

# The Dairy

## BY-PRODUCTS OF THE DAIRY

The by-products of the dairy are skimmed milk, buttermilk and whey, and a variety of products that may be manufactured from them. The utilization of these by-products to the best advantage is an important part of the economy of dairy manufacture.

By far the larger part of the dairy by-products must of necessity be utilized as food for animals, either because of the cost of transportation or for lack of facility in marketing many of the rather perishable products that can be made from them. All of these products make a valuable food for animals. Whey is less valuable than skimmed milk or buttermilk, because it has lost the greater part of its casein as well as fat, but it still is of sufficient value to render its utilization of importance. When economically fed to young pigs and calves, skimmed milk and buttermilk may be made to return about fifteen cents per hundred weight, and whey about one-third less. These products are of value as food in proportion as the milk sugar has not been changed to lactic acid. They may be fed in unlimited quantities without ill results upon the health of the animals, except that occasionally when the milk is very sour or when fermentations other than lactic have set in, derangements of the digestive organs, diarrhoea, etc., sometimes occur. It is therefore, advisable that all of these products should be fed in as fresh a condition as possible, and it has been found in many instances that the custom of sterilizing or partly sterilizing the skimmed milk or whey at the factory by injecting a jet of steam into it until the whole is heated up to about 180 degrees Fah., is practical and is followed by beneficial results.

Dutch Cheese, Cottage Cheese, Pot Cheese

A toothsome and nutritious article of food is made from sour milk, skimmed milk or buttermilk by allowing the casein to coagulate by the action of lactic acid already formed, and then expelling the water by the aid of heat. A considerable number of products locally distinct, and differing in the degree of dryness of the casein, are made in this way, the general process of manufacturing being to take soured buttermilk or skimmed milk which has coagulated, heating gently to from 85 to 125 degrees Fah., according to circumstances, draining off the whey through a cloth strainer, and then reducing the texture to the resulting curd by kneading with the hands or a pestle; salt is added and the product is improved by the addition of a small amount of cream or butter, and occasionally by the use of some of the more common spices, as nutmeg, caraway, etc. It is commonly made only for domestic consumption, but in most cities and villages, especially during the summer months, there is a considerable demand for fresh cheese of this sort. It is sold and eaten in fresh state, but it may be subjected to certain curing processes, which quite materially change its character, and which vary widely in different localities.

## SELECTION FOR PASTEURIZATION

In selecting milk for pasteurization, dissolve any convenient number of Farrington alkaline tablets in an equal number ounces of water. Provide any convenient small measure, and to one measure of milk add two measures of the prepared tablet solution. If the milk remains uncolored, it contains more than .4 of 1 per cent. of acid, and is too sour to be safely used. If it is colored pink, it contains less than .4 of 1 per cent. of acid, and may safely be used for pasteurizing or sterilizing. Or, the tablet solution will be of very nearly the same strength, and may be used in the same way. If three tablets are dissolved in 90 c. c. of water.

## TO PREPARE ARTIFICIAL "STARTER"

Sterilize ten pounds of fresh, sweet skimmed or whole milk at 180°F. cool to 90°F., and add sufficient dry lactic

ferment to secure coagulation in twenty-four hours. When coagulated add this to the extent of 10 per cent. to enough sterilized whole or skimmed milk to make sufficient "starter" for one day's use. Reserve each day enough of this "starter" to prepare the "starter" for the next day, and use the remainder for ripening the milk or cream, using for this from 2 to 5 per cent, according to circumstances. Keep the "starter" as nearly as possible at a uniform temperature of 80°F. The utmost care must be taken that no germs from outside gain access to the "starter" in any way or at any time. If this is not done, the "starter" will rapidly deteriorate or become foul; but with care in sterilizing the milk and utensils it is not difficult to propagate a "starter" in this way continuously for months without having it contaminated with germs of undesirable fermentations.

## DOMINION WATERWAYS PROJECT

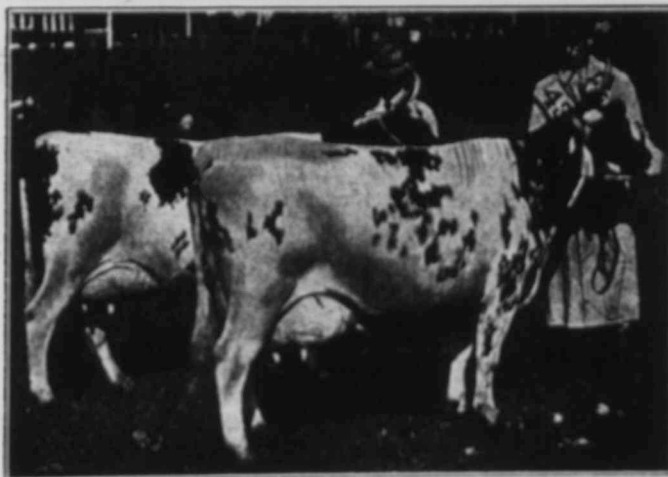
The deepening of the Saskatchewan River and the opening up of a navigable waterway extending half way across the continent is a project which has been receiving the consideration of the engineers of the Dominion government, and during the past year surveys have been carried out and approximate estimates of the cost have been made. The surveys have reported that the project is a feasible one, and it is now up to the Western members of parliament to secure an appropriation and have the work done. The deputy minister of public works in a report just issued says in part:

It needs only a glance at the map of

Saskatchewan River above The Pas was continued. A reconnaissance survey was made of the river between The Pas and Edmonton, a distance of 752 miles. The greater part of the work of improvement will be required at La Colle Falls, some twenty-three miles below Prince Albert; the work extending twelve miles below to The Forks, where the north and south branches of the Saskatchewan meet. This stretch of the river is very crooked and narrow and contains no less than fifteen rapids; it is the most difficult and dangerous part of the North Saskatchewan to navigate. A detailed survey was necessary to secure the data required in connection with the improvements to be made in that part of the river, and for the project of power development for industrial purposes. Other portions of the river requiring improvement will be Cadotte rapids, Nipawin rapids and Tobin rapids. The season's work will consist of the completion of the level's of 530 miles of the river and the making of special local surveys to ascertain what wing dams or other structures will be necessary to procure a navigable channel.

The Saskatchewan River is an alluvial stream of rapid flow and is obstructed by shifting and bars; the latter presenting the greatest impediment to navigation. Above Cedar Lake the river seems to be adapted for only shallow draught navigation of from 4 to 5 feet. This, however, would be sufficient for vessels of the stern wheel type and it is thought that the cost of securing navigation for such craft will not be very great. An important link in this chain of water communication has already been secured by the construction of the St. Andrews lock and dam, situated on the Red River between the city of Winnipeg and Lake Winnipeg, which affords uninterrupted navigation for vessels with a maximum draught of nine feet between Winnipeg and points on Lake Winnipeg. The successful completion of this work has resulted in a

## PRIZE WINNING BOVINE ARISTOCRACY AT THE NATIONAL DAIRY SHOW, CHICAGO



First and second prize, Ayrshire cows, the one in the foreground being the grand champion. The other cow is Oldhall Ladysmith 4th. Fancters of the great Scottish breed, the Ayrshires, have before them something well worthy of study

Western Canada to realize what inestimable advantages may be anticipated from the improvement of the natural water route to the foothills of the Rocky Mountains. It may be said to parallel the routes of the Grand Trunk Pacific, Canadian Pacific and Canadian Northern Railways thus affording a competitive water route, which is the only real regulator of freight rates. In the fall of 1902, a preliminary investigation was made of the Saskatchewan River between Lake Winnipeg and the Pas, a stretch of 146 miles, the most difficult portion to be improved. In the last twenty-three miles, the fall is 101 feet, to improve which will necessitate the construction of two dams and five locks, giving a 9-foot draught at low water as far as the end of Cedar Lake which would be the head of deep-water navigation and the point of transfer. An approximate estimate of the cost of these improvements has been placed at about \$3,000,000. At one of the proposed dams a water power of some 80,000 horse-power will be created which would be of immense importance in the establishment of local industries or the possible milling of wheat and grinding of pulp on the line of the Hudson Bay Railway.

This summer the investigation of the

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a total of approximately 3,300 miles of actual inland waterway, traversing the greater part of the northern half of this continent, the only break in the chain being the 400-mile stretch from Fort William to Winnipeg.

An investigation was also made to determine the possibility of establishing navigation on the Nelson River between Lake Winnipeg and Hudson Bay. The report shows that although perfectly feasible, it would be an undertaking of considerable magnitude; in fact, another Georgian Bay canal project, for, whereas the Georgian Bay canal is 440 miles long, with a fall of 738 feet, the Nelson River channel would be 430 miles long with a fall of 700 feet.

## DOMINION FORESTRY CONVENTION

In view of the great and increasing importance of conservation in Canada, Sir Wilfrid Laurier has issued a call to a Dominion Forestry convention, to be held under the auspices of the Canadian Forestry association in the city of Quebec during the last week in January, 1911. Sir Lomer Gouin, premier of Quebec, has heartily endorsed the proposition, and the minister of lands and forests, Hon. Jules Allard, is in communication with Hon. Senator Edwards, president of the Canadian Forestry association, regarding the details. The convention will be one of the most important ever held in Canada. Hon. Clifford Sifton, chairman of the commission of conservation, has from the first warmly supported it, and it has been arranged that the commission will hold its annual meeting in the city of Quebec during the same week.

The legislative and administrative branches of the Dominion and the provinces—especially those dealing with forests and agriculture—the lumbermen, bankers, merchants and manufacturers; the marine interests, the educationists, miners and engineers; the railways and the representatives of farmers' societies, and the game protective associations are all being consulted, so that all interests will be represented and a full and practical discussion had of those conservation problems that are so vital to Canada, and upon which so much of its prosperity depends.

Alexander Daniel McLean, son of John McLean, of Kenton, Man., died on November 5 at Kinsmore, Man., at the age of 35 years. The deceased was a popular young man and was a member of the Grain Growers' Association, a shareholder in the Grain Growers' Grain Company, and a subscriber to The Guide.

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