

On Our Cover

THE map printed on our cover this week was specially drawn in the Meteorological Office to show the areas which will be referred to in Weather Forecasts, and those who expect to make use of the forecasts should cut it out and keep it. The districts have not necessarily any provincial or county limits. They are merely areas in which one type of weather prevails at a given time, and listeners who feel slighted at being included in "Waitomo" or "North Westland-Buller" should remember that the fact has no political significance. Many of the boundaries shown on the map run along mountain ridges.

Forecasts are not necessarily issued for each district individually, and it will often be possible to say "all districts from Waitomo and Taupo northwards" or "in the South Island, east of the Alps," but only well-known geographical names or those given on the map will be used.

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for wind. The anemometer in the forecasting room at Kelburn is connected with a large, finely-balanced vane on the roof which fluctuates with every variation in the wind, as anyone can see who goes for a stroll in the Botanical Gardens. The movement of the vane works two pens connected to the bottom of a jointed shaft, and these trace their erratic line on a chart on a revolving cylinder. Two pens are necessary, because when the vane turns right round one pen swings right away from the chart. The other then begins automatically. The same chart also carries a simultaneous record made by a third pen, showing the wind velocity. Two tubes having their openings at the front and rear of the weather vane convey the variations in windpressure down to the instrument and move a float in a cylinder of water, and a pen records the movements of this float on the revolving chart. Alongside this complicated instrument are the commoner barograph (a barometer that records variations in pressure on a chart), a thermograph (a thermometer which records on the same principle) and an automatic rain gauge.

Outside, in an area caged off with a high wire fence, are the instruments used by the climatological section of the office—thermometers on the grass, thermometers in pipes, three feet down, one foot down. Wet and dry bulb thermometers for humidity measurement, thermograph and hygrograph are housed in

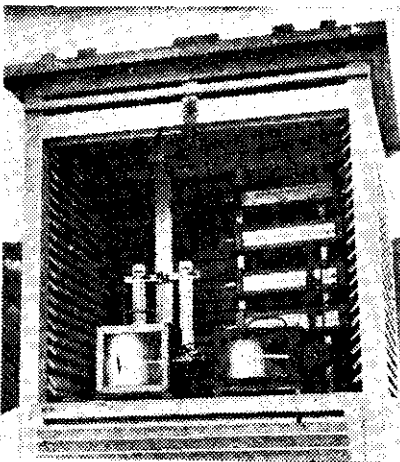
the usual wooden meat-safe, more properly called a screen. The design still used for this is the one made by R. L. Stevenson's father, who was a meteorologist. Most of these instruments are used, not for current weather forecasting, but for providing records that enable the habits of our climate to be studied over many seasons.

The most valuable information used for this purpose comes from the 600 or so people in all parts of New Zealand who keep records of rainfall and sometimes of maximum and minimum temperatures, and supply monthly returns to the Meteorological Office. Sheepfarmers, orchardists, retired schoolteachers, and other useful people, have committed themselves to take readings every day and keep accurate notes and these have been amassed into an invaluable record of our climate.

Data from Higher Up

The most spectacular procedure at the Meteorological Office, though, is the balloon launching. A big balloon, filled with hydrogen, is sent up twice a day, with a piece of black paper suspended by 100 feet of thread, or (at night time) a candle in a little cellophane lantern. It is watched through a theodolite, and wind conditions at higher levels can be determined from its behaviour. The fixed length of thread makes it possible to work out how far away the balloon is, by measuring its apparent length with the theodolite.

An even bigger balloon is sent up once a day from Auckland, Hokitika,



Above, Right: The Stevenson Screen (described in the article) containing thermograph (left), barograph (right) and thermometers (behind).

Right: One of the forecasters at work on a synoptic chart. Charts for previous periods are filed above the desk.

and Taieri, carrying a tiny radio transmitter in a white cardboard box. This instrument, called a "radiosonde," weighs about three pounds, and is a very expensive thing to be losing in the sea almost every day of the year. In an open compartment at one end of the box is a simplified set of instruments to record pressure, temperature, and humidity. The radio set sends out a single tone, which is altered in pitch by the instruments, and an automatic receiving

set takes note of the signals. A radiosonde goes up to about 60,000 feet, or twelve miles, and is usually sent up at night so that direct sunshine will not interfere with its temperature measurements. Naturally these instruments, when the necessary materials can be more freely used, will play a big part in supplying information about stratospheric conditions, and even at present they play an essential part in the interpretation of ordinary atmospheric conditions.

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