

ket, and an improving reputation, and thus far he has been able to keep clear of the cholera. The moral of all this is perfectly plain. If we want to maintain our present good reputation for bacon and hams, we must be careful to continue the same system of mixed farming we have hitherto followed, and to feed no more pigs than we can personally comfortably attend to, but to feed carefully with a mixed diet with plenty of nitrogenous food in it. And above all things we must continue to keep our pigs in the cleanest quarters and to supply them with the purest water—for cleanliness in hog raising is the best preventive against cholera yet discovered.

Hog Cholera Losses in the States.

We fancy that but few people in Canada know the extent of the losses suffered recently by the farmers of the United States by reason of hog cholera. The bureau of statistics of the State of Indiana has just published some statistics showing the losses in that State for the last year or two. For the year ending July 1st, 1897, out of 3,638,835 head of swine owned by the farmers of Indiana, there were lost from cholera alone, 899,457 head. These dead swine were worth, when alive, \$5,396,742. In the year ending July 1st, 1896, out of 3,258,508 head of swine owned in Indiana, 580,260 head were lost from hog cholera. The Governor of the State asserts that several millions of dollars are lost every year by Indiana farmers, because of hog cholera. Every effort is now being made to stamp out the disease. Professor Bitting of the experiment station at Purdue University has been investigating the matter all summer, and he is now prepared with recommendations for action, which no doubt will be carried out. The losses for 1896-7 occurred chiefly in the central portions of the State, and in some counties ran up as high as 30 and even 40 per cent. of the total number of swine kept. The disease has existed in Indiana since 1833. It was very fatal in its effects in 1855, and again in 1877. But at no time in its history has it been so severe in its effects as in the year ending July 1st, last.

Canada as an Object Lesson.

English agriculturalists are very much stirred up about what they consider to be the unfair competition to which they are forced to submit, because of the assistance which their competitors, the Danish and Canadian farmers, receive from the Danish and Canadian governments. They certainly greatly misunderstand the nature of this assistance, and conceive it to be bestowed as a direct bonus to farmers, whereas it has been, both in Denmark and Canada, almost wholly educational and advisory, or else directed towards securing for the farmers' products safer and more economical means of transportation to the English market. While our Dairy Commissioner, Mr. J.W. Robertson, was in England this summer, he was frequently interrogated as to the nature of the assistance which the Canadian government is giving to the Canadian dairy industry. His auditors would scarcely credit him when he explained that the Canadian farmers did not receive direct from the government several pennies for every pound of butter or cheese made from the milk supplied by their cows. But by dint of lectures, addresses and articles in the papers, the way the Canadian government assists its farmers was pretty plainly put before the British people by Professor Robertson; and now the British government is being asked for similar legislation for the benefit of the British farmer. Commenting upon a statement made by Professor Robertson in one of his addresses that "nothing is derogatory to the government which is for the well-being of the people," *The Scottish Farmer* says:—

"In this sentence is embodied the whole essence of Government interference with trade development. Were this truth burned into the minds of our legislators they would be more active in works of a public nature than they have been. In Canada the aim of the government is to put the people into a way of helping themselves, and as an illustration of this Mr. Robertson refers to the case of Prince Edward Island. The farmers of that province provided the building; the government the machinery; the farmers provided the

milk, the government provided the first cheese-maker; and after two years no further help was needed, and the initial help was withdrawn. Altogether, the advice and example of the Canadian Commissioner should be advantageous to farmers and the government officials in this country. It teaches the latter how to do it, and the object-lesson is before them in Canada."

The Hand Separator System.

The hand separator system, though not generally adopted, is growing in favor in the States. A Mr. J. C. Hall, of Humbolt, Iowa, a well known creamery-man, says that he has quite a number of hand machines in his territory, and he reports that he can make better butter from cream separated by hand-machines than from whole milk. He also says that not a single patron who has tried the hand separator would give it up even for twice what he paid for it. He reports too that the patrons using the separators make a great saving of expense in the hauling of their "butter fat" to the creamery. He gives as an illustration the experience of two patrons who each had in six months about the same amount of butter fat, namely, 400 lbs. The cost to the man who drew his butter fat to the creamery in cream, as compared with the cost to the man who drew his butter fat to the creamery in whole milk, was less than one-tenth. Of course another great advantage is that with the use of the hand separator the skim milk is obtained in the very best condition it can possibly be had for use as food for young stock and pigs.

On the other hand the "skimming station system" has its advocates. By this system in a district as large as a township say, or larger, there will be but one central creamery, but half a dozen or more "skimming stations." The patrons take their milk to the skimming station nearest them and either wait and take back their own skim milk with them on the same haul (which can easily be managed), or else take back an equivalent amount of skim milk obtained from the general supply. The cream thus obtained at these outlying stations is then conveyed to the central creamery to be made into butter. The advocates of the skimming station system claim that by that system no patron need have more than a trip of a mile or two to take his milk, and that the time needed for this short haul is less than that which would be required for separating the cream at home; and besides there is a saving of expense and trouble in not having to own or run a machine. It looks as if the merits of the two systems, the "hand separator" and "skimming station," were going to be fought out in a war between two big separator companies. The Sharples Company, who handle the "Russian" separator, are the pioneers with the hand separator system; and the Alpha de Laval people are the great upholders of the skimming station system.

Milking Machines.

A practicable economical milking machine is something much to be desired in this age of scientific dairying; but so far a perfectly satisfactory milking machine does not seem to have been invented. The machine most heard of is the "Thistle." At the recent Hamburg (Germany) Exposition a "Thistle" machine was operated as a test, ten cows being provided for the purpose. Professor Benno Martiny, a well known German dairy authority, has published a full account of his impressions of the machine, as gathered from his observations at that test; but they are not altogether favorable. In the first place the flow of milk from the teats through the machine does not seem to be even or continuous, pauses of even as much as one minute occurring. Also, it is found that the action of the machine is not complete, but that considerable milk remains in the udder to be removed by hand after the machine has finished its work. Both of these failures in the machine are due, so Professor Martiny thinks, to the nervous organization of the cow, which, when the milking is done by the human hand, seems to assist the flow of milk, but which when the milking is done by a mechanical method, seems to retard the flow, and this too, although the cows apparently are well pleased to submit to the

operation of the machine. When it is remembered that only a small part of the milk is in the bag when the milking process begins, the greater part being separated by the milk glands during the process of milking, it will easily be seen how a machine fails to excite that sympathetic action of the glands which is necessary to their separation of the milk, although the hand of a living milker operating in imitation of the calf's face and mouth is able to incite it. Professor Martiny thinks, therefore, that machine milking will scarcely ever be able to take the place of hand milking. In addition the living hand, if directed by a trained mind, is frequently able to develop in young cows a freer flow of milk than would often occur if these cows were milked mechanically.

The Dingley Bill and Basic Slag.

The Dingley Bill is not all to the advantage of the American farmer, even in those things that he is most concerned with. One of the articles he was just learning to use in large quantities was "basic slag," or the "Thomas phosphate," but the Dingley tariff has made its further use almost impossible. *The Rural New Yorker*, commenting on this fact, speaks its mind plainly, as follows:

"During the past season we have used considerable basic slag or Thomas phosphate as a source of phosphoric acid. The results have been very satisfactory. We are satisfied that this slag provides phosphoric acid in an available form for such crops as fruit, grain, grass, clover, and cow peas. It also contains lime in such a condition that it will act the same as quicklime for 'sweetening' an acid soil. These qualities gave a peculiar value to this slag, and the importers proposed selling it at a price which would force the superphosphate dealers to reduce their prices. The result would have been a reduction in the price of phosphoric acid to the farmer, and the increased use of a product which seems to us better than other forms of phosphoric acid for certain purposes. Now the Dingley tariff bill puts a duty of \$1 a ton on this slag, which, in this case, is almost prohibitive, so that little of it will be imported. This is a case in which the tariff works directly against the interests of the farmer. A free use of this slag would reduce the price of all superphosphates, and the duty simply helps the manufacturers to maintain their prices with no benefits whatever to the farmer."

Pure Water.

One of the most directly useful investigations carried on at the Experimental Farm at Ottawa is that by Professor Shutt in regard to the purity of water used for drinking purposes in our rural homes. During the past nine years he has analyzed several hundred samples of such water, and the results of his analyses show conclusively that much of the water used upon our farms for domestic purposes, and for drinking, is quite unfit for use. Of the total number of samples examined by Professor Shutt, fifty per cent. were condemned by him, and a further twenty five per cent. were considered as suspicious or dangerous. This means that about 75 per cent. of all the well water which we use for drinking is not as good as it glit to be. Professor Shutt thinks there is no excuse for this, as the natural water of Canada, at any rate in Ontario, Quebec, and the Maritime Provinces, is the purest in the world. The principal source of the very serious impurity which the drinking water in our country homes so frequently contains is the drainage from the barn-yards, farm buildings, privies, etc., to which the wells are so frequently exposed. The water, contaminated by such drainage, no matter how tasteless, or inodorous, or transparent it may appear, is wholly unfit for use whether by man or beast, and is, indeed, a chief cause of typhoid fever, diphtheria, and other infectious diseases. And the placing of a well in a barnyard for the use of the stock (as is so frequently done) is an offence against natural laws that will surely in time be punished by diseased animals, impure milk, and perhaps by impairment of health, or worse, in the members of the household. Diarrhoea, indigestion, sick headache, and other human ailments are frequently caused by the use of water only slightly polluted; the evil results are greater when the pollution is greater. The farm well, says Prof. Shutt, should be sunk at a safe distance from all possible sources of contamination; its brick or stone work should be lined to the ground water level with a cement impervious