

average temperature of Mr. Horsefall's dairy is 52 degrees to 56 degrees; and he is now recognized as a standard authority on many points of dairy management.

Earthenware dishes are much better adapted than wooden ones for holding milk, because the latter require much more labour in keeping them clean, and some dairymaids are apt to be negligent on this point. Cleanliness—extreme cleanliness, in fact—is all-important in dairy management; for the least mustiness in milk-vessels will taint the milk, and injure the butter. The churns must be thoroughly scalded after each churning, and kept clean, sweet, and dry.

Butter is made either solely from cream or from the whole milk; that is, the cream is not separated from the milk, in the latter as in the former case, but both are kept and churned together. There is a difference of opinion as to which mode produces most butter. We would remind those who are not accustomed to the latter method that they must not attempt to churn the *whole milk* while it remains sweet, otherwise their labour will be lost, for it will yield no butter; the whole milk must be kept until it has become sour, when if all other points are equally attended to, as good butter will be produced as from cream alone.

Supposing the cows to be all milked—and this must be thoroughly done, for the last milk which can be drawn from the udder is the richest—then the milk is poured through a milk sieve into the dishes, so as not to be more than two inches in depth; at the same time, 4 to 6 inches is more common. Cream will not rise when there is a considerable depth of milk placed in the dish, and some people do not allow it to exceed one inch. It also rises sooner in warm weather than in cold, and for this reason it must be skimmed sooner when the weather is warmer than usual. In ordinary cases, the cream should be skimmed about 20 to 24 hours after the milk has been put into the dish; in warm weather taking it off somewhat sooner, and allowing it to remain a little longer in cold weather. As the cream is skimmed, it is put into an earthenware jar, the top of which is covered with a piece of muslin, in order to prevent flies or dust getting into the cream, whilst it admits air. As additions of cream are made to that in the jar, the whole should be thoroughly stirred and intermixed together, and the contents should not be allowed to remain longer than three or four days without being churned.

When the whole milk is churned, it is strained, as milked, into milk dishes or coolers; but a greater quantity is put into each dish than is done when the cream is to be taken off. In the north of Ireland, where churning the whole milk is a prevalent practice, the milk is strained into a jar or "crock," successive milkings being added until the jar is full, but avoiding putting in new milk just before churning; that is, suppose the churning takes place in the course of

the forenoon, the morning's milk is not added to the contents of the crock which are to be churned, but put into a fresh crock, and becomes the beginning of another gathering. This system, however, is not so good as keeping each milking by itself, so that the warm and cold milk is not mixed together. The frequency of the churning will partly depend on the weather, but the whole milk ought not to be allowed to remain longer than three days in ordinary cases, or, perhaps, four without being churned; and, in warm weather, it may be churned in two days from the time the first of it was taken from the cows.

In large and even moderate-dairies the churns are driven by power, which is preferable to manual labour. Hot water is often added to milk or cream, to bring it up to the proper temperature for churning—say 52 or 53 degrees; but this is not a good practice, and where an increase in the temperature is necessary, it is better to acquire it by putting the churn containing the milk or cream into a tub filled with a sufficient quantity of water to bring the contents to a proper state. During the process of churning, the temperature will rise to 56 or 58 degrees; but it is requisite that attention be paid, so that it may not rise much higher than that point, otherwise the butter will be injured. When whole milk is churned, it will stand, however, a higher temperature than cream. Rapid churning is not desirable, and over churning is equally bad; but the best medium will be found when it takes an hour and a quarter of steady churning in ordinary weather, to produce butter.

There is a difference of opinion as to the mode of handling butter after it is taken from the churn. Some put it into a small, flat tub, and wash the buttermilk out of it by kneading it among clear, cold spring water, the milky water being occasionally poured off, and flesh supplies added, until it ceases to become tinged with milk; others knead and beat it in a clean cloth, which absorbs the buttermilk, and is frequently wrung dry, until the buttermilk is entirely taken away; whilst a third set of butter makers say that it ought to be worked by means of a wooden skimming dish, and that to work it in any degree by the hand is to spoil it, for the heat and perspiration, which is said to render the butter waxy. Mr. Ballantine's method, as detailed in the prize report in the *Transactions of the Highland Society*, was to extract the milk by working it with the cool hand, but the butter itself was not washed or worked in water. Mr. Dillon Croker, who paid great attention to the management of butter, recommended that, after finishing the churning, the milk should be drawn off by a plug from the bottom of the churn, and replaced by a quantity of pure spring water. A few turns of the wheel is then given, and the water run off; this is to be repeated until the water appears as clean as when it is put into the churn, showing that the milk has been all extracted. A strong