In addition, a facsimile network connects weather offices and includes radio facsimile transmission to Arctic stations and ships at sea. Weather charts originating at the Central Analysis Office and the High Level Forecast Office in Montreal receive national distribution over the network. Charts prepared at the various Weather Central Offices across Canada are transmitted regionally. Altogether, the Meteorological Branch utilizes 13,700 miles of facsimile circuits, serving 86 offices.

Radio Aids to Marine and Aeronautical Navigation.—Services of the Telecommunications and Electronics Branch of the Department of Transport in aid of marine and aeronautical navigation are outlined in the following paragraphs; details may be obtained on request from the Department of Transport, Ottawa.

Marine Navigation.—Radio aids to marine navigation are provided for radio-equipped Canadian vessels and foreign ships using Canadian waters. This safety and communications service for shipping covers the East and West Coasts, the Great Lakes, the St. Lawrence River and Gulf, Hudson Bay and Hudson Strait and includes regularly broadcast weather reports, storm warnings and notices of dangers to navigation. Ships at sea may obtain medical advice from any coast station. The stations carry out communications by radiotelegraph and/or radiotelephone and most of them provide connections to land telephone lines. Halifax (VCS) and Vancouver (VAI) stations provide a long-range radiotelephone service to ships. Halifax (VCS) and Vancouver (CKN) have radiotelegraph facilities for world-wide communications and participate in the Commonwealth long-range ship communications scheme. Coast stations on Hudson Bay and Hudson Strait, in addition to their regular services, provide commercial communications for posts of the Hudson's Bay Company and various prospecting and development organizations, make weather observations, handle administrative traffic and assist aircraft with information, landing conditions, etc.

Automatic radiobeacon stations are maintained on the East and West Coasts, the St. Lawrence River and Gulf, the Great Lakes and Hudson Bay and Strait, giving navigational aid to mariners by transmitting signals on which bearings may be taken. These stations are arranged, where possible, in groups up to a maximum of six stations transmitting in sequence on a common frequency, the sequence being repeated continually regardless of weather conditions.

Loran is a long-range radio aid to marine and air navigation providing accurate fixes at distances up to 750 miles by day and 1,500 miles by night. Two Loran stations operate in Nova Scotia, three in Newfoundland and one on the West Coast. These stations, in conjunction with Loran stations of the United States Coast Guard, give service to ships and aircraft plying the North Atlantic and Pacific Oceans. *Decca* is a short-range radio aid to navigation providing accurate fixes at distances up to 250 miles. Four chains of Decca stations are in operation—the Newfoundland chain, the Nova Scotia chain, the Anticosti chain and the Cabot Strait chain—giving service to ships off Newfoundland and Nova Scotia and in the St. Lawrence River and Gulf.

It has become general practice to equip merchant ships with radar and important buoys are fitted with radar reflectors to increase their radar visibility. Two shore-based radar installations are in operation—one at Camperdown near the mouth of Halifax Harbour and the other on the Lion's Gate Bridge across the entrance to Vancouver Harbour. Low-powered transceivers are provided for use in emergencies at lighthouses, particularly at locations that would otherwise be completely cut off from assistance in case of illness.

*Aeronautical Navigation.**—Radio aids to air navigation are provided from coast to coast and from the Canada–United States border to the Arctic along and off the airways, and are used by Canadian and foreign air carriers flying over Canadian territory. Six regional offices located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto,

* See also the item on Air Traffic Control, pp. 850-851.