

are specifically lighter than water, so that when the milk is allowed to stand, they gradually rise to the surface and constitute cream. When the cream is kept at a moderate temperature, the sugar, under the influence of the curd and air, is transformed into lactic acid, according to well-known chemical principles.

The object of churning is to separate the butter from the curd by which it is surrounded. This is accomplished simply by agitating the cream and *breaking the films of curd*, setting the oil free which runs together and forms lumps of butter. Cream, from the formation of lactic acid, is generally sour before churning, and if not, always becomes so during the operation.—The lactic acid acts on the films of curd, and renders them more easily broken. During the process, the cream increases in temperature from 5° to 10°. The best temperature at which to churn the cream is a disputed point. It appears, however, to be well established by numerous experiments, that 55° when the cream is put in the churn, and about 65° when the butter comes, affords the best result. If higher than this, the butter is white and soft; if lower, the whole of the butter is not separated, and the labor of churning is much increased. The butter should come in from 20 to 40 minutes. If obtained quicker, it is generally at the expense of color, flavor and hardness. After the cream is "broke," it should be churned slowly till the butter is gathered.

Some good butter-makers do not wash the butter at all, merely working out the buttermilk by pressure. Where good, cool, spring water can be obtained, we should always prefer to thoroughly wash the butter, taking great pains to remove all the buttermilk. Butter generally contains about 15 per cent. of water, curd, &c.—It is important for the preservation of butter, that as much of this as possible should be removed. The quantity of salt required, depends upon the quantity of water in the butter. The water should be saturated with salt; hence, the less water the butter contains, the less salt will be required for its preservation.

We need hardly say that the most scrupulous cleanliness is required in all the operations of butter-making. Cream is more easily tainted by noxious gasses than almost any other substance. Hence, not only must the dairy or cellar be itself clean, but all fumes from the barn-yards, or out-buildings, carefully excluded. *Rural New Yorker.*

#### TO CHOOSE A GOOD MILCH COW.

**BREED.**—We find good milkers in all breeds, but they are rare in some, and very common in others. It could not be otherwise. Milking properties, depending on the conditions which determine the formation of the breeds, are due partly to the climate, the soil, the air, and the plants of the countries where the breeds have originated; and must, therefore, vary in our different breeds of horned cattle with the hygienic conditions peculiar to each locality.

Milkers, and more especially animals intended for breeding, must always be selected among breeds celebrated for abundance of milk. Not that we can hope to import into our departments, with a dry and warm climate, all the qualities of the excellent milking breeds possessed by countries in which the soil is fertile, the air moist, and the sky cloudy; but, as the influence of climate, though very marked, take effect only in the long-run, the properties of the animals imported are maintained—though subject, doubtless, to gradual deterioration—during a period which varies with the precautions taken to preserve them: and for several generations the descendants of the individuals of a good imported breed give more milk than individuals belonging to a breed formed on the spot, when hygienic circumstances are not favorable to milking properties.

It is not to be forgotten, moreover, that under the influence of particular circumstances, which it is sometimes impossible to call into existence, animals manifest properties which we cannot produce daily. This explains why it is often more advantageous to import qualities possessed by foreign stock, than to try to develop them in native stock.

Here we deem it sufficient to observe, that good milking breeds are distinguished by a soft and supple skin, and by tissues rather relaxed than rigid; are not hardy or fit to bear fatigue (sweating easily, and falling off rapidly when put to work); are difficult to keep, seldom fat, and have often little flesh on the buttocks.

**DESCENT.**—As milking qualities are, in a great measure, depending on structure and temperament, which are more or less hereditary, descent exercises a great influence.

In each breed, therefore, we should choose individuals belonging to the best stocks, and the offspring of parents remarkable for their milking qualities; for it is certain that good milk cows produce others which resemble them.

It should be our object, then, as far as possible, to obtain cows engendered by youngish bulls, whatever be the race to which they belong.

But it is, especially, when selecting stock for the purpose of breeding milk cows, that particular care should be taken to select individuals belonging to good families. A cow not of a good milking family, or even breed, may occasionally be an excellent milker, and more than this is not wanted when it is not meant to breed from her. The same cannot be said when breeding is intended, because there would be little chance of her transmitting the accidental, or exceptional qualities possessed by her; whereas the qualities forming the fixed and constant characters of the stock would, almost to a certainty, be transmitted to descendants.

These remarks with regard to breed and parentage, apply to the selection of the bull, which, as experience demonstrates, acts, like a cow, in transmitting the milking qualities which distinguish the breed and stock.

**SHAPE.**—Active mammary glands are seldom found united with the graceful, rounded forms which constitute what is vulgarly called *beauty*