The whole of the evening report, which is based on 4 p.m. observations, is issued at about 7 p.m. by the Radio Broadcasting Co. from each of the four main centres, and in Morse by the Wellington Radio Station (ZLW) at 9 p.m. The forecast only is again transmitted from the broadcasting-stations at 9 p.m. There is no doubt that this evening report has been very much appreciated by the public, and especially by mariners and farmers.

During the harvest season in February an experiment was made, in co-operation with the Radio Broadcasting Co. of New Zealand, in the issue at midday of special forecasts for farmers in Canterbury. In these forecasts the general situation was described and the outlook given for as far as possible in advance. Numerous letters received from farmers showed that this service was appreciated.

Requests for special forecasts have been received in increasing numbers, particularly from farmers during shearing-time, who have desired warnings of heavy rain or cold snaps. Aviators, also, are making increasingly frequent applications for forecasts.

In connection with the first crossing of the Tasman Sea, numerous reports were interchanged between the two sides, the Commonwealth meteorological service and ourselves co-operating in the furnishing of information and advice to the aviators. Owing to unvoidable delays from bad weather, this interchange of reports had to be continued over a long interval, and a considerable responsibility was thrown on the meteorologists. The period proved to be the most stormy of the whole year, and the successful completion of the journey in both directions was a very notable triumph of modern airmen and aircraft over adverse weather conditions. Squadron-leader Kingsford Smith and Flight-Lieutenant Ulm made thoughtful expression of their appreciation of the assistance given.

### Observing-stations.

New climatological stations have been established during the year at Rudstone (Methven), Cambridge, Alexandra, Manorburn Dam, and Golden Downs (Kohatu). Twelve additional rainfall stations have been established, while five have been discontinued for various reasons. In co-operation with the Cook Islands Department, instruments have been provided for a number of island stations in the Pacific.

The quality of the observations received from reporting stations still gives cause for concern. The proportion of observers, for instance, who send in barometer-readings which are frequently inaccurate is much larger than would be anticipated. There are many, also, who seem unable to maintain grass minimum thermometers in satisfactory order. The alcohol in the stems of these thermometers is liable to distil to the top of the tube or to develop bubbles, but such defects can in nearly every case be easily remedied if instructions be followed. The only way in which radical improvement can be produced is by frequent inspections. Numbers of observers have never seen a meteorological officer or had personal instruction. As much inspection as was possible with the available funds has been done, and somewhat more than half of the country has been covered. Experience has emphasized the need for these visits. Few stations are found where all work is being done under proper conditions. It is surprising how few people realize, for instance, that it is important to have a rain-gauge at the standard height of 1 ft. above ground and distant from surrounding objects.

### Aviation Meteorology.

The progress in the direction of the provision of meteorological information for aviators has not been so great as anticipated. To a large extent this has been due to the failure of airships to make as rapid progress as their protagonists had expected. The trials of the large new British vessels will, however, soon have made it possible to decide whether rapid developments of airship services are to be expected or not. There can be little doubt that the inauguration of an overseas air service to New Zealand, whether by airships or aeroplanes, is a matter of a few years only. The amount of local flying in New Zealand also is rapidly increasing. It behoves us, therefore, to anticipate as far as possible the demand for increased meteorological information that will ensue.

The air-movements occurring in the upper layers of the atmosphere play an important part in the determination of extensive weather conditions. To attempt to forecast adequately surface weather the influence of these vast upper-air movements must be ascertained. These upper-air movements also have considerable bearing in the determination of aviation routes.

At the beginning of the year a commencement was made of the determination of winds in the upper air above Wellington by means of pilot balloons. Similar observations are being made also at Auckland by Mr. F. H. Sagar with the assistance of a grant from the Research Department and the co-operation of the Defence Department. Mr. Sagar's plan is to use his results as the basis of a thesis for the M.Sc. degree. The continuation of the upper-air work has been made possible by the attachment to the Meteorological Office for a year of Mr. Andrew Thomson, Director of the Observatory at Apia, Samoa. If the advance is to be maintained, it will be necessary to secure permanently the services of Mr. Thomson or an officer of the same standard of training.

It is hoped that more frequent observations of upper winds will be made shortly at the Christchurch Magnetic Observatory, and that closer co-operation between the two branches will be possible.

Tentative plans for a preliminary meteorological service in connection with civil aviation have been prepared, and developments in this direction are to be expected. As already indicated, the number of requests for special forecasts from pilots undertaking long flights has shown a considerable increase during the year. Some aviators, unfortunately, fail to make full use of the facilities provided by the Meteorological Office, and unnecessary risks are occasionally run.