

THE DAIRY.

EFFECT OF AIR UPON CREAM.

Many a good housewife has found that at skimming, the cream was almost like leather; and when this cream was churned, it was so tenacious that, while churning was going on, specks of undissolved cream in multitudes could be seen as the cream was stirred, which would be found in the butter, and no amount of working would wholly remove them. The real cause for years has been supposed to be the superabundance of air in the milk-room, which would cause too great an evaporation of the moisture in the cream, so that we get cream globules and casein without a natural proportion of water, and if carried to the extreme we get "dry" cream, that makes at best very indifferent butter. In the creameries where milk is set in large vats, so that large surfaces are thus exposed to the air, thick or leathery cream is not so noticeable, except on more than ordinary cool nights, the circulation of air above a certain temperature having no apparent effect. It may be that why the toughening does not take place at the higher temperature, is because of the difference in the temperature at the surface of the cream and that of the milk at the bottom of the vat, causing a continued rising of cream, and thus adding moisture all the time to the cream already risen. On the other hand, the colder temperature caused a more sudden separation of the cream, and then an almost total suspension of the rising process, and in which event the evaporation would cause drying of the cream. It has also been noticed that on hot nights, opening wide the doors of the factory, and allowing the air full play in the milk-room, will not cause leathery cream; but let the temperature drop 20°, and give the air free circulation, and leathery cream results. The milk in shallow pans would be more largely influenced by the air than in the deeper vat, as there is more surface exposed, proportionately.

In order to get the best effects in the churning, cream should be readily separated, even when the skimmer is being used, and such cream, if properly cared for, is a guard against clots or specks of unchurned cream in the butter. Churning tough cream is first a tearing apart process before the churning begins, and may fully dissolve the cream, or may not.

The scalding of milk is a practice that has a feature not unlike the other, inasmuch as by artificial heat an undue evaporation takes place. The only real value in scalding milk is to destroy germs, or expel unnatural odours, either of which could far better have been left out by a little skill. In the creamery or milk-room, where the temperature can be controlled, the cream will all rise; at least all the globules will rise which have enough contents to be acted upon by their specific gravity, and the heavier gravity of the casein, and the only real purpose of scalding cream is to prolong the time of rising. Scalding makes solid cream, but is open to the same objection that is urged against exposure to cold air. Scalded cream is not perfect as to final condition, for it will produce butter a trifle tallowy, shiny in look, and with impaired aroma.

The butter-maker often says that he cannot get cream in cold weather in any other way than to scald. If he attempts to make butter, it is his business to provide suitable aids and conveniences, that he may make a good article. The same man need not complain if he employed a carpenter to build his house, who attempted the job without a square or rule, because he could not afford to buy them. To make butter at the farm dairy requires a special dairy-room and apparatus in keeping with the demanded excellence of the article produced. It is true the creamery men often

economize too much in this direction, and the manufacture of present use dairy goods is too prevalent, and it is possible that so many improvements may be introduced that the making of fine goods may be overdone. I am of the opinion that the air duct of Mr Boies' creamery was not a failure in ventilating his milk-room, but that the defect was in bringing the temperature too low.

MAKING FARM DAIRYING SUCCESSFUL.

The future of farm dairying ought to receive close attention from those engaged in it. We have cheese factories, butter factories, and factories where butter and skim cheese are made, scattered all over the land, and in some sections they are so closely situated that a farmer taking his milk to the factory has his choice of several factories. These associated dairies and creameries make the market for butter. The product of dairies is always quoted a few cents lower than that of creameries. It may be that farm dairies are inferior to factory-made goods, but it does not seem possible that this should always be so. The farm dairy which is as good as the creamery is not quoted. This condition of things is prejudicial to the makers of fine farm dairy goods. When a dairy of good butter is offered in the market, the price, within certain limits, is made by the quotations of a market to which the goods do not in justice belong. The price is fixed by dairy goods several degrees poorer, quoted on the market. The butter is not "creamery," because it was made on a farm and not in a factory. It may be just as good as creamery butter, but it is not technically creamery butter. It is farm dairy, and farm dairies are quoted lower than creamery goods, and this particular dairy, infinitely better than the common run of farm dairies, goes into market hampered by the fact that the price is already made.

It is true that a great many farm dairies are making a satisfactory market for themselves. There are such dairies all over the country, carried on by men possessing the perseverance and intelligence requisite to make a market where there was none. Such dairies make their own price, and as they have achieved success without the assistance of other dairies, they do nothing to make a market or price for other dairies. The price realized by these isolated dairies is purely an individual matter. No dairy can build a foundation upon the success of another dairy. Those who are progressive and have achieved a fair measure of success can have no pecuniary interest in others in the same calling; but still successful dairy farmers have a strong interest in the success and progress of dairying generally. Farm dairy butter should have a market distinctively its own, not gauged by the price of factory-made butter. The advance of farm dairy butter should be so general and so marked that it should no longer follow factory butter in price, but should, as it can, be quoted first, and thus to an extent control the market for other grades of butter.—F. K. Moreland, in *Country Gentleman*.

TEMPERATURE IN CHEESE-MAKING.

An indispensable article in cheese-making is a thermometer; no one can, by guessing at the temperature of milk for setting, make a uniform quality of cheese. The temperature to which the milk should be brought for setting may vary from eighty to ninety-eight degrees. Where the temperature is eighty to eighty-four degrees, when the milk is set the curd will need to be heated to ninety-eight degrees afterwards to facilitate the curing of the curd and prepare it for salting and pressing. It is easier to heat the milk to ninety-

eight degrees than to heat the curd, therefore it seems preferable to heat the milk to ninety-eight degrees for cheese-making in private dairies. When the milk is brought to a temperature of ninety-eight degrees less rennet should be used than when the temperature is only eighty to eighty-four degrees. Just enough rennet should be added to the milk, at whatever temperature it is set, to curdle it in from forty-five to fifty minutes. The cheese-vat or tub should be kept well covered so as to keep it from cooling while the milk is curdling and the whey separating. After the curd has formed it is to be cut into squares to facilitate the escape of the whey. The whey may be allowed to drain away soon after the curd is firmly formed, but the curd should be kept warm so as to promote the ripening process. To determine when the curd is sufficiently ripened for salting, some are accustomed to take up a handful, squeeze it and if the particles fall apart when the hand is opened it is ready, but if they adhere the curd should be kept warm awhile longer. In case the curd is heated after it forms, to hasten the ripening, it will be seen that the curd becomes firmer, loses its glossy look, and becomes of a creamy instead of a milky colour. To determine whether it is sufficiently ripened some take out one of the larger pieces, cut it open and note whether the change of colour extends through it; if it does it is done, but if it looks milky inside the cooking needs to be continued. After the curd becomes sufficiently ripe it is chopped fine or ground, and then salted. In Herkimer county, New York, usually from two and a half to two and three-fourths pounds of salt to each one hundred pounds of curd are added.—Dr. H. Reynolds, in the *Mirror and Farmer*.

CHEESE.

Dairy products are becoming more and more a manufacturing instead of an agricultural industry. There are many substitutes to supply the carbonaceous elements of diet in butter, and economical considerations are fast relegating that article to the list of luxuries. Before this, a panic and hard times had cut down the consumption one-half. Cheese, on the other hand, is a staple article of diet, for which there is no complete substitute. That is really a wasteful process which extracts from milk the oily or heat-producing elements, of which the world has an abundance, and throws to the pigs the casein or muscle-producing part, for which the world has no real substitute. In the development of industrial economies all these facts will assert themselves, ultimately. When the fact becomes permanently established that it will pay better year in and year out, to make cheese than butter, the producer's course will not be uncertain. When it becomes apparent that for a steady, wholesome fat condiment, butter is the dearest and not the best, the consumer's course will not be uncertain. Habit will, of course, go a great way. We are still largely a butter-consuming more than a cheese-eating people; the anticipated change does not include a transfer of a people's diet from butter to cheese, but from one kind of butter to other kinds—a process that is already well on the move. The change contemplates great changes in the dairy business, in sympathy with the tendency of the times towards co-operation, specializing, labour-saving appliances, and new features in handling of all industries.

Cows with short teats are a nuisance in the dairy. All men shirk milking them, which causes them to dry up early and injures the udder. For this and several other reasons, the owner or head milker should always select the hardest and meanest milkers in the herd for his own work. He may then rest assured that every cow in the herd is well handled.—*American Dairyman*.