with which the air temperatures have been taken have seldom been properly exposed. Frequently they are in partially screened positions on a south wall of a building. The observations have not been of a sufficiently high accuracy for modern forecasting purposes, much less for a permanent record. In consequence, they have not generally been stored after their use for the daily forecast.

The stations whose records it was intended to keep for the purpose of furnishing climatological statistics were established separately from the telegraphic stations. There is often a climatological station and a forecast station in the same town. This obviously means unnecessary duplication of observations. Another drawback has been that, since the telegraphic stations must have barometers, the climatological stations are usually without them. Few reliable records of pressure are therefore available.

The forecasting-stations have been selected apparently with a view to having reports from all the harbours used by shipping. It would have been preferable to have had a good network of stations, so that the meteorological situation could be thoroughly understood and future developments anticipated. There is a lack of stations on the west coast of the South Island, whereas in other parts they are perhaps unnecessarily numerous.

The prime desideratum for a climatological station is that it should be permanent. Unless the records can be maintained for a large number of years, they are of little value. Unfortunately, too large a proportion of the stations have been maintained by private individuals in their own grounds. The observer is usually unable, for various reasons, to continue the observations for a long period, so that they are either dropped or the outfit is removed to another private person's property. Not only does this mean a break in continuity, but even a slight move will often mean that meteorological conditions are very different. The records from the two stations cannot be combined. Furthermore, no adequate record of changes has been kept; observers have often had to set up their stations themselves without instruction, and there has been no adequate inspection of stations. Consequently instruments are frequently improperly exposed and defective types have sometimes been kept in use.

The most urgent need of the meteorological service in New Zealand is the establishment of properly equipped stations, on permanent sites with satisfactory exposure, and the ensuring of continuity of observations. A beginning could then be made of the collection of homogeneous and reliable data such as are needed in connection with an ever-increasing number of social activities. The accomplishment of this object in a young country where there are few leisured men and where towns are growing rapidly is a difficult matter which cannot be brought about at once. It will not be possible at all without the interest and assistance of local bodies and individuals.

Some progress has been made during the financial year in the desired direction. Steps are being taken to ascertain the exact heights of stations wherever possible. When these have been made available, accurate correction-cards for barometers have been prepared. The correction for gravity, which was previously applied at Wellington only, has been included. New forms have been prepared which provide for observations more in accord with modern practice and requirements. The maximum and minimum wet-bulb thermometers, whose use is not quite sound theoretically, are being replaced by ordinary dry and wet bulb thermometers.

As time and other duties permit, the inspection of stations is being undertaken. The greater part of the Nelson and Marlborough Provinces, and parts of Canterbury, Otago, and Hawke's Bay, have already been covered. Experience has shown that the inspection was most necessary. Numerous defects of exposure have been found, and in some cases portions of the outfit were unserviceable or of unsatisfactory pattern. It is quite easy for a badly exposed or badly designed rain-gauge, for example, to be 10 per cent. or more in error. The proper exposure of thermometers is not less important.

In several cases municipalities have now reserved the ground for a meteorological station and undertaken to secure continuity of observations. It is hoped that this example will be followed by others. It is difficult to believe that the information secured is not worth the expense to the city engineering departments alone. In a number of other instances equipment has been provided to various Government Departments, and the records will be maintained by members of their staffs.

The total number of new climatological stations established is ten, while two have been abandoned.

Frost-fighting.

In August the Director accompanied the Secretary to the Department and Mr. R. B. Tennent, Agricultural Instructor, to Otago Central, where an inspection of the district was made in order to study the problem of the protection of orchards against frost. Assistance has been given to the local Orchard Instructor and the Fruitgrowers' Association. Later in the year visits were paid also to the Hastings district. The Fruitgrowers' Association was addressed on the subject of frost-fighting. Largely through the initiative of the Mayor, a meteorological station was established at Hastings, which should prove useful to fruitgrowers as well as others. A paper on "The Protection of Orchards against Frost" was prepared and published in the *Journal of Science and Technology*. The paper summarized the conditions surrounding the occurrence of frost and frost-damage, and the experience gained in America in combating them. Copies have been distributed to those interested.

British Empire Airship Mission.

At the end of August the Dominion was visited by the British Empire Airship Mission, under the leadership of Group Captain P. F. M. Fellowes, R.A.F., who had with him Flight Lieutenant S. Nixon, R.A.F., and Mr. M. A. Giblet, Superintendent of the Airships Division of the London Meteorological Office. The Meteorological Office co-operated with the mission in the provision of preliminary data