Among special investigations carried out may be mentioned the relation of iodine deficiency to incidence of goitre, ripening of bananas, solubility of various limestones, preservation of passion-fruit juice, examination of certain pastures for cyanogenetic glucosides, investigations of failures of structural and other materials.

Dr. J. S. Maclaurin retired from the position of Director of the Dominion Laboratory on the 31st March of last year. He joined the Public Service as Analyst to the Mines Department in 1900, and the scope of his work was gradually extended until all chemical work required by Police, Health, Customs, and all other Government Departments, except that of Agriculture, was carried out under his direction, and branch laboratories were established in Auckland, Christchurch, and Dunedin. In 1909 he reorganized the inspection of explosives and dangerous goods, and placed it on a sound working basis. In more recent years he was entrusted with the preparation and administration of the Gas Regulations. He leaves behind him a well-organized laboratory, with a keen and efficient staff; also a record of public service of which he may be justly proud. He was succeeded as Dominion Analyst and Chief Gas-examiner by Mr. W. Donovan.

Since his retirement Dr. Maclaurin has brought to completion an investigation on the bleaching of *Phormium tenax*.

GEOLOGICAL SURVEY.

During the year the field survey work of a further 869 square miles was completed, the survey being conducted in the Te Kuiti, Eketahuna, and Amuri districts. This brings the total area surveyed to date up to some 29,497 square miles, or a little over one-quarter of the total area of the whole Dominion (viz., 104,000 square miles).

In addition, two members of the Survey were engaged upon soil reconnaissance work, and have dealt with an area lying between Atiamuri and Te Awamutu, bounded on the north by the Rotorua Railway line. This work is designed to throw light upon the various volcanic showers that have covered the central plateau of the North Island, and whose characteristics place serious limitations upon the agricultural utilization of this area. The most important results that have emerged from this work are methods of differentiating between those soils likely to be bush sick, and, particularly, the rôle the available iron in the soil plays in the incidence of bush sickness.

While the work of the Geological Survey is fundamental in that it is concerned with the detailed examination of earth-structure, this information is of considerable practical value to those seeking to exploit the mineral and agricultural resources of the Dominion. The fact that the mineral-bearing areas, for the most part, already have been geologically surveyed has resulted in constant reference being made to the reports dealing with these districts, and frequently it appears that the dearth of information with respect to districts that have not been surveyed has imposed handicaps upon industrial developments.

Considerable work was carried out in conjunction with the Dominion Laboratory on tests of material from Arapuni, as regards the changes of dimensions and elastic constants with varying amounts of contained water. These measurements were used by Professor Hornell as a basis of his conclusions as to the cause of the breakdown.

METEOROLOGICAL OFFICE.

During the year the work of the Meteorological Office has been greatly facilitated by the location of the staff in the well-equipped new office building at Kelburn, adjacent to the Observing Station and to the Dominion Observatory. The new building has been designed to provide such facilities as render it a first-class observing station, while its proximity to the observing instruments and its being able to command such have been a means of facilitating observations and their interpretation.

The meteorological services are being called upon to an increasing extent to supply information of interest and value to Government and industrial inquirers. This information is improving owing to the greater degree of accuracy in the records made throughout the Dominion, and to the fact that opportunity has been taken to interpret records compiled in the past. In both of these directions, however, a great deal of progress still remains to be made.

Increasing use is being made in the prediction services provided, particularly the special radio broadcasting services to farmers, and although, owing to the financial stringency, it was necessary to curtail the broadcasting of weather reports to shipping during the year, which resulted in a falling-off in data from ships in New Zealand coastal waters, a fairly high degree of accuracy in forecasting was attained.

DOMINION OBSERVATORY.

The work of the Dominion Observatory comprises two distinct branches of science—astronomy and seismology. In astronomy the Observatory has the important duty of controlling the time of the Dominion, and it does this by the use of astronomical clocks which are rated and kept accurate by frequent astronomical observations and by the reception of wireless-telegraphy time signals from other observatories. From these clocks some hundreds of time signals are sent out every year by telegraphy, wireless telegraphy, &c., and time-ball and electric-light signals also are made.

With the exceptions of the small transit telescopes and small portable refractors, the Observatory has only limited equipment for astronomical observations, and the policy has been to take only those researches which the position of the Observatory, having regard to both latitude and longitude, warrants. Many other astronomical observations, such as the study of variable stars, sun-spots, meteors, occultations, and planets, are carried out by members of the New Zealand Astronomical Society, and the results are forwarded to the Observatory.

The special astronomical event of the year was the total eclipse of the sun in 1930, October 21–22, visible from the Island of Niuafo'ou, in the Tongan Group. An expedition from New Zealand was