

## DOMINION LABORATORY.

Director: W. DONOVAN.

The Dominion Laboratory is an institution combining the functions of a Chemical Service and a Chemical Research Laboratory. For many years it has carried out the chemical work required by all Government Departments, except Agriculture and to some extent Railways, in the course of their administration, and, in covering the wide field involved, has built up a staff with special knowledge in many branches of chemistry, and a well-chosen reference library. This, and the accumulation of varied and valuable equipment over the years, has put the Laboratory in an excellent position for undertaking the chemical portion of such researches as those on kauri-gum, phormium, active principles of plants, and spray treatment. The Coal Survey Section is engaged principally in research, and the Gas Storage and Chemical Engineering Sections entirely so. A Spectrographic Section is well equipped for routine determinations and for research. The specialized knowledge of one section is often very helpful to another, and the staff of the entire Laboratory works in fullest co-operation. The main Laboratory is situated in Wellington, and there are branches in Auckland, Christchurch, and Dunedin.

### WORK FOR GOVERNMENT DEPARTMENTS.

During the year 25,997 samples were examined for thirty-three Government Departments. The figures for the various centres are—Auckland, 11,248; Wellington, 7,541; Christchurch, 4,844; Dunedin, 2,394: Total, 25,997.

A test for the efficiency of the pasteurization of export butter is carried out in the Auckland Laboratory, but not in the other branches, and this has helped considerably to swell the Auckland total. The work for the majority of the Departments has followed the usual lines during the year, and there is nothing special to report regarding that undertaken for Customs, Labour, Main Highways, Post and Telegraph, Prisons, and many others.

#### *Defence.*

For this Department there were numerous examinations of ammunition components, and a report was furnished on water-proofing of tents. Water and milk supplies to military camps have been tested.

#### *Department of Health.*

*Milk.*—A total of 13,142 samples of milk were submitted by Inspectors of Health at the four Laboratories, and examined for compliance with the regulations. In Auckland there was a marked increase in the number of samples containing added water. In Wellington the proportion of milks not complying with the standard was about the same as in the previous year, and may be regarded as satisfactory. The Government Analyst at Dunedin reports: "The number of milk-samples taken shows a further considerable increase over those taken in the two preceding years. The proportion of watered and stale milks and of milks slightly below the standard was considerably lower than in 1938, while the proportion of samples deficient in fat increased slightly. No preservatives were detected in any of the samples." The Government Analyst, Christchurch, reports close co-operation with the Departments of Health and Agriculture, which has led to a steady improvement in conditions on farms and dairies. The percentage of unsatisfactory samples is reported as small, and the opinion is expressed that, "Provided adequate sampling is maintained, defects in the supply can be quickly located and remedied." The experience of all the centres would confirm this opinion.

Particular attention has again been paid to the purity of milk supplied to school-children, and to the efficiency of pasteurization.

*Water.* Regular examination of water from town supplies and other sources, for domestic use, was continued during the year. In all, 556 samples were submitted, including some from military camps.

*Foodstuffs.* Foodstuffs examined were again in considerable numbers and great variety. There was an extensive search for preservatives, which were found to be illegally present or in excessive amounts in some prepared meats. In Auckland, whole-meal flour and whole-meal bread were subjected to critical survey. In general, the foods examined complied with the Regulations.

*Drugs and Medical Preparations.*—These comprised camphorated oil, lime water, olive oil, ointment, tincture of iodine, tablets, and preparations of various descriptions. Christchurch reported extravagant advertising in connection with goitre remedies and a wheat-germ food. The position regarding improper advertising is very unsatisfactory.

#### *Special Investigations.*

*Atmospheric Pollution, Waiuta.*—An investigation was commenced of atmospheric pollution at Waiuta, resulting from the roasting of arsenical pyrites. Alterations to the plant for the treatment of waste gases have been made, and further improvements are under consideration.

*Dunedin City Baths.* An investigation of eye-infection at the baths revealed that the trouble was not due to excessive chlorination, as had been supposed, but to insufficient control of the pH of the water. When this was increased from 3.8 to 7.2 the trouble disappeared. A marked improvement in the clarity of the water also resulted.