

Weather ships The duties of the Canadian Atmospheric Environment Service include the maintenance of weather observations at Station "Papa", some 900 miles west of Canada's Pacific coast. Observations there are of considerable importance to international meteorology. To provide the service in that frequently stormy part of the Pacific Ocean, the Canadian Coast Guard operates the two sister weather-oceanographic ships *Quadra* and *Vancouver*.

Tremendous task in the North Increasing responsibility for the resupply of civilian and military installations in widely-separated parts of the Arctic was assumed by the Department of Transport in 1954. In the beginning, much of this work was carried out by United States agencies, but the Canadian Coast Guard assumed an increasing share of the task each summer until, by 1961, its operations covered the whole Canadian Arctic. It now handles virtually all such work in the Eastern Arctic and assists other Canadian agencies and firms in the Western Arctic.

In the Eastern Arctic, the supply work is carried out by convoys of chartered merchant ships, which are escorted by Coast Guard icebreakers. The icebreaker captains act as commodores of the convoys. Assisting them are smaller Coast Guard northern-supply vessels, which are capable of working in the relatively shallow waters of a great many Arctic freight-landing areas.

Growth of the Arctic operations brought with it a requirement for ice-reconnaissance services, which are now carried out by fixed-wing aircraft flying out of such ports as Churchill, Frobisher Bay on Baffin Island and Resolute Bay on Cornwallis Island, in the High Arctic. These flights, which are under the direction of the Canadian Atmospheric Environment Service, provide information on ice conditions in the sea-lanes and in all areas where convoys operate. In addition, photographs transmitted from space satellites are being used with success in the assessment and forecasting of Arctic ice conditions.

Helicopters carried aboard the icebreakers are used for close-range reconnaissance. They carry trained ice-observers provided by the Canadian Atmospheric Environment Service, whose ability to detect "leads" through the ice not visible from a ship has resulted in tremendous savings in time for the convoys. The helicopters are also very useful in ship-to-shore personnel movements and for carrying light freight.

The handling of cargo between ship and shore is performed by a fleet of landing-craft and barges maintained in the North and

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