

Ships equipped with direction-finding apparatus may, upon request, obtain signals for the purpose of taking bearings from any of the coast stations. During 1949-50, 161 such requests for signals were handled.

"Loran" (long-range aid to navigation) is a system of position finding based on the difference in the time of arrival of pulse-type radio signals transmitted from a pair of stations. This time difference is measured on a Loran receiver and is used in conjunction with specially prepared charts or tables to establish a line of position. The intersection of two or more lines of position determined from two or more pairs of stations provides the required position.

There are four standard Loran stations in Canada located at Deming and Baccaro, N.S., and Spring Island, B.C., which operate in conjunction with Port aux Basques, Nfld., Siasconset, U.S.A., and Point Grenville, U.S.A., respectively.

East Coast Visual Signal Service.—The chief function of the visual signal stations on the east coast, located at strategic points, is to report the movements of vessels not equipped with radio. All radio coast stations report ships with which communication has been established, and this information is supplemented by reports of ships sighted by the visual signal stations which are organized to link up with the east coast radio service.

There are five visual signal stations on the east coast located at Point Tupper, Halifax, Camperdown, Saint John and Partridge Island. In addition, the Lurcher Lightship reports by radio to the nearest coast station all ships spoken and sighted.

Time Signals.—The Dominion Observatory of the Department of Mines and Technical Surveys at Ottawa operates a continuous time signal transmission over its radio station CHU on the frequencies of 3330, 7335 and 14,670 kc/s. The signals are transmitted continuously day and night and are of value to survey parties and prospectors in providing facilities for determining their exact geographical positions.

During 1949, three transmitters were purchased by the Dominion Observatory, and installed at the Ottawa short-wave transmitting station where they are maintained and operated by Radio Division personnel of the Department of Transport.

Time signals are relayed from the Dominion Observatory to Halifax, N.S., and Port Churchill, Man. The signals are transmitted by Halifax (Albro Lake) Coast Station (CFH) daily at 0300 G.M.T. simultaneously on 115 and 5,502.5 kc/s and at 1500 G.M.T. simultaneously on 115 and 9,040 kc/s; and by Port Churchill Coast Station (VAP) daily at 1500 G.M.T. on 500 kc/s.

Time signals are also relayed from the Saint John, N.B., Observatory to Camperdown Coast Station (VCS) and are transmitted by that station daily, except Sunday, at 1400 G.M.T. on 417 kc/s.

Radar.—A considerable number of merchant ships are now fitted with radar which, besides being a safety measure, reduces the operating costs of the ships by allowing them to proceed under conditions of low visibility. Experimental reflectors fitted on buoys along the east coast enable ships to detect the buoys on their radar at a much greater range.

The Department of Transport is co-operating with the National Research Council in the development of a shore-based radar aid to shipping for use at harbour entrances. The installations at Camperdown D.F. Station, at the entrance to Halifax Harbour, at the Lion's Gate Bridge, Vancouver, and at the entrance to Vancouver Harbour, are producing encouraging results.