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Another year of progress in science and technology research

Considerable interest was shown in the article on the work of the National Research Council (NRC), published in Canada Weekly dated August 3, 1977 from the Report of the President 1976-1977. The 1977-1978 report, just released, contains more information on research in progress, highlights of which follow:

Oil from oil sands

A process is being adapted for extraction of oil from oil sands which could also be used for secondary treatment of wastes from other tar-sand processes. A small-scale pilot plant has been constructed under NRC contract, and tests are reported to be encouraging. If the project is successful, plants valued at \$300 million to \$3 billion may be built, providing employment for up to 3,000 construction workers and permanent jobs for 50 to 200 people at each plant. MHG International Ltd. of Calgary, is carrying out the work.

Analysis of gas reserves

In collaboration with the Departments of Indian Affairs and Northern Development and Energy, Mines and Resources, NRC chemists have begun analysis of gas reserves bound up in the recently-identified natural gas hydrate deposits in Canada's North. Early estimates suggest that as much as three trillion cubic feet of hydrated gas (gas complexed with water in ice-like structures) may exist in the Mackenzie Delta in addition to the six trillion cubic feet currently estimated for conventional gas.

Ice breaking

A method to weaken the ice ahead of a vessel, thereby reducing power and fuel requirements, is under development. High-pressure water jets are used to cut grooves into or even through the ice. The potential for weakening an ice sheet through both reduction of the effective thickness and creation of stress concentrations is considerable. Early test results with a new portable facility for field testing have been encouraging. Analysis

of data to date has indicated that a system with perhaps ten times the power of the current facility may be adequate to allow relatively low power icebreakers to open passages in thick ice sheets.

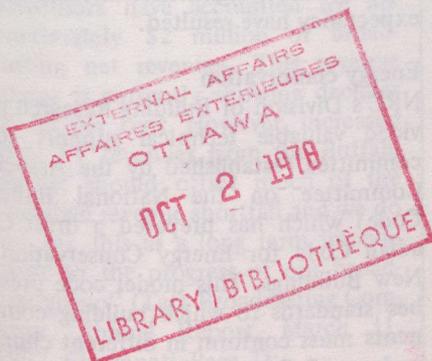
Meningitis vaccine

The Armand-Frappier Institute of Montreal is working out the production techniques for a meningitis vaccine developed originally by NRC's Division of Biological Sciences. The Institute, which is affiliated with the University of Quebec, has already completed vital trials with the vaccine and shown it to have the same wide potency as the much smaller laboratory-scale preparations. This vaccine, which is effective against all the major virulent forms of the disease (the first "umbrella" meningitis vaccine of its kind), is being sent to Brazil to be tested on populations where incidence of meningitis is high.



Water-jet cuts through ice.

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Sixteen years ago on Friday...
Canada's first satellite, the 144-kg *Alouette*, was launched from Vandenberg Air Force Base, California, U.S.A.