Salute to Newfoundland
The Imperial Oil Review

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ON THE COVER . . .

The Harbor of St. John’s, Newfoundland’s capital, pop. 82,543, was founded in 1550 and is one of the oldest cities of the New World. Three times, in 1816, 1846 and in 1892, it was destroyed by fire but on each occasion it has risen anew. The port is ice-free and lies almost exactly half way between New York and London. This photograph, with its 20th Century Wren and its 17th Century cannon, is from the top of Signal Hill at the ocean entrance to the harbor. On the slope to the left are the Imperial Oil wharf and tank installations.

SIXTY-FIVE YEARS YOUNG

SIXTY-FIVE years ago this autumn 16 Cana-
dians, mostly from London, Ontario, petitioned
Ottawa for a Dominion Letters Patent which would
incorporate their idea as the Imperial Oil Company
Limited. At that time petroleum, chiefly, was “burn-
ing oil” and as such was used in lamps in Canada and
exported in considerable quantities to Great Britain,
the continent of Europe and the Orient. The more
volatile, inflammable products of every oil well mostly
were abhorred and thrown away. Lubricants were in
the earliest stage of development, for Canada’s first
oil well had been dug but twenty-two years before.

In 1880 Canada was a small nation but developing
rapidly. As the country grew in population and as
agriculture and industry spread the Company kept
pace with the needs of the people, and in so doing has
grown from a scant hundred-odd to its present person-
nel of over 21,000 men and women in Canada and
South America. Although it operates but seven of
Canada’s 50 refineries, the Company nevertheless by
efficiency of operation and by scientific research has
risen to a position of leadership in Canada’s highly
competitive petroleum industry. It is the parent and
inspiration of 20 associated companies and manu-
factures nearly 600 different products from crude
petroleum and natural gas.

Every member of the staff has played full part in
the Company’s growth, especially the 700 scientists
and their helpers who man the Company’s dozen
laboratories and field posts. These are the men who
keep the Company young. Whether it is household
fuel, postwar gasoline, oil for the uranium mines or
kerosene for the new jet propelled planes, Imperial’s
men of science are ever at the elbows of their co-
workers with carefully devised formulae.

But no tribute is quite as warming as one from
the heart of an organization itself. Imperial Oil was one
of the earliest in the field of company good relations.
More than a quarter of a century ago the Company
inaugurated both its system of labor-management
committees that employees might guide their own
affairs in this great free country, and its program of
employee security which now includes sickness and
death benefits, pension, hospital group insurance and
savings plans. The tribute felt by all takes a double
form: there never has been a serious labor dispute or
strike in the Company’s long history and more than
half the employees are shareholders of their Company.
R. V. LESUEUR
1881–1945

Richard Veyling LeSueur, who passed away September 1945, was born in Sarnia and was educated in the public and high schools of that city. From Toronto University and Osgoode Hall he entered the law offices of the late Hon. H. J. Hanna, who subsequently became President of Imperial Oil Limited. Mr. LeSueur was a King’s Counsel and from 1921 to 1925 represented West Lethbridge in the Dominion House of Commons. In 1926 he became a Director of Imperial Oil and in 1933 Vice-President of Imperial Oil. He was elected President of both Companies in 1944 and became Chairman of their boards in 1945. In addition to holding high offices in nine other companies, Mr. LeSueur was Vice-Chairman of the National War Finance Committee for Ontario, President of the Ontario branch of the St. John Ambulance Association, member of the board of governors of Trinity College School and a trustee of the Hospital for Sick Children.

EDITORIALS FROM THE PRESS

Toronto "Globe & Mail" Sept. 7, 1945

Our whole community in Ontario, and particularly the people of Toronto, his home, and Sarnia, his birthplace, will be shocked and saddened by the most untimely death of Mr. Richard V. LeSueur. His possession of qualities and gifts of uncommon order were discerned, when he was a boy in Sarnia, by the late Mr. W. J. Hanna, who determined his future career by admitting him to a partnership in his firm and thereby establishing a connection with his clients, Imperial Oil Limited and its subsidiary companies.

His expert knowledge of the general problems of the oil companies which he served, and his marked success in handling their relations with South American Governments, even brought him wider scope for his talents, and he was made an executive of Imperial Oil and International Petroleum. His success in this role obtained a fitting reward when early this year he was appointed president and chairman of the board of these great corporations.

In one sense it was a great misfortune for Canada when "Dick" LeSueur decided to devote to "big business" talents and gifts which could have given great service to the State. But he had a fine conception of the responsibilities of great corporations to their workers and the general public, and he strove persistently to see that these were adequately fulfilled. These conceptions were strikingly revealed in one of his last acts of his life, when he composed a "Victory" message to the employees of his companies. The passage quoted below shows the quality of his mind and the liberality of his outlook:

"A fine conception of peace is a world society based on a condition where all who are willing and able to work are gainfully and steadily employed according to the talents of each individual. To attain this a higher degree of co-operation than ever reached before is necessary. Nations, companies, departments and individuals must work together in a spirit of good-will engendered by mutual regard for each other’s duties and rights. The key is co-operation."

Montreal "Gazette," Sept. 8, 1945

The death in Toronto of Mr. R. V. LeSueur, K.C., chairman and president of Imperial Oil Limited, and its subsidiary, International Petroleum Company, removes a distinguished figure from the industrial field of this country, and from the senior executive position of one of the largest, most far-flung enterprises centered in the Dominion.

His passing is all the more regrettable in that he was only 64, an age at which most men in positions such as his can look forward to further years of useful and active endeavor. Elevated from the vice-presidency of the two companies to be president in 1944 and chairman only this year, the load of his responsibilities was heavily increased by wartime demands in the oil industry.

Throughout his service of nearly 20 years with International Petroleum and Imperial Oil, he was closely identified with the discovery and development of new oil fields. His executive direction bore fruit particularly in the opening up and full production of Canada’s oil fields in Turner Valley and at Norman Wells, as well as the South American fields from which International Petroleum shipped oil products to Canada and other countries.
EMBATTLED ISLAND

HALF WAY HOUSE OF THE ATLANTIC, STEPPING STONE TO EUROPE AND VITAL LINK IN WAR AND PEACE WORLD AIRLINES, THE GREAT ISLAND OF NEWFOUNDLAND HAS SERVED MANKIND AND CIVILIZATION WITH UNSURPASSED ZEAL AND FORTITUDE.

NEWFOUNDLAND is an irregular triangle of land, 43,000 square miles in area, lying directly out of the mouth of the St. Lawrence River, beyond and below the bleak cliffs of Labrador. She is the tenth largest island in the world. She has a deeply indented coastline, with innumerable bays and inlets, and although her greatest length is about 320 miles her total shoreline is approximately 6,000 miles. More than half the island is covered by lakes, and the flat land between rolling hills is marshy. There is much light forest.

More than 80 per cent. of her 290,000 people live close to the sea. Fishing is the main industry—bolwed by lumbering and mining. They are, therefore, rugged and strong as the country itself, scornful of danger, law-abiding, home-loving and intensely patriotic. Little did their forebears, when they established Newfoundland as the first colony of the British Empire—to be a hundred years before the landing of the Pilgrim Fathers, think that one day their descendants—still boasting 98 percent British stock—would fail to work there on war projects that may well have saved their motherland from destruction in World War II.

Within their beautiful but rugged land the Newfoundlanders had built few roads or railways. The chief avenue of transportation is “the railroad”. It runs from St. John’s to Port aux Basques—the latter lies across the neck of water which separates the island from Canada. This main line is 547 miles long, and it has 300 additional miles of branch lines. Two short privately owned rail connections serve commercial interests. It is interesting to note that Newfoundland railways are narrow gauge, being three and a half feet.
as compared with the four feet eight and a half inches which is the standard gauge width between rails in Canada and U.S. This narrow gauge railway was later to play a major, if often harassed, part in the island's wartime oil supply.

Newfoundland's roads are confined chiefly to the requirements of local districts, and before the war conditions did not warrant the construction of highways beyond a few short links between coastal points. This, then, is Newfoundland itself. But only a few persons interested in trans-Atlantic aviation had thought of her position in world geography until the U-boats went to the mid-Atlantic, bomber production for Europe began to roll, and the Germans began flying the distance to the western world by establishing weather bureaus in Greenland.

Suddenly, certain school-book facts became apparent. Newfoundland is on the Great Circle route—the shortest distance between two geographie points—from New York to Liverpool. It is 1,213 miles from New York, and 1,943 miles from Ireland. It is some hundreds of miles out into the North Atlantic from the big Canadian Maritime ports. It is the half-way house of the Atlantic—stepping stone to Europe or, as few persons realized in the dark days of the frenzy of construction—stepping stone to the Americas.

In Newfoundland today you will hear people speak quite casually of "the days when we expected air raids" or "the days when we expected an invasion". Frequefly they add, knowing the island's defenseless state, "I wonder why they never came". If the war had taken a less fortunate course there is little doubt but that they would have come, and in force. To consider what a North American blockade Hitler's U-boats could have effected from Newfoundland is a spine-chilling thought.

Overtaken then this island half-way house of the North Atlantic became a vital key point in World War II. Within a period of weeks it was recognized as a defense zone of the highest importance: as the logical base for ships fighting the mid-ocean battle against U-boats; as a heaven-sent refueling point for aircraft being ferried to the tide of European war.

Suddenly the islanders found great fleets of ships demanding fuel and shelter; they welcomed an invasion of Canadian, American and some British forces to man the defense bastion; they saw, under the whiplash fear of an approaching enemy, great naval bases, immense airfields, modern fortifications and barracks, listening posts, new roads springing into being.

Money flowed like water. Expenses were incidental to the urgency of accomplishment. Millions upon millions were spent, and more millions followed. There were jobs for all, and fantastic wages. Against the changing patterns of war, which brought Newfoundland's strategic position into ever greater importance, they saw construction job estimates skyrocket from thousands of dollars to as many millions. Men and women worked night and day. They worked in seasons and in weather that would have prohibited work under any less compelling demand. They left the fisheries and the mines and the lumber mills, and to their eternal credit they took this march in their stride and did their defense job exceeding well.

To furnish fuel, lubricants, power and light, petroleum played its part and the demands on the resources of the petroleum industry were appalling. Incredible as it sounds today, there were no facilities whatever for bulk storage of fueling of ships in Newfoundland. Trans-Atlantic commercial aviation began in 1939; although there was some provision for aviation products they were a trickle by comparison with the torrent required. As for motor gasoline and other contractors' needs, peacetime supplies were about one-tenth of the demands of the heavy war years.

With the exception of part of the aviation gasoline, one company met this entire challenge—Imperial Oil Limited. It had served the island in peacetime and had adequate peacetime facilities. Newfoundland's peacetime requirements were comparatively small, however. The only large competitor confined itself to aviation products. When the crisis arose, and for some years after, everyone looked to Imperial Oil Limited for all fuels and lubricants for all contractors' requirements, for ships bunkered, for most of the aviation gasoline.

It is in fact true to say that the grave responsibility placed in the hands of the company was that of supplying petroleum products for almost the entire war effort of the island during the critical years, while at the same time maintaining the demands of domestic requirements and of such essential industries as fishing, mining, lumbering, and the paper mills.

The job was not easy. Men worked all day, all night, and on into the next day many a time when fueling emergencies arose. Help was hard to get. St. John's, capital of Newfoundland and hub of all this vortex of activity, was completely, stringently blacked out—yet deliveries went on 24 hours a day.

It is with pardonable pride that Imperial Oil Limited officials state today that no ship was ever delayed from sailing, no construction or service work ever held up, for want of petroleum products.

The Empire bails this embattled island which did so much to make victory possible. The stories that follow, available now through abandonment of censor-ship, contribute to our Salute to Newfoundland.
The full impact of war began to hit Newfoundland when several ships received in the destroyers for bases’ deal between Great Britain and U.S. were fueled at St. John’s harbor in 1940. Not only were they the first warships received in Newfoundland, but today four U.S.-leased bases stand on the island. Their construction brought into full relief the historic significance of Newfoundland’s position in Allied defense strategy.

These bases are Fort Pepperell, near St. John’s; Harmon Field, on the other side of the island, facing Quebec across the vital mouth of the Gulf of St. Lawrence—the waterway which military strategists have called a dagger pointed at the heart of the continent; Fort McAndrew, a U.S. army post for the protection of the U.S. Naval Operating Base and airport of Argentia, on Placentia Bay, forever famed as the meeting place of Roosevelt and Churchill for the formulation of the Atlantic Charter.

At strategic points over the island other camps appeared—American, British, and Canadian. They spilled into every nook and cranny, into remote outposts and forest-shrouded settlements of the isolated interior. The Royal Canadian Navy arrived with scores of ships, and in increasing strength to the point where they could assume all mid-ocean convoy duty; the Royal Canadian Air Force brought squadrons of bombers, reconnaissance aircraft, and fighters, together with immense service depots; the Canadian army built camps for the land protection of navy and air force as well as scores of coastal bastions.

Almost every one of these camps had a graphic story of its own. Some of these strategic island centres were Argentia, built for air and sea defence; Gander, a night that brought cheer to many. A captured German submarine being brought into St. John’s at dusk. These vessels menaced Newfoundland’s coasts from the first days of the war.

airport, where as many as 200 bombers a night shook the earth with the thunder of their engines taking off on the way to the air battle of Europe; Botwood, seaplane base had to have sheltered almost every great and near-great figure of the North Americans and United Kingdom crossing the ocean on war business; the quiet, up-island strategic oil port of Lewisporte; and St. John’s itself, capital of the island and snow-covered centre of all this war storm.

The story of the erection and the servicing of these assorted camps, forts, airports, and naval bases is the story of the contribution of the petroleum industry to Newfoundland’s war effort. Each was a superannuation of modern mechanized construction; and even before the bases were built, fleets of ships and aircraft appeared overnight on demand fuel and more fuel—and merchant bunker, motor gasoline, diesel fuel, 100-octane aviation gasoline in undreamed-of quantities, lubricating oils and greases, asphalt—they wanted everything on the list.

The oil men themselves wonder how the job of supply was accomplished. It was possible only under the tempo of war, which at the same time provided hazards and heart-ache. Some surely needed supplies sailing for Newfoundland ports with petroleum products never arrived. Communication from ship to shore was forbidden, of course; many a time ships delayed by anti-submarine evasive action reached port as tanks were down almost to their last gallon, and at least once it was necessary to buy back one customer’s reserve stock to keep another going until the ships came in.

Every method of transportation was used. Extra tank cars were built for the narrow-gauge railroad and rushed in—50 by the U.S., 20 by the R.C.A.F., and 12 by Imperial Oil Limited. The railroad struggled to meet demands under impossible schedules. More than once oil supplies failed at one end of the island, and unnoticed demands had to be rushed from the other. Every oil drum that could be salvaged on the island was pressed into service, and schooner after schooner
The schooner of the fishing fleet piloted their decks high and sailed to remote points with unaccustomed cargo. Tank wagons and trucks were brought in by Imperial Oil Limited and many were turned over to contractors and services. In St. John's, when the glut of transportation on the narrow road leading to the storage plant jammed hopelessly and the oil-heated homes of the city's war-doubled population were in danger of going cold, a barge was used to carry fuel across the narrow harbor to tank wagons and trucks.

Some of the work of the men of the oil industry is obvious. But there is much that can never be adequately recorded—of how the engineers, working against impossible deadlines, selected sites for storage tanks and courses for oil lines, and then pitched in and helped the workers erect the tanks and lay the lines. More often than not this work went ahead under conditions which normally would have kept men indoors; in wind, rain, sleet and snow in slush and ankle-deep mud, in winds that tore stays loose and unid the work and planning of days or weeks. In more than one case everyone on the job from the office boy to manager rolled up sleeves and turned to the work at hand. More than once "white collar" workers from the manager of the Newfoundland division down stood in a bleak outdoor line at 6 a.m., tin plate in hand, awaiting their turn for breakfast at the galley.

On almost every construction project the Company, through its advance preparations, was able to supply contractors and services with pumps, tank wagons, drums, storage tanks and other necessary implements of the trade. Ordinarily, these were simply handed over to the user, and frequently they found the arrangement so satisfactory they purchased the equipment—means which more had to be imported. Even a new use was found for worn-out oil drums; the army filled them with concrete for use as road blocks.

The vast assortment of mechanical equipment being used by services and contractors, and the abnormal weather and climatic conditions, combined to make many lubrication problems. On at least two occasions authorities appealed for help, and lubricating engineers came from Canada to iron out difficulties. Once on the island they stayed to make a survey, and were welcomed in many camps where equipment was already under tremendous strain.

It is fitting here to record the death of Andrew W. Sim, then head of the Lubrication Sales Department of Imperial Oil Limited, who was aboard the ferry "Carlton" which was torpedoed by a German submarine between Newfoundland and Canada. An appeal had been made for help in meeting lubrication problems, and Mr. Sim, one of the Company's outstanding engineers, decided to go himself. He went down with the "Carlton".

In spite of tragedy and problems, however, the record is one of steady achievement. "Two men bore the brunt of the work," D. L. Patterson was Imperial Oil division manager at the beginning of war. He was succeeded in November, 1941, by Arthur T. Roblin, who remained until after the end of the war in Europe.

This story would not be complete without further credit. The Company's accomplishments were not accidental; its senior officials at head office, several of whom visited Newfoundland in the early days of the war, foresaw the tremendous developments to come and took steps in preparation without which the greatest local effort could not have produced the record of success. One of the most important of these steps was the immediate formation of a special committee to make a survey of the island, and one of the important first results was the shipment of a number of bulk storage tanks from Canada. Nine arrived during the first weeks of the "crisis".

Beyond broad general provisions by head office for assistance, however, the company's men in Newfoundland were undoubtedly more on their own during war years than any others. Decisions, some deliberate and some highly important, often had to be made on the spot. They were virtually isolated; beyond the extreme difficulty of communications, security blanketed the island's defence operations like the thick fog which rolls in from its Grand Banks. Even the names of bases like "Argentina" could not be used at any time. The operation of the Imperial Oil Limited tanker fleet, and the work in connection with the fleets of tankers for which the company acted as agents, presented innumerable difficulties under the regulations. Finally Imperial Oil Limited was allowed to use a code for sending messages regarding ships, something which was permitted to no other person or organization excepting only the government and services—a key to the importance of the industry and the high place of confidence it held.

The work in connection with these ships was one of the most constant and harrowing of all problems. Into Newfoundland ports there came something less than 40 crippled tankers, or survivors from tankers that would never come back—for all of which Imperial Oil Limited acted as ship's agents. One blackened tanker was towed back with 19 dead aboard after a raging fire at sea; almost the first word heard by Mr. Roblin was that the tanker was anchored in a nearby cove and what did he intend to do about it? All of these ships brought problems of docking, repair, supplies, of cargo disposal, of injured or unjured personnel, of burial, of Customs and Immigration clearance—all in addition to the unprecedented work of the day. For months on end there were at least one such ship in the harbor or along the coast nearby.

These were the events which suddenly descended upon the oil industry in Newfoundland, clamoring for fuel, for lubricating oils, for asphalt. A few figures will indicate the expansion. Total barrels of all products supplied jumped from 200,000 thousand in 1939 to 500,000 thousand in 1941. There were eight tanker arrivals bringing petroleum products for the island in 1939; in 1942 there were 65. In St. John's alone, local requirements were met with two tank wagons and a stake truck before the war; even now with construction itself completed, seven tank wagons and five stake trucks are hard pressed to maintain the high standard of the company's service. The St. John's office staff jumped from eight to thirty, and the staff at the St. John's plant jumped from under 20 to sixty. The challenge was met and the price is victory.

Albert Gould, a driver for Imperial Oil's Southside plant. In all weather and at all hours he handled petroleum products over every kind of road. This is driver Gould's victory smile.
ARGENTIA

THERE ARE FOUR BIG UNITED STATES BASES IN NEWFOUNDLAND BUT ARGENTIA IS THE ONLY ONE THAT CO FAE HAS BEEN CLASSED AS A PERMANENT STRUCTURE. FOR THE BALANCE OF ITS 99-YEAR LEASE THE LAND AROUND ARGENTIA WILL BE A LITTLE PIECE OF AMERICAN SOIL. THIS OUTPOST OF NEWFOUNDLAND'S BIG NEIGHBOR ACROSS THE SEA TO THE SOUTH WAS WELCOME TO THE CITIZENS OF THE ISLAND.

OF ALL the developments of United States 99-year leased base projects, the hurtly-hurtly of the light, modern, efficient sea-air base of Argentia in Placentia Bay on the Avalon Peninsula of Newfoundland is probably the most fantastic.

To permit its erection a whole pre-war village of 500 souls, occupying 114 buildings, was literally lifted and transplanted to the new community of Freshwater. Three graveyards, with headstones dating back to the middle seventeen hundreds, were moved to a fresh burying ground. Scores upon scores of acres of peat bog varying from a few feet to 20 and in spots even 50 feet in thickness were literally picked up and shoved off into the ocean. A modern airfield and seaplane base and a modern naval base, each with all the auxiliary services necessary to modern wartime operations, were constructed to the point of emergency use in a matter of months, and finished in record time.

The choice of Argentia as a base was dictated by its highly strategic location near vital shipping routes at a time when German submarines were threatening to choke off our North Atlantic supply line to Europe. Moreover, it is, like all Newfoundland, a part of the first and foremost bastion of North American defense. Argentia was the first 99-year lease base to be constructed and so far is the only permanent U.S. naval operating base in the North Atlantic.

Argentia itself, like most naval and air bases, was selected because of its natural advantages. The flat terrain favors landing fields; it has a good ice-free, deep-water harbor; it is sheltered; its prevailing weather is more favorable than most maritime sites in the region. It is served by rail and road as well as by water.

The immensity of any such undertaking can scarcely be indicated in words—especially when it is performed under the compelling urge of a belligerent enemy. At the height of construction it is estimated 10,000 men were directly or indirectly employed on it. Work continued 24 hours a day, under floodlights at night until this display was deemed a war hazard. Before actual work commenced it was necessary to construct a complete camp, including housing, utilities, shops, warehouses, offices, doctoring facilities and so on.

There were 165 buildings in the contractors' camp.

At one count there were 500 pieces of contractors' equipment on the base. Some 8,000,000 cubic yards of peat were removed and over a million cubic yards of deposit were dredged from the harbor. The site responded with the crash and clatter of machinery—172 dump trucks, 97 other trucks, 12 power shovels, seven cranes, 18 shovel-crane combinations, six truck cranes, 10 graders, 30 hoes, 40 tractor bulldozers...plus pile drivers, rooters, ditch diggers, road rollers, pumps, trenchers, snow plows, dredges, and utility gasoline engines—to name a few items.

When work got into full swing there were 14 separate repair shops for this vast assortment of machinery. Among others were the machine shop, tractor shop, lubritorium, the welding, cable, pump, tire repair, blacksmith, light car and heavy truck shops. There was a fire department and eventually a laundry, hospital, warehouse, post office, canteen, cold storage building, disinfector plant, barber shop, theatre and even a canteen and hot dog stand—a first-class morale builder.

All of this had to be done and around the site of the little community of simple wooden houses where the most modest needs of many a resident had never taken him more than a few miles by land from his birthplace.

Here, as happened in scores of defense projects of the United Nations throughout the island, the harrassed contractors were grateful to find a company capable of meeting their need of petroleum products, and looked to Imperial Oil Limited to meet all requirements for the construction and most of the early operation of the base. A resident manager was sent in to look after supply—M. A. McArthur.

Some figures covering the entire contractors' construction period will indicate the tremendous supply problem confronting the company at the outset. Imperial Oil Limited supplied 2,117,000 gallons of asphalt; 4,371,000 gallons of gasoline and naphtha; 5,277,000 gallons of Diesel fuel oil; 1,902,000 gallons of bunker fuel oil; and 371,000 gallons of lubricating oils and greases.

From the first it was obvious supply would have to be from the sea. There was a road from Argentia to Speed, speed, and more speed. Vast quantities of gear were moved and housed by power equipment to provide landing fields for aircraft while derricks dropped the harbor for ships.

The paymaster's ear on location. He draws from job to job paying one section at a time. Wages were high and in the towns the men were free to buy their own.

St. John's, 85 miles away, but at that time much of it was narrow and tortuous and trucking was out of the question. Rail service was slow and the railways were merely over-taxed. It was here that some of the public works and housing projects were supervised by junior company officials regarding both public and base storage tanks (these were first shipped).

With the aid of the United States government four of these tanks made a swift journey. Some three months after this equipment was dismantled in Saskatchewan many of the tanks were erected and in operation 4,000 miles away in Argentia. They had travelled from Saskatoon to Holobon, New York, by rail, and thence to Argentia by water. A site had been selected, the pontoon cooled off, and the 3,500 barrel tanks had been installed with pipelines and fittings for a marine terminal. Until June, 1941, when the first of these went into operation, all products were supplied by barrel—a heavy job. A 14,000 barrel bunker tank was also used expense in.

The tanks were erected by Imperial Oil Limited engineers, and were ready in time for the heavy demands of petroleum products. They were supplied by Imperial Oil Limited tankers, such as Sarnia and Royalite, hauling cargo from Imperial refinery at Halifax. It is appropriate here to pay a tribute to the company's marine section, and to Halifax refinery. Although the demands of Argentia and other Newfoundland defense works were more than excessive, the company's proud record of never failing a defense project would not have been possible without the magnificent effort of the tanker fleet and the refinery. It must be remembered, too, that tankers running to such ports as Argentia were plying submarine-infested waters in which there were many casualties. Beyond the tankers and the refinery, too, were the fields where production soared by the efforts of men who knew the need. Teamwork was indeed the secret of the industry's success, and the fruits were many. Anti-submarine weaponry as Argentia.

Argentina, at the time the bulk storage tanks were completed, had scarcely begun to show signs of its later development. First there were the problems of...
A power lines comes to grief. In building Argentia
workers had to contend with not only log but with ground of
almost impossible hardness. Delays were long and mostly
moving out the residents of the community, and in
of moving in and making provision for the army of con-
struction men. For a start, S.S. Richard Peek, a Long
Island Sound steamer, was purchased, brought to
Argentia, and docked there as the nucleus of the liv-
ing quarters. It also supplied power for the base until
facilities were completed.

Imperial Oil Limited ran a line direct from one of the bunker tanks to the Richard Peek to supply her with fuel.

A few days later, the camp grew almost over-
night. As soon as there were enough men to construct
one living quarters, they started work on a building.
This was filled with men, and these began several more.
Fishermen left their calling to join the in the local
business and anchor their schooners in the harbor until it was jammed with craft. They brought their
friends and relatives, and slept and ate on the schoon-
ers. Other Newfoundland workers were quartered in
neighboring communities, and a bus service was started
to carry them to and from their lodgings.

Suddenly a small city had grown up, with the
basics necessities but none of the refinements of living.
It was discovered there was no barber, and there never
had been one in such, in Argentia. There was no
laundry. Workmen made an impromptu arrangement
with a laundry in town 100 miles away, and bundles
were sent out by rail. Sometimes months elapsed be-
fore they returned, and one man declared he purchased
8 shirts before he got back his first laundry. There
was no theater, or other entertainment; as winter came on Argentia was a bleak sea of ankle-deep road,
isolated, often lashed by wind, rain, and snow, a place
where living quarters were cramped, where food al-
though good was prepared in bulk and served in camp
fashion, where the gait of a violin through the thin
walls of an adjoining room was enough to bring eddy
nerves to the breaking point. But the men stuck to
their work.

The peat bog was gradually removed, although not
without some heartbreaking and some amusing inci-
dents. One contractor and some friends, watching

A self-propelled gun is set up at Argentia. To get this gun back in
service requires a dozen with several helpers and two dozen
fellow workers to proffer willing service.

at isolated Argentia. The problems were prodigious. Experts from the company’s Asphalt Department and
the Imperial Oil refinery arrived, and before completion
of the work everyone from the most senior official to
the most junior employee had their sleeves rolled up
and were working from dawn ’til dark.

The asphalt and flux oil came from the Imperial
refinery, and with the difficulties of wartime move-
ment it arrived in every kind of ship—but chiefly by
fishing schooner. It was packaged, too, in every way,
for the supply could scarcely meet the demand
and those in charge were at their wit’s end for ways and
means of shipping it.

The asphalt was processed in the “plant” to a liquid
heated state and delivered to the runways in open
trucks. Approximately 31,000 square yards of base-
coat and 740,000 yards of topping were laid. Generally
the base course was compressed to three inches and
the topping to one and a half inches. The greatest care
was taken of the mix. Tests were conducted by U.S.
national experts on samples furnished free. The asphalt
mixture was to have a temperature not lower than
250 degrees F., and not higher than 325 degrees F.,
and was never to be spread at a lower temperature than
240 degrees F. Under the working conditions de-
scribed above the problems of the plant may be es-
sentially imagined. The runways today, however, rank with
the finest in the world.

Another chapter in the history of Argentia deserves
mention. To reach the base by road it was necessary
to cross a narrow strip of water by a very primitive
ferry—consisting chiefly of two large dories lashed
together—or to go around a long neck of water by a
very poor road. Tides are tidal of the ferry, with a
car aboard, was sometimes swept out to sea by the
strong tide current. While the motorist considered
his precarious position a vessel would go out and retrieve
the ferry from the Atlantic.

An attempt was made to cross the gap of water with
a pontoon bridge, but the strength of the current
proved this to be impractical. As a result, the U.S.
Army decided to build a 30-mile stretch of modern
gravelled road from Holyrood to Argentia, linking
the base to St. John’s with a modern highway. The road
was a military necessity. Imperial Oil Limited sup-
plied all the petroleum products for this undertaking.

The U.S. Army was responsible for calling upon con-
tractors for another major construction job, to im-
prove communications between bases such as Argentia
and other strategic points on the island. It was
the recently-announced million-dollar telephone line,
spanning Newfoundland, built under conditions fully
as arduous as those at Argentia and often more iso-
lated. At designated ramps in the wilderness of the
interior Imperial Oil Limited dropped the petroleum
products for this work, again meeting all requirements.

It would be possible to go on at length to tell of the
hangars, the steel and concrete buildings, the
shovels and diggers, the roads and barracks and sheds
which were constructed at Argentia and which today form a
part of this base. But our purpose is to give a broad
picture of the essential work to which the petro-
leum industry made a great contribution. In similar
although varying fashion it is the same for the other
two great U.S. bases—Fort McAndrew, Fort Pepper-
rell, and Harmon Field. The first two are solely army
bases, the third is an air base which is not only strati-
gically sound for defense but which was also in the
Atlantic take-off point for many hundreds of bombers
bound for the European war, and which took much
traffic to and from that theatre in both freight and
personnel. At all of these the demands for petroleum
products were peremptory and unseasoning—and they were filled.

Two of Newfoundland’s narrow guage, 5,000-gallon tank cars at
Gander airport. Dismantle of these were imposed into the island to
serve the needs of Gander and other airports.
HENRY H. HEWETSON

Henry H. Hewetson, who succeeds the late R. V. LeBlanc as president of Imperial Oil Limited, brings to this position a boundless energy and keenly analytical mind which have long marked him for recognition in the oil industry.

Mr. Hewetson chose the oil business for a career after he was demobilized in 1919 from the Royal Air Force. He became a member of a student training course with Imperial Oil—practical experience in which one of his first duties was stoking.

He was transferred to the research laboratory. There his quick mind soon demonstrated an unusual aptitude for research, and the qualifications he showed in this direction later won him a membership in the American Institute of Chemical Engineers.

He added to his knowledge and experience by work and study in the operations and research branches of the petroleum industry in U.S. In 1924 he directed work in Peru in connection with the construction of refineries for the International Petroleum Co. After completing this task he returned to Canada and acquired an extensive knowledge of marketing. From time to time Mr. Hewetson has served in England and other European countries.

He became head of direct marketing for Imperial Oil in 1938. In 1949 he became a vice-president and director of the company. During the war he served in various advisory capacities connected with the war effort.

He is widely known for the athletic prowess which stood him in such good stead in his student training days and at one time he was one of the continent’s ranking tennis players.

FRANK W. PIERCE

Frank W. Pierce, newly elected chairman of the board of Imperial Oil Limited, is one of the continent’s outstanding industrial relations executives. He has a long and successful record in the promotion of employee welfare.

Mr. Pierce graduated from Cornell University in 1916 as a mechanical engineer. His first position was with Goodyear Tire and Rubber Company, and his first assignment one of speeding priorities and expediting deliveries during the first World War.

The pattern of his business life, however, was largely set by the establishment by Goodyear of a department to handle inter-plant relations. Through this and related jobs Mr. Pierce became personnel manager of Goodyear, a job which he left in 1924 to assume full direction of the industrial relations program of Standard Oil Company (New Jersey). He retained this position until elected a director of Standard Oil in 1942.

It was in connection with Imperial Oil’s program of employee welfare that Mr. Pierce came to Canada. The company was one of the first Canadian industries to see the need for new thinking regarding the relationship between employer and employee, and, in 1928, it inaugurated its joint council program in which employees have a voice in matters pertaining to their welfare. Mr. Pierce has done much to promote helpful and understanding employer-employee relations.

Mr. Pierce was elected a director of Imperial Oil in 1944. He brings to the board a wide experience not only in the industry but in human understanding.
CHANGES IN THE EXECUTIVE

After a business career of nearly fifty years, CLARENCE A. EAMES has resigned from the office of vice-president in which he directed the Company’s transport activities. Of all Mr. Eames’ long years of service the last four were perhaps the most arduous. As chairman of the Transportation Committee of the Oil Controller’s Department, Mr. Eames rendered distinguished service in helping supply the Armed Forces and essential industry.

Mr. Eames entered the oil industry in 1888 as a junior clerk in the export department of Standard Oil Co. He later became a representative in New York of Anglo-American Oil Co. Ltd. of London, England, and subsequently was elected a director of that company. He joined Imperial Oil Ltd. in 1921 in the office of director and became vice-president in 1933. He was also a director of International Petroleum Co. for nearly twenty years.

JOHN ROBLY B. WHITE, a director of Imperial Oil Limited, has been elected a vice-president.

Mr. White began his career with the company as a draughtsman and engineer at Sarnia refinery. In 1937 he went to United States for special studies in manufacturing co-ordination. In 1938 he joined the Standard Oil Company of Venezuela. After four years service in various capacities he became a vice-president and director of this company.

Mr. White was born in London, Ont. He attended public and secondary schools there and in 1931 graduated from the University of Toronto as a bachelor of applied science. At university he was interested in athletics, particularly rugby, and plays golf, and badminton and other sports.

A. E. HALVORSON, who has been a director for the past eleven years has taken over new duties in relation to the Company’s activities, and is now Contact Director for several head office departments involving the Company’s corporate affairs.

Mr. Halvorson joined Imperial Oil thirty-two years ago as a salesman in the Edmonton office and in 1922 became Assistant General Sales Manager for Western Canada. Two years later he was transferred to Eastern Canada. His expert knowledge of the oil business has been of service to oil companies in Britain, Australia and the United States.

FRANK G. HALL, who joined Imperial Oil Limited as an office boy, has been elected a director of the company. He is also general sales manager.

Mr. Hall was born and educated in Ontario. His experience has been with the marketing division, in which he performed his first duties when he started to work for the company in 1912. In 1935 he became assistant general sales manager and subsequently also co-ordinator of sales and vice-chairman of the marketing committee.

During hostilities Mr. Hall served on many committees which assisted the oil controller in supplying petroleum products for Canada’s war effort.

Speeding the Armed Forces Back to Canada

A medium sized troopship destined for the JOCOMO, grand old lady of the Imperial Oil tanker fleet. In five hours the JOCOMO will discharge her cargo of 7,500 tons of oil—enough to take the troop back to Europe. Much time is saved by allowing ships of every type as they lie anchored off shore.

IMPERIAL OIL REVIEW
TANKER STORY

TANKERS HAVE ALWAYS STOOD HIGH ON THE SUB-MARINE'S PRIORITY LIST FOR DESTRUCTION. THEIR CARGOES ARE THE LIFE-BLOOD OF ALL OFFENSIVE AND DEFENSIVE ACTION—ON SEA, LAND, OR IN THE AIR. CHEEFLY TO SUPPLY THE NEEDS OF THE MARITIME COAST AND NEWFOUNDLAND, FIVE IMPERIAL OIL LIMITED LAKE TANKERS WERE USED IN THE COASTAL SERVICE DURING MUCH OF THE WAR.

ABOARD S.S. JOCOLITE: We are one of the lake tankers which have been doing coastal service during the war. We have seen ships torpedoes near us, in the same convoy. We have gone through the hell of North Atlantic fog and storm, surrounded by hidden ships, straining to hear their whistles above the noise of the wind and the sea, but we have done it by a giant four times our size. We have threaded our way through icebergs swept south by the Arctic current, and we have seen ships founded on uncharted rocks in waters opened by wartime strategy.

We are a group of 25 men, brought together by the war on a ship 256 feet in length and of 4,500 tons, which carries 3,600 tons or approximately 13,000 barrels of petroleum products when fully loaded. Our average age is about 25, and only a half dozen of us are married. Our horses are mostly either sea or lake ports; the men of long service with the company are mostly from the lakes and the new hands have joined from Montreal down to the sea.

Our usual run is from Halifax to Newfoundland, although we have touched most of the Maritime ports. Our cargo varies: we have carried a great deal of aviation gasoline for bombers bombing the ocean; we have carried much bunker fuel for the navy and the merchant navy; sometimes we have Diesel fuel and occasionally a cargo of the highly volatile and dangerous benzol.

This has been our job, all the way, in the coastal service—to supply the anxious war for the merchantmen, naval vessels and aircraft which have fought the longest battle of the war, the North Atlantic supply line. It is a battle which began with the war and will end with it. In simple terms it has been, for us, a life of monotony, of anxiety—and, as any North Atlantic service must be, of hardship.

It is monotonous because we are at sea about 25 days out of every month, and when we are in port most of our time is spent boshing or discharging cargo. When we are at sea we are literally cut off from the world. Our speed is slow; we travel at eight knots, which handshakes we know as nine miles an hour. On the homeward leg of our convoy are our escorts, Bangor minesweepers, corvettes, frigates, perhaps a destroyer. They are in touch with every device to sound out the enemy; they have the thrill of submarine contact, of the chase and sometimes the kill; we pawn out our slow sight through the grey Atlantic mark and often the first intimation we have of immediate danger is the hammer-like crack of the concession of a distant depth charge against our hull.

Then we see action—a sort. The first, second, and third mates and six seamen all bank in the fo’c’s’le. The off-duty watches are usually asleep. But the ringing shaw of the depth charges bring them swarming onto the deck in seconds, conferences against our grey war paint in their bright orange merchant navy lifeliters. About the fumel of the off-duty engines and boiler room men and the coals and stokers pop up from their quarters. None wants to be caught below decks at a time like this.

This is where much of the anxiety comes in. The depth charge attacks cease, or part of the racket disappears in the hunt. What happened? Are there ships around? Was it a false alarm? Was it a sub sunk or damaged? You don’t know. You just go back to your bunk or your game of cards, and the tanker glides along on her course at eight knots. But you do a lot of wondering.

Sometimes it isn’t a depth charge that shrapnels that hollow ringing on the hull. There was, for instance another winter night. It was just after midnight, and the second mate on watch had been bailing himself taking a bearing. A torpedo crossed JOCOLITE’s bow and hit the next ship, exploding with a blast that made JOCOLITE shudder from stern to stern and jarred the ears of the engine room man below decks. She was running light, and the valve stems on the deck rattled like simlar tongs. The ship which was hit was a little out of position, about two lengths ahead, and by the time JOCOLITE was abreast she had folded in two and sank. The explosion tossed pieces of debris in JOCOLITE’s path, and we had to put the helm hard over to avoid them. It was trying to leave the survivors behind, but for us it is always a steady right knots onward.

A few days later, travelling homw with a full cargo of aviation gasoline, a submarine was sighted near our convoy. Guerds and charges drove her off, and no ships were hit; but nerves were tense for a few days.

Tanker men don’t talk very much about their cargoes and the dangers they bring. But a light ship—one which has discharged her cargo—is often as dangerous as a full ship. If she has been carrying gas or benzol the fumes remain in the tanks until "steam-out". There is a likelihood, therefore, that a torpedo exploding in a gas-filled hold would also cause the gas to explode. However, travelling with a cargo of benzol or any kind of gasoline brings the genuine uncomfortable feeling to those riding above it. Cynde oil, Diesel or bunker fuel is not regarded as particularly dangerous, since they are hard to ignite and burn only at high temperatures.

Sometimes we sit on our fall tacks and pursue an entertaining course while in touch with tragedy far away. One such night, about eight in the evening, a distress message crackled over our wireless. It was from our sister ship VICTORLITE, lost that night with all hands off Bermuda. The men aboard her
were our friends and for many of us, former shipmates.

But there are other dangers and hardships at sea than those imposed by the enemy. On our first trip of this war into the Atlantic, in 1942, ICORLITE lay for five days off the Labrador coast fogbound and surrounded by icebergs. When the fog lifted, one berg lay some distance off our starboard bow, its jagged peaks and turrets resembling a small mountain.

Fog, perhaps, has been one of the worst enemies of coastal shipping. It forms off the Nova Scotia coast when the cold Labrador current coming down from the Arctic meets the warm Gulf Stream coming northward, and it almost miles of ocean for days on end—days when mariners of ships in convoy don't know whether to curse or pray, and live through a nightmare.

It is in such weather that imaginations play tricks upon men. In the intense straining after the sound of a fog horn or a whistle, you'll hear a dozen whistles or a ridiculous noise such as the hoot of a train, when you are a hundred miles at sea. You'll search for a light, and see a dozen sparks before your tired eyes.

There's one compensation, perhaps: you may not be sure about the tricks of your imagination, but you do know the right sound or light when you find it.

The fog may last for days on end, but it is not our only hazard. Storms take a regular toll. It is impossible to describe in words the might of a storm-driven sea that sends the waves over solid green, then it tears up the wooden catwalks like a petulant child and tosses them away, and even smashes out the steel handrails along its sides. A month ago our port sea boat was ripped clear of the decks and washed overboard in a trice. Then, too, there's a different kind of storm—one that whips salt spray from stern to stern, spray that freezes wherever it touches.

Then all your upper works get iced out. Our ship gets "laggy"; its rolls are slower and longer, for it is top heavy. We're carrying a lot of extra weight, so we lose speed and we lose deeper into the swells, and come up more slowly. Every inch of the deck is coated and it is slippery and dangerous.

Once we broke down at sea—it happens to the best of ships—and we were drifting onshore. We dropped anchor, and for a long time we didn't know if it was going to hold. Finally it caught, and we lay there, taking the storm, for 24 hours. We looked like an iceberg when we left.

This is our life. We are, broadly speaking, a typical ship among the lakers who have done a wartime coastal job. ICORLITE was built in 1936 in Collingwood, and she had a baptism of the North Atlantic's salt during the last war. During the peace years, unlike several of her sister ships, she was almost entirely engaged in lake work.

In construction and design we're like most lake ships. Our bridge is well fore'd, one of the chief

advantages of this being the ability to have a clear close view of the bows in the inland canals. The funnel is well aft, leaving the amidships decks clear, and our boats are abaft the funnel. Now we also have a 32.5-gallon per hour high on our stern, and we carry two naval ratings as gunners. Some of our own hands make up the rest of the gun crew, and the second mate is captain of the gun. Amidships huge timbers form two sharp inverted V's, slides for the great wooden life rafts all merchant ships carry in wartime. A grim reminder of our calling is the hand axe which hangs near the raft support ropes—one shank and a raft is over the side.

Our cargo is carried in five tanks, which are split into 10 compartments by a steel bulkhead running up the dead centre of the ship. Our deck is a maze of fuel control valves and expansion tank heads. We draw 38 feet when loaded, and come up six or eight feet when we're light.

Our 26 men are a different sort of group from that which sailed our vessel in peacetime. The experience of the veterans in the Imperial Oil Service is spread among the larger number of ships it now operates. Many of its marine men also are in the Services, chiefly the Navy. Of the officers left, several have shown unusual ability in this wartime emergency, and have had special dispensations by permit to take positions higher than their certificates allow. Many other, by hard work, have written successfully for coastal tickets or other certificates they would not normally have had a chance to obtain.

Our master, Captain Gordon Kohler of Toronto, is the last of the youngest captains in the Imperial Oil fleet. He joined the company in 1916; at 21 we went to the bridge of the ROYALITE with his second mate's ticket; was still there in 1943 when she came down to

Halifax for war duty; became a chief officer in 1941; obtained his captain's ticket in 1942, and in January 1944 received his first command.

Our chief engineer, Stanley Slawenshite of Lunenburg, N.S., joined Imperial in 1923 and has sailed since in the foreign, coastal and Great Lakes trade. Our mate, Jim Burns of Point Edward, near Sarnia, and our second mate Andrew A. "Andy" Allen of Sarnia are old company hands.

There are a few others—notably our cook, Albert Prior of Halifax, who has been handling food on Imperial oilers for 16 years, and our second and third engineers. But beyond these, our ship's company is comprised of the young men who have gone to sea to fight for their country in the fourth arm of the nation's fighting services.

They range from our 16-year-old mess boy, Andre Bedard of Montreal, through to men of considerable sea experiences, like John Kenezhok of Perth, Ontario. Kenezhok was for several years a merchant navy gunlayer, sailed "the world over", won two Norwegian medals "for bravery at sea", was torpedoed, wounded, and discharged. There are others who have had little sea experience, and still others who have come to the merchant service from the navy.

Our daily life, aside from our work, is very quiet and very secluded. We are cut off from the outside world at sea, for ordinary radio give direction paths to the enemy, and the special sets designed for sea use are expensive and hard to obtain. Sometimes we get behind in the news.

Most of us do a lot of reading. In good weather there's usually a card game in the evening. But mostly we just eat and sleep and do our work—we stand four-hour watches with eight hours off. It is hard to do anything else in bad weather, for the North

Atlantic keeps the ICORLITE on the roll.

We've fed well. Imperial ships have a reputation for good food and plenty of it. There's no rationing, out here on the salt water; there's butter and jam and sugar for two or even three cups of coffee if you want it.

That's our story. In our own way we love the sea and the wind and the storm, and in a bond of common danger we are happy in the conviction we're doing a real war job. But no one ever mentions these things. We just keep pounding along at eight knots, and hope our luck doesn't run out some day.
"THEY TOOK FULL PART..."

Off Imperial Oil's 11,000 employees 2,220 entered the armed services of Canada. The women of the Company who were able to meet the high standards required also took their full part in the war against the Axis powers. Ten of them are pictured here. Girls from all branches of the Company and from all parts of Canada served as signal women, pay clerks, stenographers, routing officers, code clerks, teletype operators, ration and tobacco controllers and dental assistants. Whatever job they held the outstanding point was that they released a man for duty in the front line. The women of the Company can be proud of their record and are assured that their fellow citizens, Company and co-workers are proud of them.

- Lieut. Ellen M. Knight, Sarnia, CWAC Movement Control Officer in charge of Air Travel. The Knight family have a long record of service with Imperial Oil. Lieut. Knight was first girl to enlist from Sarnia.

Leading Aircraft Woman A. E. Clyde, Sarnia. Annie Clyde is a medical stenographer and clerk. Before being posted with the RCAF she took her CTC Medical Course in Toronto.

- Wren Audrey Ward, Sarnia, Signalwoman. Wren Ward was stationed at R. M. C. S. Stadacona, Halifax, where she handled messages with ships entering and leaving the harbor.

- Wren Jean Morgan, Winnipeg, Coder, Teletype Operator. Wren Morgan was trained at S. R. C. in Ottawa. Latterly she was stationed at RMCS Bytown, Ottawa.

- Wren Norma Brunner, Sarnia, Dental Assistant. Wren Brunner formerly was a Laboratory Technician at the Sarnia Refinery. Her sister, Vivian, also with Imperial Oil, was a Wren on duty at RMCS Stadacona, Halifax.

- Wren Betty Holter, Toronto, Tobacco Depot, Cuyler. Part of her duties were to ensure that RCAF personnel orders received not more than 1200 cigarettes per month.

- Corporal Olga A. Hindley, Little Mountain, Vancouver. Corporal Hindley's service with Imperial Oil goes back to 1915. In the CWAC she was posted as Stenographer.
PRISONERS OF WAR

By Captain Thomas Fens

I WAS master of the Canadilite, an Imperial Oil tanker. We sailed from Halifax for Aruba and other southern ports December 28, 1940.

The Canadilite was without escort, alone. Six hundred miles west of Freetown, South Africa, we sighted a ship. She turned and made for us, very rapidly. She flew no ensign. We were suspicious, but she looked like a merchantman.

Suddenly, at point blank range, she fired a shot across our bows and broke out the swastika. She was a German raider. Our wireless operator, cool as a cucumber, started sending out our position and a description of the enemy vessel.

I jettisoned all Admiralty documents, tossed my instruments over the side, and ordered our naval gunner to jettison gun parts.

The raider fired again, from a heavy gun just abaft the funnel. I later found out it was an eight inch. I expected we would be sunk, so I gave the order to abandon ship.

The German had other ideas. He sent a motor boat, took us on board, and put a prize crew on the deck. He was the ship which later sank, and was destroyed by, the Australian cruiser Sydney. They took me on board and at gun point ordered me to open the ship's safe. I did so quite willingly. It was empty.

We were now prisoners-of-war and we reached Bordeaux May 1, 1941. As we were driven through the city we sang the popular songs of the last war, and we sang many French songs openly singing.

Six days after we left Bordeaux we arrived at our destination and in February, 1942, we were moved to a merchant and naval prisoner-of-war camp called Marlag und Milag Nord. The loneliness of this camp was unbelievable. Even the Germans called it Siberia.

We would have starved to death but for the Canadian Red Cross. Most of us would have been dead by the time the Allies got to us. I think if we had not starved we would have frozen, for we were kept warm with wastafins and other clothing supplied by the I.O.D.E. in Canada and by the Canadian Junior Red Cross. I wish I could tell every member of those organizations what their parole meant, they saved us from exposure and starvation—they saved our lives.

CONTINENTAL ARTERIES

PIPES BY THE DOZEN CARRIED PETROLEUM UNDER THE SEA AND OVER THE LAND TO POINTS CLOSE BEHIND THE FIGHTING FRONT. THEY CROSSED FRANCE, BELGIUM, HOLLAND AND ENTERED GERMANY. MANY WERE BUILT UNDER FIRE.

A PART from the men and women of the armed forces the greatest single factor that sped victory to the Allies was petroleum. This magic liquid and the hundreds of products into which it was divided was present—in quantity—on every front of the world over. The companies that form the petroleum industry, small and great alike, shared the compliment that "no airplane was grounded and no tank or truck was stopped through failure of petroleum supplies."

The fastest and most efficient way of moving petroleum is through a pipe. In the "now it can be told" stories that are appearing one of the latest concerns the petroleum pipelines that led the final attack against Germany and the Imperial Oil engineer who assisted in their operation. He is Major R.A. "Bob" McGeechey, mechanical department, Sarina Refinery.

After enlisting in 1940, Major McGeechey proceeded to England with the Royal Canadian Engineers to help erect military installations of all kinds. Early in 1944 he was posted to the Planning Section of the British Chief Engineers Office. His title was simple, that of "Staff Officer, Oil." His work was complex.

Pipelines, pumping stations, storage tanks and distributing points had to be planned and the materials for all these gathered from distant parts—mostly in the United States. Engineers were formed into "Oil Groups", each about 1600 men each, consisting of pioneers, or laborers, skilled construction hands, mechanics, electricians, welders and Army Service Corps.

The advance guard landed in Normandy on D-Day, June 6th, 1944, followed three days later by full strength Oil Groups. Major McGeechey went ashore at Porte en Bessin, starting point of his section of pipeline, on June 13. The installations went south east through Bayeux in the direction of Caen, 30 miles away. Tankers discharged their cargoes into lines (tonnolas) 5000 feet off shore or at jetties built at Porte en Bessin. First petroleum was dispensed near Bayeux on July 7th. By September the line was operating past Rouen.

As the invasion and the great "attack" succeeded, other lines were laid from the French and Belgian coasts inland—first from Cherbourg, Boulogne, Calais, Ostende and Antwerp. Usually the pipes were in pairs, six inches in diameter. Pumping stations were about 20 miles apart and served by gas driven, 100-gallon a minute pumps. Many of these booster stations kept reserves in two 10,000 barrel tanks, similar to the storage tanks used in oil fields. "Pluto" (Pipe Lines Under the Ocean) from the English coast to Boulogne and Calais kept the continental arteries supplied.

The double lines, each nearly 600 miles long, finally reached Bocholt, 20 miles east of Emmerich on the German frontier. In full operation they pumped nearly a million gallons a day. Major McGeechey and his engineers had many narrow escapes in clearing minefields, under strafing from the air and from short shelling from the Allied side but their work—a combination of genius in planning, and bravery—materially helped to shorten the war.

Imperial Oil Limited had the happy privilege of playing host to the ship's company of the Canadilite—captured by the Germans off the coast of Africa in 1941—when they returned to Canada. Here are the "reps" with their friends.
SHUTTLE SERVICE

ONE OF THE CLOSELY-GUARDED WAR SECRETS WHICH MAY NOW BE REVEALED IS THE "SHUTTLE SERVICE" OF OIL SUPPLIES FOR GREAT BRITAIN THROUGH A 700,000 BARREL STORAGE PLANT BUILT AND OPERATED FOR THE BRITISH PETROLEUM BOARD BY IMPERIAL OIL LIMITED. THE COMPANY SET UP A NEW DEPARTMENT FOR THE WORK KNOWN AS "PETROLEUM FOREIGN TRANS-SHIPSMENTS."

THIS service, although a separate unit, carried on quietly throughout four war years in the midst of the operation of the company’s Halifax Refinery. Only a handful of persons in the port knew that in addition to the normal work of the refinery P.F.T.S. was contributing from the same site an immense flow of oil to Britain’s war machines.

In all 16,486,172 barrels of petroleum products were received, stored, and transshipped to the United Kingdom—or, in the case of a small amount, used for emergency fueling of warships. To discharge or load fuel for the shuttle service 477 tankers entered Halifax harbor.

In the tanker shipping crisis of 1942 the shuttle service was an invaluable reserve, but the full weight of its effort came when the Allies were girding their supply bases for the invasion of Europe, and in the months following when the extravagant demands of war called for more and more fuel. Almost 6,000,000 barrels were trans-shipped in 1944.

Under wartime urgency almost incredible tasks were performed to make the shuttle service possible. Concrete tanks, for instance, are not practical in the Nova Scotian climate; if for some unusual reason they were built in normal times, it certainly would not be in Winter when concrete would freeze before setting. But a shortage of steel plate forced the building of concrete tanks, and in Winter. Under giant tarpaulin "warming covers" these 100,000 barrel tanks, 130 feet in diameter and 42 feet high, were erected.

Under the driving necessity of war, too, there disappeared one of Canada’s oldest military landmarks, Port Clarence, famed as the old eastern battery of Halifax harbor, said to be so impregnable in olden days that its mere presence protected the city from attack.

The Shuttle, as it was popularly known, arose out of an almost desperate shipping situation. At the time it started United States was neutral, and her ships did not haul oil to Great Britain. Submarines were beginning to show what they could do to Allied supply lines. The haul from the United Kingdom to southern oil ports such as Aruba, the Dutch West Indies inland off the coast of Venezuela, was long and dangerous. The outlook was bleak; in fact, the failure of this thinning stream of oil might mean victory for Germany.

The United States, friendly in spite of her neutrality, came to our help. Her ships could not even to

WINTER • 1945

SHIPSShip loading at the shuttle service docks in Halifax harbor, in the background is Imperial Oil’s Halifax refinery. The Company undertook to build the shuttle service equipment and operates it for the British Petroleum Board.

The cargo hose is bolted up. It is being used here to fill the cargo tanks of a merchant aircraft carrier.

of romance and adventure, and in wartime the tanker fleet brought men and ships to stir the whole gamut of the emotions. They saw the early anti-submarine defenses—the net ships, that carried great steel nets over their sides to stop or explode torpedoes before they hit; then the "Cam" ships, which catapulted a Hurricane fighter plane off its bow if a sub appeared—and the pilot parachuted down as best he could after a strike at the sub; and in later years, the "MAC" ships, merchant aircraft carriers, that did much to turn the tide of war.

All these and more tied up regularly at the docks. In January 1943, the M.S. "Rapania" loaded oil for the United Kingdom. In September of the same year she came in again—this time a flattop! A flight deck had been built above her upper decks, and now besides hauling cargo she carried aircraft to shepherd the convoy.

When the first flattops came in their overhanging sponsons welling up to the flight deck prevented them from docking properly. Special wood floats were constructed as fenders so they could be brought alongside. Then it was discovered the sponsons would fit into certain natural recesses in the docks, and this problem was solved.

In July, 1943, the S.S. "John D. Arnhold", said to be the largest tanker in the world, took 130,978 barrels of fuel and sailed for England—and as some dockside wit remarked at the time "that’s a lot of oil". Amazingly enough her record was almost equalled by a whaling ship—one of the floating factories—which left the business of manufacturing whale oil and brought in 130,596 barrels of oil to replenish the
everchanging stickleback. Behind her, she left on every hand whale's teeth for souvenirs.

A group of 24 small Diesel tankers, built in U.S. for British use, brought local cargoes down from the Lakes and then picked up a P. T. S. O. load for the ocean crossing. They were neat, new, and very trim.

There came, once, a tanker which had been luxuriously, fabulously fitted out by her rich seagoing owners. His suite was done in rare woods; the feet sank deep in a Persian carpet in which was worked his crest; the rooms were paneled with rare woods; there was a grand piano in the corner of the main room and an immense chesterfield in front of a marble fireplace. Life at the docks was always interesting.

There came from the sea many cripplers. Some ships were torpedoed, others the victims of collisions. Some had burned, and many of their crews had died at sea. Within a period of months five ships came in with broken, victims of North Atlantic weather and water.

The cripples meant much work. They had to be unloaded in such a way as to not to strain and further damage the ship. Every bit of their precious cargo had to be salvaged if possible. Once salvaged it had to be "cleaned", for it usually was contaminated with sea water which was the wartime burden of extra work on both men and equipment.

Such was the ever-changing, ever-fascinating wartime picture. But to care for these many ships there was great activity abroad.

Under the first agreement the British Petroleum Board rented five 80,000 barrel tanks from Halifax Refinery. Both the British Petroleum Board and the officials of Imperial Oil Limited, however, acted without realizing the future trend of the war at sea—something no man could foresee. In the light of developments their action was fully vindicated.

At first the Americans, unhampered by war had filled all tanks and the convoy-bound Allies could not get the oil away fast enough. Then the United States entered the war. Submarines sank ships after ships along the Atlantic seaboard. Demands upon the Halifax Refinery skyrocketed as American ships were added to those already dammed for dock space and fuel. The shipping situation grew steadily worse.

It became apparent that the strain upon existing facilities was too great, and the British Petroleum Board decided to spend a large sum of money to build seven 100,000 barrel steel tanks, together with additional dock space, pumphouses, lines and all the auxiliary equipment necessary to operate the shuttle service without interference to the wartime work of the refinery.

Of all this equipment makes an imposing list. Eventually two wooden docks were built; five miles of 16-inch pipeline were laid, and many more miles of smaller lines—two, six, eight, ten and twelve-inch lines; two pump houses and 1,500 feed houses, with powerful modern equipment, were added; miles upon miles of steam, water, foam, air and sewage lines were installed; telephone and electric systems were included along with all the other auxiliary equipment for a complete unit. All of the above were tied in with the existing refinery systems for efficient operation.

It was fortunate indeed that in 1927 Imperial Oil Limited had acquired, for addition to its refinery property, the adjacent 34-acre site of old Fort Clarence. It was the logical place for the erection of additional tanks.

Few construction jobs have been more interesting than the levelling of old Fort Clarence. It was a vast, rambling, old-fashioned fort, first built in 1754, and rebuilt many times since. It had many narrow, winding, brick-flagged passages—gloomy, chilly, ethereal—where the ghost of a woman was said to wander. About 1910-17 this legend gained some credence when workmen exhumed the skeleton of a woman, in an upper room from the eastern side of one of the embrasures. In 1899 a donkey and human skulls had been found during the construction of a new magazine. Even if there were no new or startling disclosures when the bulldozers and shovels attacked this ancient bastion there was plenty of interest to pique the imagination.

It took two tractors to haul away each of the 9-inch guns that were lying unused outside the fort. The great guns had to be filled in; the high outer walls, pierced with a row of loopholes and enfilading gunports, surrendered to the construction battalions. So, too, went the "solid masonry and bomb-proof casemates", built with other improvements at a cost of $217,000,000 in the 1860's. Rough-clad workmen tramped where once Royal Artillery gunners stepped smartly out in cocked hats, long frock coats and spatterdashes. The stalks of riever's hammers rang out where muzzle-loading cannon once boomed; in record time four great steel cylinders that were modern 100,000 barrel oil storage tanks stood ready for use.

Still three more tanks were required, but now the cost critical stage of the war shipping houses was approaching. Shipbuilding took all priorities for steel plate. Essential as the tanks were, there was no steel plate to be had for them: none at all. It was decided to build concrete tanks, unsuitied as they were to the climate.

Concrete tanks, however, are huge, enormously heavy shells. They must be built on solid ground, or they will crack and split. The newly-filled earth of the old fort site was useless. It was decided to use three sites which were available in the Halifax Refinery tank farm.

Although by then it was the Fall season of 1941, the work went ahead immediately. Sites were cleared, concrete prepared and poured. Steel plate was not available, but reinforcing steel was, and actually the requirements for rod steel reached one-third the weekly output.

As the three inches of "lean" six inches of reinforced floor slab was laid it was covered with two-inch steel plates, tarpaulins and straw to give it Winter protection. Above this a mass of hember was erected—205,000 feet in all. Outside of and around this, went the light wood form on which tarpaulin was tacked to form the "warming oven"—and although the temperature outside varied throughout construction from 15 degrees below freezing to 70 degrees F., 11 unit heaters kept the temperature above 50 degrees at all times.

The most important feature of the tanks was the "pre-stressed steel" reinforcing. This consisted of a single rod, anchored at one end in the floor, running spirally around and around the tank up to the top, where it was again fixed. Actually it consisted of many rods, locked by special sleeve nuts. The spirals of steel, held a few inches apart by wooden blocks, were tightened and slackened to a point of zero tension. Then the nuts were tightened. Each one was turned the same amount, until the inward tension on the steel rods was equal to the amount of outward pressure which would be exerted when the tank was full of oil.

The concrete tanks, therefore, don't any work when they are filled; they are only under stress and "working" when they are empty.

They carry a different type of strain to the steel tank, however. Crude or heavy oil is thick and slow running; it is customary to keep it heated by means of a steam coil so that it will flow freely through refinery pipes. Imagine, then, the strain on the concrete walls when a constant temperature of 100 degrees F. is being kept inside the tanks, while outside the temperature is rising and falling in variations of Winter weather.

Because of this the most meticulous care was taken in construction. Water was free from all material injurious to concrete. An approved brand of cement was used. The sand and crushed stone were clean, hard, strong, and free from all extraneous matter. The steel rods used for "pre-loading" the tank had a minimum yield point added to one for every square inch. The concrete work was carried on continuously, once started, by "gumming"—applying it from a nozzle in the form of a stream. The bottom of the tank wall was 18 inches in thickness, tapering off to five inches at the top. The dome, containing steel reinforcement, was three inches thick, and had no inside supports.

There were 1,600 square yards of cement in each concrete tank, and 205,276 pounds of steel. The tanks were an expensive was done in rare woods; the as long to build as steel tanks, and were about twice as expensive; at the same time they met an urgent need. And were able to operate later, when the shuttle service ended shortly after the war in Europe. Without doubt they will perform many more years of useful service.

A glance at a few of the overall figures of shuttle operations will show some of the returns of investment. In round figures 35,000,000 barrels of oil were handled---3,060,000 in 1943, 8,000,000 in 1944, 8,200,000 in 1943, 11,200,000 in 1944, and 6,100,000 in the first five months of 1945. In long tons, the vessels which docked at the shuttles during cedagoa totaling 4,622,506—and an imposing figure.

Today the shuttle service from Halifax Refinery has become history. The ships and men who were part of it are turning again to peacetime work. But at Halifax Refinery, in the tanker fleet, and among the master minds who plan strategy in high places, the shuttle service out of Halifax still stood as a triumph in the vital war of oil supply.
CAPTAINS COURAGEOUS

EVEN IN peace time the job has a high element of danger. In a war, the men on the tankers have the most consistently hazardous task of all. They are riding the seas atop three million gallons of petroleum—a cargo that is always highly inflammable and often explosive. At any moment of the day or night, an enemy below the seas or an enemy in the sky above may set their ship ablaze from stem to stern. Sometimes the sea for yards around becomes a pool of fire, making escape impossible. The most glowing tribute to the tanker men is paid them by their fellow sailors of the Merchant Marine and Naval Forces. Several Imperial Oil Captains have been decorated for their courage during the war. The eight Masters pictured here have been specially mentioned by the Royal Canadian Navy for their services as Commodores of convoys. The letter from the Department of National Defence (Naval Service) reads as follows:

"In the operating of the convoy system in Canadian coastal waters in the past few years, it has frequently been found necessary to ask Masters of merchant ships to act as Commodores.

"They have accepted this additional responsibility with great willingness, and have been invaluable in the general control and defence of shipping.

"On behalf of the Naval Staff, I wish to express our appreciation of the work of these Masters.

Yours very truly,
(Signed) H. G. De Wolf
Commodore, R.C.N., for
the Chief of the Naval Staff"

The Captains now are back and are flying their colours in peace time service. From the letter of Commodore De Wolf, we know that there is official appreciation of their services, and this is echoed in the hearts of their co-workers from coast-to-coast in Canada and in South America.

The men of the tankers, says Warren C. Platt of "National Petroleum News", "have been getting vital petroleum products to the battlefronts of this war under conditions more severe and agonizing than to obtain for any other type of transportation...in submarine attacks if the tanker is in cargo—especially with gasoline or diesel oil—it generally is nothing short of a miracle if any of the crew escape."

"The sixth warship commissioned by the Royal Canadian Navy as Commodore is Captain E. J. Stafford of S.S. Neptuno. Park of crime, repeatedly as photograph is available. His service as Commodore on ten occasions.

Captain C. L. Thibault, Master of the S.S. Wildwood Park. As Commodore of four different convoys, Captain Thibault served with distinction. He joined as Ordinary Seaman in 1908 and became Master in 1944.

Captain E. A. Davie, Master of the S.S. Samsonite. Signing on as seaman in 1907, Edward Davie rose to Master in 1922. In the coast service since 1925, he has received the O.E.E. and commodored 61 convoys.

Captain H. L. Thomas, formerly Master of the S.S. Tarantula, now serving another line. With 32 trips on the charge of convoys he holds the record as Commodore. While with the Imperial Oil fleet he won the O.E.E.

Captain D. T. Milton, Master of the S.S. Sannollon. As the bridge of the Sannollon, Captain Milton was Commodore of ten different convoys. He became Master in 1940 and has served steadily during the war.

Captain Gordon Keeler, Master of the S.S. Hobart. Captain Keeler made this famous old tanker one of the most useful in the service during the war. From her bridge he acted as Commodore on eight occasions.

(Above) Captain Joseph R. Durant, Master of the S.S. Pilot Posey. An ordinary seaman in 1908, Captain Durant has rendered considerable service and has been awarded the Distinguished Service Cross.

(Below) Captain C. G. Slavens, Master of the S.S. Springfield. 24 times Commodore of a convoy. Captain Slavens, who served as in the Talicale and Nipigon Park during the war, has been with the Imperial Oil fleet since 1925 and has held his present rank for nearly 20 years.

IMPERIAL OIL REVIEW

WINTER • 1945
PERSONALITIES IN THE NEWS

Special Representative, General Sales Department, Ottawa — Arthur T. Robin, who has been appointed to Ottawa as special representative, General Sales Department, Imperial Oil Limited, served overseas in World War I. After attending the University of Saskatchewan he joined the company rising to the position of district manager, Saskatchewan. Since 1941 he has been manager of the company’s Newfoundland division being succeeded there by H. M. Moker.

Assistant Purchasing Agent — Albert Eric Rubery, who now joins Mr. B. C. Kitchen in the office of assistant purchasing agent, was born in Kingston but educated in the public and high schools of Hamilton, Ont. After overseas service in World War I he joined Imperial Oil in 1920 as buyer. In 1924 he took care of the purchases of the Andian National Corporation and since 1928 has specialized in the purchase of drilling and production equipment.

G. F. Devere Presented with 40-Year Service Button — Born in Michigan in 1898, Guy F. Devere moved to Saskia at an early age. He received his education in the public school there and entered Imperial Oil in 1924. His work was in the old Cooper Shop and in 1912 he transferred to the Grease Plant coopering barrel. When wooden barrels were replaced by steel containers he was assigned to the preparation of these modern packages for the shipment of gasoline. Mr. Devere has one of the finest gardens in Saskia.

Oldest Ansonate of Imperial Oil — At 88, Walter H. Dill of Halifax is the grand old man of the big Imperial Oil family. He worked on the construction of Halifax refinery and had charge of the gang of 200 men who installed the refinery’s narrow gauge railway line—which long since disappeared. Mr. Dill still rises at 4:30 in the morning. He does with his two daughters and takes great pride in his garden. Mr. Dill thinks the present age is one of wonders but has many a story to prove that the old days were good.

A Happy Gathering in South America — Life for the chil- dren of the man who operate subsidiaries abroad is as lively in South America as in other parts of the world. Education there is a combination of the Canadian and U.S. systems. In this group at Barranquilla, Colombia, are, left to right, back row: Tommy Driscoll, Rowland Driscoll, Joan Ron, Susan Mortimer, (Tom Buttanytse—El Centro); Doug Ross, Martha Macdonald, Judy Tinley. Front row: Tommy Smith, Betty Culpeit, Georgie Kobo, Archie Watson, Henry Nicholson, Diane Wicherts (Jimmy Buttanytse—El Centro).

Florence Mary Smith — Florence Mary Smith, the first stenographer employed by Imperial Oil Limited, died in a Toronto hospital on July 5, 1945, at the age of 68 years. Born in Sarnia, Ontario, Miss Smith entered the employ of the company in the Sarnia office, June 19, 1897, and was employed there until 1916 when she was transferred to the Toronto office as stenographer in the late C. O. Stillman. In April, 1921, she became corporation secretary of the Royalite Oil Company at Calgary, which position she held until her retirement in 1930.

Regional Sales Manager Eastern Canada and Newfoundland — H. L. Magee, formerly Ontario divisional manager, succeeds A. G. Denmon in the above position. Born and educated in Belfast, Ireland, Mr. Magee began his career with Imperial Oil in 1920 as general salesman for the Ed- monton division. Six years later he became manager of the Regina division and in 1935 was posted to Toronto as super- visor of retail sales for Canada. Two years later he was appointed manager of the Ontario division.

Co-ordinator, General Sales Products Department — M. H. Moker for the past seven years has been assistant to Mr. F. G. Hall. In the past twenty-eight years Mr. Moker has worked at the Prinnet Street warehouse; in the order department, Toronto division; general sales department; and from 1933-38 was assistant to the manager of the specialty and lubricating department. In 1939 Mr. Moker was made assistant to F. G. Hall.

Assistant General Sales Manager, Imperial Oil Limited — A. Gordon Demont, assistant general sales manager, joined Imperial Oil in 1918 on his return from World War I. He began as warehouse chief in Sydney, N.S., and then assistant manager of the Halifax division. In 1953 he was appointed sales manager, Toronto division, and in 1956 supervisor of branches. He then moved up to regional sales for eastern Canada and Newfoundland.

Co-ordinator General Sales Operating Department — C. T. Wright has been manager of the cost and operating department of general sales since 1943. Formerly, Mr. Wright, who started as salesman in the Charlottetown area in 1926, was assistant divisional sales manager at London and later expense controller for the marketing department. Much of the responsibility for Imperial Oil’s program of marketing, cost control, delivery and distribution rested on Mr. Wright during the war years.

Regional Sales Manager Western Canada — H. R. Knowles joined Imperial Oil in 1949 as a salesman in Saskatoon. He became chief clerk and later salesman’s assistant. Following a period in the head office in Toronto on special work concerning service stations, he became city chief in Winnipeg in 1951. In 1958 he was appointed assistant salesman, Toronto division. After several years as assistant general sales manager he became, in 1943, co-ordinator of operations and assistant to the vice-president on employee relations.

G. W. Harris Presented with 40-Year Service Button—George Willard Harris was born in Middlesex County, Ontario, in 1882. He attended public school near Strathearn and joined Imperial Oil in 1908. Except for a few months all his service has been in the Process Department. Mr. Harris has been an ardent gardener, fisherman, baseball and hockey fan. He is well known for his broadcast of sports events.

Winter 1945
The "cluttered orderliness" of a hanger's deck. It is covered with cradled crates, deck wheat, heading hose, and fire equipment.

The "Mervord Park" taking on fuel at Halifax Refinery. When the hose was connected the pumps are started and the tanker fills at the rate of 4,000 barrels an hour from the storage tanks.

Forced by steam pressure, the oil courses down from storage tanks in the oiling jetty hanger, and into the hanger "Mervord Park" alongside.

A small tanker comes into the dock where the oil loading jetties are located in Halifax hanger. These vessels did invaluable work in the hot handling of ships during the war.

It is a human failing to look back over the hands once they have been played and discover what happy combinations won the game. In spite of the enormous work done in other Maritime centres, this inevitably leads us to Halifax, a great seaport. Here called the biggest ships in the world, sucking up 5,000 tons at a fueling. Convoys of up to 179 ships sailed in one day. In 2,000 days 20,000 ships passed through this port.

When the first world war began, Imperial Oil Limited had storage tanks on the shores of Bedford Basin beyond Halifax harbor proper. These were sufficient to handle the ships of that day, but the strategic importance of the great energy port made it obvious these would prove inadequate. It was decided to build a refinery across the harbor some two miles below the town of Dartmouth. The work was begun in 1916 and was near completion in 1917 as the congestion of crudes came in from the southern ports the refinery played a vital part at one of the most critical junctures of the first battle of the North Atlantic against Germany's U-boat boats.

Such was its beginning. During the peace years there were a few changes. In 1929 it sprawled along 5,000 feet of harbor waterfront, and back from the shores over 822 acres of land. Adjacently it was a village of 52 residences, built for company employees because of the remote situation of the refinery. It had three docks, there were now six. Its capacity was 41,000 barrels per stream day of refined products.

In its manufacturing hand Halifax Refinery held some trump cards. They permitted it roughly to double total production during war as compared with the previous five years, and to increase by more than four times the output of bunker fuel for ships.

Curiously enough it was a trend away from production of bunker fuel that was responsible for this achievement. Prior to 1940 all crude was processed in units known as crude skimming stills. These, by a simple process, break down the crude oil into its chief components: gasolines, the Diesel oils, the heavier bunker oils and asphalt. But this equipment was not adequate to meet the demand of the times. The world was speeding up. Everyone was buying a car; aircraft were becoming more and more common. Ship traffic was falling off rather than increasing. More and better gasoline was the need, not bunker fuels.

Chemical engineers of the oil industry had discovered a wonderful new way to produce more gasoline. In addition to the gasoline naturally in the oil they took the "gas oils" and by subjecting them to a heat and pressure treatment, "cracked" them—and lo! they broke up again like the original crude into gasolines, light oils such as the Diesels, bunker, and asphalt. Later a further processing change was decided upon, and this resulted in the redesigning of the refinery's "two stage cracking units" to a Combination Unit incorporating the skimming of raw crude oils.

So it came about the new equipment for this purpose was installed at Halifax Refinery in 1938. The new There are 50 oil compartments on the "Mervord Park." Gasoline Groups B and D, diisal, asphalt, fuel oil. The fuel load with Chief Stoker Donald Coulter of the Royal Canadian Navy. The gasifier's job is to see that the fuel holds up properly "bypassed off" and to measure the amount.
From the time of the "Ioeuma" arrival the oiling jetties extended their work to the harbor, the docks, and Berths. From flimsy, mist, snow, storms and fine weather, 24 hours a day, would poke her way about looking for ships showing the three vertical white lights that meant they wanted fuel.

The last weeks of '39 brought great and famous ships—"Repulse", "Revenge", "York", "Porpoise", "Waspole", "Roufshon", "Perth"—and the big troopships—men at the oiling jetties knew the signs of war, but they kept them well—the French "Lorraine", "Marsaillese", "Ocelot", "Dunkerque" names that were forever written into the history of War II.

Ships and their men became real, became friends. The "Severn Bay", for instance, that took her fuel from the refinery before her glorious last voyage. Not only the navy and merchant navy, but the men of the company's own tanker fleet, running crude and extra cargoes of refined products into Halifax.

A Norwegian whaler, a floating factory, came in with tanks full of oil, and like a mother duck with a family of ducklings brought along a flock of fishing schooners that were to become navy patrol ships.

The chaps at the jetties and on the "Ioeuma" felt they were getting quite chummy with such doughty visitors as "Royal Sovereign", "Malaya", "Valliant", "Beagle", "Cagiva", etc., the oil jetties of British anti-power.

Late in '40 the U.S. destroyers of the "Destroyer-for-France" trade began to arrive. They couldn't make the full trip to Britain, and the tanker "Petroleum" was loaded with 12,000 barrels of bunkers and sailed ahead of them for Newfoundland.

In St. John's harbor they tied up alongside her, and she topped off their tanks. They had tough trips. The full gales were blowing up, and some of the young sailors had no enthusiasm for the job.

The procession continued and grew as the Battle of the Atlantic waxed in intensity. It seemed hard to believe the figures of the Halifax pre-war seasons. In 1935 there had been 46 liners in all in the four-month Winter season. In 1939 there were 50 liners. All other ships of assorted sorts, taking much less fuel, amounted to about 30 a month.

The "Royal Sovereign" docked. As the "Ioeuma" pumped oil in from one side the crew saw fortunes in gold bricks being carried off the other. They weren't allowed to move until the gold had all been taken aboard.

The famous French submarine "Boureou", once the biggest in the world, came in; and then the "Cape Rosa", the prize of war captured in the St. Lawrence. This was indeed a panorama of events.

There were also interesting visitors. Russian submarines. The "Queen Elizabeth" with an order for 6,000 tons at one fueling. And strange ships, now known to all the world but then most secret, called landing ships.

The landing ships passed through Halifax in an ever-increasing stream; landing ships of all types, for many purposes. The men at the oil jetties also noted the growing traffic in troop ships—the "Queen Elizabeth", the "Queen Mary", "Arctania", "Andes", "Fastnet"—the greatest, the most famous, filling with troops invasion-bound.

Then came June, 1944. For three weeks there was scarcely a ship in. The hall had but one meaning: invasion. All Summer there was a rush of shipping, supplies for the armasty, food, hungry fighting fronts.

Then the troop ships came back. Victory was ours. Ships that were old friends came back. Others would never sail again.
JET PLANE

THE FAMOUS GLOSTER METEOR FIGHTER,
PICTURED ON THE RIGHT, BEING REFUELED BY
IMPERIAL OIL AT MONTREAL AIRPORT.

WITH the arrival of jet propulsion modern uses
of petroleum have come a full circle. Before the
turn of the century the chief use of crude oil was to
provide kerosene; as the years passed new products
such as gasoline eclipsed it in importance.

Today jet propelled aircraft fly on a specially blen-
ded fuel chiefly composed of kerosene, and jet pro-
pulsion is the greatest single wartime advance in
aviation.

Fuel requirements for jet engines are entirely dif-
ferent from those of the piston engines. Fuel is not
vaporized in the engine nor is it highly compressed.
It is simply squirted into the combustion chamber as
a liquid, under moderate pressure. It burns continu-
ously, as in an oil burner, rather than in a series of
explosions. As the hot, expanding gases escape they
drive the aircraft forward in much the same manner
as water escaping suddenly from a garden hose drives
the nozzle backward.

However, kerosene alone does not measure up to
all requirements. Scientists must find a blend to meet
all conditions imposed by jet performance. Jet fuel
must burn in a small space with great heat. It must
contain maximum energy to give greatest possible
range to the aircraft. It must flow evenly and cleanly
and provide heat not only at normal temperatures,
but also at stratosphere temperatures of perhaps
90° below zero.

Unknown to Canadians because of wartime secrecy,
cold weather research on jet fuels began in Canada
early in the war. Recently the R.C.A.F. brought a
Gloster Meteor jet fighter to Canada for tests, and the
Sarnia Refinery of Imperial Oil supplied its fuel—the
first used in a jet aircraft in Canada. This is known as
Intava Turbo Fuel and on this the plane flew from
Montreal to Ottawa in 15 minutes.

All this has a bearing on our future. Experts of
Rolls-Royce have prophesied that within ten years
all modern aircraft will employ some form of
jet propulsion. Possibly a kerosene-type product
will become more important than gasoline.

He who would prophesy the popular fuel of a decade
hence would indeed be rash. But one fact stands
clear: oil from the earth will continue its dramatic
role in man's scientific advancement and its versatility
will permit chemists to produce it in whatever form
required, whether it be kerosene, alcohol from petrol-
cum, or high octane gasoline.
Sixty-five years of petroleum engineering has been Imperial Oil's contribution to Canada's war achievements. The technological experience made it possible to fill the vast military demands upon the company for petroleum products.

Petroleum production is basically the same in peace as in war. Reconversion is mainly a matter of diversion, applying the new methods and improvements revealed by wartime research.

The application of these new developments and techniques are part of Imperial Oil's plans for the future: These already are past the blueprint stage and large capital funds have been set aside to provide more and still better products and ensure a high level of employment.