

make good butter. It should be both chemically and bacteriologically pure and, in addition, should be of the proper physical consistency. So far as bacterial contamination is concerned, the better brands of salt on the market are largely sterile and the processes through which the brine passes before the completion of manufacture have been improved so as to eliminate any undue numbers of bacteria. If salt is allowed to stand open in the creamery, however, it may become damp and attract large numbers of bacteria, among which will almost invariably be the types which render butter rancid and cheesy. For these reasons salt should be kept well covered after the barrel is once opened. Sometimes salt is stored in a special chest or bin, and in such cases the cover should fit well and the chest should be located in a place free from excessive dampness. The best butter salt contains from 98 to 99 per cent. of pure sodium chloride. Any impurities other than the pure salt are likely to encourage deterioration in the butter. Any appreciable quantity of gypsum in the salt also decreases its solubility, and if magnesium chloride is present a bitter flavor is imparted to it.

In connection with the physical condition of salt, Hunziker advises as follows:

"It is very important that the salt be present in the form of crystals of the proper form and size. This factor controls its readiness to dissolve and its ease of being retained in the butter. The crystals must be of medium coarseness. When the crystals are excessively large they dissolve with comparative difficulty, tending toward gritty butter, or necessitating the over-working of the butter. Their distribution also tends to be less uniform; the individual crystals are farther apart so that their action on the casein and the expulsion of buttermilk are uneven; and the fusion of brine and water in the butter is slow and relatively incomplete. This in turn tends to cause an uneven color in butter.

"When the salt crystals are too fine, the salt is prone to be pasty, which renders its uniform distribution difficult. Excessively small crystals hinder the expulsion of buttermilk because the drops of buttermilk which each crystal is capable of taking up are so small that their complete and ready expulsion is hampered.

"Salt crystals of medium size, and which will pass through a screen having 25 to 30 meshes to the inch, are best suited for butter salt.

"With reference to the shape or form of the salt crystals, the butter salts are divided into two classes, the flake crystal salt and the cube crystal salt. The flake grain represents a thin and flat crystal usually of rhomboid or pyramid form, while the cube crystal grain appears in the form of regular-shaped solid cubes. Since the flake grain, with the flat, thin crystal, exposes more surface in proportion to its cubic contents, than the cube crystal with its cube shape, it is obvious that the grain salt dissolves somewhat more readily and is therefore better suited for butter salt than the cube crystal grain, unless the cube salt is of sufficiently smaller grain to reduce the cubic contents of the cube crystals in proportion to their surfaces to that of the coarser crystals of the flake salt. The difference in the shape of the crystals is due to the temperature at which the brine is evaporated. The flake grains are the product of evaporation at a high temperature (under atmospheric pressure) while the cube crystal grains result from evaporation at a relatively low temperature (in partial vacuum).

### Number Each Churning.

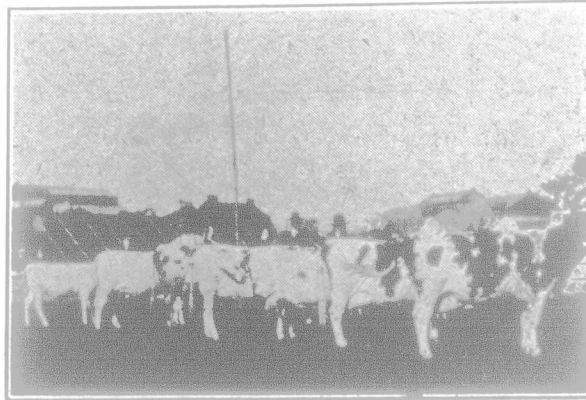
Evidence of the fact that it is to the advantage of creamerymen to mark each churning with a separate number that is stamped on each box or package of butter sent to market is furnished by the Market Division, Dairy and Cold Storage Branch, Department of Agriculture, Ottawa, as follows:

"A Canadian wholesaler shipped a car of butter to New York. On arrival there it was found that part of the car contained excess water. As the churnings were not marked, presumably each box in the car will be tested in order to sort out that which is adulterated.

"Two different Ontario wholesalers each shipped a car of Ontario Creamery butter to Montreal during the week. A part of each car is reported from Montreal as containing excessive water. One of the cars contained the make of four different creameries, all of which were not branded with the name of the creamery or churning number. Arrangements are being made for testing each of the six hundred boxes in the car at a cost of one hundred and fifty dollars. Had the churnings been

numbered, only one box of each churning need be tested and the cost of picking out the butter containing excessive water would only be one-tenth or less of the present cost.

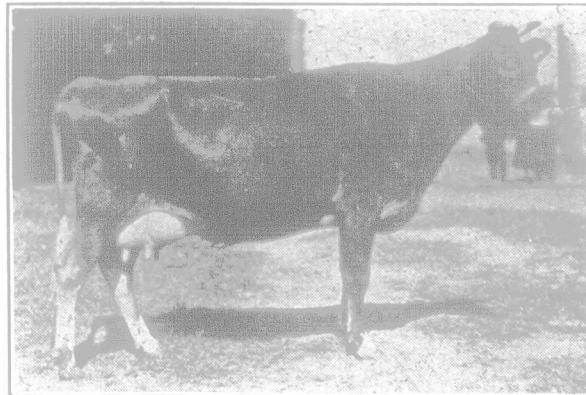
"It may be impossible in these cases to fix the responsibility on the creamery and the dealer may have to take the loss due to cost of testing, reworking, decrease in weight and quality but such losses eventually work back to the creamery. If the dealer must bear such losses, he must have a wider margin on which to do business. As most wholesalers to-day are testing the shipments from each creamery when received, and in cases of excessive water, are charging the creamery with the cost of testing, reworking and loss in weight and quality, the creamery shipping such butter will reduce the loss by numbering each churning."



Line-up for the Ayrshire Female Championship at the Central Canada Exhibition, Ottawa, 1920.

### Dairy News Notes.

It is reported in the London Grocer, of August 14, that "Messrs. Lovell & Christmas, Ltd., West Smithfield, London, E. C., and Liverpool, who have large branch houses in Manchester, Bristol and Glasgow, have just concluded an important arrangement in regard to the development of the cheese industry in the Province of Quebec." A. Trudel, the Manager of the Quebec Farmers' Central Co-operative Society, visited the Old Country some time ago when the cheese market suffered a decline. The London Grocer comments on Mr. Trudel's visit as follows, and says that he "came on a visit to this country for the purpose of arranging for the cheese produced by the members of his society (about 10,000 boxes weekly) to be sold direct to the



Castlehill White Easel.

First three-year-old cow and champion Jersey female at the Central Canada Exhibition, 1920, for W. Lyall, Magog, Que.

British provision trade, and as a result of the negotiations, just concluded, Messrs. Lovell & Christmas, Ltd., have been selected to act as selling agents. This is the first time that a society of cheese producers in Canada has arranged for its output to be sold direct to the provision trade in Great Britain."

The Dominion Bureau of Statistics reports a decrease of 27.58 per cent. in the holdings of cheese in Canada, on August 1, 1920, as compared with the same date last year. The holdings of creamery butter show a decrease of 16.58 per cent.; dairy butter, 29.65 per cent., and oleomargarine an increase of 31.35 per cent.

The quantity and value of Canadian milk and milk products exported from Canada during the month of July, 1920, is reported as follows: Fresh cream, 221,031 gallons, valued at \$337,049; fresh milk, 284,993 lbs., valued at \$62,065; butter, 1,966,915 lbs., valued at \$1,051,287; cheese, 25,187,191 lbs., valued at \$7,551,461; condensed, canned or preserved milk, 7,277,790 lbs., valued at \$1,152,902. The fresh cream, fresh milk, and about 40 per cent. of the condensed milk, as well as about 80 per cent. of butter was exported to the United States. Of the cheese, 24,875,349 lbs. were exported to the United Kingdom. During this same period, according to the monthly report of the U. S. Bureau of Markets, Canada imported from the United States 21,062 lbs. butter, 249,961 lbs. oleomargarine, 37,052 lbs. cheese, 442,811 lbs. condensed milk, 48,430 lbs. evaporated milk, and 5,440 lbs. of powdered milk.

A news note from the Dairy and Cold Storage Branch at Ottawa, states that new regulations have been passed under authority of the Oleomargarine Act, 1919, and of an Act to amend the Oleomargarine Act, 1919, governing importation, manufacture and sale of oleomargarine in Canada. All previous regulations have been retained and new provisions have been introduced. We are glad to note that the use of the words "butter," "creamery," "dairy," or the name of any breed of cattle is prohibited (a) in any form of advertising or description of oleomargarine, or (b) on any package containing oleomargarine. Furthermore each package of oleomargarine manufactured, imported, or sold, offered, exposed, or had in possession for sale, must have the word "oleo" stamped on the surface of the oleomargarine, in capital block letters, at least one and a half inches high and of proportional width.

During 1919, Wisconsin led all other States in the production of American types of cheese, as well as Swiss, Brick, and Munster cheese. The total production of these types amounted to 257,952,275 lbs.

Before the war, according to the London Times, the total annual supply of imported butter available for Great Britain amounted to more than 200,000 tons. For the year ending March 31, 1921, the supply will not exceed 90,000 tons. Moreover, British production over the winter months is practically negligible and no appreciable supplies of Irish butter will reach the British market from November to April. During July, according to the Times, the British Ministry of Food purchased butter from the following countries:

"Denmark, 9,000 tons, spread over July, August and September at 24s. per cwt., (52½¢. per lb.), c. i. f., British port; Canada, 25 tons, at above price; Australia all the exportable surplus, estimated at 8,000 tons, at 240s. per cwt., (about 514/10¢. per lb.), f. o. b., releasing a quantity for the African and Eastern trade; Argentina, about 200 tons. Price about 200s. per cwt., (about 427¢. per lb.), c. i. f., less than half the quantity offered. Balance now going to the United States of America."

A cable some time ago from A. E. Griffith, Cargo Inspector, London, England, reported that the British Government had practically secured the total export of New Zealand butter up to March 31st, at a net price of 280 shillings per hundred, f. o. b. This would be retailed in London at 60 cents per pound. At that time the Australian Cheese Producers' representatives were in Great Britain, arranging for the sale of an exportable surplus of 3,000 to 4,000 tons to a group of large importers, at a price not likely to exceed 28 cents per pound, f. o. b. Australia. In connection with the retail price of controlled butter in Great Britain, the London Grocer in late August, contained the following:

"The Food Controller announces that the maximum retail price for Government butter will be increased from 2s. 8d. (64¢.) to 3s. (72¢.) per lb. on Monday, August 23. The return to the retail price of 3s. per lb. for Government butter, is unavoidable in view of increased continental competition for the limited supplies available, and of the importation by the United States of America of large quantities of Danish and Dutch butter, for which high prices are being paid. Butter continues to be in very short supply, and the Ministry has found it necessary to pay high prices for recent purchases of butter."

A letter also from the Cargo Inspector of Bristol, England, says: "In connection with the export of Irish butter, an order has been made prohibiting the export of butter from Ireland except under license in order to secure stocks for Irish requirements during the coming winter. Licenses will be issued fortnightly for the export of such a quantity as can safely be let out, while each producer will be required to cold-store a quantity proportionate to his output, or to sell such a quantity to some wholesale merchant who will undertake to cold-store it."

The following regarding the British cheese supply is from the Irish Homestead: "A Government distribution of 50 per cent. is assured until about March next. To meet the remaining demand there is the Canadian make, which is generally of fine quality, and an abnormally large British make, due to a fifty per cent. reduction in the consumption of milk. When milk became too high in price people simply used less of it, and in Great Britain it was turned into cheese. There are also considerable supplies of Dutch Cheddar and the Irish make. The Irish Cheddar, as at present made, simply cannot compete with the English Cheddar, unless at a difference of about 4d. per lb. to our disadvantage. In pre-war days the Canadian and British make supplied the demand. The Canadian import has fallen off by about 15 per cent., but the British



A Class of Young Jerseys Seen at the C. N. E., Toronto, 1920.