

Theodore August Link (1897–1980)

On 25 August 1920, Theodore August Link wrote in his field notes: “Surveying on Mackenzie River *Gusher Struck” (Link, 1920:18). He was 150 km south of the Arctic Circle and 80 km downstream of Fort Norman. As an Imperial Oil Limited geologist, he had been sent to this remote area to advise on the drilling of an oil well on the banks of the Mackenzie River, where the company had acquired leases. As a result, the most northern oilfield in North America for its time was discovered, and 200 men staked their claims on 8100 km² to 12 000 km² of land. Link was quoted in the newspapers as saying that the “biggest oil field in the world” had been opened up and that it stretched from “Fort Norman to the Arctic coast.” He compared the potential of Mexico and Peru as being “miniature” in class! (Ottawa Journal, 1920). Such a reaction was typical of Link throughout his life, for he was a zealous proponent of oil development, with an infectious sense of humour and a zest for life that inspired others to support his beliefs.

Like many other northern explorers, Link was a young man when he made his discovery (Alexander Mackenzie was only 26 when he made his voyage of discovery down the river that now bears his name). Born in 1897, he was the fourth son of a Lutheran pastor from Laporte, Indiana, whose family included six boys and four girls. He studied geology at the University of Chicago and received his Bachelor of Science degree in 1918. It was there that he became friends with Bert R. McKay, a Canadian, who introduced the hunt for minerals in Canada. Link spent the summer of 1918 working on a Canadian government survey of gold deposits in Quebec and British Columbia. That fall he returned to Chicago and then travelled to Oklahoma for a job. One night in Cisco, Texas, Link read an Imperial Oil advertisement for a geologist position in South America. He responded but failed to get the job. When Imperial inquired about his interest in working in the subarctic regions of northwestern Canada, he accepted, and the Norman Wells oilfield was discovered.

Imperial Oil had acquired three claims in the area in 1918 through its subsidiary Northwest Company. In 1919, Imperial decided to send a drilling rig and an eight-man drilling crew to Oil Creek to test those claims. The crew left Edmonton in July 1919 but did not arrive until September. It was too late to begin drilling the well, so the crew wintered in log cabins that they built on an island in the river. The next spring, on 14 April 1920, they commenced drilling.

Link and an assistant were also sent to the area in 1919 to continue surveying claims, to further investigate the geology of the area, and to oversee the drilling of the well. Link chose the location of the prospect well on flat ground, safe from ice-jams, close to a water supply for drilling, near a good landing place for the supply ships, and in the centre of the oil seepage area. Link and his assistant returned south in the fall of 1919, but the next spring Link returned with a relief crew and arrived at the well site on 8 July. The well was already 95 m deep when the new crew took over drilling. On the day of the

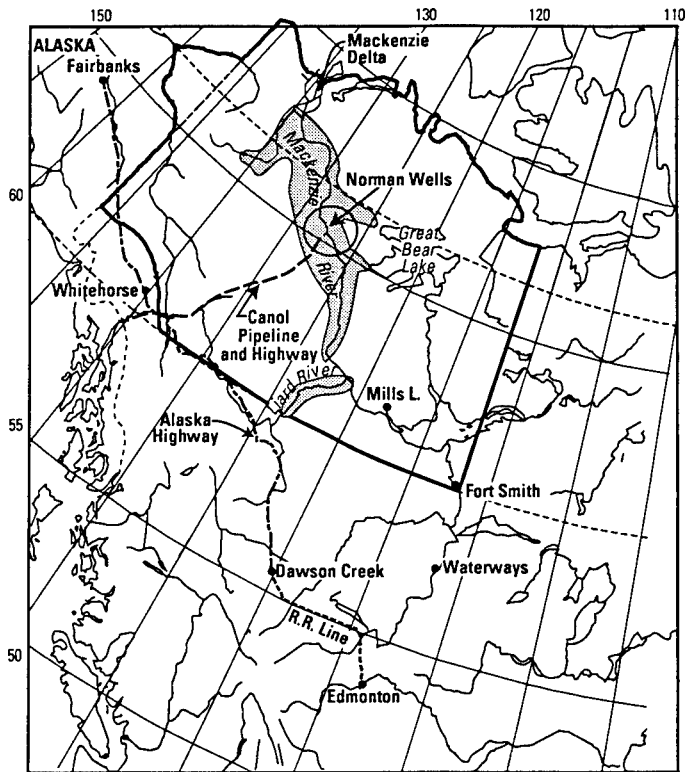


T.A. Link conducting geological surveys from on top of Bear Rock, Northwest Territories, 80 km south of the Norman Wells oilfield. Photo courtesy of Imperial Oil Archives.

“gusher,” a fountain of oil reportedly spouted 21 m above the derrick floor for 40 minutes before the well was capped. The next day Link was surveying another tributary stream of the Mackenzie River. Thirty years later, when a reporter asked him the secret of discovering oil, Link replied with a twinkle in his eye: “geological intuition, divine guidance and intestinal fortitude” (Wilcock, 1953:34).

Link worked in the North for a couple more seasons, until an assignment with the Tropical Oil Company (a subsidiary of Imperial Oil) took him to the jungles of Colombia. There he gained a reputation as a field geologist and scholar who advanced theories and wrote widely in the journals of the day. But by 1926, Link’s academic interests and a bout of malaria caused him to return to the University of Chicago to pursue a doctorate specializing in structural geology. He returned to Imperial Oil in 1927 and remained with the company until 1948, when he left to pursue private consulting interests. He served as the chief geologist of the CANOL Project (1942 and 1944) and assistant and chief geologist of Imperial Oil from 1944 to 1948, when the famous Leduc oil discovery was made. Leduc turned out to be a massive oilfield, which ushered in the great new oil age of Alberta and made Canada a major oil-producing nation.

During World War II, the United States and Canadian governments signed the CANOL Agreement to develop the Norman Wells oilfield to provide a source of oil products along the route of the Alaska Highway. A supplemental agreement with Imperial Oil Limited called for a geological and geophysical exploration programme to expand Norman Wells oil production from 500 m³ to 3200 m³ per day. Imperial Oil Limited was asked to release its chief geologist, and Link was assigned to the American Corps of Engineers to organize and direct the exploration program in an area nearly twice the size of Alaska. From 1942 to 1944, he led 13 crews of geologists in the exploration and mapping within a 2 600 000 km² territory reserved by the Government of Canada for Imperial Oil exploration. The available area extended



The area of geological and geophysical exploration and wildcat drilling contracted to Imperial Oil Limited, 24 November 1942. Shaded areas indicate actual areas explored during the 1943 season. (Imperial Oil Limited, 1945: Fig. 25).

from the 60th parallel north to the Arctic Ocean, and from Great Bear Lake westward to the headwaters of the Mackenzie River tributaries (see map).

Link concentrated his search on areas up and down the Mackenzie Valley and in all the major tributary valleys from the Liard River north to the Mackenzie Delta. He described the work as “unique in its remoteness, magnitude, method of operation, and absence of serious disaster” (Link, 1944a:1). Travel methods included hiking, snowshoes, dog team, canoe, motor boat, tractor and trailer, airplanes and combinations of these. The geological crews carried out 42 assignments and produced 43 detailed reports. A geophysical seismic program covered 570 km², and airplanes flew 308 hours in transporting parties, reconnaissance, and air mapping.

As a result of these explorations Imperial eventually drilled 17 wildcat wells, but failed to find another oilfield. Link, an incorrigible optimist, lamented the results in an April 1944 closeout report: “It is most unfortunate that the exploration programme was halted so abruptly at a time when definite results appeared imminent” (Link, 1944a:15). Just prior to leaving the CANOL Project, he sent a covering letter with a special Reserve Report for the Norman Wells oilfield to Imperial Oil management. He wrote, “This is my first (and I hope my last) signed statement regarding said subject.” He went on to say that “it is up to you fellows now to drill and produce the Pool in such a manner that you can make a first-class liar out of me.” Regarding other estimates of Norman Wells oilfield reserves, he said, “I really don’t care.” His

personal reaction was that original predictions “(that we will produce reams and reams of paper and no oil) may still prove to be the best estimate on reserves.” He signed his letter “Dr. T.A. Link - Retiring (and very tired) Chief Geologist” (Link, 1944b:15). Fortunately he did not retire for another 26 years.

He returned to Imperial Oil as the company’s Chief Geologist and organized the drilling program that led to the Leduc-Woodbend, Redwater and Golden Spike oil discoveries in Alberta. Then, on the crest of the ensuing oil boom, he left Imperial to become a consulting geologist. The company Link & Nauss Ltd. was established in 1950, and by 1956 he was president of Link, Downing & Cooke Ltd. of Calgary and Toronto.

Although the discovery and development of the Norman Wells oilfield were the major highlights of his work in the Arctic, Link made two other major contributions: the first commercial use of airplanes in the North and the use of aerial photography in geological surveying. The first airplane flight ever to reach Fort Norman left Peace River on 29 May 1921 and crash-landed at Fort Norman on 2 June after 12.5 hours of flying time. Link was on the plane and reportedly carried \$35 000 to buy claims along the river. The same journey one year earlier had taken him 55 days. During the CANOL Project, he was the catalyst for a program to take aerial photographs of the Mackenzie Basin for geologic interpretation. Thousands of photographs were examined and significant contributions were made to the overall geological program, thus laying the groundwork for future use of aerial photographs by other geologists.

Link’s major contributions to geology included the use of cross-section models in geological work as well as numerous theories that are still relevant today. He wrote at least 72 technical papers in peer-refereed journals, and Imperial Oil’s current library records show him as an author of 160 company reports. His theories spawned a whole generation of coral reef conscious geologists, and his achievements were well recognized by numerous associations. He was a distinguished lecturer and served as the president of the American Association of Petroleum Geologists from 1956 to 1957. He spearheaded the first symposium on arctic geology, held in Calgary 11-13 January 1960 under sponsorship of the Alberta Society of Petroleum Geologists. In 1949 he received the Barlow Memorial Medal from the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) for the outstanding paper on geology published in that year. In 1960 he received the Blaylock Medal from the same organization for his distinguished service to the petroleum industry. He retired in Victoria in 1971. In 1974 he received the first CIM John Campbell Sproule Plaque for his visionary zeal, professional dedication, and distinguished contributions to the exploration and development of Canada’s arctic resource potential. An honorary doctorate was awarded to him by the University of Calgary in 1977. He died 25 June 1980, just as the Norman Wells Oilfield Expansion Project was receiving approval to expand production to 4000 m³ per day.

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