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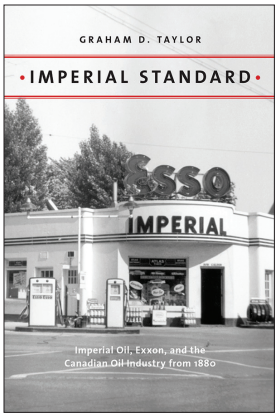

IMPERIAL STANDARD: Imperial Oil, Exxon, and the Canadian Oil Industry from 1880

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THE WINNING OF THE WEST

The Northwest Company

In 1917 Imperial Oil and Jersey Standard established a company tasked with the mission of finding oil in the Athabasca region north of Edmonton and stretching into the Northwest Territories. It was named the Northwest Company, in part as tribute to an exploratory enterprise more than a century before which had opened the way to the development of western Canada.

The North West Company, a Montreal-based fur trader consortium, sent its agents ranging from James Bay to the Rocky Mountains in the late 1700s, circumventing the remote posts of its rival, the Hudson's Bay Company, penetrating deep into the wilderness of what is now northern Alberta and British Columbia. Peter Pond, a Connecticut-born trader with the North West Company, observed "quaking bogs" of bitumen in the Athabasca region, which he explored in the early 1780s; and his better known successor, Alexander Mackenzie, who mapped the great northern river that bears his name, wrote of "bituminous fountains" that "emitted a smell like sea coal" during his travels in the same area.[1]

After the Hudson's Bay Company acquired its rival in 1821, the region became virtually terra incognita to all but the company's employees and their aboriginal trading partners. When "Rupert's Land" passed into the hands of the Dominion of Canada in 1869, the country's geological survey sent several expeditions into northern Alberta, and in 1882 Robert Bell of the survey projected the existence of petroleum in large quantities there. Meanwhile the Dominion had provided land grants to the

Canadian Pacific Railway to foster the rapid completion of a transportation link to the west coast, and in 1883–84 CPR builders encountered natural gas deposits adjacent to its line in the vicinity of Medicine Hat in southeastern Alberta. Six years later the CPR drilled a gas well of about 650 feet, and by 1904 residents of Medicine Hat had set up a municipal utility to provide natural gas to the community. Drilling for oil was undertaken in 1905 in the Pincher Creek area near Waterton Lake, on the Alberta-Montana border.

The CPR mounted a more ambitious project a year later, recruiting Eugene Coste, who had worked with the Geological Survey of Canada, to head an effort to find both oil and gas on company lands in southern Alberta. In 1909 Coste reported a natural gas strike at Bow Island near Medicine Hat. At the same time, however, CPR also learned of another gas venture in the Calgary area under the auspices of a local group who had formed the Calgary Natural Gas Company with A.W. Dingman as their general manager, and it invested in this enterprise as well. Coste responded by recapitalizing his operation with new investors and making an agreement with CPR in 1911 to lay a pipeline to Lethbridge, and ultimately Calgary, to carry gas from the wells he was drilling; his company was organized as Canadian Western Natural Gas, Light, Heat & Power Company and by the summer of 1912 the pipelines were pumping gas from the Bow Island wells.[2]

All of this activity indicated the presence of natural gas in Alberta, although in quantities sufficient only for local consumption and with little evidence of oil. Nevertheless, Alberta was attracting the interest of a wider audience, which included Imperial Oil with its declining production in Ontario but also the British Admiralty, which was converting its fleet from coal to oil and combing the empire for potential reserves. The largest landowner (and owner of the subsurface mineral rights) in Alberta, and the western provinces generally, was the Dominion of Canada. Since 1898 the Crown had authorized the sale of mining rights in 640-acre parcels on its lands. In 1910, however, the Dominion changed from selling to leasing mineral rights (for twenty-one years), and in an obvious concession to the Admiralty allowed the pre-emption of petroleum production on any leased lands to meet the needs of the Royal Navy. With war clouds gathering in Europe in 1913, the Admiralty increased its pressure on the

Dominion of Canada (and its other colonies) to protect potential oil reserves. Under new regulations of Crown-owned mineral rights adopted in 1914, certain areas could be set aside for what would now be called a "strategic reserve." In addition, leasing of mining and petroleum drilling rights would be restricted to individuals and companies of "British" nationality; and the company that would most clearly be excluded was Imperial Oil with its Standard Oil (American) owners.[3]

Although Walter Teagle was on the lookout for possible oil reserves for Imperial Oil, in 1914 his focus was primarily on prospects in South America. Nevertheless events in Alberta at this point did indicate potential future resources closer to home. In 1913 William S. Herron, an entrepreneur from Ontario who had settled near the Turner Valley south of Calgary, sent samples for analysis in Toronto of gas collected near a coal mining area called Sheep Creek. With the results in hand, he persuaded Archibald W. Dingman, who had managed the drilling activities of the short-lived Calgary Gas Company, along with two rising Calgary lawyers, James Lougheed and Richard B. Bennett, and a prominent rancher and businessman, A.E. Cross, among others, to join him in setting up Calgary Petroleum Products Company.

After a year and a half of drilling with promising if not spectacular results, on May 21, 1914, Calgary Petroleum struck oil at 2,718 feet. The naptha was described as "of such light gravity it could be pumped directly" into automobiles. The "Dingman well," as it came to be called, also stimulated the province's first oil rush with more than 500 companies suddenly emerging, many of them fraudulent. Other wells that sprang up produced mostly natural gas, and the boom collapsed within a few months. But Calgary Petroleum Products continued to operate and would eventually play a role in Imperial Oil's westward expansion.[4]

After the Dingman strike, Jersey Standard sent two geologists, Malcolm Thompson and Raymond Yost, to the Turner Valley to survey the prospects. Their report was mostly negative with regard to oil, and so Imperial did not pursue the subject further. By 1916, however, Teagle was once again thinking about Alberta. Excluded from Crown lands, Teagle approached CPR about leases in the Viking-Wainwright area near the Alberta-Saskatchewan border where Coste had earlier done some drilling. Imperial proposed to spend up to $100,000 (CAD) on exploration over the

next two years, but negotiations with CPR moved sluggishly when the railway company had wanted the project to move forward on a faster schedule.

At this point Imperial had to face a far more formidable challenge. Royal Dutch Shell, under the vigorous leadership of Henri Deterding, proposed in April 1917 to lease mineral rights on a huge swath of Crown lands in northern Alberta, encompassing the Athabascan region, the Peace River, and Grand Prairie. Alluding to the scandals of stock jobbery in the Turner Valley, Shell promised to provide opportunities for profit sharing with the government (Crown regulations did not require royalties before 1930). The timing was also well considered as the Dominion at the time faced the greatest crisis of the First World War. Furthermore Shell could present itself as a genuinely "British" enterprise (even though half the company was owned by the "neutral" Dutch).

Imperial had its resources as well, particularly W.J. Hanna, the Conservative politician who succeeded Teagle as president of the company in 1918. Relying on his contacts with the Borden government in Ottawa, Hanna was able to offset the tantalizing promises of Shell by highlighting Imperial's new commitments to exploration in the west. In addition, politicians in Alberta (including Lougheed and Bennett) were adamantly opposed to the Shell proposal. As the 1918 armistice ended the war in Europe, pressures for rapid oil development faded, and the "yellow peril" of Shell was turned back. But Imperial now had to demonstrate that its commitment to finding oil in the west went beyond mere promises.

To meet the challenge from Royal Dutch Shell, in 1917 Imperial and Jersey Standard had organized the Northwest Company. It was capitalized at $500,000 (CAD) with Jersey Standard initially holding more than three-quarters of the shares. By 1919, it was almost wholly owned by Imperial. The company relied on two men with experience in wildcat drilling: Alexander McQueen, who had begun his career working for Fairbank in Petrolia, carried out oil explorations for Imperial in Wyoming, and now became president of the Northwest Company; and Charles Taylor, an "old timer in western affairs" who had his own enterprise, Grattan Oil, that had been searching for oil in the Edmonton area since 1914. Taylor brought a crucial qualification to the task: he had leases in both the Viking fields (where Imperial was negotiating for access through CPR) and in the Fort McMurray area far to the north. With Taylor's leases, the Northwest

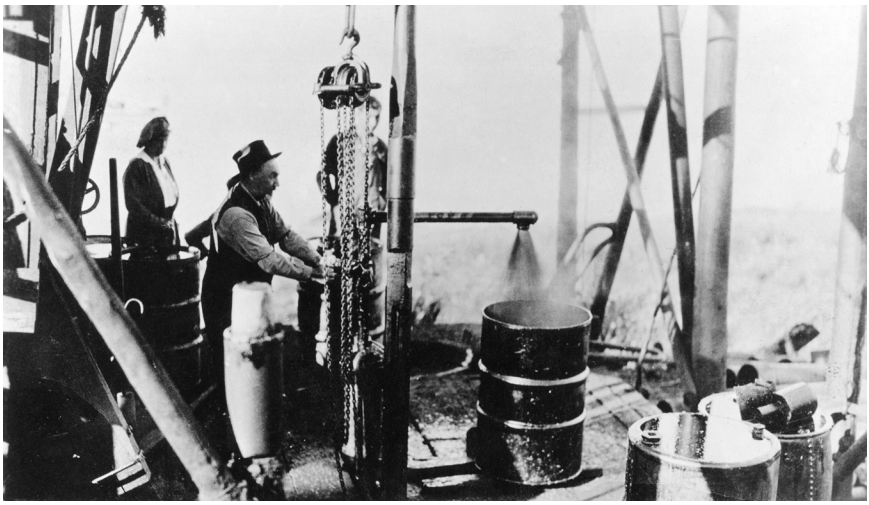


Figure 6.1. Charles Taylor, Norman Wells, 1920. Glenbow Archive IP-6b-1-9, Imperial Oil Collection.

Company could circumvent the 1914 restrictions on leasing mineral rights on Crown lands.

With the threat of Shell's entry into Alberta looming in 1918, and Teagle moving to 26 Broadway, Jersey Standard and Imperial agreed to mount a major expedition into the wilds of Athabasca. To that end the Northwest Company retained T.O. Bosworth, regarded as one of the leading petroleum geologists in the United States (like Herbert Hoover, he ran his own mining and petroleum company in addition to providing service to large oil companies, including Shell). Bosworth had conducted surveys for International Petroleum in Peru; he had also led an expedition in 1914 that investigated oil prospects in northern Alberta, including the Fort Norman area and the Athabasca region. Joining in this venture into the wilderness were O.B. Hopkins, another geologist exploring petroleum prospects in Colombia for the IPC, and Theodore Link, who had recently acquired a PhD in geology at the University of Chicago.[5]

Bosworth had an ambitious program encompassing fourteen expeditions ranging from the Great Slave Lake and Mackenzie River area to Calgary. But relations among the company managers were rocky from the

start: Bosworth had his own ideas about where to search, and he feuded constantly with Taylor. Most of the drilling proved fruitless. In the summer of 1920, Taylor and Link found oil in an area south of Fort Norman in the Northwest Territories (at "Bosworth Creek" named after the geologist). Output was limited—by 1923 it was yielding at best 100 bbl./day. But Link, in particular, was optimistic: an article in the *Edmonton Journal* in October 1920 quoted him saying "this is the biggest oil field in the world — stretching to the Arctic coast," although the journalist may have provided a hyperbolic interpretation of what Link actually said.[6] Charles Stillman, the president of Imperial, was more skeptical of the commercial potential of the site, pointing out that it was 900 miles from the nearest port on the Mackenzie River. Nevertheless, the Northwest Company staked fifteen more claims in the area. More positively, in 1920 the Dominion reversed its policy excluding "non-British" companies from leasing mineral rights on Crown lands, and Stillman set out to acquire extensive leases across Alberta and the Northwest Territories to forestall future forays by other oil majors like Shell.[7]

In 1921 Bosworth resigned from the Northwest Company and Taylor died under mysterious circumstances a year later (allegedly he shot himself by accident but there were rumours of suicide). By this time the company had spent $3 million (CAD) on what seemed to be a fruitless venture. Meanwhile, however, Hopkins and Link had emerged as key players in the search for oil in the remote reaches of northern and western Canada; and later both spent time exploring for oil in Colombia. In the winter of 1921 Link participated in a hazardous but historic flight from Peace River to Fort Norman. These were the pioneer days of what became known as "bush flying," and the airplane—a German Junkers leased by Imperial Oil—encountered numerous dangers, including a near-crash landing and jury-rigged repairs to the propeller *en route*. But from Link's point of view the trip was a success: he discovered the benefits of aerial geological mapping, which were particularly useful in the remote wilderness of northern Canada.[8]

Romance, danger, adventure—but not much oil. By this point, Imperial had decided to turn its attention back to prospects in southern Alberta, particularly in the Turner Valley. The Fort Norman site continued to be worked until 1925 and then the wells were capped. Seven years later,

however, they were reopened in part to supply anticipated needs of uranium miners in the Great Bear Lake region. By the end of the 1930s a small refinery was in operation, producing about 400,000 gallons per year of various motor and fuel oils from the wells near Fort Norman.

Turner Valley and Royalite

Although in 1914 Jersey Standard geological reports expressed skepticism about the potential for oil in the Turner Valley, Stillman's policy of pre-empting rival companies indicated that Imperial needed to establish a presence there. The Calgary Petroleum Products Company, which was the largest remaining producer with its own gas plant, was an obvious target for acquisition. And since it was producing a small amount of naptha as well as natural gas, there was at least the possibility of finding oil by drilling more deeply. Dingman had approached Teagle in 1915 about selling CPPL to Imperial, but nothing came of that initiative and some of the shareholders, especially Herron, opposed a sale to the Canadian subsidiary of the Standard octopus. But the company needed more capital to pursue expansion plans, including drilling a fourth well. When a fire destroyed the gas extraction plant in October 1920, CPPL shareholders, represented by R.B. Bennett, were ready to negotiate.

The existing shareholders retained 25 per cent of the reorganized company, which was renamed Royalite Oil Co. Ltd. (the brand name used for Imperial products sold in Toronto in the 1890s). The capital stock was set at $1 million (CAD), although only $615,000 was issued initially. Imperial Oil agreed to spend $400,000 to rebuild the plant and continue the planned drilling program. Alexander McQueen became president of Royalite from 1922 to 1926, when he went back to Imperial and was succeeded by Bennett. Another Imperial veteran from Petrolia and International Petroleum, John H. McLeod, became vice president of Royalite in 1928 and then president in 1930 when R.B. Bennett left the company to become prime minister of Canada.[9]

Imperial also intended to establish a pipeline to supply gas to Calgary from the Turner Valley. But this plan was derailed when a bill to approve it came before the Alberta legislature early in 1921. A reform party—the United Farmers of Alberta—had emerged, advocating public ownership

of utilities and demanding that any pipeline should be designated a "common carrier" along the lines practiced in US states such as Oklahoma and Texas. Shortly thereafter the UFA formed the new government in Alberta. Imperial withdrew the proposal, and a year later Royalite built a small 4-inch pipeline to provide gas to consumers in Calgary.

Imperial had more success in its dealings with the Dominion government, perhaps in part because the Minister of the Interior, whose responsibilities included the administration of federal regulations around petroleum and natural gas, was James Lougheed—a shareholder in Royalite. After 1920 Imperial could lease mineral rights on Crown lands, but the company chafed under the leasing rules, which allowed 25 per cent of the costs of exploration and drilling to be applied against the lease; Imperial argued that 40 per cent was a more realistic figure, and at one point McQueen threatened that the company was "seriously considering abandoning further operations in western Canada," unless there was such a change. Given the commitments Imperial was making in Alberta, this was something of a bluff, but in any case the concession was made in December 1921. Subsequently Lougheed's successor as Minister of the Interior, Charles Stewart (who had been premier of Alberta), allowed an expansion of the maximum area for "group" leases from 2,560 acres to 20,000 acres. Stewart also reconfirmed delaying the collection of royalties on production from Crown leases to 1930.[10]

By the end of 1923 the crew on what was called Royalite Number 4 well had drilled down more than 2,800 feet, yielding 7 million cubic feet of gas per day. But the company still hoped to find oil, and drilling continued into limestone rock. In October 1924, the well experienced a huge blowout of gas, followed by an explosion and runaway flaring that could be seen in Calgary. The site became known as "Hell's Half Acre." Royalite had to bring in "wild well" experts from Oklahoma and Wyoming to quell the blaze by December 1924. Royalite Number 4, however, then became a major producer of naptha as well as natural gas. By 1925 Royalite was producing more than 160,000 bbl./day, more than half the total petroleum output of Canada. The blowout also stimulated the second Turner Valley oil boom, attracting hundreds of wildcatters to try their luck. Meanwhile Royalite stock soared from $25 (CAD) to over $200 per share. Imperial Oil built a refinery in Calgary in 1924, perhaps anticipating further discoveries

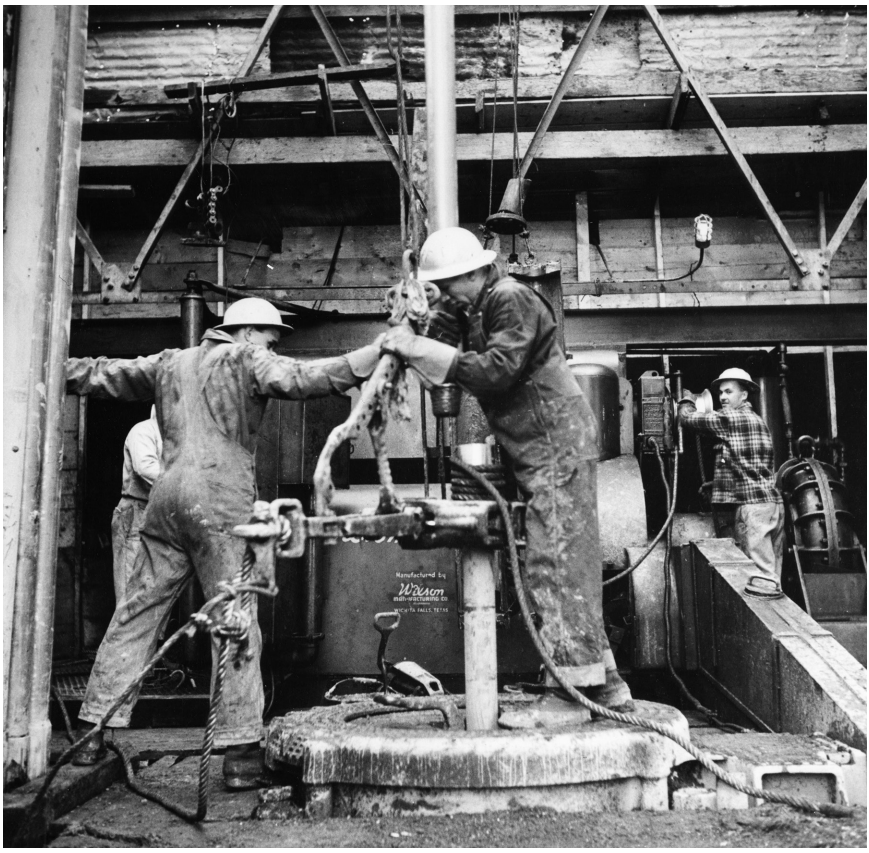


FIGURE 6.2. Oil rig workers, Turner Valley, 1930s. Glenbow Archive IP-6c-12, Imperial Oil Collection.

in Turner Valley, but also eyeing the Kevin-Sunburst oilfield across the border in Montana.

There was a downside to Royalite's unanticipated good fortune. The gas produced in Turner Valley from the initial drilling was light and sweet, requiring a limited amount of processing. The gas from Royalite Number 4 and other deeper wells was "sour," imbued with hydrogen sulphide. Royalite was in the midst of negotiating with Coste's company, Canadian Western, to build a larger 10-inch pipeline to Calgary when the new gas discovery came on stream, and the transportation company demanded

that Royalite install a scrubber in its new gas plant to remove the toxic emissions. Royalite was particularly anxious to complete the deal since Imperial was building a refinery in Calgary to serve the western market. When this was finally accomplished in 1925, the pipeline was built, and Royalite joined Canadian Western as the "big businesses" in the oil industry in Alberta, suitable targets for both the UFA and independent producers in Turner Valley. The "sour gas," however, continued to be a health and safety issue for workers in the Royalite gas plant.[11]

In 1926 Royalite issued 400,000 shares at no par value, distributed on the basis of the current shareholders' percentages. Imperial's stake in Royalite rose to over $1 million (CAD). The Calgary company then began to expand, partly by drilling two new wells (one proved unproductive and was abandoned) and more significantly by acquiring other Turner Valley companies or establishing new ones that took out more leases. In 1925 Royalite set up the Dalhousie Oil Co. Ltd., which in turn acquired Alberta Southern Oils Ltd. and Midwest Petroleums Ltd. In 1926 Royalite took over London Union Oils Ltd., Mayland Oil Co., Southern Lowery Oils, Calgary Development & Producers Ltd., and Sterling Pacific Co. (all of which were liquidated during the Depression). Meanwhile, Imperial Oil was setting up and/or acquiring Turner Valley companies directly, including Foothills Oil & Gas Ltd. in 1927, Lowery Petroleum Ltd., Southwest Petroleum, and Dolomite Oils Ltd. By the end of this expansion spree, IOL and Royalite effectively controlled an estimated 75 per cent of the producing companies in the Turner Valley.[12]

All of these activities were (supposedly) carried out surreptitiously. The architect of this strategy was Richard B. Bennett. By the mid-1920s Bennett was one of the most prosperous and influential corporate lawyers in Alberta. He was on numerous boards, including Calgary Power, Alberta Pacific Grain Co., Royalite and, from 1924 to 1929, Imperial Oil. From 1926 to 1930, he was president of Royalite. He was also a rising star in national politics, becoming the leader of the Conservative party in 1927 and the prime minister of Canada three years later (just in time for the Depression). Bennett was an eccentric figure, particularly in the "wild west" atmosphere of Alberta. He lived with his sister in a suite in the Palliser Hotel in Calgary, always dressed in formal attire with top hat and spats, and ate huge meals—apparently in order to literally become the

virtual caricature of the "bloated plutocrat." But despite these hyperbolic behaviours, business leaders nevertheless took Bennett's advice seriously, and Imperial followed his recommendation to "buy up small companies and keep them separate to avoid 'radical' legislation."[13] It is hard to believe that these *sub rosa* measures were really successful in remaining secret in the small and tightly knit community of oil producers in Turner Valley.

The "radical" politicians who preoccupied Bennett's thoughts were the United Farmers of Alberta who were in power in Edmonton from 1921 to 1935. By the middle of the 1920s, however, the responsibilities of governing had muted their ambitions for progressive reforms to some extent. One of the major issues in the petroleum industry in Alberta was the wastage of natural gas through flaring, a common problem in gas fields. As the largest producer in Turner Valley, Royalite was a contributor to this problem, which had an unforeseen consequence: gas flaring reduced underground pressure, making it more difficult for drillers to find the oil deposits below the gas. McQueen, now a vice president of Imperial Oil, maintained that since 1924 Royalite had equipped its wells to shut down when required to conserve gas. But he pointed out that since other drillers in the field were allowing their wells to run "unimpeded," any restraint on that company's part would not have much effect.[14]

The solutions seemed to be either to find export markets for the gas or to impose substantial restrictions on output, which would require capping wells and closing some operations entirely. Imperial Oil had raised the issue of exporting, proposing to sell gas from a well it co-owned in Lethbridge to Montana residents. The premier, Herbert Greenfield, blocked the proposal, arguing that "all the requirements of Alberta [must be] fully protected" first. This view was shared by some of the business community in Calgary and other municipalities who believed that the availability of cheap gas could attract industry to Alberta.

In 1926 Greenfield's successor, premier John Brownlee, proclaimed an Oil and Gas Wells Act that was patterned on the conservation regulations established by the Dominion in 1910. These regulations, which only applied to Crown lands, provided for the closure of wells when necessary to reduce flaring and measures to protect water supplies from gas intrusion. Brownlee's dilemma, however, was to find a way to impose these regulations on the ornery oilmen of Alberta. A.A. Carpenter, the chairman

of the provincial Board of Public Utility Commissioners, pointed to the example of California, which had achieved conservation goals "as a result of agreement among the operators themselves." This view was endorsed by the director of Alberta Lands and Mines, William Calder, who was assigned the responsibility of finding ways to enforce the law, which was simply being ignored by the industry. Inevitably, this approach would require acceptance by Royalite, whose managers (much like Rockefeller and Standard Oil in the US in the nineteenth century) were interested in stability so long as it could be achieved through "cooperation" rather than government fiat.

In 1932 the larger producers agreed to allocate gas production in order to reduce wastage. This measure was adamantly opposed by the "independents" whose spokesman, William S. Herron, denounced the plan as "bolshevism" and "communism" and at the same time as a scheme to benefit "big business" in the Alberta oil fields. Herron, who was one of the founders of CPPL in 1914, was a feisty and combative embodiment of the western entrepreneurial spirit. After Royalite took over CPPL in 1921, he retained his shares in the company but also set up his own drilling operation in Turner Valley. In 1928 his company, Okalta Oils Ltd. made a strike almost as large as Royalite Number 4, and after years of feuding with banks and the federal government, he became a rich man. He remained an outspoken defender of the small business, focusing particularly on the sins of Imperial Oil, but also became a member of the board of directors of Royalite in 1933, where he lobbied for bigger dividends. Like many other independents, Herron lost most of his fortune in the Depression before he died in 1939 "with his boots on" while working on one of the derricks of his beloved Okalta company.[15]

The convoluted relationship between Herron and Royalite reflected the dynamic business environment of the Alberta oil industry at the time, where large and small enterprises alternately battled and cooperated with one another. The oil glut and the Depression of the 1930s bankrupted many small companies and communities as well, and even Royalite had to lay off workers. The company spread work out to keep people at least partially employed, and provided direct aid to people in Turner Valley in an era when governments could not or would not address the problems of

unemployment and literal starvation. Meanwhile many wildcatters continued to try to emulate Herron and strike it rich.

In 1934 Robert Brown, superintendent of Calgary Light and Power, joined with George Bell, publisher of the *Calgary Albertan* newspaper and John Moyer, a lawyer, in one such effort, hoping to strike oil by drilling much deeper than the gas wells in Turner Valley. Within a year they had exhausted their own financial resources and could find no investors in the midst of the Depression. They set up a company called Turner Valley Royalties, which offered royalties of 70 per cent of the value of any oil produced to those willing to provide financing. Imperial Oil provided $22,500 (CAD) worth of equipment in return for royalties, and other companies—including British American Oil—participated as well. On June 16, 1936, with drills going more than 8000 feet deep, the company struck oil, producing 850 bbl./day as well as 60,000 cubic metres of gas per day. The discovery, touted as Alberta's first real "crude oil gusher," set off the third petroleum boom in the Turner Valley, but also exacerbated ongoing controversies over the control of production.[16]

In 1930 premier Brownlee had achieved a long-term goal of western Canadians when the federal government agreed to transfer control of Crown lands from the Dominion to the Prairies. This outcome may be attributed principally to the new prime minister, R.B. Bennett, who had been a long-time advocate of provincial ownership of resources, but Brownlee and the UFA could take credit for it, which helped preserve the party in power for five more years. But Brownlee's efforts to impose conservation on the gas fields continued to be frustrated. When voluntary agreements failed to take shape, the UFA government set up a Turner Valley Gas Conservation Board to set limits on production and reduce wastage, but this measure was challenged in court successfully by an Alberta company on the grounds that no such constraints could be placed on producers who held leases before the 1930 transfer. After that debacle, the UFA government virtually gave up on enforcing its conservation laws and was swept from office in 1935 by a new militant agrarian party, Social Credit, under the leadership of William Aberhart.[17]

Focused initially on its monetary experiments, the new regime did not assign much priority to the imposition of environmental and production controls on the petroleum industry in Alberta. By September 1937,

however, the boom set off by Turner Valley Royalties was forcing these issues to the forefront. The Imperial Oil and the British American refineries in Calgary both announced reductions in the amount they would pay producers for naptha and crude oil, citing the local "oil glut" as the reason. In January 1938 John McLeod, president of Royalite maintained that his company would be obliged to cut its prices even further. In less than six months the price of crude oil fell from an average of $1.60 to $1.26/bbl. (CAD).

The new Minister of Lands and Mines, Nathan Tanner, sought to negotiate a voluntary agreement to reduce production, called "prorationing." As in 1932, this proposal divided the industry, with Imperial and British American accepting it, while the independent producers resisted. They demanded that the Dominion government impose higher tariffs on imported oil and gas, and dispatched a delegation to Ottawa to lobby the tariff board and the federal Minister of Mines and Resources, Thomas Crerar, a western progressive who had joined the ruling Liberal party in 1935. Crerar's advisers, however, pointed out that the major problem for Alberta oil was the cost of transportation to central Canada, and in any case the Liberal party was not in favour of raising oil import duties when it was trying to negotiate a reciprocity agreement with the United States.

Fortunately for Tanner, divisions surfaced among the independents, as oil producers recognized that continuing depletion of natural gas would force them to drill even deeper to find oil, and so they became advocates of conservation measures. Tanner, a Mormon schoolteacher with no business experience, also benefited from his association with Ernest Manning, Aberhart's second in command in the Social Credit party who would become premier of Alberta for more than twenty years. Thus reinforced, Tanner introduced a new Oil and Gas Conservation Act in 1938. He brought in an American, William Knode, from the Texas Railroad Commission (which had brought effective prorationing to the anarchic world of East Texas oil), to enforce the law. But Knode also fell afoul of the Alberta oilmen, and in 1940 Tanner replaced him with Robert Allen from California to try to bring peace to the oilfields.[18]

The latest iteration of petroleum conservation legislation survived a court challenge, but independents continued to defy efforts to enforce prorationing, which was becoming unpopular as oil prices continued

to stagnate. Ultimately it was necessary to arrange for a compensation scheme for those producers who were negatively affected by prorationing. Meanwhile the government announced the formation of a provincial royal commission to be chaired by Justice A.A. McGillvray of the Alberta Supreme Court. The McGillvray Commission was directed to conduct a "thorough investigation" of conditions in the industry and to recommend "the fair and equitable price . . . of petroleum products sold to consumers."[19]

Much of the McGillvray Commission hearings was devoted to the ongoing debates about prorationing, the powers (and limits) to be given the new Conservation board, and instances where compensation was not provided. Since Royalite was the largest producing company with twenty-eight wells, and Imperial Oil had the largest refinery in the province, it was perhaps inevitable that they became the focus of attention also. They were variously charged with arbitrarily setting low prices for producers and high gas prices for consumers, receiving preferential treatment from the conservation board, and (inconsistently) for refusing to drill new wells because they were opposed to government regulation of the oil fields.

The commission report did not come out until 1940, by which time wartime production and related issues preoccupied the public. Many of the recommendations of the commission involved the conservation board, only some of which were embraced by the government. The commission rejected charges that Imperial (or Royalite) had set prices "arbitrarily or whimsically," but rather acted "in accordance with its best judgment" based on prices "fixed by world competition." It also dismissed proposals that a government agency should be set up to regulate consumer prices and asserted that the conservation board's power should be restricted to "proration and conservation." On this subject the commission closed with an encomium to the free enterprise system: "no case has been made for government intervention in Alberta . . . the public in Alberta is adequately protected by the play of contending forces prompted by the desire for gain."[20] Ironically, this statement of faith was made in the context of a report that sustained government intervention in the oil and gas industry.

Canol

The Second World War, to a much greater extent than its predecessor, was a conflict in which oil played a predominant role, fuelling mobile ground forces—tanks and armoured personnel carriers—as well as ships, landing craft, trucks, and earth-moving equipment, and of course the vast air armadas of bombers, fighters, and supply carriers deployed by all the forces involved. Control of oil was central to the strategies of the warring powers: Nazi Germany invaded Russia with the aim of seizing the Caspian Sea fields; Japan gambled on war with the United States to capture the oil wells of the Dutch East Indies. The sheer scale of organization of the world's major oil companies, particularly Jersey Standard, and their technological achievements were major factors in the ultimate success of the Allies during the war.

US neutrality in 1939–41 produced some awkward moments for Imperial Oil because of its connection to Jersey Standard, as had been the case in the early period of the First World War. In the context of the hysteria that engulfed the US after Pearl Harbor, congressional investigators pursued Jersey Standard over its prewar patent agreements with the German chemical behemoth, I.G. Farben, and some of this criticism percolated north to Canada. But by the end of 1942 it was clear that Jersey Standard was a crucial player in American industrial mobilization, and through its connection to Standard Imperial Oil had much to offer the Canadian war effort.

Imperial Oil contributed significantly to the survival of Britain in 1940–41, in part through its ties to the American oil industry. The Canadian company built a large oil storage facility in Halifax that received shipments from US suppliers during the period of American neutrality, and trans-shipped them to Britain using not only Imperial's own tankers but also seventeen Panamanian-registered carriers, leased from US owners. Imperial lost four of its own tankers to U-boat attacks in 1941–42.[21]

During this same period, Canada became the major site for the British Commonwealth Air Training Program, to train pilots for service with the Royal Air Force as well as the Commonwealth countries—over 130,000 pilots went through the program, more than half of them Canadian. Imperial Oil provided two substantial components to this program. The

BCATP had to set up a large number of airfields on an emergency basis in 1939–41, and Imperial was able to provide huge quantities of an asphalt that was both low cost and durable, based on research carried out during the interwar era in its own labs: by the end of 1940 more than 10 million square yards of asphalt were laid on fifty-one training fields. Imperial also developed a system of "portable runways," which combined asphalt and burlap so that mats could be rolled and unrolled to provide short-term landing strips for fighter planes.

The other major requirement for the program was aviation fuel. During the 1920s–30s, Ethyl Gasoline Corporation, a joint venture between Jersey Standard and General Motors that had developed the tetraethyl lead "no knock" gasoline for automobiles, also addressed the question of providing more efficient fuel for airplanes. In 1926 Ethyl produced a gasoline using iso-octane (hydrogenated di-isobutylene) that became the standard for aviation use: four years later the US Army Air Force made 87-octane gasoline the accepted grade for combat planes.

Work continued on the processes for refining high-octane gasoline for airplanes, and by the eve of the Second World War Jersey Standard, using a process called sulphuric acid alkylation, could produce 100-octane fuel. The problem was that production of this highly efficient gasoline required a huge capital investment in catalytic cracking units, which only a company operating on Jersey Standard's scale could afford.[22] Imperial did not have the capabilities to set up these sophisticated refining operations, but it could produce 87-octane by modifying its distilling equipment using the processes developed by Ethyl and Jersey Standard; and the BCATP agreed to use this lower grade gasoline for training purposes. Once the US entered the war, a much greater degree of technology sharing was possible, not only between Jersey Standard and Imperial but also among the Canadian oil companies. Imperial Oil at its Calgary refinery and Shell Oil in Montreal used the alkylation process to develop 100-octane fuel; Imperial's Sarnia refinery produced cumene, used in the alkylation process and British-American provided isobutene to the refineries. In 1944 Imperial estimated it had spent $2 million (CAD) on war-related operations, more than 60 per cent on improving aviation fuels.

Imperial Oil was also involved in one of the most ambitious technological ventures in Canada during the war. After the Japanese conquest

of Malaya in 1942, supplies of natural rubber in North America were restricted. One of the controversial patents Jersey Standard had acquired through its agreements with I.G. Farben involved the production of synthetic rubber, and the American company made its patents in this field available to the US government for the duration of the war. It also built plants to produce polymerized rubber through butylene dehydrogenation in Baton Rouge and Bayway. When the Canadian government decided to set up its own synthetic rubber production, it turned to Imperial Oil which created a subsidiary, Saint Clair Processing Corporation, using petroleum from its new "Suspensoid" catalytic unit at the Sarnia refinery, initially set up to develop high octane gasoline. The Imperial operation was eventually absorbed into the crown corporation, Canadian Polymer/Polysar—which was, ironically, sold to Bayer A.G., formerly part of I.G. Farben, in 1990.[23]

But the most bizarre and controversial episode in the history of Imperial Oil's activities in the Second World War focused on the remote wilderness of northern Canada and the long neglected refinery at Norman Wells. The "Canol Project" originated in the crisis months following the attack on Pearl Harbor, when fears were widespread that Japan might invade the west coast of the United States and Canada. This was the same atmosphere of hysteria that also led to the forcible "relocation" of people of Japanese ancestry from California and British Columbia. Later the project produced intense controversy involving ambitious congressional investigators and rival military and civilian bureaucrats in Washington.

Japanese military strategy did indeed contemplate the seizure of the Aleutian Islands off Alaska to protect the northern Pacific flank of its fast-expanding empire, and in the summer of 1942 Japanese forces captured the islands of Attu and Kiska, before finally being expelled a year later. In the meantime, the US War Department mounted an ambitious and expensive program to build a highway and a set of airfields that would link the northwestern US to Alaska. The aim was not only to enable American military forces to repel a Japanese attack, but also to facilitate the supply of Lend-Lease aid to the Soviet Union via Alaska and Siberia.[24]

One of the many challenges facing a project of this magnitude was the provision of oil and gas to fuel the airplanes and trucks that would run the long supply lines. Standard Oil of California proposed using tankers and barges from its refineries to Skagway, Alaska, but the US War Department

Figure 6.3. Ted Link, Norman Wells area, 1920. Glenbow Archive PD-132-30-149, Imperial Oil Collection.

feared that Japanese submarines could prey upon them, and many of the tankers were needed for Atlantic convoy service. An alternative proposal came forward from an unlikely source: Vilhjalmur Stefansson, a prominent Arctic explorer and ethnologist.

Born in Manitoba, Stefansson was raised in the United States, and received a degree in anthropology from Harvard. Even before the First World War, he had achieved fame as an intrepid and accomplished explorer of the Arctic region, particularly on the Alaskan shelf and Beaufort Sea and in Siberia. He had campaigned for the construction of an Alaskan highway even before the outbreak of the Second World War and was a consultant with the US Army Air Forces in the 1930s.

Stefansson shared Ted Link's conviction that there were huge deposits of oil in the Mackenzie River region north to the Beaufort Sea. In early 1942 he began buttonholing officials in Washington advocating expanding the oil fields at Norman Wells and building a pipeline to the Yukon River to supply the needs of the US army and air force in Alaska. These overtures were apparently rebuffed by General George Marshall, the chairman of the US Chiefs of Staff, as well as the Petroleum Coordinator for War Harold Ickes, but Stefansson found a more sympathetic listener in Frederic Delano, chairman of the US National Resources Board, and, more crucially, the uncle of President Franklin Roosevelt.

Stefansson also met with Eugene Holman, a member of Jersey Standard's Board, who served as an industry liaison with the Office of the US Petroleum Coordinator, and Ronald MacKinnon, who was the superintendent of the Norman Wells refinery for Imperial Oil. The refinery had reopened in 1933 to supply the petroleum needs of El Dorado and Yellowknife gold mining operations, but the output never exceeded 840 bbl./day. Between 1929 and 1941 the total production of the three operating fields was 128,000 barrels. MacKinnon indicated that the refinery could increase output to 3,000 bbl./day but would require significant capital investment, which Jersey Standard was not in a position to provide.

Stefansson finally found a champion in the formidable figure of General Brehon Somervell, who was appointed Commanding General of the US Army Service Forces in March 1942. This position put him in charge of what one observer described as "everything except the actual fighting."[25] Within a month Somervell, a man of action, had one of his advisers, James

Graham, dean of Engineering at the University of Kentucky, meet with Jersey Standard's Holman and two Imperial Oil engineers. The Imperial men were cautious, saying "no assurances could be made" about raising output to 3000 bbl./day. But nevertheless, Graham was apparently satisfied and recommended to Somervell that they proceed with a plan to increase production at Norman Wells, and build a pipeline to Whitehorse where a refinery could be constructed to handle the expansion.

On the same day—April 29, 1942—Somervell approved the proposal and summoned R.V. LeSueur, president of Imperial Oil, to come to Washington and sign a contract. As an afterthought, the Canadian government was notified "through an informal note." The cabinet of Prime Minister Mackenzie King was initially divided, but the forceful (and American-born) Minister of Munitions and Supply, C.D. Howe, enthusiastically endorsed the proposal and saw to it that information was leaked to Parliament to bolster support for the project as a wartime measure. On May 19 the cabinet approved the "Canol Project" as it came to be known and the US and Canada agreed to it on June 29, less than two months after Somervell's recommendation.[26]

The contract Lesueur negotiated for Imperial with the US War Department was complex, and modified by agreements involving the Canadian government. But on the whole it could be considered a good deal for the company, which was provided with "the means of enlarging the Norman Wells field and their production . . . without having to invest any risk capital."[27] War Department negotiators were in a hurry but they were also mindful that future Congressional committees might scrutinize their work in search of wasteful spending—as indeed came to pass.

Imperial agreed to drill at least nine new wells as well as increasing the production of its existing wells at Norman to reach the 3,000 bbl./day target by October 1942. Any royalties due to the Canadian government under the 1921 federal regulations would be waived for both the new and existing wells, backdated to 1939 "to ensure that Imperial could offer a reduced price to the War Department for its output." Imperial would own all the wells; the cost of development, estimated at $2 million (USD) would be covered by the US War Department, and the Canadian government would waive import duties on the equipment brought in to develop the project. Imperial would be paid $1.75 (USD) per bbl. for oil produced in

existing wells, and $1.25 (USD) for oil from new wells, whose cost would have been covered by the War Department. After the US government had bought 1.5 million bbl. of crude oil, the price would be set at 0.50 (USD) per bbl. until the $2 million was paid off.[28]

This complicated process all but ensured that Imperial would seek to cover as much of its required output as possible by expanding the existing field at Norman Wells rather than developing new fields whose output would have to be sold at a discount. Not surprisingly, more than 80 per cent of the oil from Norman Wells that was sold through the Canol Project came from existing wells. On the other hand, Imperial was under considerable pressure from their War Department "partners" to explore and drill for oil anywhere they could go. By one account, by 1943 General Somervell and his associates had acquired "wildcat fever," anticipating strikes the size of the East Texas fields in the remote wilds of northern Canada. In 1943 Somervell boasted that the Norman oil fields could produce up to 100 million barrels of crude oil, and projected output of the (as yet uncompleted) refinery in Whitehorse up to 20,000 bbl./day. The Canadian government by now had pinned its hopes on the great white whale, since three quarters of the oil it was using had to be imported.[29]

To facilitate this grand quest, in November 1942 the US government persuaded Canada to expand the original leasing area for Norman Wells from 3,400 acres to 5 million acres, and to limit the prospecting and drilling rights to the nominee of the War Department, Imperial Oil, at least for the duration of the war. New regulations were imposed to keep out "nuisance staking" by wildcatters not associated with the project. Imperial dutifully expanded its exploration operations in 1943: Ted Link "swept out the senior class of the University of Alberta's Department of Geology" to fill the ranks of those needed to cover this wider territory.[30] Surveys by the US Army Air Force initially intended to identify the best route for the pipeline from Norman Wells to Whitehorse were expanded to provide aerial coverage of the enlarged domain of the Canol Project. But all these activities did not lead to an increase in actual production output. Imperial reported in 1945 that it had drilled sixty-three wells, with a potential capacity of thirty-six million barrels—little more than one third of the figure Somervell had projected in 1943. The company capped most of the wells at the end of the war.[31]

Figure 6.4. Means of transportation, Canol, 1944. Glenbow Archive IP-17a-3712, Imperial Oil Collection.

Meanwhile, the rest of the project was foundering amid scandals and investigations. The Whitehorse refinery, which was supposed to be in place by October 1942, was not completed until the following year by which time the Japanese threat to Alaska had receded. The pipeline from Norman Wells to Whitehorse, undertaken through unexplored territory, was not completed until early 1944 and was plagued with problems—oil leaks, wildfires, and damage to the permafrost. This was truly a "pioneer" undertaking, with no environmental considerations. Fortunately for Imperial Oil none of these debacles could be attributed to their company, which had done its job of producing the oil. In 1942 LeSueur had advised General Somervell that aviation gasoline could probably be provided more cheaply to the US bases in Alaska by flying supplies in by air rather than by building pipelines from Norman Wells.[32]

Meanwhile, American Congressional watchdogs were circling the fetid carcass of Canol. Harold Ickes, the US Petroleum Coordinator, had long opposed the project as an intrusion on his turf (even though it was in Canada) and useless in any case; he was joined by the Secretary of the Navy Frank Knox and assorted other bureaucratic rivals to the War Department. Senator Harry Truman's Special Committee to Investigate the National Defense Program honed in on Canol in the autumn of 1943. It concluded that the project, estimated to cost $25 million (USD), came in at more than $125 million (USD), much of it wasted. In its final report on Canol in 1944 the committee "cited the great benefits Canada and Imperial Oil got out of the contracts drawn up by the War Department. The United States paid for the exploration and development of the oilfield but retained no rights to the oil after the war."[33]

As might be expected, the demise of Canol was accompanied by much backbiting and finger pointing. Amazingly, the US War Department tried to keep a foothold in the Norman Wells operation after the war, demanding that the US should retain a 60 million barrel "strategic reserve" in return for turning over all the equipment provided to Imperial to expand its operations. LeSueur objected to this proposal, as did the Canadian government; in the end a bizarre, face-saving agreement was reached—Imperial would agree to hold a 60 million barrel reserve for the US Army, but only if the company discovered enough oil to export beyond covering its local market. Imperial was already in the process of capping its wells and had no plans to export any output from Norman Wells—its production fell to 200,000 bbl. in 1946.

When the project was under negotiation, much attention was paid to the disposition of properties after the war. As the war wound down, however, the US government embarked on a policy of systematic liquidation of the assets in which it had invested for wartime purposes, both at home and abroad. The Canadian government was offered a first option on taking over the pipeline from Norman Wells to Whitehorse, which it declined, and the poorly constructed system was allowed to deteriorate until it was largely dismantled in the 1960s. In 1947 Imperial Oil purchased the Whitehorse refinery, which had cost $22.5 million (USD) to build for $1 million; it then dismantled the refinery and shipped it to Edmonton at a cost of $9 million to be rebuilt as the refinery for the Leduc oil field. A

very good bargain. During the war the company had produced 1,675,132 barrels of crude oil at Norman Wells, processing more than one-fifth of the output at its own refinery there and earning a $1.16 million (CAD) profit from its operations. On the other hand, explorations in the region by Imperial in 1946 did not indicate the presence of the large-scale oil field the company needed to find as output from its other domestic operations, including Turner Valley, declined.[34]

Leduc

Imperial Oil emerged from the Second World War as still the largest petroleum company in Canada. In terms of assets, it was larger than all the other oil companies in the country put together. It had the only nationwide refinery and distribution system. Despite inroads on its sales in the 1930s, Imperial still held 50 per cent of the Canadian market. It had been the major contributor to wartime production of essential materials, including synthetic rubber and aviation fuels. Yet the company faced an internal crisis on several levels.

First, there was the issue of leadership. In 1945 G.H. Smith, who had presided over International Petroleum in the 1920s and Imperial Oil in the following decade, retired. His successor, R.V. LeSueur, another International Petroleum veteran, retired and died that same year. Both men owed their rise in part to their association with Walter Teagle, and they reflected his view of Imperial Oil as a loyal player in Jersey Standard's global game with Shell, Anglo-Persian, and American-based international competitors. Jersey Standard was going through its own changing of the guard, as Teagle, Farish, and others of that generation departed.

Jersey Standard's executives were aware of the management problems and the succession issues at Imperial even before the Second World War. After Imperial's share of the Canadian gasoline market fell from two-thirds to one half, Teagle had ordered a sweeping critique of Imperial's marketing policies in 1936 that found many failings despite Smith's (accurate) protests that Jersey Standard's depletion of the Canadian company's capital investment funds had contributed to these problems. In 1938, Jersey Standard sent in a new man to run the show.

Henry Hewetson had been born in the United States, but had many Canadian ties: he had served with the Canadian forces in the First World War and was married to a cousin of Victor Ross. But his work experience was with Jersey Standard, first at Bayway refinery and then as vice president of Standard Oil of Louisiana, one of the largest of the American subsidiaries. He was very much in the Walter Teagle mode—a big man with a square jaw and an-around-the-clock manager. At Imperial, he reported directly to Smith and then LeSueur. Among his other achievements, he could boast of establishing thirty-eight new service stations to boost Imperial's sales. Since the war improved Imperial's business, it is hard to know whether he was the primary contributor to the company's turnaround, but Jersey Standard's executives were obviously impressed.[35]

Hewetson was indeed a breath of fresh air in the halls of Imperial's headquarters in Toronto. Given his background in marketing, a great deal of attention was given to improving performance in this area: product sales doubled between 1939 and 1947, although net income only rose by 10 per cent, in part because of wartime taxes, and the imposition of rations on gasoline from 1942–45. During the war, he held prices down for "large industrial accounts" while allowing them to rise elsewhere, in order to retain these clients. Hewetson also opposed federal government proposals to allow lower priced oil imports for the civilian market, on the grounds that Canadian refining capacity needed protection. He lobbied successfully to force co-operatives in Saskatchewan to be subjected to federal taxes, to the delight of colleagues in the private (profit) sector.

Hewetson was also mindful of the issues of supply and supported the construction of the Portland to Montreal pipeline in 1941, which was intended in part to protect eastern Canada from the submarine attacks on tankers that peaked in that year. When he became president in 1945, Hewetson authorized the establishment of catalytic cracking plants and set up a separate division to that end. In addition he set up an Economics and Supply Department to encourage new innovations. At the senior level, he established an executive committee, modelled on Jersey Standard, to provide an overall strategic review and guidance for the company's operations—a major change in a company that had largely been run by the chief executive, with occasional prodding from Jersey Standard.[36]

Despite these energetic achievements, Hewetson faced the same challenge that had bedevilled his predecessors, all the way back to Teagle. The Petrolia fields were all but defunct, the Turner Valley output was declining, and for all its sound and fury Canol had produced no elephants. The Colombians were threatening to nationalize International Petroleum's holdings there by 1951, and Imperial Oil faced the prospect of becoming a refining and distributing company with no secure source of crude oil—not very different from the situation in 1914. Meanwhile, Imperial's familiar competitor in Canada, British American, took over Union Oil of Canada, and there was a potentially formidable American entrant, Sun Oil of Philadelphia, which focused initially on the eastern Canadian market but also acquired a half-million acre block for exploration in Alberta in 1945. Also in the west, Shell and Standard of California showed renewed interest in Alberta, joined by another American company, Husky Oil of Wyoming. The field was becoming more crowded.[37]

The government of Canada was also concerned about the declining domestic reserves, and the need to import more oil from the US during the war exacerbated dollar exchange problems. Since 1921, the federal government had allowed oil companies to offset exploration costs against their taxes. In 1941 the Dominion War Exchange Conservation Act allowed oil companies special depreciation and depletion allowances to encourage domestic production, and two years later duties were removed on equipment imported for use in oil and gas exploration.[38]

The lure of government tax breaks may have attracted some of the new entrants into the exploration game during the Second World War, but Imperial Oil remained the company most committed to finding new oil and gas in Canada. In 1946 Imperial reported that it had spent more than $18.7 million (CAD) on exploration and $6 million (CAD) on leases since 1919, representing 40 per cent of all the exploration costs recorded for the country; almost half of its expenses since 1942 had been offset by tax relief, but the record indicated the degree of engagement—or desperation—the company placed on finding new reserves.[39]

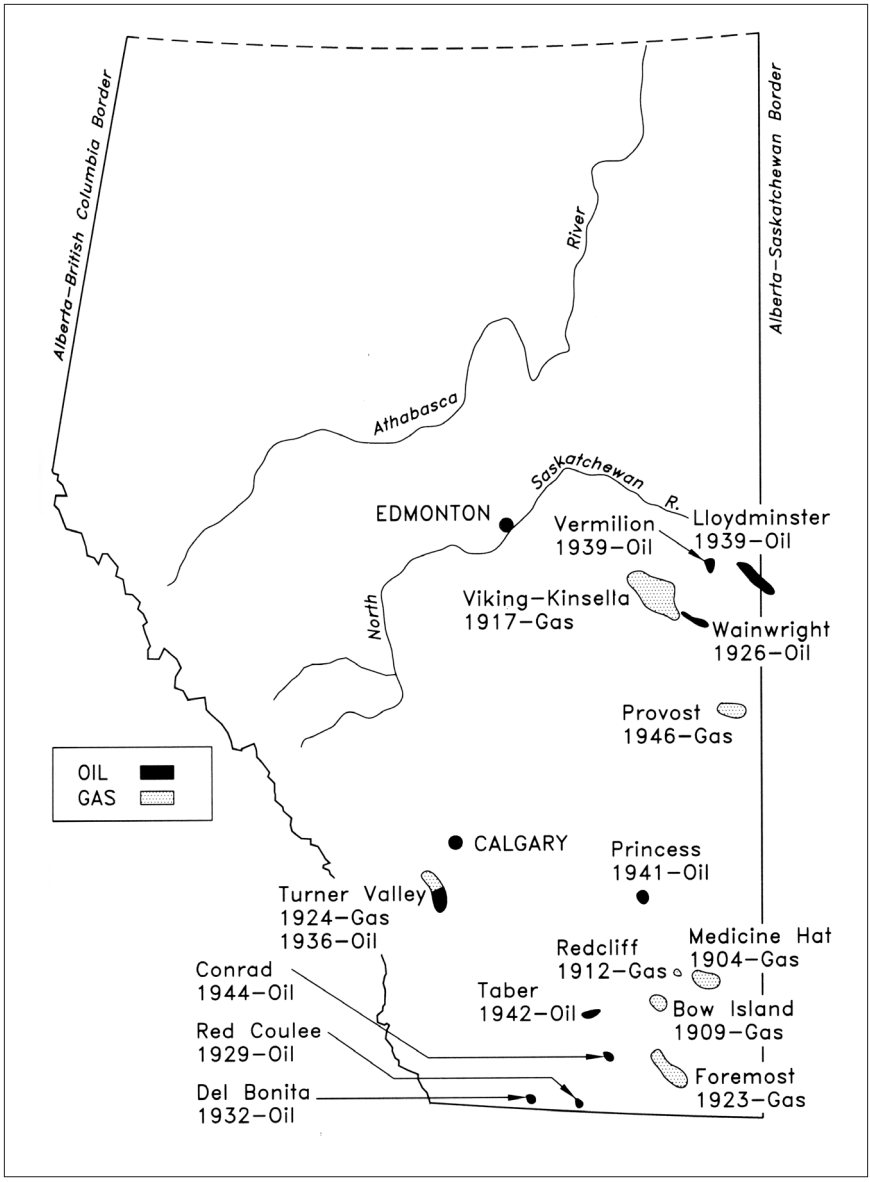
As exploration expenses—and frustrations—grew, Imperial's managers began looking at alternative ways of rebuilding reserves. One of the patents that Jersey Standard had acquired in the 1930s from German sources (not, in this case, from I.G. Farben, but from a coal-based company

called Ruhrchemie) involved the conversion of coal into synthetic fuels, which the Germans had used during the Second World War. Research at Jersey Standard indicated that a similar process could be deployed to convert natural gas into various forms of high-octane fuel. Since Alberta appeared to have abundant supplies of natural gas, Imperial began drilling for gas at the Viking-Kinsella field near Edmonton in late 1945. Although the synthetic fuel conversion process would be an expensive proposition—50 million cubic feet of natural gas per day would be required to produce 5,000 barrels of synthetic fuel—it was still deemed better than relying entirely on imported oil.

But Hewetson was not yet prepared to give up the quest for oil in Alberta, and he was supported by not only the ever-optimistic Ted Link but also O.B. Hopkins, now vice president of Imperial, who—like Link—had been involved in the early explorations of the North West Company. They persuaded Jersey Standard's top managers in the exploration area, including Lewis Weeks, the chief geologist, to send Michael Haider to help coordinate a final attempt to find the holy grail: Haider was a petroleum engineer from Stanford who had been involved with Carter Oil, Jersey Standard's major exploration arm, before coming to headquarters. Haider would later join the Imperial board and go on to become president and board chairman of Jersey Standard.[40]

A crucial meeting in this process took place on April 19, 1946, attended by the major geologists from both companies including Link, Hopkins, Haider, and Weeks. They mapped out an ambitious strategy that would cover a range of potential western Canadian sites, but focused on an area in Alberta around Edmonton that they regarded as most likely to yield good results. Seismic studies of the 25,000 square mile area were ordered for the search, a novelty for Alberta at that time—seismographic research had been pioneered by Carter Oil for Jersey Standard in the 1930s and was now being applied to their other affiliates.

Imperial's accounts of the steps that led to the Leduc discovery imply that it was carefully planned and executed; some historians have maintained that although the reasoning behind the strategy was well developed, there was still more than a bit of luck involved: the initial drilling was intended to penetrate to "Mesozoic" depths (formations dating back 225 million years) at about 4,000 feet; the promising but limited results led the



Map 6.1. Alberta Oil and Gas Fields 1946. David Breen, T*he Alberta Petroleum Industry and the Conservation Board*, Edmonton: University of Alberta Press, 1992, p. 237. Courtesy of David Breen.

drillers to go further into "Paleozoic" levels (formations going back 600 million years) at more than 5,000 feet—and most of the big oil discoveries to follow in Alberta went to these depths. In any case, by early February 1947, after three months of drilling at Leduc, Imperial managers felt confident that a strike was imminent and set the date for the public unveiling of their success for February 13, 1947.[41]

At the same time, Imperial was drilling more wells in the Leduc area—a second well proved disappointing, but Leduc #3 at 5,380 feet also proved to be a gusher. In the following year Imperial discovered another field, larger than Leduc, at Redwater. By this time, the other oil companies had joined enthusiastically in the search.

Imperial's managers could not bask in success. There were a number of issues to be resolved: where would this oil be refined? How would it get to market, and particularly to the central Canadian markets? Where would the capital come from to finance this major increase in the infrastructure required to ensure that Alberta's oil would provide the basis for Imperial's long-term growth? These were challenges that the company would face and overcome during the next several years, ensuring its predominant role in the Canadian oil industry for at least two decades.