

get at them. Canada is now drilling for oil and natural gas all across its Arctic frontiers and in waters offshore.

Canada's oil production was minor until 1947 when the wheat and cattle province of Alberta struck it rich. Alberta became Canada's Texas. Canada advanced from being the world's fifteenth ranking oil producer to ninth place today. In 1946 it produced only nine per cent of the oil it consumed. Now on balance it could be self-sufficient.

Its *known* oil reserves, mainly in Alberta with smaller amounts in British Columbia, Saskatchewan, and Manitoba, now amount to about ten billion barrels, enough for about seventeen years at the current annual rate of use. But in recent years it has become evident to Canada's planners that these established reserves will not be enough. The country's use of energy is expected to quadruple by the year 2000. Its exports of oil to the United States are growing. Jack Austin, Deputy Minister of Energy, Mines and Resources in Ottawa, estimates that by the end of the century, Canada will need additional reserves of both oil and natural gas approximately equal to all its proven reserves to date just to keep up with domestic demand, not counting increases in exports.

Geologists estimate that Canada has a poten-

tial 120 billion barrels of oil, twelve times existing known reserves, plus vast supplies of natural gas, in its Arctic regions and off-shore. There is probably another 300 billion barrels of viscous oil in the Athabasca tar sands in Alberta if efforts which are being made to extract it turn out to be economical.

Canada is not just the ribbon along the border, it is a rough pentagon shape as deep from north to south as it is wide from east to west. Its northland is an immense undeveloped area. The Yukon and Northwest Territories begin at the 60th parallel and comprise forty per cent of its land, yet here only 60,000 people live, mainly Indians and Eskimos. Beyond the 60th, Canada stretches 1,500 miles north toward the pole. Many of the promising oil and gas areas are along the farther side of this northland.

To date, there have been significant gas finds in the Mackenzie Delta and the Arctic Islands — and some oil. Getting this gas and oil to market poses huge problems. Though the tanker *Manhattan* made it across a frozen Northwest Passage in 1969, year-round operation of tankers in most of the Arctic is not yet practical. On land the Arctic permafrost — ground permanently frozen down as far as 1,500 feet — sounds solid. But

