is complete and the diesels start running, the oil requirements will leap.

Imperial had a hand in the early development of the town for it helped to build docks for its own tankers, as described in the October-November, 1949, issue of the Revue.

At Pointe aux Basques, just a mile away, the big IOC dock—a quarter of a mile long—has been constructed to accommodate the two 35-foot-draught, ore carriers now being built in United Kingdom shipyards. These 32,000-ton oil-fired vessels will be as large as the Empress of Scotland and the channel must be dredged to a depth of 37 feet to accommodate them. They may carry Canadian ore to Britain, eventually, as well as to the U.S. and IOC plans to order an indefinite number of them in the future. American companies will send up their own ore carriers. The ships will be loaded at the rate of six to eight thousand tons an hour from stockpiles at the dockside.

Altogether there will be 2,300 feet of dock at Pointe aux Basques. The federal government is building its own 600-foot wharf. In addition locomotive repair shops, offices, houses, recreation buildings, schools and shops have risen along the once quiet shores of the river.

In another year, in the dark barren land to the north, the almost limitless supply of iron will begin to move down the rail line from the mines and out by ship to the heart of the continent. It will not come a moment too soon. The round hills of the Menabi, whose iron has built two nations, are almost exhausted and the hungry steel mills will swallow every lump of ore torn from the Ungava wastes. The St. Lawrence Seaway which has caused so much talk and heartbreak is now certain to be built—and Ungava’s iron has been one of the moving reasons for its construction.

That Arabian pilot who kissed the ground when he landed in the unfamiliar country was so impressed by the reddish soil of Ungava that he took a handful of it back with him to his native land. To him it represented safety. To this continent it literally represents life.
When kerosene and then electric light came into everyday use, everyone thought the time had come to echo Machbeth's cry of "Out, out, brief candle!" But electricity has not yet snuffed the candlelight from our homes.

New and practical uses for candles keep candle-makers busy as ever at their age-old craft. Today there are chlorophyll candles to draw away odors; stubby nightlights to keep coffee flasks and casserole warm at the table; TV candles, set deep in escape glass jars, to provide the minimum light recommended by doctors for watching television; insect-repelling candles to keep mosquitoes at bay; and even candles flavored with peppermint, which have food value as well as burning qualities.

Such modern ingenuity, however, cannot "hold a candle" to the strange customs of the past. Candles were used by the witches; in 1490 a witch was charged in London with having burned a candle to make a man waste away as the wax melted. They were also useful in exorcising witches. On Hallowe'en, when the witches held revel on the Lancashire moors, country folk wandered about the fields after dark carrying lighted candles. The witches would try to blow the candles out, but if the heavens managed to keep them alight until the clock struck midnight, they were safe from supernatural mischief.

The devout Italians of Campo di Gove believed that a few drops of wax from holy candles lighted in church at Easter, if let fall on their hats, would safeguard them from being struck by lightning.

Another old custom was "selling by the candle"; a pin was stuck into the side of a lighted candle and bidding proceeded briskly, the sale being awarded

Candles have many new and modern uses and also preserve old traditions. Candle-crowned Swedish girls serve coffee to their families in bed on St. Lucia morning.
to the last to bid as the flame burned down and released the pin.

Candles still shine in memory of St. Lucy in a Swedish folk custom in December. Teen-age girls dressed in white, with a crown of burning candles set in a green wreath on their hair, serve the members of their respective families morning coffee in bed.

The fat red candles which shine so many of our windows on Christmas Eve have more religious significance than those survivivals of pagan festivals, the Yule logs, mistletoe, and similar Christmas symbols. Candles have been used in Christian symbolism since very early days, especially in the rites of the Roman Catholic church, with its great Paschal candle lighted on altars at Easter, blessed candles carried in procession at the Feast of Candlemas, bell, book and candle used in the rites of exorcism, and the myriad votive lights burned daily before shrines.

The earliest candles were made from the pitch of rushes, hoop wax, or vegetable waxes such as bayberry. Then spermwhale wax, from the blubber of the sperm whale, became popular. The measure of light called "candle power" was based on the light produced by a sperm whale candle, and the unit of weight, made to burn 120 grains per hour.

Two hundred years ago the greatest advance in the history of candlemaking was the invention of paraffin wax, a petroleum product. The wax is obtained during the processing of lubricating oil when a special solvent removes it from the oil. It is then further purified and put to many uses such as in making wax paper, wax cups and candles. In 1848, the Quaker operated a candle factory in Sarnia refinery until 1948 when the equipment was sold.

The old tallow candles had an oily smell; they флamed, guttered and dripped, and their wicks had frequently to be trimmed. Paraffin wax gives more light per unit without odor, but has a low melting point and is not a good transatlantic candle. Searcic acid—a product of tallow from which the smoky, smelly glycerin has been refined—is added for hardness and opacity and the tallow itself produces the best quality candles but dipping machines are used for mass production. In both cases numerous thin layers of wax are laid over layers of wicks dipped in molten wax. Candles in unusual shapes are made in molds into which wax is poured and allowed to harden in due course.

Whatever the manufacturing method, the wax and the wicks remain the production essentials of candlemaking. Most candle factories work with wax for sanitary and votive lights. Yet this 49-year-old business uses the most up-to-date equipment. Big white slabs of crude-scale paraffin wax, which has a melting point of 135 to 139° Fahrenheit, are slowly dissolved by steam heat circulating through the double walls of stainless steel tanks to the two hot radial candles—ozone-sterilized, which prudently housewives still stock against emergencies such as when an electric fuse blows and plumbers must be summoned. Four tons of these are mass-produced in two giant metal moulds, each of which can produce about four tons of candles in 24 hours.

The small, squat votive lights which burn for 10 or 15 hours, leave their moulds with a hole pierced through the centre for the wick. Three girls with deft fingers thread the wax-stiffened wicks, cut to length with scissors and inserted in the base of the mould.
THE BIG PIPES

The two great trunk pipe lines that were completed, east and west in Canada, in 1953

In Canada, 1953 could be called the Year of the Big Pipe Lines. Two great construction projects were completed and now the country has a 2,500-mile basic trunk pipe line system for the transportation of western crude oil. The system represents an investment to date of more than $250 million and with pipe line looping and more pump stations, capacity will be raised to 500,000 barrels a day.

From Edmonton, Alberta crude is flowing westward across the mountains and through the valleys to the Pacific. Eastward it is traveling through a pipe line for the first time all the way to southern Ontario.

The Trans Mountain line from Edmonton to Vancouver was completed in record time and the first crude was delivered in October. Completion of the Interprovincial extension from Superior, Wis., brought oil to Sarnia in December. Interprovincial is now the longest crude oil trunk line in the world, 1,772 miles.

Trans Mountain is 718 miles long and was built at a cost of $38 million. Pipe-laying in the Rockies involved many construction obstacles, including 72 crossings of rivers and creeks—the Fraser river was crossed 10 times. The line has an initial capacity of 120,000 barrels a day, but ultimately can deliver 200,000 barrels a day.

The Interprovincial extension made its way through the United States to Sarnia for 643 miles at a cost of $72 million. It links with the original Interprovincial line which was completed in 1950, running through Alberta, Saskatchewan, to the international boundary in Manitoba and on to Superior. The extended line now permits Sarnia to receive year-round deliveries which formerly were interrupted when the Great Lakes’ tankers had to tie up during winter. The line will have an ultimate capacity of 300,000 bbls. a day.

Interprovincial, too, had its construction problems, one of which is described in the story that follows. Each of the two pipe line projects represents a major engineering accomplishment.

Development of Canada’s pipe line system means that western oil can reach still farther to serve in the homes, the automobiles, the aircraft and the factories. East and west the projects can be compared with the building of the first transcontinental railway.
THE BIG PULL

In extending the Interprovincial line, a unique engineering feat pulled pipe underwater more than four miles across the Mackinac Straits.

The four-and-a-half mile crossing of the Straits of Mackinac was probably the most difficult and certainly the most dramatic undertaking in the 643-mile Superior-to-Sarnia extension of the Interprovincial pipe line. This was a unique engineering feat...the greatest pipe line engineering accomplishment of the year.

Laying a pipe line under water has become a fairly frequent operation in Canada but never before, anywhere in the world, had such a weight of pipe (106 lbs. to the foot) been pulled so far (21,000 feet) through such a deep gorge (243 feet at the deepest point).

The pipe had to be laid without interrupting shipping on the busy Mackinac Straits which join Lake Michigan to Lake Huron. It couldn’t be floated across on pontoons and then sunk in the way pipe was laid in Hamilton Bay last year for Imperial’s product line from Sarnia. At Mackinac the pipe had to be pulled along the shifting, uneven bottom of the strait. And after the engineers had made all their calculations they still didn’t know exactly how many tons of pull would be required to do the trick.

The pipe itself was simple enough. Just string a cable from a large diesel winch anchored on Point McColpin near Mackinaw City on the south side of the strait and hook it to the pipe on Point de Barbe near St. Ignace on the north side. Then turn your winch and pull the pipe along the bottom.

But there were complications. The bottom is uneven and in places there are side hills down which a 20-inch pipe might like to roll. The waters of the strait are full of currents that shift and vary from day to day and from depth to depth. The weather in those parts is turbulent, uncertain and sometimes bad.

Some of the best pipe line experts on the continent worked on this job. Ray Hamilton of the Bechtel Corporation (managers of the project), who has laid pipe underwater in the Persian Gulf and other parts of the world, was there. So were Joe Frossell and Sherman Serre of Merritt-Chapman & Scott, contractors, dynamic little Samuel Collins, head of Collins Construction Company of Texas, (a firm of underwater experts) and Captain George Tooker, a rugged salvage expert who worked on the salvaging of the Normandie in New York harbor. Among 200 workmen were some of the best soft-pipe welders to be found anywhere in the world.

Preparations for the big pull took many months. After the bottom had been photographed with a fathoscope and mapped, a trench was dredged from both shores out to a depth of 65 feet. In the centre of the strait the pipe would just lie free on the bottom.

The pipe itself was especially made for the job. It was 13/16 inches thick, open hearth, Grade A seamless and exceptionally soft so that it could snuggle down tightly to the uneven contours of the bottom of the gorge. The 27-foot lengths of pipe were welded into eight 2,500-foot strings, which were covered with a preservative of tar and fibre glass wrapping. The bottom third of the pipe was covered with wooden slats attached with steel bands to make a sort of sled for the pipe to ride on. Each weld was inspected and X-rayed because each weld had to be strong enough to pull the weight of pipe behind it. Russell Rhodes, welding specialist for the Bechtel Corporation, explained: "We made each weld so that it tested just a little stronger than the pipe itself."

Survey towers were constructed on both shores and...
at intervals across the straits. A control tower at the water's edge on Point le Barbe was the nerve centre. From there Captain George Tooker gave his instructions by two-way radio and signal lights while the pipe was being laid.

LAYING THE CABLE

First step was to lay cable across the straits in the ditch where the pipe would lie.

At exactly 4:45 p.m., Wednesday, August 5th, the derrick boat Cherokee with Captain Tooker in command put out from Point Mculpin to string the cable from the winch on that side. The winch was set in a concrete foundation, embedded in rock, 2,500 feet back from the water's edge. So that if any breaks came they would be where Mendez would be relatively easy, 1½-inch cable was used between the winch and water's edge as opposed to the two-inch cable ready for under the straits.

At 2,500-foot intervals the cable was attached by several connections to large, white, floating cylinders, three feet in diameter and nine feet long. These mandrels kept the cable from sinking into the bottom and allowed it to spin without unravelling. Tooker was expected to arrive at the other shore some time the next afternoon, August 6th. He reached there after fighting storms and crazy currents, at six o'clock Saturday, August 8th.

As the Cherokee approached Point le Barbe, Collins Construction Co. men attached small white buoys 38 inches in diameter and four feet long to the top of the pipe at 66-foot intervals. These reduced the weight of the pipe in water to six pounds to the foot, and could be released afterwards by a special trip rope system. Side booms tracked up to the front end of the first link of pipe and eased out onto the "monkey motion," a special launching device that carried the pipe from shore to water on truck tires. The cable was brought ashore and hosed to another mandrel and then threaded through the loop of a hull plug welded to the front end of the pipe. At the other end of the 2,500-foot pipe was another hull plug attached by cable to a hold-back winch which kept the pipe from moving too fast. During the pipe-laying the hull plugs, so-called because the pipe is plugged with big iron hoops like the ring in a bull's nose, served the double purpose of keeping water out of the pipe and acting as links to help the pulling operations.

"LET HER GO!"

By 2:30 Sunday morning all the joints had been made and tested. Everything was ready for the big pull, they said. At 5:00 a.m., the cable was let go. The cable began to tighten, became taut, lifted off the ground. The dynamometer in front of the winch—through which the cable ran—registered 20 tons pull, 25 tons, 30 and up. On the other side of the straits the big grey pipe began to inch along the "monkey motion" and as a small gallery of onlookers set up a rousing cheer the bull plug touched the water at exactly 2:41 Sunday morning:

But the engineers and officials weren't cheering yet. For almost two hours the pipe slid smoothly into the water under the searchlights from the control tower, reaching a speed of 22 feet to the minute. Then, as a fish pond. By Sunday afternoon divers had located the break about 65 feet from the south shore. The work of attaching another cable began and was completed in spite of the difficulties of working under water. By late Monday afternoon they were pulling again and by six o'clock it was time to make the first weld.

Side boom tractors moved the end of the second string of pipe over and butted it up against the end of the first string. Welders lying on slanted platforms went to work and completed the first weld. This was X-rayed, found perfect and that portion of pipe was then wrapped with protective covering and the slats

[Floating text]

Floats attached at intervals along the pipe went under the water to keep pipe from digging into bottom of the Straits

Fitting a small water pipe into the big line. Water was pumped in to help the pipe line settle on the channel bottom

attached. At 12:05 a.m. Tuesday the second pull began.

The pipe started moving again but Ray Hamilton, George Tooker, Joe Tressell and the others kept their fingers crossed. Would the winch do the job? Would the cable hold? A half-mile of 36-inch pipe under the water isn't something you can just pick up and cart away. And it was approaching the deepest part of the gorge. It couldn't get away on them. Another cable attached to the hull plug and leading to a derrick boat that followed the men across made sure of that. But it could cause a lot of trouble.

The second pull went steadily enough. The grey pipe with the white buoys riding piggy back atop old

slightly into the water. That is, 2,404 feet of it did. Then, just six feet short of a complete pull, the main driving chain of the winch broke down.

Fortunately by a bit of manouevring with side boom tractors it was possible to bring the two ends together and weld on the third string of pipe without pulling further. While the weld was being made the winch was repaired for the second time. The third pull went without mishap and now 7,500 feet of the big pipe was under water. But the winch wasn't performing as it should.

At this point it was decided to change horses in mid-stream, to speak, and replace the diesel winch with the big steam winch from the Cherokee. This took another 48 hours but it proved a wise move. When a pulley arrangement had been rigged up using 1½-inch cable the steam winch could pull 100 tons. From here on the pulling proceeded with only comparatively minor annoyances.

After the eighth and last string of pipe had been welded on and the last stage of the big pull started, excitement began to mount among engineers and workmen alike. Captain Tooker moved his headquarters from the control tower on Point le Barbe to a small shack right at the edge of the water on Point Mculpin. Ray Hamilton, Sherman H. Berre, Sonny Col- lines and all the other men who had worked and planned the job were there too. Nobody said very much. Photographers set up their still and movie cameras in the most advantageous spots to get shots of this important "first" in pipe line history. The steam winch chugged along steadily.

Mother Nature got into the act and whipped up a storm for the occasion. Thunder rumbled, lightning flashed and the wind threw the spray into the faces of the anxious watchers.

Then, at exactly 8:15 Sunday evening, August 15th, just as the rain was beginning, the round belly of the mandrel appeared at the end of cable and then the bulb plug that had disappeared into the water 21,000 feet away almost one week before. A smile spread over Captain Tooker's face, weather-beaten face. "There's your pipe, boys," he said.

REPEAT PERFORMANCE

The big pull was over. The lessons had been learned. Shortly after they were again put into practice just 1,300 feet east of this spot where the job was repeated and a second line of 30-inch pipe was pulled across the straits in about 63 hours.

Through these two pipes flows the oil that comes to them overland from Duluth in a single 30-inch pipe. Once across the straits, the oil goes into a single line again, and then on to tonnes, completing its journey from Edmonton through the world's largest trunk pipe line for crude oil.

[Image 0x0 to 1224x792]
Norman W. McCrea, 1895-1953.

Mr. McCrea, superintendent of Imperial refinery, died Oct. 30 in Victoria General Hospital, Halifax, after several months' illness. With Imperial for 34 years, he had worked at the refinery in his native Sarnia for most of his career. In 1947 he was appointed Sarnia's superintendent and held this position as second in command of the Company's largest refinery until his transfer to Halifax in 1952.

In World War I, Mr. McCrea served overseas with the Royal Canadian Engineers. On loan from Imperial during World War II, he was first process superintendent for the St. Clair Processing Corp. Ltd. which operated a major part of the Polymer Corp. synthetic rubber plant. A keen golfer, he also was president of the Sarnia curlers and at Imperial cured with the Dartmouth curling club.

His two sons work for Imperial, David in the comptroller's department, Toronto, and Robert at Sarnia refinery. Also surviving are his wife and two daughters.

Appointments in New Department

Fred C. Coyle has been appointed general manager of the new company responsible for the supply and transportation of crude oil and products required by Imperial. Divisions of the department include the former marine, pipe line, traffic and supply departments.

Mr. Coyle has been manager of the supply department since 1947 and has been associated with the petroleum industry for over 18 years. He was born in Calgary and received his early education and business training there. He studied accountancy and was admitted to the Institute of Chartered Accountants of Alberta in 1929.

Mr. Coyle joined the Alberta government service in 1932. He became a petroleum specialist and served on a number of provincial and federal oil boards. He also was one of the original members of Alberta's Petroleum and Natural Gas Conservation Board set up in 1938 and later became its deputy chairman. During World War II he was successively executive assistant to the Oil Controller for Canada and deputy oil administrator for the War Time Prices and Trade Board. He joined Imperial in 1945.

J. C. Neal has been named manager of general management in the new department. His first position with Imperial was in the purchasing department in his native Toronto. In 1933, he transferred to the manufacturing department and went to Sarnia refinery. He spent 16 years there working on all phases of refinery processing. He is now in charge of the development of production control methods and analysis of operations. In 1950, he was transferred to Toronto and in 1950 was made assistant coordinator of refinery operating control. He was appointed assistant secretary of the Company in the spring of 1952 and took over his present duties last October.

R. B. Spears succeeded Mr. Coyle as manager of supply activities, now a division of the new transportation and supply department. He has been with Imperial Oil since 1933 when he went to work at Sarnia refinery. He obtained a broad background in general refinery work—firing at the cracking coils, gauging, process control, and other operations. In 1936 he moved to the manufacturing department in Toronto and eleven years later became assistant supply manager of Mr. Speers was born in Pownum, Ont. and received his early education in several Ontario towns. In 1926 he graduated from McGill University with a B. Com. degree.

Receive 40-Year Service Buttons

W. G. Hands, Ontario Marketing

For the past 40 years, W. G. Hands has worked with Imperial’s marketing department. Since 1939 he has been supervisor of office sales and service at the Ontario division at Leaside, Mr. Hands joined the Company in its invoice department at Toronto when the office was located on Bay Street. In 1915 he became a price with the bulk wagon department, and three years later was promoted to order clerk in what was then known as the lubricating and petroleum merchandising department. After 20 years he moved to refinery sales and a year later received his present appointment. His position involves many night calls from road contractors who need oil products in an emergency.

Murdock P. Murray, Sarnia Refinery

Three years before World War I began, Murdock Murray came to Sarnia refinery and started work in the yard labor department. Since then he has been on the hoists and at the truck loading racks. At present his job is at the racks for loading propylene gas. Mr. Murray is a fan of the Detroit baseball team and, when the fish are biting, enjoys a quiet fishing trip. He is originally from Wexford, Ont., and has a son and a daughter both married and living in Sarnia.

Bert Pusey, Sarnia Refinery

Forty years ago, Bert Pusey left his home in Lewisham, County of Kent, England, and emigrated to Canada. He had just been discharged on medical grounds from the British Army after three years’ service. Looking for work in a new country, Mr. Pusey applied at Sarnia refinery and was offered the choice of two jobs. He chose to work in the barrel house and since then has served there in many capacities. He is now special assistant at the barrel house. Mr. Pusey’s main outside interest is soccer—he follows the “Egypt” to all games—and he also is an amateur photographer. One of his two sons is employed in the mechanical department at the refinery.

L. H. Sinclair, Sarnia Refinery

Well-known as a figure in Sarnia sports, Howard Sinclair has worked at Imperial’s refinery for 40 years. His first job was in the paraffin department. He left there in 1916 to join the second division of the Royal Canadian Artillery and served in France. On his return to the Company in 1929 he worked on gauging and later on the blending of oil products. Today he is foreman of bulk shipping, a position he has held since 1946. Mr. Sinclair has always been an active sportsman. When he was a student at Sarnia College, he was the school’s all-rounder athlete for three successive years. He played football until 1921 and was a member of the Sarnia team which won the intermediate championship in 1920. He now curts and golf.

Gordon Wheeler, Sarnia Refinery

Gordon Wheeler has been with Imperial’s refinery in his home town of Sarnia since 1913 when he joined the refinery department as a timekeeper. He was later employed in gauging and grease plant work until in 1941 he transferred to the barrel house. Since then he has been supply co-ordinator of the packaging division. He is clerk of the session in St. Andrew's Church and a member of Sarnia Golf Club. Gelding takes up much of Mr. Wheeler’s leisure time—playing in the summer and reading about it in the winter. His son, Fred, is sports editor of The Sarnia Canadian.
Gifts From The Past

Imperial’s employees set up a Golden Anniversary fund
23 years ago which has done good work ever since. Its climax last year brought help to crippled children and charities in every province.

DURING this past year, crippled children in Saskatchewan have been swimming and exercising in a new Hubbard tank and have been soothed by its therapeutic effects. All summer long handicapped children in groups of 10 stayed in a brand-new cottage at the Collingwood camp of the Ontario Society for Crippled Children, enjoying a holiday in the fresh air and sunshine. At Calgary a “dry” sterilizer has been installed in the Red Cross Crippled Children’s Hospital, first of its kind in any hospital in that city.

And at Fort Qu’Appelle, tuberculosis patients have a new piano, a radio and record player and a movie projector to help them relax in their enforced leisure. These are just a few of the effects of a spontaneous outburst of generosity made more than 20 years ago by the then 10,000 employees of Imperial Oil. They created a Fund which has given widespread help to worthwhile causes ever since. Their act reached its climax in 1953 with results in every province in Canada.

In 1953 when Imperial was celebrating its 50th anniversary, the employees, acting entirely on their own initiative, decided they wanted to do something “to express their gratitude and loyalty to the president, directors and shareholders”. Their expression took the form of a fund which was turned over to the board of directors, to administer; the revenue from the fund to be “employed for philanthropic purposes outside the Company”. Each employee made a voluntary contribution and when all were in, they totalled $30,000.

The circumstances of the presentation are worth recollecting. The setting was Imperial’s annual meeting for 1929. Representing the employees were three men with the longest service—a total of 162 years. They were Matt Smith of Petrolia, James Wade of Sarnia, and Charles Wall of Toronto. Chairman and spokesman for the delegation was Archie McCorkindale of Victoria, B.C.

Mr. McCorkindale made a short speech explaining the feelings of the employees and why the money was being presented. He then read a hand-written illuminated address prepared by chairman Harvey H. Warren (who is still with the Company’s producing department in Toronto).

During the next 22 years, until 1955, the interest from the invested money was given away each year according to a plan which allowed all Imperial employees to take an active part in its distribution. Two provinces—one in the east and one in the west—divided the interest each year on a rotation basis, and employee representatives in each province selected the recipients. Over the years, $315,000, was given away in this manner.

But as prices rose, the interest each year from the fund would buy less and less. Last year it was decided to liquidate the fund and to give a Christmas gift to charitable organizations in each province. It was felt that the capital sum was large enough to make substantial gifts even when divided among the Company’s coast-to-coast operational areas.

And so, just before Christmas last year, the fund which had grown to $42,000 was disbursed. Employees in each province chose the charitable organizations in their area they wished to help. In most cases the gifts were cheques that could be used to meet pressing needs; in some instances specific equipment was bought and presented.

The selected charities were many and varied. In all but one province employees decided to spread their gifts among several organizations. But all of Ontario’s shores went to build the cottage at the “Blue Mountain” summer camp for crippled children.

Imperial Oil Review
December 1953
A long cherished dream—the dream that men of many lands could meet in friendly rivalry to decide who was the world's best plowman—came true this fall. It came true in Cobourg, on a field near Cobourg, Ont., when contestants from nine European countries and from Canada and the United States met in the first annual world championship plowing match.

For the men of the plow from abroad, the match was the climax of their visit to Canada; but only one of many high spots. During a whirlwind 37-day tour of Ontario and Quebec as guests of Imperial Oil they travelled 2,000 miles, met hundreds of Canadians in their homes, on their farms, at work and play; and were able to get a close-up view of the farming methods and living customs of this country.

As guests in Canada they received a warm welcome everywhere they went. In the big cities they attended official luncheons, banquets and receptions. In smaller towns they were introduced to corn-on-the-cob and turkey suppers. They attended concerts, county fairs and regional plowing matches, and toured agricultural schools, colleges and farms. At the Indian Reserve near Brantford, Ont., they watched while a British visitor was inducted into the Mohawk tribe to become a member of the ancient Indian confederation of the Six Nations.

The first "Plowmen's Olympics" justified hopes that it would help to create better international understanding. It also established precedents for future world matches to be held in other countries.

The world contest at Cobourg was held in conjunction with the 48th annual International Plowing Match and Farm Machinery Demonstration of the Ontario Plowmen's Association. In the world events, 20 contestants took part representing Denmark, Finland, Great Britain, Netherlands, Northern Ireland, Norway, Republic of Ireland, Sweden, United States, Western Germany and Canada. Finland and Northern Ireland each had one entrant; the other countries had two.

Weather was near perfect for the world competition on October 8 and 9, the final two days of the four-day OPA meet. The events began when contestants drove their tractor-drawn plows in a parade through the mile-long corral of the "Twisted City", an area where farm machinery and equipment were on
display. All tractors were identified by countries and some bore national flags and emblems.

The world contest was in two sections. On the first day each of the 50 plowmen plowed half an acre of stubble land. On the second day their furrows turned over half an acre of grassland. It was possible for each plowman to score a maximum of 200 points. The nine judges awarded points for type of crowns, the manner in which the plowmen buried the grass and stubble, the firmness of the furrows, the finish of the furrows and the quality of the seed bed.

On the final day, as the October dusk was spreading over the countryside, a small group of men emerged from the headquarters tent. A hush fell over the waiting crowd of plowmen, photographers, radio commentators and spectators.

John A. Carroll, president of the sponsoring World Championship Ploughing Organization, cleared his throat and said: "Gentlemen, the first tractor plowing champion of the world is Jim Eccles of Brampton, Ontario."

Thirty-four-year-old James Eccles had scored 154.66 points to win the Esso Golden Plow trophy. Runner-up was 41-year-old Odd Brust of Norway with 151.32 points. In third place was Robert Timbers, 26, of Stouffville, Ont., with 150.66 points. In the earlier OPA contests he had defeated Eccles, becoming Canadian champion plowman and winning the Esso Silver Plow trophy.

Others placing in the top 10 scores included a second Norwegian, two representatives from Sweden, and one each from Great Britain, Netherlands, Northern Ireland, and Republic of Ireland.

Eccles and Timbers were Esso Transatlantic champions at OPA meets in 1948 and 1949 respectively, winning all-expenses-paid tours overseas. Brust has been in contest plowing for four years in Norway, winning four district championships and the championship of his country.

Thousands of spectators watched the world contest and an estimated 100,000 were in attendance during the four-day OPA program. One of the oldest plowing associations in the world, the OPA has held international plowing competitions since 1911 except for a World War II break and in 1948, year of the influenza epidemic. The plowing match ground this year covered some 800 acres. There were 46 different classes, and the farm machinery display is believed to be the largest annual show of its kind in the world.

Observing the OPA’s 40th anniversary, Vincent Massey, Governor-General of Canada, opened the meet. He transferred from the vice-regal limousine to a tractor-drawn wagon for a tour of the grounds. Another special event was the mayor’s plowing contest in which Toronto’s Mayor Allan Lamport was the winner for the second consecutive year.

Most of the European competitors arrived at Quebec City aboard the Empress of Australia on September 30. From Quebec City they drove to Montreal in a chartered bus, the start of their tour which took them along the shores of the St. Lawrence, Ottawa and Rideau rivers, and eventually down through Ontario to Niagara Falls and back to Toronto.

They were welcomed to Canada at Montreal by Mayor Camillian Houde and at Ottawa by Canada’s minister of agriculture, James G. Gardiner. Escorting by the scarlet-tunicked Royal Canadian Mounted Police, they toured Canada’s Parliament Buildings and met some of the country’s top newspapermen in the parliamentary press gallery.

During the world match, the visitors stayed at Rice Lake, a small Ontario resort close to Cobourg. Nearby towns took turns entertaining them. Then, and when their travels began again after the match, they saw a cross-section of Canadian life and had many experiences that were new to them.

The town of Port Hope held a “Canadian Night” that began when the chartered bus was paraded.
through the town led by the local Sen Cadet bugle band. At the Kitchener-Waterloo arena they watched an exhibition hockey game and at Niagara Falls saw a takedown of an NHL game and of themselves playing in the world match.

Their visit to the Brantford Indian Reserve was to see the annual plowing match of the Six Nations Indians. That night Alfred Hall, of Warkington, England, who is secretary of the WCPO, was inducted into the Mokowk tribe. Mrs. George Green, a princess of the Six Nations, placed a large and beautifully-feathered headdress on Mr. Hall’s head and Chief Howard Skye stepped forward and declared in his native tongue: “Brothers, we greet our new brother, Rah-Ga-Rah-Tewa (Great Plowman).”

Most important, the plowmen had the opportunity to see a number of outstanding Canadian agricultural projects including some of the best privately owned farms in the country. They inspected buildings, plots and stations at the Central Experimental Farm and later toured the Farm Machinery Experimental Station at Milliken, Ont., the Ontario Department of Agriculture School farm at Kemptville, and the Ontario Agricultural College at Guelph.

An unscheduled visit was to the home of Jim Eccles, the world champion. It is a 475-acre dairy farm near Brampton and there the party met three generations of the Eccles family and were entertained at tea.

The visiters’ last day in Canada was spent in Toronto. They were guests of Imperial at luncheon of the president of the Bank of Nova Scotia at tea; and the Ontario Provincial Government at dinner.

Twenty-two countries have already indicated their intention to take part in the 1964 match which will be near Killarney in Ireland.

The first world match now comes after years of hopes and planning. First steps were the early international contests established in Ontario for competition between Canadian and American experts.

Then in 1946, Imperial offered an all-expenses-paid six-weeks’ trip to Europe as grand prize for the two top plowmen of the meet. Each year two Canadian plowmen went overseas, accompanied by a team manager appointed by the Ontario Plowmen’s Association. They competed in European plowing matches and their visits stimulated the idea of a world match.

Three international conferences were held to discuss the project and finally, at the last of these at Falkirk, Scotland, in November, 1952, the World Championship Plowing Organization was formed and a governing board elected. Mr. Correll became the first president of the organization. He had been a top plowman himself and for 16 years secretary-manager of the OPA. He is now assistant deputy minister of agriculture for Ontario.

J. D. Thomas, Imperial’s manager of farm trade sales in Ontario, was elected executive vice-president of WCPO and this year became president.

Imperial and other companies in the various countries offered to defray the expenses of the champions and a team manager from each nation. In the country where the match was to be held, the Esso affiliate would act as host.

In addition the Esso affiliates jointly put up the Esso Golden Plow as the world championship trophy for annual competition. The trophy is a miniature of an eighteenth century Norfolk plow, the ancestor of many of the plows used today throughout the Western world. It was designed and made by the same English craftsmen who reconditioned the Imperial Crown Jewels for the Coronation. The trophy is held for a year by the plowing organization to which the world champion belongs. To the winner is presented a smaller replica.

Today the first replica rests proudly in the Ontario farm home of Jim Eccles and the original is on display in the Ontario Parliament Buildings. But next year? Who knows? The second may come to rest in a farm home in England, Ireland, France, Germany, or Scandinavia. Perhaps it may even end up under the sweltering North African sun.

Novel-elected president of the World Championship Plowing Association is J. D. Thomas succeeding J. A. Correll.

In the shadow of Ottawa’s Peace Tower, Agriculture Minister James G. Gardner greeted three of the champion plowmen. Left to right are Ronald G. Sheene, Republic of Ireland; Erik Hau, Denmark; Mr. Gardner and Ejmund Anderson of Denmark.
Knee-deep in snow in the Peace River country an Imperial Oil rodman helps survey the area. Seismic crews will follow in their search for oil.