

good milk, and a maker who thoroughly understands his business are necessary. A tempering vat should be used in preparing the cream. Heating the milk increases the capacity of the separator. 80° to 85° in summer, and 90° to 95° in winter are good temperatures for separating it. A good starter is indispensable. It should not be necessary to pasteurize cream. Cream should contain from 30 to 35 per cent. of fat to churn readily. Cream should be cooled quickly when it has enough acid. Churn at a temperature that will bring butter to wheat grains in 45 minutes. The temperature should be a little higher in cream gathering creameries. If a little salt is used in water for washing it will help to carry off the small particles of casein in the butter. The room for working in should be warmer than the butter.

PASTEURIZING AND PURE CULTURES.

Mr. Harrison showed a number of lantern slides, showing the extent of the butter industry in several countries. The Danish butter was uniform in color, flavor, saltiness, and in price, and 96 per cent. of it was made from pasteurized milk or cream, and then inoculated with a pure culture which gives the desired flavor. 94 per cent. of the germ life is destroyed by pasteurizing. Pure cultures should be able to give to butter a good aroma, a good flavor, and a good keeping quality. To introduce pure cultures into Ontario creameries he recommended that a few creameries be selected and pure cultures sent to those from the college regularly, the makers to follow the directions sent out.

BUTTER FLAVORS AND STARTERS.

This formed the subject of an interesting address by Prof. G. S. McKay, of Iowa. The Americans keep all their best butter for the home trade and export the secondary grades. Results of tests show that the United States can make good butter. In scoring butter the English method is lower than in the United States. Flavor equals one-half in scoring. At certain seasons there is not much difficulty in getting good flavors. Feed affects flavor, but fermentation has a greater effect. Certain foods such as leeks, turnips, etc., have a decided effect on flavor unless the milk is pasteurized. Ripening cream produces flavor. Improper ripening is another cause of bad flavor. In good cream there is 92 to 95 per cent. of acid germs. Temperature at which cream is ripened is not an important factor; 60° to 65° in summer and 70° to 75° in winter are about right. The acidity of the cream is the important point. The development of acid is affected by the thickness of the cream. Twenty to 30 per cent. cream is about right in winter for good butter. From 15 to 20 per cent. starter should be used. When ready cream will have a smooth granular appearance. It may have this when not ripe. It should have a sharp acid test when ripe. In some experiments he carried on the results from pasteurized and unpasteurized cream were the same. Pasteurizing does not affect the body of the butter, but pasteurized cream will keep much longer than raw cream.

PRESERVATIVES.

In the discussion which followed, the question of the use of preservatives came up. Mr. H. A. Hodgson, Montreal, stated that he had received an order from England for 150 packages of butter containing no salt, but $\frac{1}{2}$ of 1 per cent. of preservates. These had been shipped and the butter was highly commended, and he thought that a good trade in this could be worked up if preservates could be used. Prof. Robertson stated that preservates were common in England and Australia. The use of 1 per cent. of preservates is allowable under the English law, and is not an adulteration. $\frac{1}{4}$ of 1 per cent. of preservates would help to preserve the butter, or 1-25 of an oz. of preservates per pound of butter and $\frac{1}{2}$ an oz. of salt. Turnips should not be fed to milch cows whose milk was supplied to a creamery or cheese factory. They form good food for young stock or fattening cattle.

THE FARMER OF THE FUTURE.

This formed the subject of an exceedingly forceful and brilliant address by Dr. Fraidshear, president of the Iowa State Agricultural College. The farmer of the future would take his place as a leader among men, as the doctor, lawyer, etc., does at the present time. To do this he must be educated. Farming of the future is going to turn on small percentages, and a more thorough understanding of the science of agriculture is necessary. The farmer must have more confidence in himself and in others.

THE CHEESE TRADE IN RELATION TO AGRICULTURE.

Professor Robertson in handling this question said that it was possible to make other branches of agriculture equally as successful as cheese. The success attained by the cheese industry was due to the diffusion of exact knowledge followed by the application of a system, excellent organization, and having every factory a sort of an illustration station. Keen market contact made the cheese trade grow rapidly. In the early days a cheese buyer was a maker and therefore an educator. Market contact is not so close now. English buyers complain of Canadian cheese not being so good as it used to be. He thought the quality was as good as formerly, but that the English consumer had been getting better cheese from all quarters, and therefore the standard of Canadian cheese was not as high as it used to be. The consumer wants a milder cheese. To get this the temperature of the curing-room must be kept under complete control. His department intended to establish two illustration curing-rooms and to cure half of the same lot of cheese in the ordinary way and half under the most

improved plan. Proper curing facilities in the average factory would save \$450 the first year and \$250 a year afterwards. In Canada 45 out of 100 are farmers, but still the importance of agriculture is not recognized. The wealth and prosperity of a country depend upon the intelligence, skill, industry, frugality and fairness of its people. What is wanted is not so much knowledge of how to explain things, but of how to do things. There should be a better knowledge of the trade of agriculture, and then the farmer will not be looked down upon. The farmer should know the soil and what to sell. One ton of hay will carry off more nutriment from the soil than 87 tons of butter. There are 300,000,000 acres of tillable land in Canada but only 30,000,000 tilled.

CREAMING MILK.

Miss Laura Rose, Instructor in the Home Dairy at the College, gave an interesting talk on this subject, explaining the nature of milk and what its component parts were used for. Large fat globules come to the top quicker than small ones. Two methods of creaming: the gravitation or natural, and the centrifugal or mechanical method. Of the former there were the shallow pan and deep setting plans. As a rule, the shallow pan way left at least 5-10 of 1 per cent. of the cream in the skim-milk. To skim a shallow pan take a thin knife and run it round inside the pan, separating the layer of cream from the edge. Then pour the cream off instead of taking it off with a skimmer. Too much surface is exposed in the shallow pan method, and the air should be pure. Set for from 24 to 36 hours in summer and about 48 hours in winter, and skim before coagulation takes place. Ice is necessary in the deep-setting method, and should be kept in the water all the time during setting. Set for 12 hours in summer and 24 hours in winter. Milk should be set as soon as taken from the cow. Cream should be taken off with a funnel-shape skimmer. Get the cream with as little skim-milk as possible. The cream separate will take more cream from the milk than the setting plan. Every dairyman with 8 cows or over should have a separator.

During the convention short, pointed addresses were delivered by the Hon. John Dryden, A. W. Campbell, Provincial Road Instructor, D. Derbyshire, President Eastern Dairy Association, E. L. Alderhold, Wisconsin, and others. On the morning of the third day no session was held and the delegates visited the Agricultural College and Dairy School, where a profitable time was spent. During the convention the Hon. Sydney Fisher, Dominion Minister of Agriculture, presented the gold medals given by the Windsor Salt Co. for the best exhibit of cheese at the Industrial and Western Fairs in 1898. The successful winners who were present to receive these beautiful and valuable gifts were A. F. Clark, Poole, Ont., and Murdoch Morrison, Harriston, Ont., the former receiving the Industrial and the latter the Western Fair medal.

DIRECTORS FOR 1899.

Hon. president, Hon. Thomas Ballantyne, Stratford; president, Harold Eagle, Attercliffe Station; first vice-president, R. M. Ballantyne, Stratford; second vice-president, Aaron Wenger, Ayrton; third vice-president, James Connolly, Porter Hill. Directors, John Prain, Harriston; J. N. Paget, Canboro'; Robt. Johnston, Bright; G. H. Barr, Sebringville; A. F. MacLaren, M.P., Stratford; J. A. James, Nitestown; Geo. E. Goodhand, Milverton. Auditors, J. C. Hegler, Ingersoll; J. A. Nelles, London. Representatives to the Industrial Exhibition, Toronto, H. Eagle and A. F. MacLaren. Representatives to the Western Exhibition, London, T. B. Millar, London; S. G. Kitcher, St. George.

A resolution of condolence with the family of the late John Robertson, an old member of the association was passed. A resolution was also adopted in favor of joint action by the directors of the Eastern and Western associations to secure better railway facilities for those attending the conventions. During the meeting the directors of the Western association, in company with the president of the Eastern association, waited upon the Ontario Minister of Agriculture and asked for an increased grant to carry on the work of instruction.

Ayrshire Breeders' Meeting

A meeting of the Directors of the Ayrshire Breeders' Association was held in the Albion Hotel on Tuesday, Jan. 17th, at 2 p.m. The minutes of business transacted since amalgamation were read by the secretary and was followed by a lengthy and careful discussion of the report by the Directors present. It was unanimously carried that the Board of Directors, having heard the report of the committee appointed at the last annual meeting to act in the matter of amalgamation, recommend that the report be received and adopted.

A Good Market Report

BELLEVILLE, ONT., Jan. 11th, 1899.

SIR,—Find enclosed \$1 to continue my subscription for FARMING for 1899. I find it a great help to me with its valuable information and good market review and forecasts.

Yours truly,

J. T. SARGENT, Box 773, Belleville, Ont.