

Miscellaneous.—A wide variety of articles used as food and drink were examined, many of them being from supplies to military camps.

Samples of air from factories, dusts, and paint were examined in connection with possible danger to the health of workers.

A number of drug samples were analysed to ascertain if they complied with the standards of the British Pharmacopœia.

Mines Department.—Prospectors' samples were assayed for gold and silver, and various ores, including those of iron and tungsten, were analysed.

Mine airs, gases, and stone-dusts were examined in connection with safety measures in mines.

Government Stores.—A very large number of miscellaneous materials was examined for the defence Services, Public Works Department, Main Highways Board, Post and Telegraph, Industries and Commerce, Railways, State Advances, and Housing Construction Departments, and Stores Control Board.

A considerable number of samples were examined for the Marketing Department.

Gas Inspection.—The gas-supplies of the four main centres and of most of the other principal towns of the Dominion were regularly examined for calorific value, freedom from sulphuretted hydrogen, and for pressure. With a few exceptions the gas complied with the required standards. The systematic testing of gas-meters going into service was also carried out.

RESEARCH AND SPECIAL WORK.

Gas Storage of Apples.—On account of urgent war work only part of this investigation is being carried on.

Timber-preservation Research.—Many samples of wood were examined to ascertain the depth of penetration of certain copper compounds.

Coal Survey.—The systematic work of the Coal Survey has been curtailed, and attention devoted to substitute motor fuels such as charcoal, cokes, chars, and anthracites.

A number of oil-shales were analysed for Geological Survey. A comprehensive series of samples of peat from the Chatham Islands was examined for wax, and sufficient wax was extracted from selected peat to allow of the wax being submitted to various firms in New Zealand and abroad for opinions as to its commercial value. The sampling was very thorough, and the completed work will give reliable data as to the possible value of the peat as a source of wax.

Paint Investigations.—Very large numbers of paints have been examined for various Departments and considerable investigational work done on special painting problems.

Substitute Materials.—Special problems in connection with substitute materials were investigated, and in view of present conditions the number of such problems tends to increase.

Chemical Engineering.—The work of this section has greatly increased. Work has been continued on gas-producer plants for motor-vehicles. Considerable work has been done on design of plant for drying medicinal plants and vegetables. Experimental lots of agar-agar were prepared, and its commercial production is being undertaken by a New Zealand firm.

A number of special problems in connection with defence have also been investigated.

The Chemical Engineering staff has acted in a consultative capacity to various Government Departments.

Locally Grown Medicinal Plants.—The work on the active principle of such plants was continued and the results obtained were very encouraging.

Spray Materials.—Analyses of various spray materials for the Plant Research Bureau were carried on, as in previous years. This is most valuable work.

Spectrographic Analyses.—The large quartz spectrograph was in regular use and the scope of the work done further extended. A small spectrograph has proved to be extremely useful in the examination of certain ammunition components. In this case special methods were developed in the Laboratory.

Advisory and Consulting Work.—The Director and senior members of the staff have been called on to much greater degree than in previous years in a consultative and advisory capacity. This is due partly to the war situation, but also to the greater tendency of various Government Departments to make use of the scientific services available at the Laboratory.

The Director and other senior officers have represented the Laboratory on various departmental committees, including those of the Standards Institute.

GEOLOGICAL SURVEY (36th ANNUAL REPORT).

REPORT BY DIRECTOR (DR. J. HENDERSON).

During the twelve months ended 31st March, 1942, the Director was chiefly in Wellington attending to the many inquiries about mineral resources and other matters connected with the work of the Geological Survey, but also visited several localities in the North Island in order to report on their mineral possibilities or obtain other information.

Regional mapping was carried out on a small scale in the Dannevirke and Orepuki districts, and the very detailed mapping of the Grey Coalfield was continued. The time of most officers, however, was taken up in examining deposits of possible economic value. Arising from Empire supply considerations geological and geophysical reconnaissances were made along the Waikato between Cambridge and Atiamuri in order to assist the engineers of the Public Works Department to select suitable sites for dams.

Summaries of the results of the more important of these investigations are given below, and it is hoped to publish fuller accounts when opportunity offers.