phates, and other elements entering into the formation of the bones and muscles.

Cotton seed is a good food for milk-making. It contains an excess of albuminoids, and is one of the best things to mix with straw, hay, ensilage, &c.

Linseed meal is good, too, but better suited to feed calves than for milk-making. (1)

Now, the quality of the water drunk by the cow influences greatly the quantity and quality of the milk she gives. No beast ought to drink dirty, muddy water; water that the farmer himself would not drink. If farmers would learn this truth, and act accordingly, it would be a great step towards the manufacture of a better article than we make to-day. Two motives should induce us to give our cattle nothing but pure water to drink: the preservation of their health, and the production of a good article for sale.

When the milk has once been produced, if good cheese is our object, two conditions must be realised before its delivery at the factory: the milking must be conducted with the greatest cleanliness, in proper vessels, well washed in boiling water, and the milk must be strained and aërated. It is better to strain twice than once, three times than twice, and four times than thrice. A strainer, made of several folds of calico, is the best.

The aëration of the milk acts upon the milk-sugar and and forms an acid from it. This acid thus developed in the milk will act in concert with the rennet in causing the coagulation of the curd and helping it to retain the butter-fat. Without aëration, no man can make good cheese.

This aëration can be done with the dipper, or by passing the milk over some metallic surface. In general, this question of aëration is not understood by farmers; they do not pay enough attention to it.

The cheeseman must, every day, look at the state of the milk he receives, attend to the temperature of the past night, and the temperature of the milk and of the morning, before he determines how he is to set to work. If the milk, from the low temperature of the past night, comes to the factory in too sweet a state, he has to keep it in the vat for some time, warming it up to 82°, 85°, and even to 88° F., and stirring it to acetify it by the heat. This will help the rennet to act powerfully on the curd, and will aid in retaining the cream in it, giving that fine flavor so highly prized by the trade.

The rennet ought to be used in sufficient quantity to bring the curd in 15 minutes in spring, and 20 minutes in summer. The curd ought to be ready to cut in from 40 to 45 minutes in spring, and from 55 to 60 or even 70 minutes in summer.

The rennet should be dissolved in a pail of water for each vat of milk, properly mixed, poured into the milk, and well stirred for 5 minutes, gradually slackening the pace of the stirring.

After 7 or 8 minutes, perfect repose. The vat must be covered, to keep the temperature uniform.

When the curd is firm enough, which may be known by its breaking clean under the finger, it is to be cut in pieces, taking great care to slice the pieces of equal size.

Then, the curd is to be stirred gently for 10 or 15 minutes. This is done to make a crust (*écorce*) form on the curd.

The heating is commenced 5 minutes after the stirring, if the milk was ripe: 10 or 15 minutes, if it was sweet

The rennet was added at 84°; the heating should be carried up to 98°. If a softer cheese is wanted, in spring, the heat should not exceed 96° to 97°. But for a young hand, it is better always to go as high as 98°. This heat should be kept up all the time as much as possible; when acidity begins to show itself, with the hot iron-test, is the time to draw off the whey. The difficult point in cheese-making is to preserve all the slices of curd that remain in the vat at the same temperature. To allow any part to cool is to spoil the flavor and color of the cheese.

When the whey has been drawn off and the curd is dry, it is worked over with the hand, so as to break all the lumps that may be found in it. Thus working, a uniform curd is produced, equally firm in all its parts. This is the great secret of all.

Next, the curd is piled, heaped up in the vat, and allowed to remain in that state for 3 or 4 hours, to undergo the action of the rennet; it should be turned from time to time. After 3 or 4 hours the temperature of the curd should have fallen from 96° to 90°. It is allowed to cool thus that the cream may be retained in the curd while the latter is being ground in the mill. More cream is retained by this treatment. Sent hot through the mill, the curd breaks, and there is more loss.

A full half-hour after grinding, the cheese is salted with 2 lbs. in spring, 2½ in summer, 3 and even 3½ in autumn. (1)

Half an hour after, the cheese is put into the moulds, which are left upright in the press, and well covered; it ought not to be pressed for more than a quarter of an hour, or a little longer, after it has been put into the mould. This precaution prevents loss, and the whey will run off more clear.

A quarter or half an hour after, you may gradually increase the pressure. For two or three hours, the pressure should be moderate. One reason why cheese, and the moulds too, are sometimes burst, is that too heavy a pressure is applied at first.

The cheese ought to be turned in the evening, and again in the morning; this makes the cheese firmer and better. If some cheeses are out of shape, by turning them in the morning, that fault will be corrected, and the form of your cheese will be pleasant to the eye.

Great care must be bestowed on the cheese from the time it leaves the mould till it is put into boxes, so that the work of the maker may not, on an outside view, have the appearance of having been badly conducted.

Now, let us look at the question of cheese with *eyes* or holes in it.—These *eyes* are caused by gases which are developed in the cheese, after pressing, in the cheese-room. They are obviated by letting the curd remain rather longer betwe n the draining off of the whey and the grinding. Instead of 3 or 4 hours 4 or 5 hours ought to intervene between these two operations.

Open cheese (*fromage ouvert*) is caused by the cows drinking bad water, or by the exposure of the milk in the neighborhood of the cowhouse or of pigsties. Sometimes it comes from bad food given to the cows.

DISCUSSION.

THE ABBÈ MONTMINY.—Would Mr. McPherson kindly show us how to color cheese uniformly?

MR. MCPHERSON.—The reason why cheese often looks badly colored is that sufficient care is not taken to have *in the vat* curd equally solid all through, and of *regular, equal-sized pieces.* Hence, there are in the curd pieces that are soft, from being too moist, and hard pieces, from being too

(1) I cannot agree with this, unless the meal from ground cake is intended. Crushed linseed is, according to my experience, the best of foods for producing rich milk and at the same time keeping the cows in perfect health. A. R. J. F.

(1) *per cent.* of course.