

principle of a minimum of 8 per cent. of non-fatty solids in all milk offered for human consumption. In addition to milk-samples, almost the whole range of foodstuffs offered for sale in New Zealand were subjected to one or more tests during the year, and with very few exceptions all were found to conform to standards laid down in the Food and Drugs Act, which is in consequence revealing its substantial value as a means of safeguarding the public from fraud and ill health.

The Laboratory undertook a very large amount of work for the police during the year in connection with criminal investigations, and a review of the activities in this direction indicate the growing part which scientific assistance can play in the detection of crime and fraud.

The revival of interest in mining which has been maintained is responsible for continuation of the large number of samples submitted for assay. Many coal-analyses have been made, while mine-airs from collieries have been subjected to regular examination for the Mines Department. Research with the object of reducing excessive swelling of some New Zealand coals by means of weathering has been commenced.

Changes in the nature of various manufactured goods consequent upon the advances made in recent processing methods necessitate a constant supervision being maintained by the Customs Department. In this supervision the chemical assistance of the Laboratory is frequently called upon.

The range of materials purchased by various Government Departments have been regularly tested in order to ensure that their standard of quality is maintained. Researches concerned with coal, fruit, tree-sprays, soils, phormium, and ragwort have also been undertaken during the year.

METEOROLOGICAL BRANCH.

During the latter half of the financial year there was a very marked increase in the interest evinced by the public in aviation. The demand for air services not only throughout the Dominion, but also across the Tasman Sea, became very strong. As regards the Dominion itself, provision for such services has already been made, and a trans-Tasman service appears not far distant. Regular air services cannot be run safely and efficiently without adequate provision for the dissemination of the meteorological information required by pilots during their flights. This has been realized by the Government, and the necessary organization will be effected. Already the appointment of additional staff has been authorized, and the training of the new officers on the necessary lines will commence shortly.

The Director's report calls attention to the value of the climatological data being collected by the Meteorological Office and the need for ensuring that this shall not be lost sight of owing to the insistent demands at present arising for increased forecast services. There are few branches of industry in which adjustment to climatic conditions does not have to be made, and the more complete the information supplied the closer will be the adaptation to conditions. Not only, therefore, must the climatic data continue to be collected, but the results must be summarized, discussed, and published, so that the fullest use may be made of them.

The number of climatological stations at present maintained is as large as the staff of the Meteorological Branch can cope with, and many requests for additional stations have had to be refused.

Further progress has been made in the application of "frontal" methods of analysis of weather-charts as developed by the Norwegians. There is no doubt that this has led to an improvement in the weather forecasts and that the method will repay the closest study. In this connection the Meteorological Office staff had the benefit of the co-operation of Mr. J. Holmboe, the Norwegian meteorologist attached to the Lincoln Ellsworth Antarctic Expedition, until August, 1934.

The usual periodical publications containing various meteorological statistics have been published. Two papers of a more original type, intended as a preliminary basis for the study of modern methods of weather forecasting by local students of meteorology, have also been produced.

I desire once more to express appreciation of the extremely valuable work done by the numerous voluntary observers, on whose co-operation the success of the Meteorological Branch depends.

GEOLOGICAL SURVEY.

Since last year's report was presented the Geological Survey has published a palæontological bulletin, an important memoir dealing with the Devonian fossils of the Reefton district. In addition, the maps to accompany an areal bulletin were printed.

Detailed geological examinations were carried out in three regions, but only in one did this work proceed throughout the full season. The mapping of two subdivisions was finished and that of two new ones begun. Soil-work was actively continued in Waipa County, and rather extended reconnaissances were made in Ashburton, Levels and Southland counties. Detailed geological investigations proceeding and accompanying the operations of the geophysical parties at Waihi, New Plymouth, Mahakipawa, Reefton, and at several localities in Otago and Southland absorbed the whole time of one geologist and a part of that of several others. The importance of a sufficient supply of good cool water in dairying has long been recognized and is increasingly urgent, so two officers were detailed for a period to investigate water-conditions in the Taranaki, Waikato, and Piako districts.

The preparation of a geological map of New Zealand, the stock-taking of its mineral resources, and the publication of the data available proceeds all too slowly. In the last few years the professional officers engaged on this fundamental work of the Geological Survey have been reduced owing to death and resignation. The maps and reports of the Geological Survey, the finished product of its activities, are the basic raw material required in elucidating many of the problems of mining, agriculture, and water-supply. To preserve a proper balance and perspective, to prevent the grave misapprehensions liable to arise when the facts are known only in part, it is desirable that the rate of production be increased.