

interest to the public and will have great educational value. Unless charts are actually seen, it is very difficult for any one to have more than a very unsubstantial idea of the significance of descriptions of the weather situation, which must necessarily refer to such phenomena as depressions, cyclones, anticyclones, &c. Those specially interested, also, will be able to follow weather changes much more intelligently, understand the forecast, and so make greater use of it, if able to get the comprehensive view of the situation given by the chart.

A district forecast is now being provided in the evening for Southland, and the "Farmers' Forecast" is to be continued throughout the winter.

#### UPPER-AIR OBSERVATIONS.

Observations of the wind in the upper air by means of pilot balloons are now made thrice daily at Wellington instead of once as previously. The results are included in the reports furnished to the Air Services. The Magnetic Observatory at Christchurch provides corresponding data for that centre. As soon as quarters are available at the Air Base at Auckland, a pilot-balloon station will be established there also.

#### AVIATION METEOROLOGY.

It was not until very shortly before Cook Strait Airways commenced their operations between Nelson, Blenheim, and Wellington, at Christmas time, that the funds necessary for providing a weather-reporting service became available. Preparations, therefore, were extremely hurried. With the active co-operation of other Departments, however, a scheme was evolved, and from the inception of the Air Service pilots received meteorological advice prior to each flight. In the latter half of January Union Airways commenced the route from Palmerston North to Dunedin. In the past, for the purpose of drawing weather-charts and preparing forecasts, the Meteorological Office has received reports of meteorological observations made at a network of stations at 9 a.m. and 4 p.m. The morning messages included reports from a number of Australian stations and from ships at sea. These were not usually complete until between 2 p.m. and 3 p.m. owing to the difference of time between Australia and New Zealand. In the afternoon, observations were received from Sydney and Hobart as well as from New Zealand stations. Forecasts were issued at noon and at 5 p.m. Since the first flights were to commence at 7.45 a.m., considerable innovations were clearly called for. In order to ensure that a report should be available to pilots before setting out, observations had to be made not later than 6 a.m. At this hour telegraph offices were closed, so that it was necessary to collect reports by telephone or wireless. This restricted the number of possible stations, but fairly satisfactory arrangements were made. Again, the time between 9 a.m. and 4 p.m. is too long to go without fresh reports, and by the time the 4 p.m. data could be distributed flying operations for the day would have ceased. The time of the afternoon observation was, therefore, advanced to 3 p.m. and an additional observation was fixed for noon. We thus have the 9 a.m. observation practically unaltered and remaining the principal one for the day. The 3 p.m. one is next in importance, but few reports are received from Australia or from ships. At 6 a.m. and noon reports are received from stations along the air routes and a sufficient number of others to enable the general weather situation over New Zealand to be appreciated. Based on the reports received, weather charts are drawn four times a day, two of them being of a restricted nature. Before a pilot on a regular service leaves one of the main aerodromes he receives the reports of the existing weather at the stations *en route* to his next important stop, including wind direction and force, visibility, amount and height of low cloud, &c., such information as is available regarding winds in the upper air, and a forecast of expected changes.

At present for these services use has had to be made of the telephone and telegraph facilities available to the public. The amount of traffic involved is considerable and must increase as aviation expands in New Zealand. It is therefore hoped that some more economical means will be found. In the establishment of the service we have had very great assistance from the Post and Telegraph and the Marine Departments, on whom we depend not only for the means of collecting and distributing information, but also for most of the observers. I am glad to acknowledge the cordial co-operation of these Departments. The work has, of course, been carried out in close co-operation with and with the assistance of the Controller of Civil Aviation. The additional funds required have been provided from the Defence Department vote.

In order to expedite the receipt of telegrams an operator, seconded from the Post and Telegraph Department, has been installed at the Meteorological Office. At present no service is given on Sundays or holidays, but the matter is under consideration. Furthermore, the present scheme does not cater for aero clubs and those undertaking irregular flights and taxi work. Amongst the suggestions which have been made is that each of the principal aerodromes should be provided with a wireless station capable of communicating direct with Wellington as well as undertaking the control of traffic in the air. Should such a plan be adopted, it would be possible to broadcast from Wellington, four times daily, route weather reports and forecasts for the whole country. These could be intercepted at all aerodromes and displayed for the benefit of pilots. It is hoped that at the principal aerodromes it will be possible ultimately to display this information by means of wall charts (weather charts on a large scale) as is done in England. Another useful development would be to broadcast weather reports and forecasts by telephony, say, from 2YA. This issue could be made to serve the general public, including farmers, mariners, and motorists, as well as aviators.

Two members of the staff have licenses as "A" Pilots, and several others are making preparatory studies.