

sometimes it has an extremely high water content. When bulldozers strip away the insulating ground cover and the summer sun shines, it becomes soup. Pipelines can sink into it; hillsides slide into valleys. A Canadian consortium has plans to build a gas pipeline from the Mackenzie River Delta in the Northwest Territories to Canadian and U.S. markets. A 900-mile highway along the Mackenzie River is under construction and is expected to open up, for the first time, a vast section of the northland. The Mackenzie pipeline project has a U.S. counterpart, the proposed Trans-Alaska Pipeline by which oil from Prudhoe Bay on the North Slope of Alaska would be piped southward across that state to Valdez on the southern Alaska coast, where it would be transferred in tankers. At one point Canada invited the U.S. to discuss the prospect of shifting the TAP to a Canadian route. However, the U.S. Interior Department said Alaskan oil was needed sooner than the oil pipeline could be constructed across Canada. The Alaska route has been much criticized on environmental grounds, the Canadian route less so, but in both cases an Arctic oil pipeline raises big environmental problems. Gas can be piped cold, but oil must be pumped hot, and ways must be found to insulate it from the permafrost in some areas. The Arctic tundra recovers slowly from damage. Other potential environmental upsets include fouling of sea birds by oil on beaches (where there is related tanker transport), deflection of the migration of caribou by pipelines, damage to critical ranges of moose, spoiling spawning areas of fish and indiscriminate hunting as a result of opening access to wilderness areas. Arctic pipelines also raise the prospect of disruption of traditional native ways of life.

It has been estimated that developing new oil and gas sources in Canada may require \$50 billion in new capital during the next ten years. Because investment capital is limited, some of this is expected to be U.S. money, and this is a subject of

much debate in Canada. The Canadian Government's most recent statistics show that through 1967 a group of industries — manufacturing, petroleum and natural gas, mining, smelting, railways, other utilities, merchandising and construction — together were twenty-eight per cent controlled by U.S. direct investment capital. The petroleum and natural gas category had the highest foreign control — sixty per cent U.S. and fourteen per cent other foreign. This is a subject of concern for many Canadians. The Canadian Government has been looking for ways to increase Canadian financial participation in industry. It put up initial funds to start a Canada Development Corporation, with voting shares limited to Canadians, which it is hoped will provide a vehicle for increased Canadian equity participation in growing Canadian industries.

Canada has decided, as a matter of national policy, to develop oil and gas resources primarily for its own use, allowing exports when reserves are surplus to Canadian needs. However, geography has imposed some economic constraints on the marketing of Canadian oil in eastern Canada where easy access to middle eastern and Latin American crude oil make those sources much cheaper than western Canadian oil. Hence, Canada, since 1961, has had a National Oil Policy under which all of Canada east of Ottawa is supplied by imports, mainly from Venezuela, and all the rest of Canada is supplied by Canadian oil. In 1971 Canada imported 666,000 barrels of crude per day and exported 750,000 barrels per day. Virtually all of the latter went to the United States, a natural market since it uses high-priced oil. (Canada is the only industrialized country in the west which has a supportable surplus of oil.) Finally, the intense exploration activity in the highly promising Arctic islands and east coast offshore areas offer the prospect of freeing Canada from dependence on offshore oil supplies some time during the next several years.

## Dirty Air

The International Joint Commission has pinpointed the causes of bad air along the border.

It reports that the bad smells noticeable in Michigan come from Canada and those in Canada come from Michigan.

More specifically, in the Windsor, Ontario, area roughly ninety per cent of particulates and ninety-four per cent of sulphur oxides originated in the United States. The principal sources were the steam electric power plant and metallurgical industries in Wayne County, Michigan.

In the Sarnia-Port Huron, Michigan, area about

fifty-two per cent of the particulates and twenty-seven per cent of the sulphur oxides originated in Canada. The principal sources in the St. Clair River area were the steam electric power plants in Michigan and the oil refineries and chemical industries near Sarnia.

The Commission is urging the governments on both sides of the border to adopt soon its air quality standards and then to "enter into an agreement on schedules for the implementation at the earliest practicable date of preventive and remedial measures."