Mr. Rennie's Book.

To the Editor FARMER'S ADVOCATE:

SIR,—I have just received the 1st, or, rather, 2nd of April number of the ADVOCATE, and am very much pleased to see a portrait of Mr. Wm. Rennie in it. I sent for and received, a few days ago, his book, entitled "Successful Farming," and must say it is the best work of the kind I ever read. It is not only scientific, but also thoroughly practical in all departments, both farming and gardening, on all branches of farming and stock-raising, cattle, horses, sheep, hogs, poultry, and fruits of all kinds, restoration of worn-out soils, cleaning dirty land from all foul weeds, best implements to do the work with, building of different kinds of silos, and many more things too numerous to mention here.

I would say to each and all my brother farmers that want to be progressive, buy one and carefully read it, and if you do not find it worth more by the year's end in some way than many times the price of the book, I cannot think you are one of the progressive farmers, for we are never too old to learn.

I have not written this for the sake of putting money in the publisher's pocket, for I am not personally acquainted with him, but for the sake of my brother farmers, that it might wake them up to a better system of farming, and put a change on the face of our country.

JOSHUA BOBIER.

Oxford Co., Ont.

For Loading Large Stones.

Those farmers who have large stones to haul off, should make a good loading chute. Take two pieces, 6x2½ tough rock elm plank, securely bolted to two cross pieces same size and 21 inches long. The outer edges of plank to be raised 2 inches, which can be done by making a wedge 2 inches thick and running to a point at 6½ inches, and bolting this between the cross and side pieces. The cross piece for the top end should only be about 4 inches from the end, so that it rests against the plank on waggon or trucks. These plank should be elm, and should have a 2x4 piece bolted on top at each end to keep the plank in place when the stone is being hauled up. With a good drawing team that will stand and hold, any stone can be hauled up that the plank will carry. In dry weather we carry a can of soft soap, and put a little on the plank to make the stone slide easy. Of course the very large stones should be blasted. I have not had much success in cracking stones by fire. One rare kind of stone will break very well that way, but as a rule blasting with gunpowder is the best, safest and cheapest method. In making the loading chute, care should be taken to see that the side pieces are put on so that the stone will be hauled up with the grain of the wood and not against it.

D. L.

Oxford Co.

DAIRY.

Cheesemaking.

At a district dairy convention, held recently at Peterboro, Mr. G. G. Publow, instructor in cheesemaking at the Kingston Dairy School, addressed a meeting of cheesemakers and the patrons of factories, taking for his subject "The Faults in the Cheese Made in Eastern Ontario During the Season of 1899," mentioning the causes and suggesting remedies.

Mr. Publow stated that many complaints had reached him in regard to the quality of the cheese made. The buyers were becoming more critical and exacting, and prices were "cut" on everything except the finest goods, so close was the competition, and so narrow the margin of profit to the cheese buyer. The principle fault had been openness of body in the cheese. This was not so much a weakness of body, but on boring the cheese one did not get that close, solid plug that is essential in a good cheese. The second cause of complaint was on account of objectionable flavors in the cheese. These may be divided into two classes—off flavors and food flavors. Off flavors are caused by some kind of bacterial growth; these grow worse with age, as the bacterial growth increases. Food flavors are worse when the cheese are fresh made, and to some extent pass off from the cheese during the curing process. They never get any worse after the cheese are made.

In regard to openness of body, it is often caused by makers having their curds too dry early in the season. In order not to get curds too dry, they should not be cooked too high in the spring (we cook lower because we have less fat in the milk), as the high temperature used in cooking drives off the moisture. Give them time to mature in the vat. Mature the curd evenly by turning it often; leaving the curd unturned for a long time allows the moisture to settle to the bottom of the curd; the top of the curd gets dry and does not cure so fast as the bottom, in which the moisture has remained. In the spring keep up the temperature, and do not let the curds get chilled.

Another prolific cause of openness in the body of cheese was the bad surroundings of some factories, open ditches containing stagnant water, flies carrying contamination from filth to the cheese by falling into the vat or crawling over the curd. Dust would be likely to cause open cheese. Sometimes in such surroundings you would get round holes or "fish eyes," and sometimes a "pinhole" curd. Much of the openness complained of in cheese is from dirty milk, this in its turn from dirty cow byres. In the factory, leaky dippers or scoops would cause the trouble. The filth organism, whether originating from filthy surroundings on the farm or at the factory, was responsible for the open cheese, and the cheesemaker must have his person, factory, utensils and surroundings scrupulously clean. If these organisms were in the milk, and the milk came to the factory cold, they might escape detection, especially if the senses of the cheesemaker had not been educated. You must educate the sense of smell, taste and touch, so as to be able to reject milk that cannot be made into first-class cheese. Some makers have so educated their senses that they could set a vat without a rennet test. The speaker did not advise their doing so, but he had met a great many makers who could tell when the vat was ready to set almost as accurately as it could be found out by the rennet test.

DETECTING FAULTY MILK.

The fermentation test is a valuable aid in finding out the faults of milk, whether it was a gassy curd, taints from feed and filthy surroundings, or any abnormal fermentation in the milk that would prevent good cheese being made out of it. To conduct a fermentation test, take a sample of the patron's milk to be tested in a half-pint bottle, set in a zinc-lined box, keeping the water in the box up as high as the milk in the bottle, and warm enough to bring the temperature up to 86 degrees. If one simply wishes to find out what flavor will develop in the milk, it will not be necessary to add rennet; but to find out what kind of a curd the patron's milk will make, rennet must be used. To set the bottles, take a dram of rennet and add it to two ounces of water, add a dram of this diluted rennet to each bottle, and after setting 25 or 30 minutes, cut with a curd knife. In taking the samples and cutting the curd, be very careful to scald off the utensils, so as not to carry contamination from one sample to another. Heat to 100 degrees. After a time the whey can be drained off, leaving the curds in the bottles.

Where there is something wrong with the quality of a patron's milk, if he is actually trying to care for it, the maker can often help him to locate the trouble after he finds out from which patron it is coming. The speaker had noticed many instances where a slimy curd, curds that had no body, and gassy curds, had been traced to some particular farm, and on visiting the farm he had been able to point out the source of the trouble, so that the patron could remove it. In most cases, after a personal visit there was no further trouble. Where there was bad water in the pasture, and the cows splashed it over the udder, the milk would often be badly infected, and in such it was necessary to fence off those places so that the cows could not obtain access to them.

OVER-RIPE MILK.

Some cheese had been rejected on account of having too much acidity; sour cheese was caused where over-ripe milk had been used. In some cases the patrons were coming in too late. If milk does not work fast, so that the whey is off in two and a half hours, it would not be considered over-ripe, but in many cases it worked much faster. To the patrons present he would say, do not let your milk get over-ripe. A good cheesemaker could make it up so that the cheese would pass inspection, but there will be a loss to the patrons. It is necessary for the cheesemaker to cut the curd very fine, and in this way a great deal of fat is lost that might be retained in the cheese, and the fine particles of curd escape with the whey. Again, to get the whey out of the curd properly, hard hand stirring must be resorted to. With the milky whey drained from the curd, much of the solids that might be retained in the cheese run into the whey tank. Again, a cheesemaker could make good cheese where there were gas organisms in the milk, if the milk were not too badly infected, but it was necessary for him to ripen this milk or use a heavy starter, so that there was a condition similar to that brought about by over-ripe milk. Tainted milk could be made up by a well-qualified cheesemaker so that when it was sold, before much age had brought out the bad flavor, he would get it off his hands without any loss, but cheese from tainted milk was certain to go off flavor sooner or later.

FEED FLAVORS.

The objectionable flavors from feed do not get any worse, like that caused by tainted milk. The cheese usually improves, especially if the curd is allowed to get firm and dry, and there is not an excess of moisture left in it. This would apply to cheese made from milk where turnips or rape had been fed. In some factories in the Brockville section, a practical way had been found out of the difficults of feeding turnips in the fall. The patrons agreed, when they opened the factory, that if any of them fed turnips, and the cheese were cut in price in consequence of the turnip flavor, the patrons who fed the turnips would pocket the loss. This arrangement had been found entirely satisfactory. Makers were too afraid of losing patrons, and actually injured each other by taking in milk that they knew would not make first-class cheese. Owing to this policy, many patrons were very careless in regard to how they cared for their milk, knowing that if it was rejected at one factory some other factory would be glad to get it.

(TO BE CONTINUED.)

Butter--From the Stable to the Table.

MILKING TIME.

If there be one time above all others when peace and quietness should reign supreme in the stable, it is during the milking hour. Let us reason out why we should not irritate or in any way excite the cow at this particular time.

First we will briefly consider what milk is, and how produced. The average composition of milk is: fat, 3.6 per cent.; casein, 2.5 per cent.; albumen, .7 per cent.; sugar, 5.0 per cent.; mineral matter, .7 per cent.; water, 87.5 per cent.

We know that milk is made from the food the cow eats, and that the food is first converted into blood; after that the process it undergoes is, as yet, largely a mystery.

There are two general theories advanced—the metamorphic and the transudation. The advocates of the first claim that the cellular tissue of the udder is built up and then broken down, and so changed into milk. This theory cannot be accepted as the only source of milk production, for it would be hardly possible for a cow giving from sixty to eighty pounds of milk a day to build up and break down her udder four or five times in the course of twenty-four hours.

The transudation theory is that the milk is simply filtered from the blood as it passes through the udder.

If this be true, then we would expect to find in the blood the same properties, to a large extent, as are in milk. Such is not so, for the blood contains but a small per cent. of the constituents found in milk. A combination of the two theories is a reasonable solution of the process of milk production, the fat, casein and sugar to a large extent being formed in the udder, while the other properties are filtered from the blood.

When is the milk manufactured? *Just while you are milking the cow*—all but perhaps a quart. That is the fact I want to impress the most deeply.

The manipulating of the teats excites the nerves in the udder, thus stimulating the milk secretion. Any harsh treatment, fright or unusual excitement prevents the nerve action in the udder. We say "The cow is holding back her milk"—in reality she has ceased to make it.

One hasty blow not only materially lessens the quantity of milk, but also greatly affects its quality, and experiments along this line have shown that it takes several milkings to bring a very sensitive cow back to her normal record.

If the nerves have no part in the milk secretion, then the horn-fly would not cause a shrinkage in the flow of milk, nor would the snapping and barking of the dog as he drives the herd from the meadow have a like effect.

To insure pure milk the atmosphere in which the cows are milked must be pure. Putting down hay or cleaning out the stable just before milking is a bad practice. The milk in passing from the teat to the pail through an atmosphere laden with stable odors and dust may become sufficiently contaminated to materially affect the flavor of the butter. For similar reasons we hear milking in the barnyard condemned, especially in dry, dusty weather.

I noticed in England the farmers had milking sheds in or near the pasture fields, and that the men had long linen ulsters which they slipped on when going to milk. I thought this a good idea, as it tended to cleanliness in milking and also to a saving of the clothes.

Before starting to milk, the flanks and udder of the cow should be wiped with a damp cloth to remove loose hairs and dirt, which otherwise might fall into the milk pail.

It is found a good practice to cut off the cow's switch and clip the hair from the hind quarters when putting her in for the winter. Endeavor as far as possible to have the cows milked by the same person, at the same hour, in the same place, and in the same order.

Milk with *dry* hands, vigorously and exhaustively. Nothing will prolong the milking period more than by getting the last drop, and remember the first pint has but one per cent. butter-fat, while the last pint has ten per cent.

Bacteriologists tell us the small amount of milk which has collected in the teat abounds with injurious forms of bacteria, while the remaining portion of the milk is practically germ free, and they recommend not allowing the first stream to go into the milk pail.

I have often heard a person say, "I can get more milk from that cow than anyone else," or "This animal will not let another person near her." Why is it? In such cases there is between the cow and her milker a sympathy and confidence. He has in some mysterious way crept into her affections, and it is her pleasure and delight to show her regard in the brimming pail. Does this sound sentimental? There is far more truth than poetry in it. Get a cow to love and trust you by feeding and caring for her kindly, and she will repay you by bringing you in additional dollars and cents.

LAURA ROSE.

O. A. C. Dairy School, Guelph.

Unequalled Practical Value.

I desire to congratulate you on the general high excellence of the FARMER'S ADVOCATE. In the amount of general valuable information of a practical character furnished by each number on matters pertaining to agriculture, I question if it has an equal in America.

THOMAS SHAW.

University of Minnesota.