Observations of visibility are now made at Beacon Hill (Wellington), at Blenheim, and at Kaikoura. For a period they were made also at Paekakariki, but since there was little demand for these they have, for the present, been discontinued. The observations are telephoned or telegraphed to the Meteorological Office.

A Dines pressure-tube anemograph giving continuous and instantaneous records of the wind velocity and direction has been established at the Air Force Base at Hobsonville, near Auckland. Advice and assistance was given, also, to the Wellington City Council in the erection of a similar instrument at the Rongotai Aerodrome.

There is thus considerably more information available regarding atmospheric conditions as they effect flying than has been the case in the past. We are consequently better able to give advice to aviators.

It may be mentioned that during the year the British airships R100 and R101 underwent their trials, which proved very successful. Considerable advances have yet to be made, particularly in engine design and construction, before the airship can be thoroughly successful commercially, but it is clear that the main difficulties have been overcome.

Miscellaneous.

Dust from Australia.—In last year's report a description was given of a very heavy deposit of dust brought over from Australia by westerly gales in the early part of October, 1928. It is extremely interesting to learn that this deposit is still visible on large areas of snow in the Southern Alps. Further falls have occurred during the past year, the most remarkable being that of the 26th November, when heavy coatings of the red deposit were received over large portions of the Taranaki, western Wellington, Nelson, and Marlborough Provinces. In October, 1929, also, clouds of smoke and dust from Australia were seen in the Island of Niue. These phenomena have been made the subject of communications to the *Journal of Science and Technology* and to *Nature*, the latter being discussed by Professor J. W. Gregory.

Publications.—Other contributions to the *Journal of Science and Technology* have been "Hourly Sunshine at Wellington," by Mr. D. C. Meldrum; "Surface Winds at Waitatapia, Bulls," by Mr. Andrew Thomson; "The Heavy Rainfall of 11th March, 1924, in the Hawke's Bay District," by Dr. E. Kidson; "Hourly Rainfall at Kelburn, 1928–29," by Dr. E. Kidson.

Director, Apia Observatory.—Mr. Andrew Thomson, Director of the Apia Observatory, Samoa, who had been suffering in health, was attached to my staff during the year and took charge of the upper-air work. In February Mr. Thomson returned temporarily to Samoa in order to get everything in good working-order at the Observatory before handing over to the new Director. In addition to the other work mentioned, Mr. Thomson, while here, prepared papers on the occurrence of thunder and hail in New Zealand, which will be printed shortly. He also published an article in *Nature* on the sounds heard at great distances from the great earthquake at Murchison on the 17th June, 1929. These sounds travelled to a great height in the atmosphere, probably about thirty miles, and were there reflected back to earth from a layer of warm air. The reflected wave reaches the earth at a great distance from the source, and the sound becomes audible beyond a zone of silence in which the direct wave has died out. Mr. Thomson found evidence of a similar happening during the Tarawera eruption. The phenomenon has been observed in connection with explosions in Europe, especially during the Great War, and gives information regarding conditions at high levels in the atmosphere.

Australian and New Zealand Antarctic Expedition.—Mr. R. G. Simmers, of the Meteorological Office staff, had the honour of being appointed meteorologist to Sir Douglas Mawson's British, Australian, and New Zealand Antarctic Expedition. Mr. Simmers proceeded to England in June, superintended the installation of his apparatus on board the "Discovery" in London, and after a short course of special instruction at the London Meteorological Office joined the vessel in Cape Town. Preliminary reports by Sir Douglas Mawson indicate that Mr. Simmers has successfully completed a programme of valuable observations.

Australian Antarctic Expedition, 1911–13.—A large amount of work has been done on the discussion of the meteorological results of the Australian Antarctic Expedition, 1911–13, and it is hoped that this will be completed in the course of the coming year. The writer's discussion of the results of the first Shackleton Expedition has now been published by the Commonwealth Government.

We have been asked to revise the meteorological data in the "New Zealand Pilot," issued by the British Admiralty, and which has hitherto been prepared in England.

I desire to acknowledge once more the loyal and cordial assistance of all members of my staff.

Short Summary of the Weather during 1929.

The year 1929 was similar to 1928 in that there was a comparative absence of westerly winds and in the unusual frequency of storms of cyclonic form. These latter were even more numerous than in 1928, and similar conditions have not previously been experienced since records have been kept in New Zealand.

As regards total rainfall, the year was approximately a normal one, but very dry and very wet periods alternated in most districts. Places which receive heavy rains in westerly winds had less than the average falls. January was dry, and February still more so. March and April were wet, but May and the first part of June rather dry. From the latter end of June right through to August wet and rather stormy weather prevailed; thereafter dry conditions again set in, especially in the South Island. In parts of Canterbury and Otago the dry spell was not broken until December, but otherwise both November and December were wet and stormy.