

water-supplies. It has frequently been observed that the water drawn from the chilled-water tank for butter-washing purposes is inferior in quality to the source of supply to the factory, results which emphasize the necessity for frequent cleaning of these tanks.

Further efforts have been made to determine the value of the Resazurin test for milk and cream grading under New Zealand conditions, but the amount of progress to be recorded is comparatively small. A paper describing the results of last season's work was prepared. It is hoped that during the coming season the Resazurin test can be tried out upon a much wider scale than during the past year.

The examination of dairy-produce for metallic contamination has continued to be the principal chemical work carried out in the Laboratory, but instead of dealing with an increased number of butter samples more time has been devoted to the testing of cream samples. On account of the higher proportion of protein material in cream, these are more troublesome to deal with than butter, and the tests usually take longer to put through. The wet-ashing method used for butter has been suitably modified to deal with cream so that reliable results can be readily obtained. To provide a basis for comparison figures are now available to indicate the copper and iron content of cream produced under conditions of minimum contamination. The extension of this work should enable attention to be drawn to both factory and farm plants which are in need of renovation to eliminate metallic contamination. This work may also shed some light upon the suggestion that certain types of equipment are more prone than others to give rise to metallic contamination and associated flavour defects.

The introduction of a regulation requiring dairy utensils and machinery to be coated with pure tin has involved some analytical work, with the object of determining what limits of lead contamination are permissible in the tin used for this purpose. Preliminary inquiries have also been made with the view to determining the thickness of such tin coatings, but a considerable amount of work still remains to be done.

During the past season the testing of butter for pH has been continued at the principal grading-stores. The variation in results from excessive acidity to excessive alkalinity revealed by these tests emphasizes the desirability of continuing to use them. The simple colour test applied in the grading-store has been found also to be capable of application in the butter-factories to the buttermilk. This enables the results of the work done in the factory to be demonstrated to those responsible.

The waters procured for bacteriological testing have also been subjected to a limited number of chemical tests. The information thus obtained has been useful as a basis for suggesting chemical treatment to improve the water-supply, especially to eliminate corrosion and render the water more suitable for factory washing-purposes. If more adequate facilities were available it would certainly be worth while to supplement the chemical testing in order to provide evidence about certain insidious types of pollution which may not be revealed by the bacteriological testing.

A matter to which some attention has recently been given is the condition of the balances and weights in use in the Graders' testing-rooms. The checking of these weights is at present in progress. It seems possible that certain improvements may be introduced which will enable greater accuracy to be obtained without sacrifice of the necessary speed of testing.

One matter which received some attention last winter was the investigation of cleansers and detergents which are in use in dairy factories. It is hoped to be able to continue with this during the coming winter.

During the year consideration of the proceedings of the Dairy Standards Committee has taken up some time, and several meetings have been attended. In this connection one or two minor investigations have been initiated. One of these is the selection of an oil and dye which can be readily standardized for the preparation of the red reader regularly used for the Babcock test upon cream and cheese.

A paper dealing with the chemical control of export dairy-produce was prepared for a chemistry conference, and this paper is likely to be published shortly. Mention has already been made of the paper published dealing with the Resazurin test. During last winter a large amount of time was devoted to the writing-up for publication of two papers dealing with the methods devised and used in the Laboratory during the past few years. One paper deals with the bacteriological testing of butter, while the other deals with the testing of butter for copper and iron contamination. Both these papers have been submitted to English scientific journals, and it is hoped that they will shortly be published.

In addition to the matters referred to above, a number of miscellaneous matters have been dealt with both by Laboratory analyses and also in the course of discussions upon various subjects which have arisen from time to time. Evidence is available that the work carried out has proved to be of use to the officers of the Division and to the industry.

LEGISLATION.

As already mentioned, the consolidation of the Dairy-produce Regulations was completed during the year and came into operation on the 20th July, 1938. As now arranged they will be found to be much simplified, as they follow the production, manufacture, and marketing of dairy-produce from the farm to delivery from the grading-store, where it passes under the control of the officers of the Marketing Department.

PROSECUTION.

Only one prosecution was taken under the Dairy Industry Act during the past year, this being a charge of placing wrong churning-marks on certain boxes of butter, some of which contained moisture in excess of the legal limit. The decision of the Magistrate was in favour of the Department.