

Clean Milk for Chicago

We have had a great deal to say in the past about the unclean condition of the milk that goes to Chicago and other great cities. Let it not be supposed that there is not being a constant improvement in this matter and that Chicago is not receiving some clean milk also. Last week a representative of the Farmers' Review visited a bottling plant at Barrington, Illinois. This plant is a new one just opened by the Bowman Company of Chicago and is the third one of the kind belonging to this company, the other two being at Crystal Lake and Elburn. The one at Barrington began operations on the first day of May and at the time of being visited had been running but three days. It will pay any one interested in the production and the handling of milk to visit this plant, or, in fact, any of the three plants mentioned; for he will receive a valuable object lesson in the handling of milk for human consumption. With the exception of pasteurization, nothing is left undone to make the milk absolutely clean. Mr. Peck, vice president of the company, told the writer that the reason pasteurization was not practiced was because the other means of insuring clean milk are so effective that the pasteurization does not seem to be necessary. This is the claim also of Mr. Gurler, whose milk is acknowledged to be about as pure as it is possible to get milk.

The bottling plant at Barrington represents an investment of about \$30,000, and is now receiving about 20,000 pounds of milk per day, from 43 patrons. The establishment has a capacity of 50,000 pounds a day, and the company hopes to have 100 men bringing milk before the summer is over. It must be remembered that the first part of May is not a very good time for the production of milk. The supply that is being received now is getting the same attention that it would receive if it were double what it is. As soon as it comes into the building it is run through the separators and is immediately remixed in the same proportion as before it was separated. The running through the separator is to take out the slime and dirt that will always be found in the milk in a greater or less degree. The milk is then run over an immense milk cooler and reduced to about 40 degrees, the pipes of the cooler being filled with brine at a temperature of about 15 degrees. A part of the milk is bottled at once and the surplus is run into a great tank in the refrigerator, the tank having a capacity of about 1,900 gallons. In this tank is an agitator that is continually stirring the milk. The temperature of the refrigerator chamber is about 40 degrees. When the milk is put into bottles the latter are at once sealed and packed in cases that hold one dozen each. There is a large machine for breaking ice and from this the ice is packed over the tops of the boxes, and these are placed in special refrigerator cars, several of which are set aside for the exclusive use of the Bowman Company. In fact, eight cars of milk are sent to Chicago every day by this company from their three plants. As soon as the hundreds of boxes of bottled milk are placed in a car an immense canvas is at once drawn over them. This keeps the temperature around the cases uniform in summer and winter, and it is not found necessary to use ice in the cars, though the latter are built for that purpose. The canvas is therefore a great money saver, and this idea might well be adapted to use in our farm refrigerators or in cooling rooms where ice is much exposed and melts rapidly. The canvas also keeps out the excessive cold in the winter and prevents the temperature around the bottles falling to the freezing point.

Milk is not received from all kinds of farms. The company has a rigid system of inspection and is exacting as to stable conditions and the feed of the cows, handling of the milk and the like. Inspectors make frequent visits to the farms, and in the case of Barrington the farms are all carefully inspected by Mr. Peck himself, who is an M. D. No diseased cow is permitted to remain in the herds that are being used for milk production, and a contract is signed by the milk producer to conform to certain requirements. This, Mr. Peck declares, is the very foundation of all work of improving the milk supply. He does not believe that government inspectors can have much effect on the situation, for they cannot enforce their orders without a suit at law. But when a man has a contract the company with whom he has the contract has always the weapon in its hands for forcing compliance with its orders. If he does not comply with the regulations he can be instantly punished by the company declaring the contract void. In this contract the milk producer agrees that he "will keep his cows in clean, well-drained and well-ventilated stables; that they shall have access to pure water, and shall be supplied with an abundance of good wholesome food that will produce milk of standard richness, that they shall not be fed turnips, wet malt, ensilage, or any food that will impart a disagreeable flavor to the milk; that no milk shall be delivered at the factory from a cow that shall have calved less than eight days previously, or from any cow that may be in the slightest degree diseased. The milk is to be drawn in the most cleanly manner and shall be immediately cooled in a cold water tank in which the water is not over 60 degrees, and shall be kept at that temperature till delivered at the factory, at which time it shall not have reached a temperature of more than 60 degrees. The milk in transit to the factory shall be protected by a canvas covering." There are other numerous requirements, among them one admitting the company's agents and inspectors to the premises at all times. Mr. Peck says that the reason he objects to the farmers feeding silage is that he cannot depend on them feeding it in the right condition or not keeping it around the stables when the milk is being drawn, in which case the flavor is sure to get into the milk. He says also that he does not allow the patrons to pasture their herds on clover for more than a limited period per day, as too much clover flavors the milk. We think some of our scientists will take issue with Mr. Peck in this regard.

The manner of handling the bottles is most perfect, and the washing and sterilizing seems almost excessive. The bottles as soon as received are placed in a great machine that is called a soaking machine. It is a great wheel with places for hundreds of bottles, and while dirty bottles are going under the water on one side others are coming up on the other well-soaked and a third full of water. The bottles are scrubbed out by a man with a circular brush, after which they are placed on another machine and jets of hot water thrown into them from below and upon them from above. A good many bottles are broken at this point, being unable to stand the heat to which the hot water subjects them. They are then loaded onto wheeled racks at the rate of 720 bottles per rack and run into a great steaming room, after which the door of the room is closed and they are exposed to a temperature of live steam for 15 minutes. If this won't sterilize them nothing will. Bottles so treated are certainly safe vessels in which to put pure milk. One trouble with the

bottling system has been that the bottles brought back disease from the houses of the milk takers, and the disease germs lived through the imperfect washings to get into the new lot of milk and carry disease again. Mr. Peck says that unless the bottles are properly sterilized the bottling system is worth less than the old dipping system. As to bottles, it may be interesting to know that the loss of bottles is very great. Mr. Peck said that they had used \$800 worth of bottles to convey the milk during the three days in which the factory had been in operation, and that the loss in bottles is about 3-1/2 per cent per day, or 100 per cent every thirty days. This means that the company must purchase an entire new set of bottles every month. This loss amounts to \$20,000 per year for the Bowman Company alone. The bottles are not all broken. Many of them disappear in the houses of the patrons. It is assumed that they are found to be very convenient for the putting up of jams, preserves and pickles. But after all, the consumers have to pay for them in an advanced price for milk. The same milk that used to sell for six cents a quart unbottled now sells for 7 cents per quart bottled. The people demand their milk this way and will still ask for bottled milk when in future years it goes up to 8 and 10 cents per quart, as it has done in eastern cities and as it is certain to do in Chicago. The loss to the bottling company is not only in disappearing and broken bottles. It costs 50 per cent more in railroad freight to convey milk in bottles than it did in cans.

Mr. Peck says that the one thing he would like to get rid of is dirt. The man that is producing the milk on the farm finds it extremely hard to do this. If he had enough milkers so that he could spend his time bossing the job he could get pure milk. But he can't hire enough milkers to permit him to do this, and has to do much of the milking himself. If he does not like the work of some milker he dares say little to him about it, for hired men hate to milk so badly that they say "good-by" on the least provocation. A farmer dislikes to lose a good hired man even if he is not an ideal milker. This is only one phase of the farm labor problem that is always with us.—Farmers' Review.

Quaker Beauty Crab.

The Virginia Station has been experimenting with this variety of crab apple, and in a report says of it: This variety does not appear to be widely disseminated; it is recommended by Thomas for planting in the West. One of the trees has made weak growth, but the other is moderately vigorous; forms a roundish head; limbs are stocky and of scraggy growth. The largest tree measures 21 inches in circumference at base, and 19 inches at head. Apparently free from disease. First bloom in 1892; bore 1-3 bushel handsome fruit the same season. Bore a heavy crop of fruit in 1895, but since that time the crops have been very light. Fruit large, color straw yellow ground washed with delicate rose on exposed cheek, not showy. Flesh creamy white, firm, crisp, but not as rich as that of Transcendant. This variety has not been productive enough to warrant us in recommending it for general planting.

We are becoming so well acquainted with fire blight that it will not be many years before we will learn how to prevent it being disseminated. The most natural method would seem to be to cover the infected trees with whitewash or some other wash that would prevent insects in the spring from feeding on the infected sap and thus conveying the spores to healthy trees. With the pumps for throwing whitewash this should not be a difficult matter.

Most sandy soils are leachy and need organic matter to help hold both the moisture and the fertility.

The Dairy Well

The well on the dairy farm is a factor of importance, though it frequently is hardly mentioned in the consideration of dairy topics. Frequently the condition of the well makes the dairy a success or a failure. To illustrate. At a creamery of which the writer knows, milk is being received from over 100 patrons. All of these, with the exception of two, bring their milk every day, while the two exceptions bring their milk every other day the year round. Being asked if the milk from these two patrons did not make a good deal of trouble, the butter maker replied that he had never had the least trouble with them. They had on their farms exceptionally cold springs of water, the thermometer when placed in the water showing a temperature of 46. With such a temperature the farmers found it easy to cool the milk down to a point where it would keep sweet for two days. There is a zone of earth that has always the same temperature the year around. In Northern Illinois this zone (called the zone of thermal equilibrium) begins at a depth of about twenty feet and continues to a depth of about eighty feet. The temperature runs at about 48 to 50 degrees the year around. It is evident, therefore, that a well sunk to a depth of eighty feet will have water that will be very cold, and water from such a well will never need ice to make it serviceable in the dairy. Such water is not only cold but generally very free from impurities. There are many wells on dairy farms and other farms that are too shallow. They go down to water and then stop, the owner thinking that water is water and that if he has water that is all that is necessary. But it should be remembered that the temperature of the water is a matter of very great importance for all purposes of the dairy and for drinking in the household. The well should be deep that it may yield cold water. It is difficult to figure out the money value of a well that makes ice unnecessary. There is not only the saving in the cost of ice, but the enhanced value of the dairy products made with the assistance of such water, and to this must be added the convenience and saving of time. The dairy should be so located that nothing of a vegetable nature can soak into it. Investigations have shown that many of the bad flavors in butter have come from the water in which the butter was washed. There are a good many wells now supplying water for use in the dairy that should be abandoned. It will not cost much to locate a new well, especially when the soil is of such a nature that the well may be a driven one. The dug well is, of course, a harder affair to manage, as its cost is considerable. If it strikes ledge that is the end of it, for in carrying a well into the solid rock the cost is prohibitive. It is a mistake for the farmer to suppose that the ground acts as a great filter to take out all kinds of matter that tends to soak down into the well. Its filtering properties seem to be limited to the nitrification processes that are constantly going on in the ground under normal conditions. But in times of great freshets, when the ground is filled with water, this process does not seem to act with sufficient rapidity to protect the well from receiving all kinds of impurities, for the reason that the movement of water in the soil is then accelerated. It may cost something to locate a well a hundred feet from the buildings and have to carry the water in pipes under the ground to the milk house and the kitchen, but in a great many instances this will have to be done, if pure water is to be obtained. It will prove to be a good investment in the end.

Ordinarily it is better for a person to stick to pure bred stock in the development of a poultry establishment.