

The problems that aviation presented to the meteorologist were very different from those to which he had been accustomed for land and sea operations. In the latter case the principal information required was in regard to winds, gales, storms, fog, etc., and, while these are of importance for landing conditions, they are not the only vital problems the aviator has to face. He wants to know, in addition, what is going on in the regions where he is flying, such as icing, clouds (their height and thickness), visibility, thunder-storms, etc., all of which are vital to the success of airline operations. Fortunately, the discovery of the actual processes that are in operation in the atmosphere have enabled the meteorologist to supply this vital information.

**Meteorological Service for Aviation.**—The first attempt to establish a meteorological service in Canada for aviation was made in 1930-31 for the visit of the R-100 and for the air-mail service from Montreal to Windsor and from Winnipeg to Edmonton. This was discontinued in 1932 owing to the economic depression. The small technical staff was retained and, in anticipation of further developments, some of the meteorologists were sent to Norway to study the new technique of weather forecasting according to air-mass analysis methods. On their return, an intensive study was made of air masses on the North American Continent in anticipation of the resumption of a regular air service. There were only a very few regular forecasters in the Service and they were fully occupied with forecasting for the general public and issuing storm warnings, so that it was necessary to begin at the very bottom and build up a forecasting staff for the airways. For this purpose highly trained meteorologists were required and the problem was met by the University of Toronto, which established a one-year post-graduate course in meteorology leading to the M.A. degree. This was open to honour graduates in mathematics and physics from recognized universities and most of the meteorologists for the new service, when it was established, were recruited from these graduates.

**Transatlantic Air Service.**—The actual beginning of a meteorological organization for aviation dates from 1936, when it was decided to undertake experimental flights to test the feasibility of commercial flying across the North Atlantic, considered the most hazardous and difficult route for flying in the world. The work was done in conjunction with the United Kingdom, Ireland and Newfoundland, Canada assuming responsibility for forecasting and supplying weather information for the flights west of 30 degrees W. longitude.

A small forecasting staff was recruited and a forecast centre established at Botwood, Nfld. Experimental flights carried out in 1937 by Imperial Airways from the United Kingdom and Pan American Airways from the United States proved the feasibility of using the northern route, during the summer months at any rate, for a passenger service that was commenced by Pan American Airways in 1939 but discontinued on the outbreak of war. Shortly afterwards it was decided to test the practicability of flying bombers across the Atlantic. The prime requisite for this operation was the providing of accurate forecasts and, fortunately, the experience gained during the experimental flights proved invaluable even though weather reports from ships at sea were naturally no longer available. It was soon found that it was perfectly feasible to fly bombers across the Atlantic throughout the whole year and this service has grown and expanded enormously since that time.

The main forecast centre originally set up at Botwood but later at Gander, Nfld., was shifted to Dorval (Montreal), the centre of the R.A.F. Transport Command, with other forecast centres at Gander, Nfld., and Goose Bay, Labrador.