Although ordinary caution and the uncertainties of oil exploration rule out excessive optimism, it seems quite clear that the discoveries at Redwater will enlarge the area to be served by the Alberta oil fields.

And if still further expansion is on the way, the revolution in Alberta’s petroleum industry that began with Ledoux No. 1 will call for changes of a far-reaching nature. Every aspect of the industry as we know it could change as the western oil pool grows larger and seeks new outlets.

One of these changes was mentioned by President Hewetson in Edmonton last September when he referred to the likelihood of exporting Alberta crude to the United States.

It will come as a surprise to many that Canada which imports 86 per cent. of its oil should find it possible to export crude at all, let alone to the country which provides approximately half of Canada's petroleum imports. At first glance, it would seem logical to meet all of Canada's needs first and then embark on export trade.

At the moment any thought of moving substantial volumes of Alberta oil to the east or to the west coast would be ruled out by steel shortages.

But even if steel were available, the notion of “supply Canada first” breaks down when one takes into account the great distances that oil would have to travel from Alberta before it could meet the needs of Canadians in the east. It is approximately 1,700 miles from Edmonton to Sarnia via the Great Lakes, 2,300 miles via rail. But it is only 900 miles from Edmonton to markets in North Dakota.

The distance factor indicates why it will be to the advantage of Canada to export some of the Alberta crude to nearby United States markets while simultaneously importing American and other crude into parts of Canada which are remote from Alberta.

Distance, through its effect on transportation cost also reveals how this form of trade helps the Canadian exchange situation.

Developments in Alberta have already been of great assistance in saving U.S. dollars. The further expansion of markets will give the Alberta fields the opportunity to earn U.S. dollars. Not only that, but the difference in prices between east and west shows that Alberta oil exported will earn more dollars than Alberta oil, kept inside the country, could save.
Hopes are high at REDWATER

Indications of an oil find have brought a new optimism to a small Alberta community.

Forty-six winding miles by road northeast of Edmonton is the village of Redwater, Alberta, tucked away in a corner of rolling and partially wooded farming land. Its more than 100 citizens, who look to the three grain elevators, CNR station, garage, hotel and shops for their livelihood, now have hopes that Redwater may give its name to a new oil field because of encouraging developments nearby.

On July 23rd this year an Imperial Oil Ltd. crew began drilling on a farm in the Smoky Lake district, a mile northeast of Redwater. Exploration surveys had indicated the underground structures might be favorable to the accumulation of oil.

The drillers lost no time in getting their equipment into operation. The rotary bit bored quickly through the light soil and then, slowly but surely, through rock formations. Eventually natural gas was encountered and then a showing of oil. A period of testing followed.

(Continued on page 4)
But will there be an oil field?

Further drilling and testing continued through September. After acidizing, the well which was bottomed at 3,964 feet, flowed an average of 72 barrels an hour during a six-hour test on Oct. 3rd. The oil-bearing formation is 140 feet thick or three-and-a-half times the thickness of the formation at Leduc. Producing men warn, however, that "one well doesn't make a field. We must make more tests, drill more wells."

Drilling operations do not interfere with the farmer's work as shown by this harvest scene at the site of Imperial Oil's Redwater No. 1 well. Oil stocks are being loaded for threshing.

Oil is the main topic of conversation at Redwater these days. Villagers and district farmers ask many pertinent questions of the Imperial Oil men like Rod Morris, (left) a geologist.

Hilton Cook, left, owner of the farm where Redwater No. 1 was drilled talks with H. H. Hewetson, president of Imperial Oil. Mr. Cook's son, wearing safety helmet, works at the well site.

Redwater's New Neighbours

Residents have shown a widespread interest as the drilling proceeded and as production experts, geologists, and other officials arrived to observe the tests.

Henry H. Hewetson, Imperial's president, visited the area this fall with a group comprising members of Company management, producing officials and representatives of the Alberta government. Mr. Hewetson suggested that a picnic was the best way to fit lunch into the day's program and that perhaps some of Redwater's citizens might like to attend. It developed into a community get-together, involving 500 box lunches delivered from Edmonton.

The picnic was held in the trim meadow at the town's edge where the drillers have their camp. Many farmers, on their Saturday visit to town, joined the gathering for friendly discussions.

Walker L. Tayler, head of Imperial's producing department in western Canada, introduced Mr. Hewetson who said: "We came out here to have a look and we like it. We are happy to be in Redwater."

Mr. Hewetson also called at the Redwater Hotel, where special arrangements have been made changing mealtimes to meet workers' requirements, to thank the proprietor for the hospitality shown to oil men.

Cold beef and ham, salad, cake and ice cream were served when Redwater citizens and oil men met at a large community picnic.
Hopes are high at Redwater (Continued)

An "oil town" took shape overnight when Imperial's drilling crews moved their trailer homes to the district. Located just outside of Redwater the frame houses can be moved easily.

Will Rowe is a typical hard working "roughneck" (member of a drilling crew) at Redwater. He worked on the Leduc discovery well.

Trailer homes are comfortable and generally have two rooms. Driller Alex Keppon has breakfast in the afternoon because he is on late duty. Little Diana will see daddy off to work.

Tomorrow will tell

The question remains: "Will Redwater No. 1 result in an oil field like Leduc or is it merely an isolated well with good promises of production?" Already three other wells are being drilled in the area but only the developments of the future will provide the complete answer.
640 Products for Progress

Imperial Oil manufactures a long list of petroleum specialties developed by research and required by the Canadian way of life.
ers is useless for oil stoves, just as heavy industrial fuel is for a domestic furnace.

Process oils are in a different category. They are used in industrial processes and appear in countless finished products. Such oils are used in the manufacture of cordage, ink, cable dressings, rubber plasters, cosmetics, drugs, leather, polishes and buffing compounds. More familiar uses are in household sprays, insecticides, floor oils and the like.

In the field of solvents Imperial's products are used in making rubber cements, paints, lacquers, floor polishes, for degreasing hides and for dry cleaning. Anyone who has wielded a paint brush knows the importance of solvents in painting. If paint solvent evaporates too rapidly, brush marks will show. If it is too slow, the paint will not dry, or will run. In lacquers, if the solvent dries too quickly it may produce pinholes in what should be a uniformly smooth, glossy surface.

Farmers use many oil products including nitrogen fertilizer derived from the gases. It is being spread by this 30-foot spreader.

In hard floor waxes the solvent softens the wax and aids its application. On evaporation a hard glossy wax surface remains that protects wood and linoleum floors and furniture. The dry cleaning industry requires a solvent which will perform its primary task of removing stains and dirt from garments, yet will not be dangerous to handle and will not produce toxic fumes or objectionable odors.

Besides the familiar brands of gasolines sold at Imperial service stations across Canada, the Company also manufactures aviation gasolines. These high octane gasolines are turned out by complex refinery equipment.

Aviation gasoline's high octane rating enables aircraft to take off in a shorter distance, climb higher and faster, and carry more payload. The gasoline must be highly volatile, yet not so volatile as to cause vapor lock, though the plane may be operating near the ground or at greatly reduced air pressures several miles above the earth.

Wax is an important petroleum derivative and the old reliable candle is but one of the wax products serving man. The waxes Imperial makes find wide application in impregnating paper, in making paper containers and drinking cups, floor, shoe and car polishes, matches, crayons, pencils, cosmetics, grafting in horticulture, removing pin feathers from fowl, water and mildew proofing fabrics, carbon paper, pill and tablet coatings, electrical insulation, transcription records, radio parts, batteries, photo engraving and printing inks for special uses, such as adhesion to special surfaces or resistance to chemicals.

Modern housing draws heavily on the petroleum industry. Many building materials and household articles are derived from crude oil for instance the asphalt shingles on this home.
This Year's Scholarship Winners

PFIGURED HERE are the 10 young men and women graduates of Canadian secondary schools, who have won Imperial Oil scholarships for 1948. These scholarships, granted annually on a regional basis, are open to children or wards of employees, assi- 
 
mants, or of deceased employees of the Company and its 
canadian subsidiaries. Each valued at $300 a year, the scholarships may be held for four years and the 
winners may take any course they wish at any recognized 
canadian university. The winners are:

- Mr. & Mrs. McInnes—Jacqueline Dunham, 
  daughter of Donald Dunham, Imperial refinery; 
  Quebec—Keith Drummond, son of Ross Newton 
  Drummond, manufacturing department, Montreal; 
  and Guy Richard, son of J. E. R. Richards, Company 
  agent at Drummondville; Ontario—Barbara Joan 
  Piper, daughter of D. H. Piper, general sales depart- 
  ment, Ottawa, and Charles Gregory, son of E. W. 
  Gregory, producing department, Toronto; Mani- 
  toba—Kenneth McNelly, son of P. E. McNelly, 
  resident manager at Minnedosa; Saskatchewan— 
  Walter Donald Sedman, son of H. D. Sedman, Regina 
  refinery; Alberta—Violet and the Northwest Terri- 
  tories—Thelma Bertrice Dennis, daughter of Clar- 
  ence Rossell Dennis, Calgary refinery and Grace 
  Naomi Young, daughter of James W. Young; Mad- 
 ison Natural Gas Company, Calgary; British Colum- 
  bia—Dana Jane Eldon, daughter of Leonard Eldon, 
  J.J.O. refinery.

The winners were selected by a committee composed of: Dr. R. W. Bayle, chairman, 
director of the division of physics and electrical 
engineering, National Research Council; Dean J. J. 
O'Neill, McGill University; Dr. Lawton Lette, Uni- 
versity of Montreal; Dean J. N. Finlayson, Dean of 
Applied Sciences, University of British Columbia; 
and E. Halley Gurney, chairman of the Ontario Re- 
search Foundation

Awarded Fellowship

THOMAS ELWOOD BOYCOTT, Kirkland Lake, Ont., has been awarded an Imperial Oil fellowship 
for post-graduate research in petroleum geology. He 
is an honor graduate of the University of Toronto, and 
will continue his studies there. This fellowship, val- 
ued at $3,000, is one of four granted annually by the 
Company. They are open to qualified graduates of 
ocmmonwealth universities. The other fellow- 
ship winners announced previously are: Frederick Lan- 
dis, Adrian Gibba Brook and Arthur Mowzer.
Northern weather stations like Port Harrison (above) in the eastern Arctic are a vital link in Canada's weather reporting system.

The oft-quoted saying that everybody talks about the weather, but nobody does anything about it, is not quite true. From windswept Arctic islands to the U.S. border, men of the Canadian Meteorological Service are devoting their lifetime careers to assembling information that has a bearing on the way many of us spend our day-to-day lives.

We know the weathermen beat through the local weather reports which warn the housewife to bring in her washing or a teacher to postpone the school picnic, but special forecasts are also issued for mariners, fishermen, farmers, lumbermen, and airline, railway and bus companies.

With data assembled from all over the country, the meteorologist is able to issue warnings about an impending storm or cold wave, often making it possible to avert some of the consequences. For example, advance notice of high wind and storms gives the telephone and electric companies time to get repair crews ready for action. Railroads, warned of a coming heavy snowfall, can get their plows ready.

The timing of forecasts is important because if it doesn't do the farmer any good to be told today that he should have brought his crops in yesterday, it may grower, for instance, usually require three to five days' warning of a heavy rainfall to plan operations. A five-day forecast, while it isn't always possible, is the aim of the Canadian Meteorological Service.

Of the 360 weather observing stations throughout the whole of Canada, 46 are located in the Arctic and sub-Arctic (not including the special stations operated jointly by the Canadian and U.S. government). The spotlight is turned on these northern weather stations, not only because of their remoteness and strategic importance, but because weather conditions prevailing in the Arctic have a direct influence on the weather in more southerly regions.

The reason for this is that generally speaking the earth's rotation causes the air in the northern hemisphere to move southeast; in the southern hemisphere the air moves in a northeasterly direction.

Speed and accuracy, the essential factors in weather forecasting, have improved tremendously in the past few years with an increase in the number of northern weather stations and the use of new techniques. The introduction of wireless into the north ushered in the present period of modern meteorology.

Today, the speed with which weather data is assembled and forecast is taken for granted. Yet it was just a little over 25 years ago that the first wireless stations were established in the north. In the 1930's the government began to set up Arctic wireless stations. Dawson and Churchill were the first to be established. At some of the stations, for example Port Harrison or Arctic Bay, there are only a handful of white men; others, like Akavik, are fair-sized communities and growing steadily.

The Meteorological Service has the co-operation of the Royal Canadian Corps of Signals and the Radio Division of the Department of Transport in operating the Arctic weather system. These two organizations maintain stations at many points in the Arctic and their radio operators not only relay the weather reports northward but also take observations at many outlying points.

While the speed of communications is a matter of certainty, the accuracy of weather forecasts is sometimes a subject of debate. Although there is room for improvement, the forecasts are much more correct than is generally believed. The weatherman, who is serving all sections of the country, must take into account the various factors such as temperature, precipitation, cloudiness, wind direction and force.

To improve the accuracy of forecasts, additional northern weather stations are needed because, despite the expansion that has taken place, there are still large gaps in the coverage of weather reports. At many of the stations, in addition to regular surface weather reports of temperature, pressure and winds, observations are made twice daily of the temperatures and humidity of the atmosphere up to heights of 60,000 feet or more. The radio men transmit these reports to the forecast offices and within an hour to two hours they are received in New York, London, Moscow and elsewhere. In turn, other nations send their reports to Canada for weather knows no international boundaries and close co-operation is a necessity.

 Recruiting personnel to man the northern stations is just another problem for the Canadian Meteorological Service. The men must be experts in their field. They must also be willing and able to endure the rigors of a northern climate. Men who are mechanically inclined and able to adapt themselves to emergencies are preferred.

Typical of the men who are in charge of the northern weather observing and radiocomms stations is George M. Chapman, shown here with his wife and daughter in their Akavik home.
At Aklavik, and elsewhere in the north, the permanent frozen ground provides excellent refrigeration for food. A cold storage vault is dug near the house, with a ladder leading into it. Meats and some vegetables are frozen and stored in this underground refrigerator, to be used as needed. Butter is kept in cans and powdered milk is substituted for fresh milk. The stock of provisions is supplemented from time to time with fish and meat—mostly caribou and reindeer—obtained from the Eskimos. In winter, melted ice is used for water and the Chapmans kept their supply in a 45-gallon barrel.

Hunting, reading and listening to the radio are the usual forms of entertainment in the north but at Aklavik the residents organized the Aklavik Athletic Association. They have a good-sized recreation hall where they hold regular dances to the music of a record player. They have baseball games in summer and by next year the committee hopes to have a lighted outdoor rink.

The women of Aklavik visit frequently at one another’s homes and once a year a tea is given for those who are leaving. At the tea held in her honor, Mrs. Chapman counted 38 other white women.

Aklavik, with an estimated permanent population of 125 whites, has one of the largest of the northern weather stations. Large or small, however, these stations are at once helping to open up the Arctic and to make life better for all by adding to our knowledge of “the weather.” The exports in charge of them have a common goal—to obtain more knowledge about polar regions and to help make more accurate forecasts.

Many of the comforts and luxuries of home, including the ice cream cones which this smellee promises of the north is enjoy- ing, are now available at some of the Arctic weather stations.
Where Timber is King

The tall trees of British Columbia are the basis of a great industry providing lumber for many parts of the world.

Lumbering and its allied industries are British Columbia's most important business. From the tall, straight trees Indians once carved their totem poles and fashioned their dugout canoes. The white man found wider use for these forest products. British Columbia production is nearly half of the Canadian total; the industry employs about 40,000 men and women; the gross value of production in 1947 is estimated at $225,000,000; and the capital investment is about $350,000,000; nearly 55 per cent. of the province's 1947 exports were wood and paper products.

A mild climate and abundant rainfall have aided forest growth, while the mountains and rivers of B.C. are a natural ally to the logger. The slopes make it easier to move logs to the river, and the river floats them to the busy sawmills.

Power equipment has lightened the lumberjack's task, but he remains a rugged individualist, skilled in woods operations. Some jobs — such as the high rigger's — call for extra strength and skill and courage. He's the man who climbs a 200-foot tree with spiked shoes and safety belt and lobs off the top. As the crown of the tree drops, his perch becomes a ladder, whipping him about in 10-foot circles. The topped timber becomes the "yard tree" when pulleys and cables and a boom are rigged on it for use in bringing cut logs together at a "yard".

When trees are ready for felling, the "fallers" go to work. Two men, using a gasoline-powered saw, can cut through a six-foot tree in a few minutes. The fallers are experts and can drop a tree in any desired direction. They are careful to avoid crushing other trees and are ever alert for "widow makers", as they call falling branches.

"Cut yarders" — diesel operated tractors — haul the logs to the yard, where they are loaded on railway flat cars or on huge trucks which haul them to the river or sea. Once launched, the logs are made up into rafts, which small but powerful tugs tow to the lumber mills or paper mills.

There hand saws, circular saws, gang saws, attack the big logs and cut them into pieces ranging from heavy timbers to laths. Knives peal off the thin sheets used to manufacture plywood.

The products of the mill are shipped by sea to Britain, Europe, China, Australia and South America, and across Canada by rail.

Petroleum products fuel and lubricate the saws which fell the trees and the "cats" which yard the logs. The huge trucks which move the logs to the river and the towboats which take them to the mill could not move without oil. In the mills oils and greases must stand the strain of heavy loads imposed by high-speed equipment.

From his perch this high rigger views a woodland world. With the double-hilted axe hanging from his safety belt he will trim away the upper branches before topping the 200-foot tree.

Today's lumberman uses modern tools. In contrast with the early days of lumbering when a two-edged axe was the sole means of felling a tree these cutters employ a gasoline-powered saw.
Heavy equipment is required for operations in the land of tall timber. This "tail rider" is towing a log to a "yard" or loading area, where it will start its journey to the mill. Loading with a hayrack boom. The head loader, standing on top of the truck, has the responsibility of seeing that the truck is evenly loaded. A donkey engine operates the cables.

Here are the makings of a timber raft. The logs on the truck will be dropped into the river where called from rivermen will sort and chain them into rafts, often as large as 12 acre...
Back of the forest stands industry. In plants like the Canadian White Pine Mill at Vancouver logs become boards and plywood.

Poster is among the highest paid workers in a mill. Expert skill is required to keep the "shark tooth" saws in condition and this automatic fibling machine is an indispensable tool.

This large band saw does not cut the whole log into lumber but into chips, or large pieces, which are sent on to gang saws and circular saws to be cut down into various kinds of lumber.

Plywood is an important product of the lumber industry and large quantities of B.C. timber are used. Here plywood veneers are being dried before they are glued and pressed.

The lumber industry has reduced waste to a minimum. Here wood chips are being loaded into barges to be taken to a mill to be made into paper pulp. Steam heat some B.C. homes.

Stacked for air drying these lumber piles resemble a modernistic painting. The mechanical stacker eliminates heavy lifting.
Portraits of an Industry

An exhibit that documents the oil industry is touring Canadian art galleries, attracting large attendances.

Art and industry have combined to bring an outstanding exhibit of oil paintings, watercolors and drawings to art galleries and libraries in Canadian cities. The collection, entitled "Oil," was commissioned as an art and educational project by the Standard Oil Company (New Jersey). Showings in Canada are being arranged by Imperial Oil Ltd.

Paintings by four Canadians—Arthur Lismer, Will Ogilvie, Don Anderson and R. York Wilson—and 18 United States artists make up the collection. Each was assigned subject matter sympathetic to his style and medium and the collection represents a new kind of documentation based on a close relationship between art and industry.

The paintings cover all phases of the oil industry. Six artists were assigned to portray exploration and drilling activities. To gather this material Georges Schreiber went to the Arctic to record production under sub-zero conditions, while Adolf Daub went to Venezuela to depict oil drawn from wells in the jungle and on Lake Maracaibo. Exploration from the western plains to the bayous of Louisiana was recorded by Joe Jones, Frank Mechau, Peter Hurd and Don Burne.

Other painters covered oil transportation and eight were assigned to war theatres as combat correspondents. Howard Beri flew over "the Hump" to report the transport of oil over the Ledo-Burma Road. Carlos Lopez followed the air route over the south Atlantic to record oil storage depots on Ascension Island and the African Gold Coast.

Bruce Mitchell documented the work of the Persian Gulf Command, which rooted war material
How an artist paints a picture

The centre structure is the frame of Canada's first fluid "cat cracker" at Montreal East.

Notes and rough drawings are recorded in R. York Wilson's sketch book as workers dismantle the Whitehorse refinery.

In his Whitehorse hotel room the artist makes watercolor drawings of the scene he recorded earlier in his sketch book.

These fluid cracking units at a Baton Rouge refinery tower above engines and tank cars.

Back in his Toronto studio, Mr. Wilson works up his watercolor drawings into the oil painting reproduced on page 27.

This was the scene as workers stripped the Whitehorse refinery power house during dismantling operations.

Through Iran into Russia, Landing with American forces in Normandy on D-Day, Lawrence Beall Smith followed the armies' oil lifeline across Europe. Robert Benny, Franklin Boggs, Howard Cook and Kerr Eby painted oil distribution scenes in the Pacific theatre. Transportation of oil by pipe line was portrayed by Frederic Taubes.

The conversion of crude oil into finished products was followed by Thomas Benton, whose subject is a huge fluid catalytic cracking unit; Ernest Fiene, who painted the dramatic architecture of a toluene plant; Arthur Lismer, who contributed a watercolor of construction at Imperial's Montreal East refinery and Will Ogilvie, who recorded construction scenes at the Company's Sarnia refinery. Francis Cris is represented by paintings of the industry's research laboratories.

R. York Wilson and Don Anderson went to Whitehorse to paint the mid-winter move of the refinery from Whitehorse to Edmonton. Their canvases show the drama of dismantling the plant and moving it by truck over the Alaska Highway.

Oil was often hauled like this on the China-Burma war front.

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Season's Search in the Northwest

In 1948 Company field parties have continued to probe the wilderness seeking geological signs that might lead to oil discoveries.

A NOOTHER SECTION of the intensive exploration program undertaken by Imperial Oil Field geologists has just been completed and the results are now being compiled in reports for future guidance. The reports will consist of information about the geology of western Canada never obtained before because of the remote and relatively inaccessible areas involved.

This year Imperial operated six geological field parties of which five worked in central and northern Alberta and the foothills of the Rocky Mountains and the sixth in the Great Slave Lake district of the Northwest Territories.

These men, in groups of three or four, travelling by canoe, pack train and sometimes by truck and aeroplane, spent months in the wilderness. They have a kith and kinship with Franklin, Mackenzie, Fraser and the other explorers who first penetrated the vast unknown stretches of the northwest. But where the early adventurers were chiefly concerned with geography and mapping broad areas for trade routes and settlement, the task of the field geologist is to gain detailed and specialized information about the regions touched lightly by the map-makers.

Field geology is the first step in the long, patient and costly search for oil. Where oil exists it lies trapped in rock formations far below the earth's surface. The geologist makes his observations and, with his special knowledge, attempts to predict where such formations may be found. Acting on his reports tests by other specialists may follow and perhaps eventually the drilling which is the only proof whether or not oil can be obtained.

Imperial has conducted almost half of all the field geological work undertaken in western Canada and last spring another group of men was assembled to continue the program working under W. L. Falconer.

The group consisted of the veteran geologists who were party chiefs and of a larger number of students from Canadian universities. Of the latter, a few had worked on full-fledged surveys before and the remainder were about to obtain their first experience in the field. Among the universities represented were those of the provinces of British Columbia, Alberta, Saskatchewan and Manitoba; and of Queen's University, the University of Toronto, the University of Western Ontario, and the University of Michigan (Ann Arbor.)

The season began with a special course to provide the new men with concentrated knowledge of handling canoes, of living in the outdoors and of the many "tricks" which might be life-savers in the months ahead. It was also planned as a "refresher" for the veteran party chiefs who taught and also learned because instruction was on a co-operative basis and everyone took part in the practical demonstrations.

This "school for geologists" opened on May 17th at Cooking Lake about 20 miles east of Edmonton. Camp was set up in tents; canoes and instruments were supplied; and as far as possible actual working conditions were reproduced.

Lorne Falconer, in charge of all the parties, arranged the general schedule and conducted the earlier canoe instruction. Joe Gleddie and "Doc" Crickmay gave pointers on the operation of survey

Field geologists, like the real man (right), spend long months in lonely country observing the rock outcrops and the other surface structures hoping to predict where oil lies hidden...
Now, using half as many men, 50,000 miles can be explored in a year at a cost of approximately $1 a square mile.

The parties are now back from the north with their samples of rocks and their notebooks crammed with observations. The students have returned to the universities and the party chiefs will spend the winter compiling reports.

The results are not expected to be spectacular. Perhaps none of the effort expended will lead to the immediate discovery of even a minor oil well, much less a Ledo field. The geologist’s task is to obtain information, both positive and negative, and it is just as important for him to be able to say: “That’s not the place for further exploration,” as to recommend: “Go ahead!”

It is certain, however, that Imperial’s field geological activities this year have added to the detailed knowledge of the Dominion. They also have served an additional purpose in providing experience for university undergraduates which is important because Canada has an ever-increasing need for trained geological specialists. The knowledge and the experience will help to develop our country in the future.

A pre-season training course taught student geologists how to handle canoeas like these and other essentials of survey life.

Duties Were Shared

Camp duties were rotated and each man was allotted his share. Special attention was paid to the part played by Company aircraft in exploration. Using a plane assigned to the camp, the men learned how to help in aircraft landing, how to handle air-born supplies, and other similar procedures. During the exercises some men had their first flights.

At the end of each day the men built a camp fire where they met in the evening for an open forum question and answer period, Falconer, McKinnon and the party chiefs led discussions.

The early days of the course gave the party chiefs an opportunity to appraise the new men and decide on the best grouping of manpower for the season’s work. Halfway through the men were “crowded up” in the groups in which they were expected to operate.

The fourth day camp was moved to White Mud Creek where canoe instruction could be advanced on the swift-flowing waters of the North Saskatchewan River. After a further three days the course ended and the parties started their work in the field.

Party Chief Glenn Fox, who had not been able to attend the course, now came to take his men to the outer rapids of the Rocky Mountains along the Alberta-British Columbia border. They moved in with trucks but later changed to the horses of a pack train outfit.

The Cheadle party also used both trucks and pack train on an assignment in northern Alberta. The Clemis party undertook a variety of jobs in lonely country along several Alberta rivers. It used trucks, pack train, canoe, and at one point a team of horses and a wagen. The Crockmey party, engaged in a survey on the Athabasca River, moved by canoe only.

The Hamilton party had a tough job on the Clearwater River. The men and their equipment were flown to Dechance Lake in Saskatchewan around June 1st. They then travelled for about 15 days in two canoeas down the Dechance and Clearwater Rivers.

They moved through almost continuous white water for nine days encountering rapids and awkward currents. Just when they were about to reach the point where the survey was to begin, one canoe struck a boulder and broke in half in the exceptionally choppy water.

The men escaped but the loss of the craft, its killer and some supplies meant they had to postpone the survey. They cached the remainder of the supplies and, with their very light load, made quick time down the river to Fort McMurray. They obtained replacements, worked their way back to the cache and completed their job without further major difficulties.

In this adventure Hamilton but some personal equipment but few articles, including his watch in a waterproof container, were found by an Indian and returned.

The Reiford party had the most northerly assignment. Its job was in the Great Slave Lake area; above the 60th parallel and the boundary of the Northwest Territories. The party had a working base in the Company ship, the 7. A. Link, which is equipped with a galley, two-way radio, and accommodation for seven men. The survey operated from canoes; the men returned to the ship when necessary. In general all six parties had the same objectives and used the same methods. They usually travelled down rivers because the bedrock which supplies basic geological information may be seen especially well in the canyons where it crops out along the river banks. The streams, too, provide a reasonably sure path back to civilization.

The men all lived healthy lives in the outdoors, far from other people. At night they slept in sleeping bags or in tents. Their diet was simple but varied by supplies dropped by aircraft.

Use of Modern Methods

Exploration today hasn’t changed fundamentally from the methods of the early adventurers. There have been improvements in the instruments but the compass—now the Brunton compass—remains an essential. The geologist also works with his plane table, his altitude for measuring distances and elevations and his slide rule for rapid calculation.

Results, however, have been speeded up by modern refinements. Among them is the kisler that eliminates some of the toil of paddling canoeas. Aircraft can transport personnel to any survey point, returning at intervals to leave supplies, help with reconnaissance, and relieve the isolation. Base camps also use of major assistance.

Statistics prove the value of these improvements. The coast of exploration is the northwest used to be 86 to 97 square miles and only between 10,000 and 16,000 square miles could be surveyed in a year.
In reply Mr. Hewatson said he deeply appreciated the welcome and was greatly affected by the gift.

"I proudly accept this scroll on behalf of the thousands of my fellow workers and regard it as a tribute to them rather than to any individual for it is the teamwork of many people that has made possible the developments which are being commemorated tonight," he said. "It will be my pleasant duty to see that all of our Imperial Oil family learns about this occasion which is so memorable a one to me and my associates."

Mr. Hewatson then reviewed the long search for oil that preceded the development of Leduc. Before the Leduc discovery, he said, Imperial looked at its exploratory budget requirements and wrote off one dry hole after another, the determination to carry on was questioned. He said he admired his associates for their persistence in believing that crude oil could and would be found although in general the industry's oil search was at a low ebb because repeated disappointments were having their effect.

After the discovery in February, 1947, he continued, the Company assumed further risks in step-out wells to prove up sufficient reserves to support a refinery; acquired the refinery now in operation at Edmonton and constructed gathering pipeline lines.

"But I may say that if these problems involved risk and determination and decision, the problems which confront us today magnify these many times.

"Our first objective has been to establish ample crude reserves to meet refinery requirements, and with established production plus the newer fields of central Alberta, this has been accomplished. Our second objective has been to provide refining capacity to run this additional crude oil in the prairie provinces. The Edmonton refinery is in operation and will be enlarged; the refinery at Regina will be increased in capacity; and other developments may follow - for I hope that others will build additional refinery capacity on the prairies. Our third objective is to transport crude oil to these refineries and other markets as economically as possible; this involves the contemplated construction of a large pipe line from Alberta to Regina, Saskatchewan."

"The discovery at Redwater, Alberta, is promising and if subsequent drilling proves this to be a sizeable structure and a large reserve results, the huge pipe line we contemplate to Regina will transport more crude oil and will deliver it more economically. It now appears to us that Alberta crude may find a ready market across the border in the United States. Right now, we are planning on the movement of this crude through a further pipe line from Regina into that area. At this time I do not believe there is any other market where this surplus crude oil could be delivered that would benefit not only Alberta, but the Canadian economy in general, to a greater extent. This would be more effective than to consider the running of a pipe line at this time to the head of the lakes or to Vancouver, these developments may come later . . ."

"These programmes that we talk of require vast sums of capital and, there is no way to do the job that should be done in the interests of all concerned more by the expenditure of vast sums of capital . . ."

In conclusion Mr. Hewatson said that Imperial men and women are "trying to do their best with due consideration for the public interest, the community interest, the employees of the Company and our shareholders."

He said that Imperial needed support and goodwill, for the job could not be done without it. "Above all, we seek to have your respect, and if we have that it will mean much to us in continuing our efforts in the friendly atmosphere which has always been our good fortune in the west."

At the banquet, another view of the head table during the dinner left to right: Mr. White, Lieutenant-Governor; Mr. White, Mr. Hewatson, Chief Justice Harvey, Hon. N. R. Turner, Alberta minister of lands and mines; N. L. Hache, director, Imperial Oil; Mr. R. J. Findlay and Mr. W. L. Tryon, western producing manager, Imperial Oil. The Edmonton Chamber of Commerce held the banquet in honour of Imperial Oil's development in that area.
RESCUE AT MILE 51

MURRAY MACKENZIE, superintendent of Imperial's Normans Wells refinery, read the telegram urgently:

"BRICK'S BROCK FOUNDED AUGUST 7, 1948.
PARTY TRAVELING CANOE ROAD IN SEP. NOW IN NORWAK WELLS... ADVICE OF PARTY SHOWED UP AS YES.
J. W. HAY - 11-6 FOSTER CO.

This was the first knowledge he had that a party was travelling the road. His reply went out by Royal Canadian Signals a short time later:

"SEP PARTY HAS NOT ARRIVED STOP DO NOT RELEAVE ROAD PASSAGE... THERE IS A WASHOUT STOP ADVISE AT TIMES GET THROUGH K. M. MACKENZIE"

The exchange of telegrams touched off a dramatic rescue of the group by a party from Normans Wells, which crossed flooded rivers, scaled through huckleberry-covered canyons and finally reached Normans Wells the day before snow whiteness of the mountains through which the rescuers and rescued passed.

The story begins at Johnson's Crossing on August 31, when Leslie Munroing, Assistant Equipmentman Co.: James Chase, Chase Machinist Co., and Chase Wilson, Diamond Tractor Co., left by jeep, confident they could reach Normans Wells in four days.

At mile 380 on the Canoe road, trapper Tom Connelly and his wife Jean joined the party and said well went until they reached the Twizy Miles at mile 131. There they lost the jeep in crossing the river by raft. To safe them from difficulties, Chase was left in a boat condition, affixed to the home-made boat's cable rigged on the cabin and skeleton structure that carried the canoe pipe line over the stream.

Gough and Shewal found an abandoned tractor on the side of the road and used more mechanical ingenuity. With only a six-inch crewsman and a pair of piers they took out the connecting rod of a broken piston, patched the engine, hoisted it in place and turned on, revved up the governor spring on the fuel pump, turned on the brakes and stopped the pulley on the water jacket and made other adjustments.

After the motor finally coughed into life they plowed a bulldozer into the bushes and set them to work. Four days and the food and fuel of the rescuers was enough to keep them going.

The rough trip through the Dodo Canyon joy ahead. The "can" forced the flood waters but the party on the right had difficulty keeping they. The canyon is studded with huge boulders for about 12 miles and the rescue party, travelling on foot, were out of their boots in walking this stretch.

The Kwasan crossing was uneventful and on the other side Imperial employees A. V. McDonald, Arnold Tiede and H. J. Hadden were waiting with three trucks. The party boarded the vehicles and rode to the Kwasan River, which they crossed by launch about midnight on August 31st.

Charles McNiel, who had injured a foot, and John Wilson, whose legs needed attention, were taken to Normans Wells hospital. The next day Wilson and Chase were flown to Edmonton in the Company's Beechcraft plane by pilot Gordon Lethan. The others waited for an aircraft to fly them to Yukon.

Tom and Jean Connelly were credited with keeping the others fit during their time in the open. They are old hands at northern travel who make their home at Tuslin, Y.T.

After the rescue party were safe at Normans Wells, refinery superintendent Mackenzie telephoned Edmonton:

"PARTY PICKED UP JUST IN TIME. ALL RETURN JOURNEY MADE THROUGH INTENSELY SNOWY AND RAIN. THIS MORNING AUGUST 31ST MOUNTAINS THROUGH WHICH PARTY PASSED WHITE WITH SNOW AND INTERMITTENT SNOWFALLS WITH RAIN AND HEAVY WIND ALL DAY HERE."

Cumberland R. Wilson, A. Hocket, B. Gough and R. S. Shewal are shown here, grouped around C. McNiel, in last

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Imperial Oil Presented a Three-Way Exhibit of this Year's Canadian National Exhibition

Ladies and gentlemen—the operation you have just seen is known as a "round trip", which the drill crew must make to replace a worn bit," the commentator said after the noise of three roaring diners started a rumour. "This operation is just the same as you would see in drilling for oil in western Canada."

The highly-trained crew had pulled the bit up from hundreds of feet below the rig, stacked the drill pipe, screwed a new bit home, joined the pipe together again and had the rig "making hole" once more without a spoken word of command.

The commentator stood within a fenced enclosure near the Prunon Gate at the Canadian National Exhibition, dwarfed by a drilling rig which towered 100 feet. Outside the enclosure hundreds of spectators had gathered to see the rig in operation.

Only a few weeks earlier this rig was drilling its 14th without a well in search for oil in Alberta. Thirteen of the holes had been dry, but the one success found the second oil-producing zone in the Leduc field. With the rig had come two of Imperial's crack drilling crews to operate it before crowds at the Toronto-Ex.

The big rotary drilling rig was but one part of Imperial Oil's three-way exhibit at the C.N.E. this year. The other sections, housed in the Company's usual space in the automotive building, were a cyclorama and a motion picture theatre.

The rotary drilling rig was shipped to Toronto from Alberta in July. Six flat cars were required to carry the 199 tons of equipment. Two drilling crews of five men each and a tool pusher—the "Ex" visitors preferred to call him a "foreman"—also came from the Leduc field to operate the equipment. They were on hand when the rig arrived and immediately set it up so they could get the surface work finished before the big show began. They were in August and the crew drilled down 1119 feet before the rig was dismantled.

It was the first time a rotary drill had operated in Toronto, and for most of the spectators it was their first view of a drilling rig of any kind. For two weeks during the exhibition the crew worked two shifts from 8:30 a.m. to 10:30 p.m. each day except Sundays. During their shift work the crew made frequent "round trips", which is the entire operation of pulling a worn bit off bottom, stacking the stands of drill pipe, (sixteen 60-foot stands during the last few days), attaching a new bit and running it back into the hole again.

During these "performances" a commentator, using a public address system, explained the various operations and answered a host of questions asked by the spectators. Signs identified the various pieces of equipment and pamphlets describing the search for oil were available to those who wished them.

The cyclorama was another feature of Imperial's exhibit at the C.N.E. Instead of walking around the five animated exhibits, the spectators were brought to them in moving carts. These carts, arranged in groups of ten and spaced about six feet apart, moved on an endless belt.

Visitors first saw a model of a seismic survey party at work. A series of flashing lights demonstrated the seismic principle of sending shock waves from a dynamic explosion down into the earth and picking up the echoes with recording equipment as they bounced back to the surface. A narrator explained how this principle is used in the search for oil.

In the next section the spectators saw a drilling bit in action. Through a large transparent plastic tube, the bit appeared as it actually looks at work thousands of feet beneath the earth's surface. The narrator described the operation and how mud aids in rotary drilling.

An authentic oil-surface reproduction of the Leduc oil field was shown in the third exhibit. Built to scale and in natural colors, it portrayed the layers of sediments laid down by ancient seas through millions of years. A commentator described in layman's language how these formations were laid down and how oil was trapped at Leduc.

The production of oil after a well has been completed was depicted in the fourth exhibit, which had a production battery with storage tanks, separators, gauges, pipe lines and the "Christmas tree" (well control valves) which have become a common sight on completed wells at Leduc.

The last stop on the belt line of moving carts was before a large map of Canada. While the Dominion's oil supply situation was explained, flashing lights on the map indicated the location of Imperial's eight refineries and their capacities. The narrator explained how much oil is produced in Canada and how much is consumed, the risk and expense involved in the search for oil, what Leduc has meant to Canada in oil production, and its stimulating the search for other fields and in saving U.S. dollars.

Thousands of C.N.E. visitors saw Imperial Oil's drilling rig. (Below) A commentator explains drilling practices to the spectators.
In the air conditioned theatre there was a continuous showing of two Company films from 10:00 a.m. to 9:00 p.m. One was "Search for Oil", which deals with oil exploration and drilling in western Canada. The other was Imperial's most recently released film, "Oil for Canada", which had its premiere here. This shows how Canada obtains 90 per cent of its oil supply which at present must be imported by tankers, tank cars and pipe line from the United States and South America.

The exhibits were designed to tell the story of oil exploration and production and also how millions of barrels of crude oil and products are imported to meet the petroleum needs of Canada. Imperial's unusual displays at the 1948 Canadian National Exhibition were among the most popular of the big fair. An estimated 330,000 visitors saw one or more of the exhibits and learned something about the problems of the oil industry.

At Imperial's C.N.E. display of the Leduc oil field, moving shots took the spectators around the five animated exhibits.

LEDUC PRODUCTION BATTERY

The third Imperial feature at the C.N.E. was the theatre presenting films about the oil industry. Crowds lined up to attend.

Personalities in the News

H. M. Powell, Newfoundland Marketing Manager, Retires

H. M. Powell, manager of the Newfoundland division since 1945, retired recently after 41 years' service with the Company. Joining Imperial Oil in 1907, Mr. Powell held various positions in the marketing department until he became assistant manager at Regina in 1921. He subsequently held a similar post at Hamilton. In 1930 he was appointed assistant to the manager at Montreal, later becoming co-ordinator of plant equipment and construction and maintenance, and then began his service in Newfoundland. During the war he was on special assignments in Ottawa.

E. L. Baillie Succeeds H. M. Powell in Newfoundland

E. L. Baillie, district manager of Nova Scotia since 1945, has been appointed to succeed H. M. Powell as manager of Newfoundland marketing division. A former engineering professor at St. Francis Xavier University, Antigonish, N.S., Mr. Baillie joined Imperial in 1930 as an asphalt engineer. During the war he worked with the U.S. Navy on asphalt production for the Argentinia, Newfoundland, airport. Later he became Maritime industrial sales manager and then district manager for Nova Scotia.

C. F. H. MacDonald appointed District Manager for Nova Scotia

C. F. H. MacDonald, who succeeds E. L. Baillie as district manager for Nova Scotia, was born and educated in the Maritimes. He received his engineering certificate from St. Francis Xavier University and attended the Nova Scotia Technical College. Since joining Imperial in 1937 Mr. MacDonald has been engaged in technical service, industrial sales and asphalt sales. He was in charge of the asphalt blending plant at Argentinia, Newfoundland, during the war and in 1945 became manager of industrial sales for the Maritime division.

C. E. Tilton Appointed Assistant Manager of Ontario Marketing Division

C. E. Tilton, formerly manager of the lubrications sales department, has been appointed to the newly created position of assistant manager of Ontario marketing division. A graduate of the University of Toronto, Mr. Tilton joined Imperial in 1934 as an automotive engineer. In 1945 he was appointed assistant manager of the lubrications sales department, becoming manager a year later.

W. A. Williams Appointed Assistant Superintendent—Process At Sarnia Refinery

William A. Williams has been named assistant superintendent (process) at Sarnia refinery, succeeding H. H. Moor who is superintendent of the new Edmonton refinery. After graduating in mechanical engineering from the University of Michigan in 1934, Mr. Williams joined Imperial Oil at Sarnia and for a time worked in the laboratory and later in the engineering department. In 1946 he was made assistant superintendent—production control. During the war Mr. Williams served with the Royal Canadian Navy and at the time of his discharge held the rank of Lieutenant-Commander.
K. M. Mackenzie Becomes Superintendent of Norman Wells Refinery

K. M. Mackenzie has been appointed superintendent of Norman Wells refinery, N.W.T., succeeding H. W. McKinnon who is on leave of absence. Mr. Mackenzie joined International Petroleum Co. Ltd. in 1926 and spent nearly 14 years with that company in Colombia, South America, in the refinery, engineering and accounting offices. In 1940 he transferred to Imperial Oil and spent several months at Sarnia refinery. From 1941 until 1946 he was on loan to the Dominion government, department of munitions and supply. Returning to Imperial Mr. Mackenzie worked with the manufacturing department in Toronto before leaving for Norman Wells.

A. G. Scott Becomes Manager of Lubrication Sales

A. G. Scott, who until recently was sales manager of British Columbia division, is now manager of the lubrication sales department, succeeding C. E. Tilston. Mr. Scott began his career with Imperial Oil in 1936 and held several positions before he became assistant manager of the lubrication sales department. In 1945 he was appointed sales manager of Ontario Division and later was transferred to a similar post in the British Columbia division.

G. L. Miles Named Sales Manager of British Columbia Division

Griffith L. Miles, formerly a district manager in the Manitoba division, has been appointed sales manager of British Columbia marketing division. Born in Aberdeens, Wales, Mr. Miles came to Winnipeg at an early age. He joined Imperial Oil in 1936 and in 1941 became city salesman at Winnipeg. Three years later he was transferred to Fort William as resident manager. He returned to Winnipeg in 1945 as a district manager.

N. B. Gehbie, in Charge of the Operations Division of the Marine Department

Neil B. Gehbie, the new head of the operations division of the marine department, was born in Greenock, Scotland. He went to sea in 1910 and obtained various certificates including second engineer, chief engineer and extra chief. In World War I he was served with the naval transport service supplying oil to the fleet. His ship, the Minia Bren, was owned by International Petroleum and his association with that company started at the end of the war when the ship returned to Canada. From 1918 until 1927, when he was appointed port engineer in the Toronto office, Mr. Gehbie served as chief engineer on various Company ships. In 1946 he was named technical adviser and served in that position until his recent appointment.

E. B. Lusby Appointed Assistant Superintendent—Production Control at Sarnia

Eric B. Lusby, formerly chief chemist at Sarnia refinery, has been appointed assistant superintendent—production control succeeding W. A. Williams. Born in New Westminster, B.C., Mr. Lusby graduated in chemical engineering from McGill University. He joined the Company in 1928 as a junior chemist at Inco refinery. Five years later he was transferred to Talara, Peru, working with International Petroleum on the development of low cost asphaltic paving materials. In 1937 he returned to Sarnia refinery as chief chemist.

This geologist is studying a rock sample which was obtained when a well was being drilled. Its fossils tell the history of a sub-surface area.
To meet present-day needs Canada has to import vast quantities of oil. The big loops of this tanker's hose are being hooked up for delivery of a shipment.