

Again this year the London officers have been called upon to undertake duties connected with the industry which necessitated visits to the Continent. Three such visits have been paid, and contacts made which are of value from many points of view.

Further duties undertaken by Mr. Taylor in London have been representation of the Dominion on the Dairy Requisites Committee of the British Standards Institute and on the International Dairy Committee.

DAIRY LABORATORY, WALLACEVILLE.

As in previous years, this Laboratory has maintained close contact with the Dairy Instructors and Graders to assist them with chemical and bacteriological analyses for the purpose of effecting improvements of the conditions under which dairy-produce is manufactured throughout the Dominion. The number of samples dealt with during the past year is just above three thousand, which is a slight increase on last year's total. This figure, however, does not include over eight hundred milks on which the Resazurin test was done for the purpose of comparing it with other tests being applied to detect mastitis.

The major portion of the bacteriological work continues to be the testing of butter samples received from the grading-stores. The number dealt with shows an appreciable increase over last year, but there is still scope for a good deal more of this work. In order to make fortnightly examinations of samples from Lyttelton, the samples usually procured from New Plymouth were obtained for a period at fortnightly instead of weekly intervals. Two small batches were also procured from the Dairy-produce Grader at Gisborne. Although this work has been in progress now for several years, it has not been possible to arrange for regular testing of butter samples from the smaller ports.

During the winter an investigation was carried out for the purpose of improving the method of making the mould and yeast counts upon these samples. The micro-plate procedure used in the past for this purpose yielded figures which were considered to be not sufficiently accurate. An improvement was effected by using the Esmarch roll-tube technique for this test, so that the counts can be obtained by the use of a factor of ten instead of fifty. In addition to the greater accuracy with which low counts can be thus estimated, the resulting roll-tubes are very convenient to forward to the Instructors for the purpose of showing them to the factory staffs. Thus visible evidence can be produced of the difference between good and bad sanitary conditions within the factory. During the past season an increased number of examinations have been made of scrapings of butter procured from the outer layer of butter in contact with the parchment or parchfoil wrapping. These tests have brought to light a few cases where the wrapping-material or the conditions of packing in the factory left room for improvement.

An increased number of tests have been made upon samples of unsalted butter. Notwithstanding special efforts on the part of some managers to manufacture unsalted butter under the most hygienic conditions, the bacterial counts obtained have often been excessive. It would seem that the temperature to which the butter is chilled after packing and the temperature conditions of transport may be responsible for the higher bacterial content of unsalted butter. By the introduction of improvements of these factors, the possibility of bacteriological deterioration of unsalted butter may be appreciably decreased.

Although very occasional cases have occurred where lower-grade butter has been found to be of high bacterial count, no attempt has been made to relate the bacterial condition of the butter to its quality or grading. The emphasis has been placed rather upon the improvement of the hygienic conditions within the factories. For this purpose several bacteriological surveys have been made of cream, butter, and buttermilk from factories where various types of contamination persistently occurred. This work has focused attention upon the need for better methods of cleaning certain equipment, particularly the churns and the refrigerated vats in which the cream is held overnight. The cleaning of the latter is particularly difficult as the metallic surface of the vat is always maintained at a low temperature during the cleaning-operations. To get over this difficulty, successful experiments where the hot cleansing solution was fed by means of a small pump through the brush as it was actually being used for cleaning the surface of the vat have been carried out. With this device, and the provision of better light to enable the workman to see what he is doing, these vats can be kept in better condition.

During the past season some three hundred and fifty samples of starter from butter and cheese factories were tested for bacterial contamination. This number is rather fewer than were tested during the previous season, but the proportion of butter starters was rather higher, amounting to one-fifth of the total.

The increased number of butter starters examined has appreciably diminished the number of cheese starters dealt with. The increasing attention given to the care of starters during the past few years has led to a higher proportion of them being kept so that they are quite free from bacterial contamination. As too many are still found to be contaminated, it is desirable to do more of these tests than there has been time for during the past year. It is very satisfactory that the latest investigations fully support the view which has been advocated here for many years—namely, that a starter culture should be looked after in the dairy factory with at least as much care as it would receive in a bacteriological laboratory.

The testing of water samples from butter-factories has been continued, although the number dealt with has been rather fewer than during the previous season. In supplying the results of these tests an endeavour is usually made to advise factories as to the best method of improving their