

of the luxuries and pleasures they are obliged to do in the West.

Easterners, in some respects, are inclined to be just a little slow and conservative for the best interests of the country; and it would appear the very class so often going West to settle are the very ones so badly needed to be leaders and advocate needed reforms in the East.

#### FUTURE OUTLOOK FOR ONTARIO FRUIT.

I am thoroughly convinced, after making two tours of the Prairie Provinces, and seeing the great markets opening up for fruit, and the ever-increasing demand, that the fruit-growers and shippers of Ontario, and especially the Niagara District, must, if they wish to supply this country with their products, send nothing but strictly first-class fruit. The idea so many seem to entertain, and apparently act thereon, that anything will do to send here, where no fruit can be grown, has already brought no small discredit to Ontario fruit, that will take a long time to remove. They seem to lose sight of the fact that the cost is often small, in proportion to the transportation charges. These people know what is good; they have the money, and are willing to pay the price, and if Ontario will not supply them with what they will have, they are forced to look to the West.

The Eastern fruit-grower has not yet realized the vast possibilities for production in the fertile valleys of British Columbia. The enormous quantities of apples, pears and plums, to say nothing of cherries and peaches, that will in a few years go on the market will surprise many. There are ranches there already covering thousands of acres in solid blocks, and preparations for many more. The area adapted for fruit, formerly thought so limited, is found to be very much larger.

Washington, Oregon and California are now largely supplying the trade here with fruit of which Ontario is able to produce much. The British Columbia people have started right, copying from their Western neighbors, in the cultivation, pruning, thinning, and, above all, the grading and packing.

It is not, I can assure you, a pleasant task for me to criticise Eastern methods; but one thing is evident, we must (and it can be done) exercise great care in order to produce a better article, grade it carefully, and see that it goes in up-to-date packages, or we cannot expect to compete in this market.

I realize full well it is a hard proposition to get us Easterners to adopt changes, we are so fixed in our ideas, but the sooner we give this matter our serious consideration, and fall in line with Western requirements, the more will it be to our ultimate interest. W. B. RITTENHOUSE.

## THE DAIRY.

### A Test for Milk Dealers.

From a milk-dealer's standpoint, not only is it necessary to know the quality of milk with regard to its constituents, such as fat, total solids, etc., but also information with regard to its keeping quality.

Most dealers are now well aware that milk contains a greater or less number of bacteria, and that the greater the care exercised in cleanliness, etc., the longer will milk keep in a sweet condition. Heretofore it was impossible for the dealer to ascertain which milk was of good and which of bad keeping quality, unless he had complaints from his customers or had regular bacteriological examinations made of various samples of milk; hence, the dealer was badly in need of a simple test which would give him information as to the keeping quality of milk; in fact, a test as simple in operation as the Babcock test for ascertaining the percentage of fat in milk.

The test about to be described depends on the reducing power of the bacteria present in the milk. All bacteria in milk have more or less the power of reducing different stains or dye substances, that is, changing them from a colored substance to one which is milk white. In this test a sample of milk is colored with an aniline dye called methylene blue, and the sample is then incubated or placed at a suitable temperature until the color is completely lost, and the milk changes from blue to its natural white tint. The more bacteria there are in the milk, the faster does this decoloration or reduction take place.

This test was first proposed by Barthel, a Swedish investigator, and we have recently confirmed his work by making a number of tests and controlling these by careful bacteriological analyses.

The necessary apparatus used for this method is very simple, can be made by any tinsmith, and consists of the following parts:

1. A tin or galvanized iron water bath, which is heated with a small coal oil lamp.
2. A tin rack fitting in the bath, perforated with holes for holding a number of test tubes.
3. A number of test tubes about six inches long and 1 inch in diameter, made of strong glass.
4. One 10 cubic centimeter pipette, and 1 cubic

centimeter pipette, divided into halves of a cubic centimeter.

5. Rubber stoppers, or, if these cannot be obtained, good corks, fitting the test tubes.

The only chemical required is a saturated alcoholic solution of methylene blue, which may be obtained at most large drug stores. One cubic centimeter of this solution is diluted with 39 cubic centimeters of water, in order to obtain the colored solution which is added to the milk.

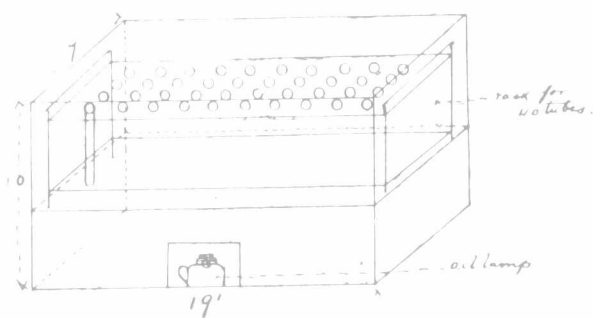
The method of carrying out the test is also quite simple, and the following steps should be taken, in the order named:

1. Place sufficient warm water in the bath so that it is at least even with the level of the milk in the tubes. The temperature of the water should be between 104 and 113 degrees Fahrenheit, and this temperature must be maintained throughout the test. This is easily accomplished by the use of the small oil lamp beneath the water-bath.

2. Place 10 cubic centimeter of milk from each sample to be tested into a clean test-tube, and mark the number of the sample on an attached label.

3. Place in each test tube one-half cubic centimeter of the dilute solution of methylene blue. Shake well, close the tube with a rubber stopper, place the tube in the rack, and as soon as all samples are ready, put the rack in the warm water in the bath. The first observation should be made at the end of a quarter of an hour, and then repeated at the end of each quarter, for the first hour; thereafter, a look every hour is sufficient. Note the sample which has turned white, and record the length of time it has taken. The test need not be continued longer than 7 to 10 hours. The results may be divided into the following three classes:

(1) Samples which are reduced or turned white after one-quarter to two hours. Such milk is either bad or very poor.



Water Bath.

A lid, with a hole for a thermometer, covers the top.

(2) Samples which are reduced or turn white between two and seven hours. Milk of medium quality.

(3) Samples which are reduced or turn white after seven to ten hours. Milk which may be considered good to excellent in keeping quality.

In explanation of the above results, and to illustrate the above points, we may cite the results of a few of our experiments. Samples of fresh milk kept at a temperature of 10 to 50 degrees Fahrenheit for a day did not change their color under eight hours. Such milks contained from 9,000 to 10,000 bacteria per cubic centimeter. Milks containing one million bacteria per cubic centimeter changed color in about six hours, whilst samples which contained two million bacteria shortened the time of reduction to about two and one-half hours. Very bad samples of milk, which were reduced in 15 to 45 minutes contained from sixty-five to eighty million bacteria per cubic centimeter.

An important point for the milk-dealer to note is that not only has the absolute number of bacteria an influence on the time of reduction, but also the kind of bacteria present. A milk containing large numbers of lactic-acid bacteria, which are not injurious to health, reduces the color much more slowly than a sample of milk containing a lesser number of injurious gas-producing organisms.

This test, therefore, will give the information to the milk-dealer that his product is a first-class one, if it belongs to the third group (decolorized after 7 to 10 hours). Second-class milks, which should be used at once, would fall into the second group (decolorized between 2 and 7 hours); whilst poor milk would fall into the third group, and should not be used for human consumption (decolorized between 15 minutes to 2 hours).

It is evident that such a test, if generally employed by milk dealers, would prove of great value in the improvement of the milk trade. Not only would it be possible to locate bad milks more easily and quicker than can now be done, but effective steps might be taken to eliminate the undesirable purveyor of polluted milk at once. Thus, at a very small expense of money and labor, the dealers can prevent big losses to themselves, as well as safeguarding the interests of the milk-consuming community.

F. C. HARRISON & H. DASEN.

Macdonald College

## GARDEN & ORCHARD.

### Still More to Learn.

"When we began, in 1906," said Jas. E. Johnson, manager of the Norfolk Fruit-growers' Association, to a representative of "The Farmer's Advocate," lately, "we knew we had a good deal to learn, but now, after four years' experience, the possibilities from improved methods of culture and business seem greater than ever. I knew we had a good deal to learn then, but" (this with emphasis), "I can now see a great many more things to learn than I could then."

The Norfolk Association has advertised itself very effectively by the magnificent fruit display it made at the Fruit, Flower and Honey Show last month in Toronto. It was a credit to Canada, and the press has not been sparing in praise. The apple crop in Norfolk was light this year, but the Association had a successful season, nevertheless, having shipped 19,200 barrels, all of which were sent West. The membership has increased from 152 last year to 188 in 1909. Owing to unfavorable weather during the spraying period there were more wormy apples than usual, and, on account of this and other causes, they had more culls to the barrel this year than ever before. Otherwise, the quality was high.

Contrary to the practice usually recommended for co-operatives, the Norfolk Ass'n has no central packing station, though there is a warehouse where barrels are received and shipped. When the proper time arrives, gangs of men are sent around to the different orchards, and the apples are picked and packed at once. Hauling also begins as soon as there are enough barrels for a load, and cars in turn are also at once loaded and despatched. This year there were 52 picking and packing gangs employed, and, constantly travelling about among these while at work were five inspectors. The business of picking, packing and shipping was this season practically completed in three weeks.

The endeavor is to put up fruit so carefully, and of such a grade, that it will sell itself. No salesmen, other than the manager, are employed, and the aim is to sell only f. o. b. at Simcoe. Freight rates give no worry, as the other fellow has them to pay.

### COMING CHANGES.

Mr. Johnson believes that in a few years the bulk of the apple shipments will be sent in boxes. Another change needed in their own work is the doubling of the number of inspectors. As he views it, it would be profitable to spend \$500 or \$600 more per year to secure sufficient inspection, rather than to have even ten barrels rejected because of not being up to grade. Reputation is hard to build up, and easy to lose.

### ORCHARDS BEING PLANTED.

One result of the success of their co-operative work has been a wonderful increase in the planting of apple trees. Not only so, but there are many inquiries from outsiders, intending orchardists, regarding the price of land around Simcoe, and several sales of property for fruit-growing are already reported. So numerous, indeed, have been the number of possible buyers that the Co-operative Association intends to establish, as a branch of its business, a real-estate exchange, at which knowledge of any property for sale by the members, with location and price, might be learned. The outlook is for a decided rise in land values, and little wonder if such should be the result, when present prices range from \$10 to \$30 per acre.

A National Apple Show was held in Spokane, Wash., November 15th to 20th. Twenty-three States in the Union, and two Canadian Provinces, British Columbia and Nova Scotia, were represented in 2,160 entries in 20 classes, for premiums aggregating \$25,000, ranging from \$1,500 in the sweepstake for carloads, of which there were 13, to single plates of five apples taking prizes of \$5 for each variety. There were 10 limited entries, 39 free-for-all, 73 State and foreign country groups, 98 ten-box, 136 five-box, 278 single-box, 28 unnamed varieties, 15 pyramids of big apples, 11 largest apples, and 1,328 plates, aggregating more than 1,500,000 apples. The exposition, perhaps the most pretentious of its kind ever attempted in the world, is declared to have been a success in every way, attendance being well over the 100,000 mark, and including visitors from every State, Territory and Province on the continent; also, buyers from England, Germany and France. Canada was represented in many of the box and plate classes, and carried off its share of prizes. The growers of British Columbia sent five boxes of Northern Spy apples to His Majesty King Edward VII., and also joined with their cousins in consignments of fruit for President Taft and the Emperor of Japan. Howard Elliott, head of the Northern Pacific Railway Company, was president of the Show, the secretary manager being Ren. H. Rice, of Spokane.