

Shepherd Bay on Boothia Peninsula. An icebreaker based at Victoria, British Columbia, travels to the Western Arctic each summer to support the supply vessels operating along the coast from "Tuk".

The principal marine carrier in the Northwest is the Northern Transportation Company Limited, a Crown corporation that operates the freight barges and tugs down the Mackenzie River system. In 1969 they carried 256,000 tons of goods north in a fleet consisting of 142 barges and 27 tugs, as well as two Arctic cargo vessels.<sup>(1)</sup>

Apart from the excellent facilities at Churchill, there are no harbour installations in the ordinary sense anywhere in the Arctic. In most instances, ships must lie offshore at ports-of-call and cargoes must be loaded in barges. Crews of stevedores are taken north to the Eastern Arctic each season by the Department to help in this operation and the Coast Guard has a special depot ship, CCGS *Narwhal*, equipped as a floating "hotel" and workshop to house the stevedores and otherwise support landing operations. The total cargo handled by ships in the sea-lift today runs to something more than 100,000 tons each season. In 1969 and 1970, the Ministry experimented in the use of a heavy helicopter for off-loading ships at Northern posts.

The marine operations are aided by the Ministry's ice-reconnaissance system, carried out throughout the northern navigation season by specially-equipped fixed-wing aircraft with trained ice-observers on board. The reports provided by these specialists are augmented by short-range ice-reconnaissance from helicopters carried aboard the larger Coast Guard icebreakers.

Ice-forecasting is carried on during the shipping season from bases at Frobisher, Edmonton and Resolute, with the longer-range outlooks provided from the Ice Forecast Central at Halifax, Nova Scotia.

During the past several summers, extensive research has been carried out in the previously little-known channels of the Arctic archipelago by scientific parties aboard Canadian Coast Guard vessels and hydrographic ships of the Department of Energy, Mines and Resources. While private firms have been investigating various mineral deposits in the North, the Coast Guard has carried out, and is continuing, a program of ice studies to determine the length of the season during which cargo vessels could reach these possible sources of mineral output, thus making their products available to the nations' industry.

#### Aviation Developments

The aviation scene in the Canadian North is very different from the scene in the days when bush pilots, flying with little or nothing in the way of

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(1) For further information on the NTCL, see Reprint No. R17 -- *The History of the Northern Transportation Company Limited* -- distributed by the Information Division, Department of External Affairs, Ottawa.