

One of the first necessities in the making of good butter is to have at command an abundance of cold water—spring water if possible, or pump water so as to get rid of the animal heat as soon as the milk comes from the cow. By this means, also, you get rid of the animal flavour. Whenever you have the means of setting milk for cream I strongly advise you to do so. If you take care to keep cream as closely as possible to a temperature of 55° to 57° F. you will not only get a larger produce of butter, but also butter of a greater flavour. By using deep pans, and in hot weather putting a lump or two of ice in the vessel of water in which the pans are placed to preserve the temperature below 58°, I am ready to guarantee that cream will keep without turning sour for a period of at least eighteen hours. Butter should always be made from perfectly sweet cream.

In the art of butter-making chemistry is not required. It is a simple mechanical operation. Some people are of opinion that a certain degree of sourness in cream is necessary in order to obtain good butter. My experience has taught me differently, and I believe it is impossible to attack in too forcible a manner the opinions of old-fashioned dairy people. I denounce the sour cream theory as radically wrong. There is an opinion that the longer cream continues cold the worse it becomes. There is a good deal of wrong experience, but I like to have the right experience. Sometimes a novelty, if carefully investigated, proves to be far more useful when thoroughly worked out and practically tested than the experience of a man who has been going on in his own way for twenty years. A great many such men maintain at the present time that the best quality of butter can only be made if cream is allowed to turn a little sour. This is a great mistake. The sweeter the cream the better the butter will turn out, other circumstances being equal.

After alluding in terms of praise to the cream separator, Dr. Voelcker proceeded to say that milk is a mechanical mixture, not a chemical compound of fatty matter as cream, curd, or milk and sugar. It is, he said, well to remember this, because it is not by chemical means that we separate cream from skim milk, but purely by mechanical means. The cream globules rise to the surface, and, by proper management, the cream is passed away from the skim milk. In this way we obtain the cream perfectly sweet, and, provided the food given to the cows is of such a nature as to produce sweet and not "furry" cream, we can obtain excellent butter by churning it properly. Although my profession is that of a chemist, I would impress upon you that the less chemical you use, or the less you attempt to meddle with chemical agencies in the separation of butter from the cream, the better will be the result. If you pour off the buttermilk as soon as the butter comes you will have butter much more free from the cheesy or curdy envelope which originally encased it in the creamy globule. And you will never make first-rate butter unless you preserve a regular temperature in churning. The temperature should never rise above 60°; it should be rather below than otherwise. I am no advocate of all these beautiful air churns, and complicated contrivances. You do not want them. In a good churn you simply require an implement which enables you to churn sufficiently with-

out overdoing it. All churns should be so constructed as to be easily cleaned. The requisites for successful buttermaking are, a well-constructed dairy, not subject to great fluctuations of temperature; a dry floor, perfect cleanliness, appliances for introducing hot or cold water, or steam; and, in the last place washing it moderately, and salting it in the churn; if you want to make first rate, firm, fresh butter, there is no secret, no great chemical skill is required; only ordinary attention to a few simple principles, and by observing them I warrant that you obtain for your butter a better price. Instead of having to sell it at 10d. or 1s. per lb., I hope in the future you will get from 1s. 6d. to 2s. I sincerely hope that in these times of depression the English dairy farmer will derive some advantage, and stop to some extent the large supply of foreign butter which, I am sorry to say, frequently drives the English butter out of the market.—*Agricultural Gazette*.

IN the County of Sutherland there are only 85 owners of land from an acre upwards; of owners of 100 acres and upwards there are 23. There are only three proprietors who draw over £8000 a year from land in the County. These latter three are the Duke of Sutherland who owns considerably over a million of acres, the annual value of which is nearly £300,000; Mr. Sutherland Walker of Skibo, who owns twenty thousand acres, and draws £16,000; and Sir James Matheson who owns eighteen thousand, annual value £1,800. The Norse Teutons who, prior to the twelfth century, had settled in Caithness, and frequently plundered farther south, gave the name of Sutherland to the County, as it formed the southern limit of their possessions. Excepting Caithness, it is the most northern county in the mainland of Scotland. Whilst the Duke owns more than nine-tenths of the County he is also an extensive owner in other parts of Britain, owning by several times the largest landed property in the United Kingdom. The chief seat of the family, Dunrobin Castle, is the most magnificent of all the many mansions in Scotland, and part of it is said to be the oldest inhabited house in Britain. The County is so wild and sterile that barely one twenty-fifth part is capable of cultivation of any kind, so that its wealth and reputation depend upon sheep-farming. Up to the beginning of this century the county was locked up by water and mountain, but the present Duke, by contributions to railways to the extent of a million and a half of dollars, has rendered it now of easy access. In building the line from Golspie to Helmsdale the Duke acted as his own contractor, carrying on the work under his own personal supervision.

THE FRUIT GARDEN.—The old strawberry beds should be kept clean of weeds, removing all runners not needed for new plants. New beds may be set this month, but there is very little gained in point of time over spring plant-

ing unless "potted plants" are used. These are plants from runners which have struck in pots of earth, set under them; by rearing the earth with the plant there is no checking of growth, and a fair crop of fruit may be expected the following summer. There is gain in setting ordinary strawberry plants in fall in that the soil is in better condition, that the garden and other work is not so pressing. Blackberries and raspberries start early in the spring, and should be planted in fall. If it is desired to propagate the black caps, and a few varieties of the red, the caps must be bent down, and earth placed on the tips, which then will soon strike root. A red raspberries and blackberries may be propagated readily from "suckers," or shoots which spring from below ground. The currants and gooseberries may be pruned as soon as leaves are ready to fall. Propagation is done by cuttings planted in rows with one bud above surface. If put in early, they will form roots before winter sets in. The gathering of grapes is an important operation, and is best done with the scissors made for the purpose this avoids handling the fruit, which, by moving the "blom," injures the appearance and therefore the sale.

TAKING CARE OF HARNESS.—A harness that has been on a horse's back several hours in hot or rainy weather becomes wet; if not properly cleaned, the damage to the leather is irreparable. If, after being taken from the horse in this condition, it is hung up in a careless manner, traces and reins twisted into knots, and saddle and bridle hung askew, the leather which dried retains the shape given it when wet, and when forced into its original form damage is done to the stitching and the leather. The first point to be observed is to keep the leather soft and pliable. This can be done only by keeping it well charged with oil and grease; water is a destroyer of these, but mud and the salinity from the animal are even more destructive. Mud, in drying, absorbs the grease and opens the pores of the leather, making it a prey to water, while the salty character of the perspiration from the animal injures the leather stitching and mountings. It therefore follows that, to preserve a harness, the straps should be washed and oiled, whenever it has been moistened by sweat or soiled by mud. If a harness is thoroughly cleaned twice a year, and when unduly exposed treated as we have recommended, the leather will retain its softness and strength for many years.—*Boston Journal of Chemistry*.

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