

SIGNIFICANT ANNIVERSARIES

For some reason the initial year of each decade often brings events that have a profound impact on the following years. Obviously 2020 is having that effect due to the pandemic whose implications will be with us for many years to come – including the federal deficit and national debt! Others include 1960 (the creation of O.P.E.C.) and 1970 (the Quebec Crisis and the War Measures Act). In this issue, we will focus on two others that are closely tied to the Canadian petroleum industry, specifically the 1920 discovery of the Norman Wells oil field in the Northwest Territories and the 1980 introduction of the National Energy Program.

Archives has featured Norman Wells and the N.E.P. on a number of previous occasions that are detailed below. Readers are invited to visit the P.H.S. website's compilation of back issues to access this material.

Norman Wells



*Fort Norman gusher, NWT, Ch. Taylor turning on well, 1920
(Provincial Archives of Alberta/B1062B)*

“Canada’s oil history offers lessons” by Frank Dabbs, [Archives, May 1990](#), pp. 4-5.

“Recycling Canol” – by P.S. Barry – 1991 Annual Meeting presentation, text appeared in [Archives, May 1991](#), pp. 1-3.

“The Canol Pipeline” by Tim Hawkings – a luncheon presentation announced in [Archives February 1994](#), with presentation February 15, 1994.

“*Theodore August Link (1897-1980)*” by C.B Sikstom – reprinted from *Arctic* magazine (v. 48, no. 1, pp. 96-98) in [Archives November 1996](#), pp. 1, 8-10.

“*The Canol Project – Ancestor to Leduc*” by Charles R. Stelck – the text of a talk given February 19, 1997 that appeared in [Archives in April 1997](#), pp. 1-5. P.S. Barry submitted a short discussion of this article that appeared in [Archives June 1997](#), p. 3.

“*Norman Wells, Canol and the Second World War – A young engineer’s perspective of technical problems of a pioneering arctic pipeline*” – a presentation made by Alex Hemstock on April 25, 2001 announced in April 2001 *Archives*, p. 1, The text was published in the [May 2001 issue of Archives](#), p. 3.

“*From North to South: How Norman Wells led to Leduc*” – notes from a presentation made by P. McKenzie-Brown to the Calgary conference of the International Commission on the History of Geological Sciences on August 11, 2009, as published in [Archives, June 2010](#), pp. 4-9.

P.H.S. Preservation Award for 2012 presented to the Norman Wells Historical Society at our Annual Meeting on March 27, 2013, as documented in the [May 2013 issue of Archives](#) including photographic coverage, pp. 5-8.

“*Norman Wells in the 1930’s*” – as abstracted by C. Tippet from Richard Finnie’s 1942 book “*Canada Moves North*”, appeared in [Archives, October 2015](#), pp. 6-8.

“*Thomas Owen Bosworth*” extracted from “*The Bosworth Expedition: An Early Petroleum Survey*” by Peter McKenzie-Brown with two accompanying obituaries of this gentleman (Bosworth that is), as provided by Mark Cooper [in Archives, November 2017](#).

Norman Wells is also featured as one of the pins in the P.H.S. historical pin set collection. It is dated at 1919 which was the initiation of the expedition to Norman Wells.

National Energy Program

“*Canada’s Energy Wars: Canada’s Energy Policy – Contradiction or Nationalization*” – a summary of a luncheon talk given by Hans Maciej on Dec. 15, 1999, as prepared by Neil Leeson, that appeared in [Archives, Feb. 2000 issue, p.3](#).

“*Canadian Oil and Gas Policy: from the N.E.P. to the Canada-U.S. Free Trade Agreement*” – a luncheon presentation by Kelly Ogle on November 31, 2011, the text of which was published in [Archives Jan. 2012](#), pp. 6-8. The rest of Kelly’s manuscript was not included in subsequent issues – and that oversight is rectified in this issue in the end pages.

“*Veteran Oilman Reflects on the National Energy Program*” – a keynote address by Bob Brawn at the P.H.S. Annual Meeting, March 28, 2018 with abstract in the [March 2018 issue of Archives](#), p. 1.

The book “*The Politics of Energy – The Development and Implementation of the N.E.P.*” by Doern, G. B. and Toner, G. 1985, Methuen, 523 pages is also recommended.

NORMAN WELLS

The following has been extracted from the website of Imperial Oil Limited and adapted for Archives. Readers are referred to [that website](#) to view the photographs that accompany the original article.

In 1787, Alexander Mackenzie had taken up his post as partner with the North West Company in the Athabasca region. A born explorer, Mackenzie set out in 1789 on what is now known as the Mackenzie River to find a passage by water through the northwestern portion of the continent. A couple weeks later he reached the Arctic Ocean but not where he had hoped. In the transect he passed by the future location of the Norman Wells Field about half way between his encounter with the oil sands and the Arctic Ocean.

In 1911 encouragement for oil exploration by the Canadian Government led a prospector by the name of J.K. Cornwall to the area. Cornwall then hired a Dené trapper by the name of Karkassee, who led him to a small pool of oil on the banks of the Mackenzie. Cornwall collected samples to be sent to Pittsburgh for analysis. The oil was determined to be of high quality, so Cornwall and a geologist by the name of Dr. T.O. Bosworth staked claims: one claim for Cornwall and three for Bosworth (for whom Bosworth Creek was named). Imperial entered the game and purchased all four shares. The company then sent geologist Dr. Ted Link along with eight men, a drilling rig and an ox on the 1,900-kilometre trek by train, river and foot from Edmonton, Alberta. Archives show the assistance these early explorers received from the local Indigenous peoples helped the men to survive and work through the cold winter but the ox did not survive, ultimately being served up for Christmas dinner. During that time, Link recognized the expertise that locals could provide and hired them to assist with identifying suitable areas to lay claim to as much land as possible in the area. One year after their arrival, in August 1920 – 100 years ago - a rig on one of these claims struck oil resulting in a 25 metre “gusher.” That location became known as Norman Wells, in the Slavey language: Ṯegóẖı̱ (Thleh-go-lee) or “where there is oil”, due to its proximity to Fort Norman, which is today known as Tulita. The development of the oilfield would also bring change to the traditional way of life in the region.

Despite efforts to keep the discovery quiet, word spread during the winter of 1920-21 and hundreds of people started making plans to come to the area after spring breakup of the Mackenzie to stake their own claims. Imperial's response was to purchase two new airplanes to survey from the sky and stake claims around the existing well. The two planes, named Rene and Vic, started the journey from Edmonton, hopscotching their way north through the cold and snow. The explorers again engaged and relied upon local expertise and guidance to help them in navigating the challenging environment, continuing to build a relationship between the local community and the company. When the planes tried to touch down in Fort Simpson, about 500 km to the south of Norman Wells, Rene tilted forward in the fresh snow breaking her propeller and damaging a ski. Vic, landed without issue but had developed a bad knock in her engine. The mechanics onboard the planes took the good skis and propeller from Vic and put them on the crashed Rene so she could complete her journey north. But when Rene tried to take off the plane stalled, causing it to crash and break the good propeller. It seemed as though Vic and Rene would be stuck in Fort Simpson, along with their crews, until a paddlewheel boat could make the trip with new parts in July, after the river thawed. In desperation, the pilots turned to the local Hudson Bay trading post and asked the partners there if they could help out. Astonishingly, they built a replica of the propeller using an old oak toboggan and glue made

from boiled moose hides and hooves (another example of local Indigenous ingenuity and knowledge shared to support the explorers). The moose-propeller worked flawlessly and Imperial was able to stake the entire Norman Wells oilfield from the air.

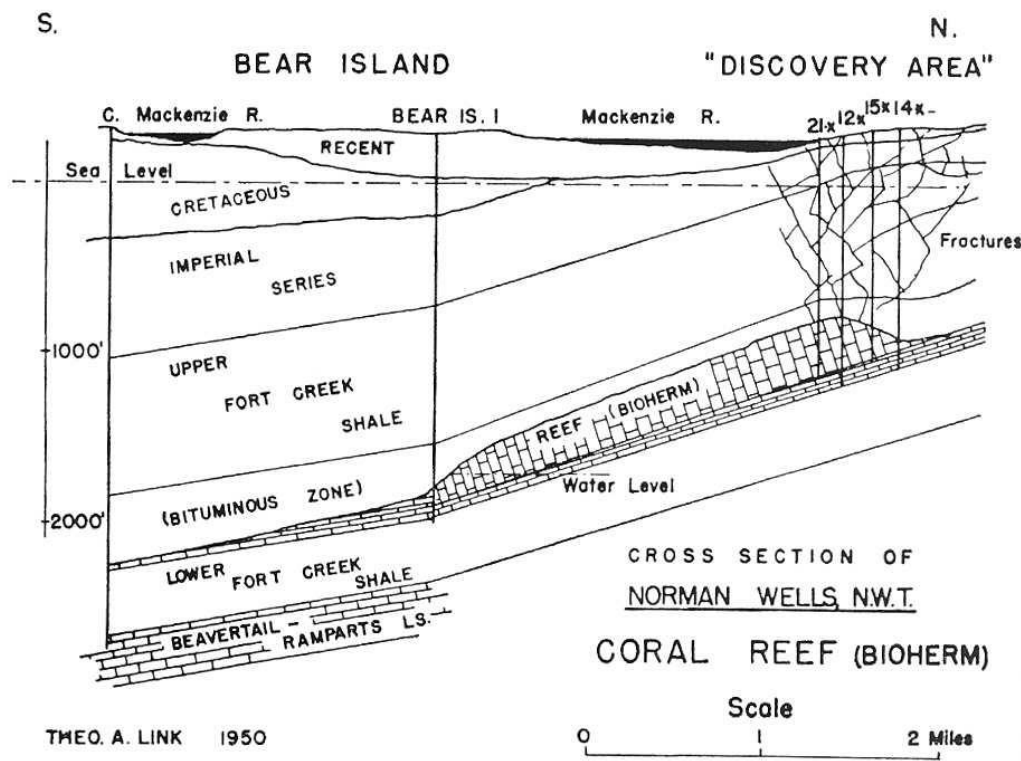
First four men to reach Fort Norman, NWT by airplane. Left Peace River, Alberta on May 29 and arrived at Fort Norman June 12, 1921. Total flying time of 12.5 hours. W. Hill, mechanic; Ted A. Link, geologist; Elmer Fullerton, pilot; W. H. Waddell, surveyor and navigator. (Ted Link.Glenbow Archives/NA-4552-1)



By 1924 Imperial had determined that local demand for oil products wasn't enough to sustain production at Norman Wells, so the existing wells were capped and Imperial withdrew for several years. That is, until 1932 when mining in the area justified the reopening of wells and the drilling of new wells. In 1935, goldmines in the area of Yellowknife created more demand and the oil once again began to flow. As a result, a small refinery capable of producing 1,100 barrels per day was built by Imperial. 1935 was also the first documented contract with a local Indigenous business where Ronald MacKinnon, superintendent, hired Hib Hodgson, a local Métis man, to dismantle, salvage and relocate equipment. The refinery production of fuel oil, gasoline and aviation fuel was used for boats, land vehicles and in the air. The availability of aviation fuel is largely credited with the increased aerial exploration in the Northwest Territories, as planes were now able to travel farther north after refuelling.

After the bombing of Pearl Harbour it became painfully obvious how close Alaska was to Japan. In order to protect the state and Canada from possible enemy attacks, huge quantities of fuel and equipment would be needed. So in May of 1942, with the U.S. concerned about the supply of oil for the war effort, Washington D.C. executed a U.S. War Department contract to further expand Norman Wells and to build a pipeline to Whitehorse. This project would become known

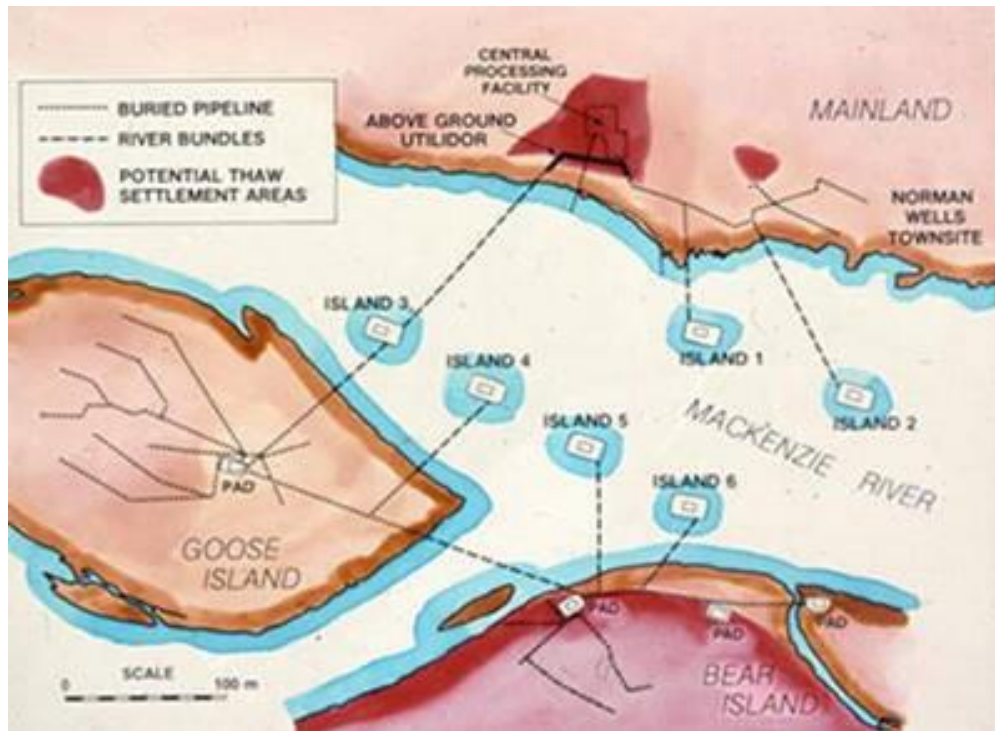
as the Canol Project (combining the words Canada and oil) and involved Imperial Oil Company, Standard Oil Company of California and various architects and contractors. The contract fulfilment itself was aided and supervised by the U.S. Army Corp. of Engineers. The local Sahtu, Dené and Métis people played a crucial role as much of the land that the pipeline traversed was only known to local Indigenous peoples. The Sahtu people assisted the American military by helping to decide where to lay the pipe and the accompanying road to join the Mackenzie Valley to the Yukon.



Once completed, the project consisted of 60 new wells, which increased production by some 3,000 barrels per day, 2,512 km of pipeline, tank farms, airfields and an oil refinery in Whitehorse. The project took 20 months to build from start to finish, from June 1942 until the “golden weld”- the last weld, on the Northwest Territories-Yukon border. The final cost of the project was in the hundreds of millions of dollars. It had employed more than 25,000 people. In 1944, Imperial and the Government of Canada signed an agreement granting exclusive rights to drill, mine, win and extract all the petroleum for three terms of 21 years. But that project was short lived when in March of 1945, the U.S. Army terminated the project with the pipeline only having been in operation for 11 months and delivering only one million barrels. With the drop in demand, wells were once again capped and production at Norman Wells fell back to the pre-war levels of 1,000 barrels per day. The Canol project also meant Imperial had a better understanding of the resources in the area, as recoverable reserves were then estimated at 30 million barrels.

In the mid-1980s, peak oil meant something entirely different than it does today: then it meant peak supply. To address the decline in oil reserves and to access more oil, Imperial devised a plan to extract oil from below the river using manmade islands. At the time, the Norman Wells Field was considered the fourth largest oil deposit in Canada and in 1982 Imperial undertook an

expansion and added six more artificial islands and additional wells. The islands were built over two summers, with four islands constructed in 1983 (Rayuka, Rampart, Dehcho and Ekwe) and the remaining two (Iteh K'ee and Little Bear) constructed in 1984. The project manager for this significant undertaking was Mel Benson – one of many Indigenous people who played key roles in the oilfield over its history. Designed to withstand a once-in-250 year flood, each island is a sand-filled structure held by a ring of rock and protected by armour stones at the upstream corner of each to protect from the mighty Mackenzie and the great forces of ice.



The islands are connected with 26 km of marine utility corridors carrying produced fluids, injection gas, and water and power cables. During the time of island construction, Interprovincial Pipeline (now Enbridge) which Imperial owned 33% of at the time, started construction of a pipeline from Norman Wells to Zama, Alberta. Commissioned in 1985, the 868-km line could accommodate production of up to 30,000 barrels per day.

Editor addendum: The expanded plant and pipeline to Zama functioned very well for about 25 years which is a reasonable field life. Since about 2010 the pipeline has experienced some leaks that has required operations at a lower pressure with less throughput. Recently there was a problem with stability at a major river crossing but the line has been repaired and restarted. Lower production volumes have caused several additional issues with the need to “batch” crude through the line as sustained production and necessary line velocity cannot be maintained. Lower crude production has also meant lower solution gas production. The people of Norman Wells had come to rely on that fuel to the degree that it was surplus to the needs of the processing facility but now they are having to revert to diesel, wood or wood pellets. There was a short-lived burst of activity beginning about 10 years ago related to the prospectivity of the Canol Shale as an unconventional “tight oil” play but unfortunately, despite high hopes for a revival of activity, results were not encouraging and that has been put on the shelf. These are the end-of-life problems of a once critical part of economy of the Northwest Territories.