

DEPARTMENT OF HEALTH

Milk.—The numbers of milk samples examined were: Auckland, 5,807; Wellington, 4,234; Christchurch, 5,754; Dunedin, 1,313; total, 17,108.

Special interest was focussed on the question of milk-supplies, owing to the sittings of the Milk Commission, before which the Dominion Analyst and the Government Analysts at Auckland, Christchurch, and Dunedin gave evidence.

With the exception of Wellington, the condition of the milk-supplies of the main centres is by no means satisfactory, but no doubt, as the result of the recommendations of the Commission, remedial measures will be taken.

In all districts special attention has been given to milk supplied to military camps and to schools. The latter have been tested for the efficiency of pasteurization. In practically all cases it was shown to be satisfactory.

Water.—A total of 664 samples from projected and existing water-supplies were analysed in the main laboratory and the three branches. Many of these were taken in connection with supplies to military camps.

Sewage.—As in the previous year, samples of sewage, some of them taken in connection with the disposal of effluents from military camps and linen-flax factories, were examined in each of the four laboratories.

Miscellaneous.—A very wide range of articles used as food and drink were examined. They include apple-juice, apple pie, baking-powder, beer, bread, biscuits, brandy, butter, canned foods of various kinds, cheese, cider, coffee, cordials, cream, curry-powder, condensed milk, egg-pulp, fats, food-preservative, gin, honey, honey mead, ice-cream, vegetable marrow, mince meat, oysters, pickles, rose-hip syrup, sausage meat, starch, tripe, turtle soup, whisky.

A number of reputed rat poisons were examined, and it was found that many of them would be quite harmless to rats.

Samples of enamel and aluminium ware were examined to ascertain if they contained impurities which might contaminate foods prepared in them.

A number of drugs and proprietary medicines were examined.

MINES DEPARTMENT

As in the preceding year, large numbers of scheelite concentrates were examined, quartz and other samples were assayed for gold and silver and some for other metals. None of these was of outstanding value. Mine airs and gases and stone dusts were analysed in connection with safety measures in coal-mines.

GOVERNMENT STORES

As usual, a large number of a very wide range of building and other materials were examined for various Government Departments to ascertain if they complied with specifications under which they were purchased. In a number of cases special investigations into causes of failure were made. Samples of tars and other roading-materials were examined for the Main Highways Board.

GAS INSPECTION

The gas-supplies of the four main centres and most of the other principal towns of the Dominion were regularly examined for calorific value, for pressure, and for freedom from sulphuretted hydrogen. It has been found that several works are experiencing difficulties in keeping up the calorific value of the gas and ensuring freedom from sulphuretted hydrogen. This has been explained by difficulties in supplies of coal and lack of trained labour. The systematic testing of the accuracy of all gas-meters passed for service was carried out as usual.

RESEARCH AND OTHER ACTIVITIES

Spray work for the Plant Diseases Division mainly consisted of checking the quality and composition of some of the new importations of spray oils, lead arsenate, nicotine sulphate, basic copper chlorides, &c. Waters from Roxburgh were tested for their effect on the soluble arsenic formed when using lead arsenate. The soluble arsenic varied from 0.25 per cent. to 2.0 per cent. with the different waters. Hardness and chlorides were determined, but no simple relationship between these figures and the soluble-arsenic figures was apparent. The addition of slaked lime depressed the soluble arsenic to a safe figure.

METALS AND ALLOYS

A large number of chemical and spectrographic analyses of both ferrous and non-ferrous metals and alloys was carried out for the Armed Services as well as for civil Departments. These examinations were frequently associated with the investigation of failures or fabrication difficulties, and necessitated the additional employment of metallographic and physical examinations and heat treatments.

CORROSION OF METALS

A wide variety of examples of corrosion of metals was submitted from various sources, and investigations made to determine the cause and prevention of these. Advice was given on the choice of materials for use under specific corrosive conditions.

CHEMICAL ENGINEERING SECTION

The Chemical Engineering Section has been largely occupied during the year on work connected with the dehydration of vegetables and apples. The vegetable plant at Hastings, capable of dealing with 4,000 tons to 5,000 tons of fresh vegetables per annum, was brought into operation in March, 1943, some six months after instructions had been received to commence the designs. Apart from the special machines used for peeling and slicing the raw material, the whole of the plant was designed and its construction supervised by officers of the Chemical Engineering Section. Up to 31st December, 1943, the vegetable plant had treated successfully 1,915 tons of potatoes, 234 tons of cabbage, and 404 tons of carrots.