

THE WEATHER'S ON THE AIR

How Forecasts Are Made

AS listeners already know, the wartime restriction on weather forecasts is now lifted, and when this appears in print, radio forecasts will have been resumed, after four and a-half years. The three daily weather forecasts will once again become one of the most widely appreciated features of broadcasting, and the quicker means of getting them to the public will mean that much more up-to-date and therefore much more reliable forecasts can be made. So that our readers may understand how the necessary information is gathered, how the forecasts are prepared, and what are some of the difficulties in the way of making them completely accurate in New Zealand, "The Listener" sent a reporter and photographer to the Dominion Meteorological Observatory at Kelburn in Wellington.

THE "Met. Office," to give it its most commonly used name, operates in two ways — it makes its own local observations, and it acts as a collecting centre for similar observations from all over New Zealand, and co-ordinates these with observations from similar "collectives" in the Pacific islands and Australia.

A small room just off the main Forecasting Room is the logical place to begin a tour of the Met. Office. In here are four automatic machines connected with the Central Post Office, Government Radio Station, ZLW, Air Department, and Rongotai, which chatter away at intervals, typing out messages received by the Post Office from the hundred odd observers in New Zealand. The messages are in an international code—not a secret cypher, though they were until recently—which is simply a kind of agreed on shorthand for indicating weather phenomenon by single figures. The direction of the wind and its force, for instance, can both be indicated by a single figure; so can height and amount of cloud, temperature, pressure and so on. A Waaf comes in now and again and Chateau, etc., and takes it into the Forecasting Room.

How it is Done

The Forecasting Room itself is the focal point of the office. The teletype



This thermometer is kept in a pipe three feet below the ground.

messages from New Zealand observers are brought in here: also broadcast messages containing information collected in Australia, Fiji and Samoa, and individual reports from Norfolk Island, Lord Howe Island, the Kermadecs, the Chathams and the Campbell Islands. A radio operator is on duty all day to intercept those messages and transmit New Zealand's own collected reports.

All this information goes straight on to maps—synoptic charts — and when enough data is available it becomes possible to plot lines around the areas of similar pressure and in due course these lines reveal patterns which enable the forecasters to interpret the separate reports in terms of a general movement of the weather systems.

Two kinds of synoptic chart are used, one big and one small. The big one, which is worked out every six hours, includes the whole of Australia and New Zealand, and extends from the equator to 55 degrees south. A smaller one, which is filled in every three hours, covers New Zealand, the Chathams, Lord Howe, Norfolk, and the Kermadec Islands. The patterns of isobars (lines joining places of equal pressure) on a weather chart for this part of the world will almost always include a set of complete rings—which means there is usually either a cyclone (depression) or an anti-cyclone somewhere in the region, and successive charts will show where it is moving to, and how fast, and how much it is changing on the way.

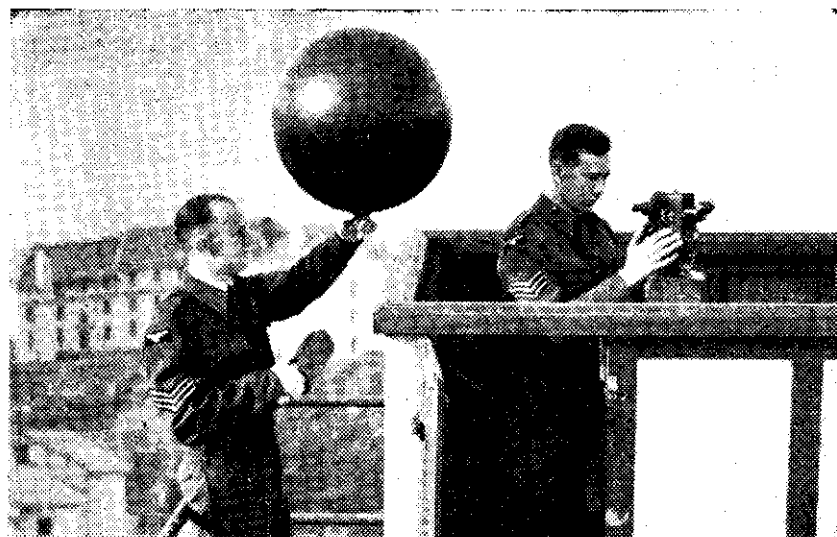
New Zealand suffers special handicaps in the preparation of weather forecasts—it is long and narrow, and islands are few in the seas which surround it. Thus for reports of weather approaching across the ocean it has to work on very much less information than, for instance, an American Mid-west State, or a part of Europe. Particularly is this so during war time, when ships may not break the radio silence for fear of giving away their positions.

The Gadgets

Though the collection and co-ordination of outside reports is the most important side of the Meteorological Office's work, it is less interesting to the visitor than the collection of local information, and our photographs show some of the apparatus used for this.

There is the gadget that records the direction of the wind and its force—called an anemometer or anemograph. The similarity of the name to *anemone* is not accidental. Anemones are also called "windflowers," and their name, like the name of the instrument shown on this page, comes from the Greek word

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Above: Launching the balloon for observation through the theodolite. The carbon paper and thread are wound round the roller.

Right: Taking a reading on the outside anemometer. The black box below the rotating cups contains a device similar to a speedometer. The wire cage protects thermometers which lie on the grass or in pipes below the ground.

Below: A Waaf and an anemometer. This instrument is described in the accompanying article. The movable shaft (from the vane on the roof) and the two wind-pressure pipes are on the right. The three pens can be seen against the chart.

