



*Imperial No. 1 at Norman Wells was Canada's first oil producer.*

oil-producing province in the south. The potential may never be fully realized; the problems of extracting and transporting the oil and gas are themselves enormous.

The Laurentian Shield, the ancient rock formation which crosses Canada from Québec to Manitoba, may be the richest depository of minerals in the world; almost half of it is above the 60th parallel, 710,000 square miles within the Northwest Territories. In the NWT and the Yukon there are copper, asbestos, lead and zinc, gold, silver and coal. One of the world's richest iron ore deposits is on Baffin Island, NWT. Only a fraction of the known NWT resources has yet been touched, but mineral production has jumped 500 per cent in ten years.

Oil, at the moment, is the North's great magnet, drawing men and money north like iron filings in a lab. In 1789 Alexander Mackenzie found oil seeps at Norman Wells (he wrote that it looked like yellow wax and he wiped the whole thing out of his mind). Some 131 years later the first well at Norman Wells, Imperial No. 1, was discovered. Alberta's oil and gas fields were developed in the twenties, the forties and the fifties. Alaska's Prudhoe Bay field was discovered in 1967 and the oil search moved north in earnest. In 1970 Imperial announced the gushing of Atkinson H-25 northeast of Tuktoyaktuk, on the edge of the Beaufort Sea. It was the first of many discoveries in the Mackenzie delta, but soon the focus of search went beyond the land.

Today oil and gas operations — in various stages of search or development — crowd the lower Mackenzie valley and extend to the islands of the Arctic sea: Panarctic is drilling at Robert Harbour, planning two wells at Eglinton Island and drilling at Eids Fiord on Ellesmere and at Lougheed. Seismic tests are underway in Baffin Bay and Davis Strait.

The finding and pumping of oil is the lesser part of the battle — the oil of the North is far from the energy users of the south. There are two obvious ways to move it and both are expensive and controversial. Oil could be moved in tankers and supertankers but the possibility (some would say probability) exists that the use of tankers would result in an oil spill which could have serious and possibly disastrous effects on the ecology, not only of the North, but of the coastal lands in the south as well.

The assumption is that at least two large-diameter petroleum pipelines may eventually be built in the Canadian Arctic, and the one of principal interest now is the one planned in the Mackenzie valley. To study its possible effect on the environment the Mackenzie Valley Pipeline Research Project was announced in 1968 (shortly after the major discovery at Prudhoe Bay).

A full-scale, 48-inch, hot oil test loop was set up at Inuvik in 1969. A principal concern was the possible effect of hot pipelines on the permafrost. Since the substance of permafrost varies greatly, from dry gravel to mostly ice, it is universally