

It was required that the writer should leave for England before the experiment was nearly completed. Still, I am safe in drawing the conclusion that the irregular and insufficient salting of cows is a cause which lessens their production of milk. Just *how* the cause brings about the result I do not yet know.

The quality of the milk was examined. For butter making the milk was set at an average temperature of 86° Fah., and cooled to under 42° Fah. Both kinds were treated alike as to daily temperature and time set. The average of results from milk when cows had access to salt regularly was 3.37 lbs. of butter per 100 lbs. of milk; and when cows had no access to salt for periods of twelve days, 3.26 lbs. of butter per 100 lbs. milk.

Cans of milk from the cows taking salt, and from those from which salt had been withheld, were placed under like conditions. The milk was set as usual for cream. Then after 24 hours it was exposed to the ordinary temperature of the room, about 65° Fah. The milk from the cows not receiving salt was perceptibly sour to the taste and smell 24 hours sooner than that from cows taking salt. Moreover, an easily distinguishable difference in the flavor and "fulness" of taste, in favor of the salt used samples was at once detected by all to whom the comparison was submitted. The conclusion drawn is that the irregular or insufficient salting of cows leave their milk not so easily kept sweet for supplying to cheese factories. The cows having a continuous supply of salt consumed on the average one quarter of a pound per head per day. The exposure of rock salt to milking cows is evidently not sufficient. The cow's palate may be readily satisfied before she has licked off enough for her system's needs. The cows from which salt had been withheld for twelve days were too greedy for it when supplied. They each licked enough to make their milk taste salty. The preferable plan, and one which leaves forgetfulness less chance for being wasteful, is to have a protected trough or salt-box from which the animals may help themselves as disposed. The religious regularity implied by a salting only on Sunday afternoons had better be abandoned, for the cow's sake, if not for her owner's.

An abundant supply of water—and pure water only—should be where milking cows may drink freely a number of times a day. Milking should be performed at regular intervals of time, and only where the surrounding air is pure. Milk is so much the product of nervous operation that any undue excitement, no matter how induced, lessens the milk supply and injures its quality. The kind and gentle treatment of his cows by the sensible dairyman is one source of his profit. Were the present herds of milking cows in Ontario but properly stabled and fed and watered and salted and handled, there would be during the summer of 1887 an increase of not less than 25 per cent. in their milk returns, and that at no extra cost to their owners.

When to Stop Churning.

From that very full and comprehensive treatise on scientific butter-making, by Mr. H. Lynch, Ottawa, just issued, and which should be in the hands of every farmer, we glean the following:

"There is a stage in the churning process, at which the objectionable butter milk, and the objectionable matter which butter milk contains, may be quite fully removed, and at which the salt may be very evenly incorporated with the butter, without injury to the grain of the butter. That stage is when the butter is yet in a granular or pebble form.

"When butter first 'comes' it is in small specks, throughout the whole body of the cream. The continued agitation of churning causes these specks to unite to

form larger particles, these again to join; this process repeating itself until the butter is in large lumps. Now, while the newly churned butter is still in a granular form—that is, like seeds of grain in size—the churning is discontinued. The butter has not yet closed within itself a large proportion of butter-milk, and it is yet in a granular or pebbled form, just adapted for the mixing in of the salt.

"There are now two ways to know when the churning should be stopped. One may examine the appearance of the butter, by removing the cover. The indication of finish is the appearance of the butter on the surface of the milk, in a pebbled mass. Or, one may partially remove the stopple, and allow the milk to flow out into a strainer. If the milk is thick and still full of specks of butter, it is evidence that the churning has not sufficiently advanced. If, on the other hand, the milk is thin and watery, comparatively free from butter grains, and drains freely through a cloth strainer, or a wire strainer (somewhat coarser than a milk strainer), the churning may stop, and the butter can be easily managed. This is one of the very best tests of the time to stop churning.

"When the churning is nearly done, one must proceed very slowly. Sometimes it will take longer than at other times to bring the butter to the right stage of advancement. The reader readily can understand that when the churning conditions are favorable, and the time required for churning is short, greater caution will be necessary than when the butter is slow of coming. Easy churned cream (like the grass cream of summer), a high temperature, or a comparatively small quantity of butter-milk—all tend to hasten the massing together of the butter, and make caution very necessary. Opposite conditions, such as those usual to winter, allow greater time. Experience soon makes one familiar with the action of the butter, and enables one to know when to stop churning without going to the trouble to remove the cover.

"Granular butter can be managed, by one who is experienced, even when it is very fine, say between the size of pin-heads and grains of wheat. The beginner, however, is recommended to allow the churning to advance a few degrees, till the butter is between the size of wheat grains and peas; gradually, as experience is acquired, the churning may be stopped earlier, when the butter granules are finer. The smaller these granules, the more effectually is the butter freed from the butter-milk; but on the other hand the smaller the grains, the more difficult is its management, and the more risk of losing butter, by the loss of unchurned butter, or by the escape of the finer granules in the butter-milk. A little experience will help one to find that happy medium where quality is secured without appreciable loss in quantity."

How Can Creameries be Established?

EDITOR CANADIAN LIVE STOCK AND FARM JOURNAL.

SIR,—Since the meeting of the directors of the Ontario Creameries Association, which took place in Toronto last week, application has been made to me from three different sections of the country asking for information as to the mode to be pursued in establishing creameries. I have, for some time, contended that the feeling in the country was ripe for an advancement in quality and quantity of our butter to be made for exportation. Are we to calmly sit by and refuse to lift a finger to assist in improving the quality and reputation of our butter? We are annually losing millions of dollars in Ontario by the production of a miserable article of what is called butter. How this is to be remedied is the question which has agitated the minds of the directors and founders of the Ontario Creameries Association. It has been contended by many, that the Ontario Creameries Association should employ a lecturer to go through the country and hold farmers' meetings, to demonstrate to them how to make a good butter. Unless the lecturer was prepared to instruct empty benches, I fear he would soon find a more congenial occupation. It has also been proposed that an instructor should visit from farm house to farm house, and instruct the good wife wherein her knowledge of the care of the stable, milk and cream, and the making of butter was deficient. We believe that both of these proposals would be fruitless of good results. Unless the farmers of any particular section have of their own accord decided that they desire a system of butter making that will produce a better article of butter, no amount of adver-

tising or persuasion would induce a good meeting. To attack a man's castle, and tell him that his wife does not know all the art of butter making would ensure a speedy and undignified departure of our would-be lecturer. Even at the various exhibitions in the dairy department, when our good wives' butter is "passed" by the judges, it is not the fault of the butter, but the ignorance of the judges. The best educator of the average farmer is his pocket. If you or I can produce an article of butter commanding at all times from five to ten cents a pound in excess of what our neighbor is paid, while our neighbor will not admit that his system is not equally as good as ours, yet, so powerful is the dollar, he will endeavor to follow our system and plan for the sake of procuring that extra five or ten cents per lb. for his butter. The educator which has been so largely and successfully employed in this direction in the United States is the "creamery." Wherever "creameries" have been established for any length of time in the United States, the butter, not from that creamery only, but also from that neighborhood, commands a higher price, owing to its improved quality and keeping properties. "Why should this be the case?" some one asks. In the first place, the art of butter making is not acquired in a day or a month; some will never be good butter makers; they are not possessed of the cleanliness and accuracy required. In the next place, in a farm house, butter is not *the* business nor will the multitudinous demands upon the time and attention of the wives and daughters of the farmers permit the requisite care and attention being given to the care of the milk, cream and the making of the butter that it demands. There is also a lack of uniformity in modes pursued. (Far be it from me to say that excellent butter is not made in many farmers' houses; it is, but I speak of the greater portion of the butter put upon the market.) To ensure the highest prices being paid for export butter, it must possess a uniformity which cannot be claimed in various packages made by many people under many systems and want of systems. To meet this want the Ontario Creameries Association proposes to assist in perfecting the creameries which already exist, and endeavor to establish others throughout the country. How is this to be accomplished? We propose to employ an "Instructor" possessing a thorough knowledge of the production and care of a pure article of milk, the proper mode of creaming it and converting it into a first-class butter. Any person operating a creamery who is experiencing difficulty in his factory can, by applying to Mr. John Hannah, President, Seaforth, and paying the actual travelling expenses and board of the Instructor, have the Instructor visit the factory and ascertain wherein the difficulty is and assist in remedying it.

NEW CREAMERIES.

Whenever any person is anxious to have a creamery established in his neighborhood, and feels that the milk of 300 to 400 cows can be procured, by applying to Mr. John Hannah, President, or any director in his neighborhood (and agreeing to pay the expenses above referred to), it will be arranged that the Instructor visit the locality, address a meeting of those interested; tell them what is necessary in the way of gathering the cream, the expense of and proper class of building to be erected; the extent and nature of the appliances necessary; assist in procuring a proper butter maker and manager; instruct them as to the probable financial return therefrom and the mode of marketing their butter; inspect the creamery before it is started, and place his experience and knowledge at the command of the patrons and butter maker from time to time as his services may be required. Thus we hope to assist in not only improving the quality and uniformity of the butter now being produced at the creameries, but to assist by all means in our power to increase their number and usefulness. The Ontario Creameries Association is a young institution, its field of usefulness is limited by its financial ability to send out instructors. We feel that at least two should be employed, our resources will permit of but one, and until our membership is sufficiently large we feel that we cannot accomplish as much good as we would otherwise do. Every householder in the cities knows how difficult it is to procure really first-class butter at all times. Each householder, every country store keeper, every commission merchant handling butter is interested in our work. If our plan commends itself to you, strengthen our hands by paying the annual fee, \$1, and becoming members of our association. Each director is authorized to receive membership fees, and all applications for establishment of new creameries may be addressed