

far as he knew the only one in Canada—has adopted the method of weighing the cream sample for the Babcock tester. The proprietor, Mr. Harris, is very much pleased with the results, in that his patrons are much better satisfied with the tests.

One creamery (Walkerton) paid a small premium to the patrons for delivering cream testing 25% and over. The result was a considerable increase in the percentage of fat, and an improvement in the quality of the cream. These things show that some of the creamery men are becoming more alive to the importance of advancement in the methods of managing their creameries.

Unfortunately, there has not been an improvement in the quality of the butter in 1906. This fact, he believed, was due to the warmer weather during the season, and also that some of the creameries are only collecting the cream twice a week. The reason given for collecting only twice a week is: they are thus able to cut down expenses, and are able to pay a little more to the patrons than their opposition.

This feature, if continued, will result in giving our butter a worse reputation for old-cream flavor than it has at present.

In looking for a reason why our butter has not as high a reputation for quality as our cheese from Western Ontario, Mr. Barr was forced to the conclusion that our creamery men have not set as high an ideal of perfection in quality, and made everything count for that end, as have the cheese men. Until our creamery managers come to some understanding with one another in regard to the question of refusing cream that is overripe and rank in flavor, there is little hope of improving the quality of our creamery butter.

There is as great a weakness in the cold storage at our creameries as in the curing-rooms at the cheese factories; many of them cannot be called cold storages, as the temperature is reported from 50 to 60 degrees in some cases. We must have storages at the creameries that will keep the butter at 40 or 45 degrees, even if it is only kept for two or three days.

Some of our buttermakers pay too little attention to finishing off the top of the packages, and when they are opened they present an untidy appearance. He believed it would be a good thing for our creamery business if the creamery men would use only one style of box for export butter, and have a distinct creamery brand on each box, so that there would be a distinct difference between a 56-pound box shipped from a creamery and 56-pound box of dairy butter shipped from a store.

Quite a number of creameries are using coolers for cooling the cream as it is delivered at the creamery, and they are giving the best of satisfaction. There is no apparatus in the creamery equipment that will give better results than a cooler and plenty of water to pump through it. A number of creameries are using pasteurizers, and there is no question they assist greatly in securing a uniform quality of butter, but to get the best results from pasteurizing the cream must test at least 25% fat.

Our buttermakers are adopting more uniform methods in churning and washing the butter, with the result that they are getting larger returns from the cream. Mottled butter seems to be the buttermaker's greatest difficulty in the making of the butter, and it is difficult to suggest a remedy. Greater care should be taken in washing the butter, and in distributing the salt than many of our buttermakers exercise.

Although it seems slow work getting the quality of our western butter improved, there is progress being made. The patrons are becoming better acquainted with the requirements necessary to produce good cream, our makers are adopting better methods in the creameries, and our creameries are being better equipped.

What we need to-day is a determination on the part of our creamery men to use every means available to make our Western Ontario butter second to none.

WANT INSTRUCTORS MADE SANITARY INSPECTORS.

G. A. Putnam, Superintendent of Farmers' Institutes and Director of Dairy Instruction, delivered a spicy address in introducing the report of the joint committee of the Eastern and Western Associations, appointed to consider the advisability of recommending an amendment to the Provincial dairy law. The first class concerned in our dairy industry, he said, is the patrons. While most of these are doing their part well, a few of them—say five per cent.—are surprisingly negligent, and probably ten to twenty per cent. need brushing up. It is the duty of the other patrons, of the makers, and of the instructors to help brush these up. What we must have at the factories is clean and cool milk. This is hard to get. The conditions of milk supply are unfavorable to begin with. What other food product would we want to have set under a cow, or what would we tolerate to have treated as milk is? Would any housewife let the hired man come in from the stables in his overalls, and without washing his hands help her to mix biscuits or bread? Yet there would be less injury result than from milking with dirty hands, because the dirt that gets into milk sets up a more rapid development of bacteria than would be the case in biscuits or bread. But if you ask the hired man who has been loading manure to wash his hands before milking he'll say, "What's the use? I'll have to wash them again after I'm through."

Last year, to improve conditions in factory and on farm, two sanitary inspectors were at work in the Province. Their work and that of the instructors was kept entirely distinct and separate. But the two inspectors were unable to cover the ground or accomplish as much as was desired. The committee, therefore,

recommended that a new plan be adopted, dividing the Province into 38 districts of 35 or 36 factories each, giving each instructor one group, and giving him the same authority as now vested in the two sanitary inspectors. A uniform fee of \$12.00 would be charged for the services of the instructor-inspectors. This would make up \$16,000 to apply on the total cost of the work, estimated at \$42,700. Under the existing plan a similar fee is charged for the services of the instructors, and most of the factories employ one, but the few who need it worst of all do not.

In discussion, R. Gleason, of Medina, thought if we could now compel every manufacturer to make for just so much per cwt., and bind every farmer to supply just so much milk per 100 acres, the thing would be complete.

Further discussion revealed considerable confusion in the mind of the audience regarding the scope of the proposition. Several were inclined to associate it with the two requests introduced by the makers' deputation on the previous afternoon. J. N. Paget, of Canboro, explained that the scheme outlined by Mr. Putnam was not designed primarily in the interest of the makers. It was chiefly to protect and benefit those patrons who are doing their duty. Sour or tainted milk, resulting from lack of cleanliness on the farms, reduces sometimes by as much as \$5 worth the amount of cheese made from a vat of milk into which it has been introduced. It also depreciates the quality of the cheese. The poor milk from a few patrons results in a smaller make and poorer quality of goods, thus robbing the other patrons. Is it fair?

Chief Instructor Barr strongly supported the motion. His staff of instructors have done all in their power to improve the business; they have the standard of manufacture raised high. Much of the raw material, too, comes in good condition, but some does not. His instructors have tried visiting and persuading careless patrons, in many cases only to be laughed at. He did not see how the instructors could do very much more without some authority in dealing with the few patrons causing the loss. Much is made in some quarters of skimming and watering milk, but sourness (sourness) causes far more trouble and loss than all the skimming and watering that has ever been done. In reply to a question of Mr. Wagg, of Manitoulin, Mr. Putnam said he thought if the proposed recommendations were made law, the creameries and factories in the far north or out-of-the-way localities would receive some special consideration. He also thought that if the law were passed as suggested, in three years' time there would be such radical improvement that the number of instructor-inspectors could be reduced by one-half.

By resolution the committee's recommendations were almost unanimously approved.

MOISTURE IN BUTTER.

Prof. R. Harcourt, O. A. C., Guelph, presented the results of his summer's work on the moisture of butter. Last spring he sent out a circular, asking makers to send him samples of butter for determination of its moisture content, on condition that a statement accompany the same, explaining how the butter was made. Many makers were anxious to try the effect of manipulation, to see how much they could increase the moisture content thereby; 262 samples were received. In all of these the moisture was determined, and in some the curd and salt also. The average percentage of moisture in the 262 samples was 14.1, the range being from 10.3 to 19.92. Only 18 samples exceeded the legal standard of 16%. The curd content varied from 4% to .85%, which is lower than is usual in butter.

Tests for salt revealed that after ignoring all samples that were saltless, or nearly so, the percentage varied from .6% to 4.04%.

They failed to establish any relationship between the per cent. of moisture and the per cent. of curd, or the per cent. of moisture and the per cent. of salt.

They also analyzed samples of the butter sent to Guelph in the creamery-scoring contest. Out of 113 samples the highest moisture content was 15.8%, and the lowest 9.04%. The curd varied from .1% to .85%; the salt from .6% to 5.98%. Here, again, they failed to find any relationship between the per cent. of moisture and the per cent. of curd or salt, and no certain relation between the percentage of moisture and the score given the butter. If anything, he thought, possibly there was a tendency to show that the butter with the higher moisture content got slightly the lower score at the third scoring, three months after being made. He hoped to secure fuller data, on which conclusions might be based.

Prof. Harcourt explained that there are three different ways of determining the moisture in butter. The old way is to take 2 grams of butter and heat in an oven till constant in weight. This is accurate but slow. Another method is to weigh out a larger quantity of butter and heat over the flame of an alcohol lamp. Repeated tests with this method gave results varying not over one-tenth of one per cent. A demonstration of this method was made before the audience. The third method, recommended by Prof. Gray, of Washington, he intends to try as soon as possible.

THE COLLEGE DAIRY DEPARTMENT.

Prof. H. H. Dean, O. A. C., Guelph, was down for an address covering the results of his work on the subjoined subject. By way of preface, he replied to an attack that had been made last year on the business management of the College Dairy Department. During the past year, besides teaching some 250 students, and carrying on experiments in all lines of creamery and factory work, the revenue from the Department came

within \$1,300 of paying expenses. Except for \$850 spent in purchasing live stock, and chargeable to capital account, and \$500 estimated expense connected with the milking machine, it might be said that the department last year paid its way, doing all the teaching and all the other experimental work to the good. During the past 16 years, during which he has had charge of the department, the volume of business has totalled \$130,000, and only \$600 has been lost by bad debts. He never objected to fair criticism, but sometimes he was reminded of the termagant wife, who, after nagging her husband into the grave, erected over his head an expensive monument, on which she had chiseled the very suitable inscription: "Rest in peace till we meet again."

EXPERIMENTAL SHIPMENTS OF BUTTER TO ENGLAND.

Coming to his subject, Prof. Dean, after outlining the scope of the experiments with butter shipped to England, summarized them as follows:

The highest scoring butter (scored by merchants in England) was made from sweet cream without culture or starter, run directly from the cooler into the churn. Ordinary boxax, costing 6 cents a pound, gave as good results in every way as the commercial preservatives, costing 10, 12 or 15 cents a pound.

Butter shipped in print form was somewhat rancid on arrival, having what the merchants called a "sidey" flavor. His conclusion was that it is not possible to send print butter and have it arrive in first-class condition. The merchants on the other side prefer to make their own prints.

Butter from cream delivered by farmers, some of whom have separators, and some of whom use the deep-setting method, gave practically as good results as butter from cream separated at the College creamery.

Returns from nine shipments, comprising 8,128 pounds of butter, averaged a net price of 20.2 cents per pound. On the home market they have sold no butter the past season for less than 21 cents. Of course, the College dairy has a better home market to cater to than the average Ontario creamery would find.

It is a mistake to think that sweet cream cannot be churned. In the College creamery it had been churned in less time than ripened cream, and at 1 degree lower temperature.

Saltless butter scored higher than salted in almost every case.

SHIPPING CHEESE GREEN.

[Dairy Commissioner Ruddick's address Thursday afternoon on Cold Storage and Transportation for Butter will be published later on.]

In an address on cool-curing of cheese, Thursday evening, Mr. Ruddick said that the value of the cool-curing idea is now unquestioned. The chief point of discussion is the practical construction of cool-curing rooms. For information on this subject, he referred his auditors to his last annual report, free for the asking.

In conclusion, he repeated his advice of the week before, that cheese should not be shipped green, arguing that patrons and factorymen have the situation in their own hands.

Austin Miller, of Mt. Elgin, wondered how he, as a patron, was going to prevent his factory from shipping its cheese green. He wondered why, if the Government were going to look after the sanitary conditions on the farms and factories, should they not also undertake to regulate the buyers, preventing them from sending uncured cheese to the Old Country. Mr. Ruddick, however, did not think it was a matter calling for regulation by law. Just how the general body of patrons and makers are going to be persuaded of the necessity of not shipping green cheese, no one volunteered to show.

EDUCATION BETTER THAN COMPULSION.

Prof. C. C. James, Ontario's Deputy-Minister of Agriculture, compared the amount of money expended by Ontario for agricultural purposes ten years ago with that appropriated now. In 1896 the amount was \$191,000; last year it was \$377,000, or nearly double. In 1896 the amount devoted to dairying was \$22,000; last year it exceeded \$50,000. The appropriations for dairying are thus increasing at a faster rate than the total for agricultural purposes. This year there would be some further advance, but he could not say how much.

With his usual clear analysis, he emphasized the desirability of doing as much as we possibly could by education, and as little as we could get along with by law. It may be necessary in the future, however, to lay down some more stringent laws than in the past. Alluding to an agitation to compel all makers to have certificates of experience or dairy-school training, he said it would not be long till every maker would be obliged to have such a certificate as much as a doctor, but that did not mean that the change should be compelled by law.

Turning to the great problem of how to improve the milk supply, he said the brightest ray of hope had struck him last month, when he saw the large and enthusiastic Women's Institute convention at Guelph. If we can get the wives, mothers and sisters interested we'll get pure milk. The Women's Institute movement is growing wonderfully all over the Province, and prospects for influence through this channel are bright. We are now in a fair way of getting at the problem through the homes, which is the only rational way. If the women say, we must have clean milk, we'll have it. "The women," said he, "can do what you men