

in the butter-milk. The change by which the butter is separated in a solid form is accompanied by the development of heat in churning. That the state of the atmosphere with respect to electricity as well as the temperature has a powerful influence on the making of butter, no one can doubt who has paid any attention to the effect of a thunder-storm in a dairy, especially when it occurs at the time of churning. As science becomes gradually applied to all the common arts of life some accurate experiments will probably be made to throw light on this subject, and an electrometer may be found as useful in a dairy as a thermometer is already.

The common method employed to separate the butter from the thinner portion of the cream is by strong agitation. In small quantities this may be done in a bottle; but the common instrument is the *churn*, which is a wooden cask rather wider at bottom than at the top, covered with a round lid with a hole in the centre. Through this hole passes a round stick about four feet long inserted in the centre of a round flat board with holes in it: the diameter of this board is a little less than that of the top of the churn. Various improvements have been made on this machine. The cream should not fill above two-thirds of the churn. By means of this stick, held in both hands, and moved up and down, the cream is violently agitated, passing through the holes in the board and round its edge every time the stick is raised or depressed, and thus every portion is brought into contact with the air. In the course of an hour's churning, more or less according to circumstances, small kernels of butter appear, which are soon united by the pressure of the board against the bottom of the churn, and form a mass of solid butter. The butter is collected with the hand, and placed in a shallow tub for the next operation. The butter-milk is set aside for the pigs, or for domestic use. The butter is still mixed with some portion of butter-milk, but much of its quality for keeping depends on their perfect separation. The most usual way is to spread it thin in a shallow tub, beating it with the hand or a flat wooden spoon, and washing it repeatedly with clear spring water until all milkiness disappears in the water which is poured off. Some experienced dairymen pretend that the butter is deteriorated by much washing, and therefore express the butter-milk by simply beating the butter with the hand, kept cool by frequently dipping it in cold water, or with a moist cloth wrapped in the form of a ball, which soaks up all the butter-milk, and leaves the butter quite dry. This operation requires the greatest attention, especially in warm weather, and no person should work the butter who has not a very cool hand. The less it

is handled the better, and therefore a wooden spoon or spatula is much to be preferred.

When it is entirely freed from the butter-milk and of a proper consistency, it is divided into portions of the weight required, if it is to be intended to be sold fresh. The mode of preparing fresh butter for the market is either by making it into *rolls* of two pounds, or into flat round cakes of one pound or half a pound each, which are impressed with some figure cut in a round piece of wood like a large seal, hence called *prints*. The rolls are made oblong with four sides slightly flattened by throwing the lump on a stone or board successively on each of the four sides, and then on the two ends. This requires some dexterity, which is soon acquired, and it is done to avoid unnecessary handling.

To make prints, the butter is first made into balls, and then applied by pressure to the wood, which makes the impressions; the sides are trimmed up along the edge of the wood, and the whole is pressed against a marble or wooden slab, so as to have the impression uppermost, and form a flat cake. The wooden print is readily detached by holding it in the left hand, and giving a smart blow with the right upon it. A hole, bored through the centre, prevents the adhesion of the butter from the exclusion of the air. In Cambridgeshire butter is made up into rolls a yard long, and passed through a ring of a certain diameter, for the convenience of dividing it into small portions without the trouble of weighing. Hence the butter is said to be sold by the yard.

The greatest portion of the butter that is made, especially at a distance from large towns, is immediately salted and put into casks, which usually contain fifty-six pounds, and are called *firkins*. The quality of the salt used is of great importance; if it be pure, the butter will keep its flavor for a long time, but when it is impure and contains bitter and deliquescent salts the butter soon becomes rancid. The Dutch are very particular in this point. They use a kind of salt which is made by slow evaporation, and perfectly crystalized. The salt is intimately mixed with the butter. From three to five pounds are sufficient for a firkin of fifty-six pounds.* The casks are made of clean white wood. They are carefully washed inside with strong brine made hot, and rubbed over with salt. The butter being quite dry, is pressed close in the cask, a smaller layer of salt having been first put on the bottom. Every addition is carefully incorporated with the preceding portion. If there is not a

* The following mixture has been found superior to salt alone in curing butter:—half an ounce of dry salt pounded fine, two drams of sugar, and two drams of salt-petre, for every pound of butter.