

wildlife population, migration patterns, habitats and other aspects. This, along with research on the safest methods of building pipelines across the Arctic tundra by Arctic Gas and other interests, comprises one of the most exhaustive industry-financed ecology research programs ever undertaken.

In Huxley's terms, more information now is available about the impact of man's economic development plans on the future evolution of the Canadian North than ever before. Perhaps no area on earth is being developed with greater concern for the human role in the maintenance of the area's ecological balance.

The studies by government and by the pipeline companies have all been directed at the same broad purpose. This (to put it in Huxley's terms again) is to improve the quality of evolution in the North over the whole balance of the ecology, including the human element in that ecology. "Originally the central issue of natural resource development was one of supply and production," the Northern Development Department's background paper on Arctic land use noted. But the issue today is "environmental disturbance such as pollution, erosion and disfigured landscape resulting from the use of the resource base."

The intention was not to prevent development but to minimize degradation of the environment as a result of "man-made disturbances on the natural environment."

If this goal seems idealistic, it is no less serious. The government has made clear it intends pipeline construction should provide a supplement to, not a substitute for, the traditional means of livelihood of the native peoples in the area. The environmental sensitivity maps now being drawn show where large concentrations of wildlife exist and the research behind these maps indicates how construction can be carried on with a minimum of disruption.

Arctic Gas studies have produced some previously unknown information, for instance, about the migratory habits of the caribou, which roam the western Arctic in herds up to 10,000 head and more. The caribou have been found to be largely indifferent to the presence of man or human activities, even at ancestral crossing points on the rivers in the area. But caribou have shown some liking for following cleared rights-of-way, and it is not uncommon for them to travel single-file. Researchers believe this represents a threat to buried pipeline. Experiments this summer will concentrate on finding ways to deflect caribou from future pipeline rights-of-way.

Construction will be planned for the convenience of wildlife. Caribou herd disruption will be minimized by working at times when they are not in the pipeline areas. Similar studies have been done to minimize disruption of the migratory and mating habits of Arctic fox, grizzly bears, Dall sheep, beaver, muskrat, wolves, fish, ducks, geese, falcons and other birds that summer in the Arctic. Spawning beds for fish are being pinpointed in the streams and rivers in the area so that use of gravel

from the beds in the construction process won't interfere.

Government guidelines for northern pipelines were issued in June 1972. They warn that specific restrictions will be imposed on pipeline construction in areas of specific environmental and social concern. "These concerns and restrictions will pertain to fishing, hunting, and trapping areas, potential recreation areas, ecologically sensitive areas, hazardous terrain conditions, construction material sources and other similar matters." The guidelines also provide that applicant companies must undertake "specific programs leading to the employment, at all occupational levels, of residents of the territories - and in particular native people, during the construction and operation of the pipeline." Provision is also made for on-the-job training and for giving native people priority in job placement.

### Eskimos find little joy around an icy seal hole

The approach Canada is taking to northern development today has been described by one Canadian official as perhaps the most advanced in the world in terms of protection of the land environment. The Assistant Deputy Minister of the Northern Development Department, Mr. A. D. Hunt, was speaking to the World Affairs Council in Boston several months ago.

"Some may say that all activity which tends to detract from the wilderness areas of the North should be discouraged if not entirely prohibited. These advocates forget the most important factor in the whole equation - people. There are northern people who depend on the land and its economic activity. Neither their land nor the use they make of it can be taken away from them." But the major challenge to northern

development, as the native peoples come more and more to want a share in the benefits, is how to ensure that they become full partners with the developers from the South.

"The majority of these people do not want to return to the harsh, primitive ways of their forefathers or even of their fathers," said Mr. Hunt. "There is very little joy to an Eskimo in having to sit out on the bare ice at a seal hole for hours on end with his very survival depending upon a seal surfacing." But if that should be an Eskimo's preference in future, it is the intention of Canada's northern development policy that it should remain available.

As Mr. Naysmith, an official quoted earlier, has put it: "The objective becomes one of developing a rational approach to land-use so that the introduction of technology will not impair the native peoples' ability to live in harmony with the land if that is their wish." In his statement on northern development in March of this year, Mr. Chrétien emphasized again, however, that the native peoples must be given the option of joining the technological age.

Applications for a pipeline right-of-way will be judged on their economic viability, he said. But they must also undergo public hearings, in the North as well as the South, on the ecological impact. "The purpose of this inquiry," said the Minister, "will be to assess the regional, socio-economic and environmental implications arising out of the construction and operation of a major pipeline in the territories." The applicants must show with precise information how they will resolve the sociological and environmental implications of the pipeline projects they propose. Proving a project will make its backers a tidy profit will also be important, but in itself not enough for approval. ❦



Caribou making tracks in the snow