

THE THEORY AND PRACTICE OF BUTTERMILKING.

An address by Mr. J. A. RUDDICK, Superintendent Kingston Dairy School, at the Dairywomen's Convention, London, January, 1898.

The good or bad qualities of a sample of butter are usually divided under the head of flavor, body or grain, color, salting and finish. The comparative values of these qualities are fixed by most judges at forty-five per cent. for flavor, twenty-five per cent. for body or grain, fifteen per cent. for color, ten per cent. for salt, and five per cent. for finish.

It should be our business, then, as buttermakers, and caterers for one of the most dainty of foods, to make ourselves thoroughly familiar with the requirements of our markets and the demands of the public taste on the one hand, and to study carefully the conditions which affect these qualities during the process of production and manufacture on the other. Our standards should be fixed, not according to our own ideas, but rather in accordance with the ideas of the people who pay the money for our goods, and are thus entitled to first consideration. How many seem to forget this fact, and continue to do things as they think to be right, trying to force upon people that which they do not like!

It is not the purpose of this paper to set up any standards, except in a general way, but rather to discuss some of the principles underlying the work of buttermaking, and, if possible, make clear why certain results follow certain modifications in the process.

If we consider these qualities separately, flavor, being the most important, naturally comes first. The flavor of butter may be either good or bad, desirable or undesirable, but in either case the derivation is much the same. The flavor of butter is derived from three principal sources, viz., the food eaten by the cow, the period of lactation, and last but not least, the action of bacteria, or, in other words, the fermentations which take place during the ripening of the cream.

That the food has a marked influence on the flavor of butter will hardly be denied by the buttermaker who has tried to make a first class article from milk tainted with turnips, garlic, leeks, or other strong smelling foods. It is well known, I think, that the herbage of certain sections imparts to the butter a distinct sectional flavor. I have made butter on the dry plains of the West where the "sage brush" grows so plentifully, and could always detect the characteristic odor of that plant, in the butter. I am satisfied that we have a good deal to learn yet as to the full value, in this respect, of different

kinds of food. We have heretofore confined our attention largely to those foods which exert a bad influence on the quality of the butter, losing sight of the fact that there may be considerable difference even among foods usually classed as good. Then again some foods are often blamed for giving rise to bad flavors when it might more properly be laid to injudicious feeding, or other causes.

I have heard men assert that the flavor of milk, and consequently the butter made from it, was injured by the feeding of corn ensilage. I do not believe that good ensilage properly fed will have any bad effect, but I do believe that milk will absorb the odor of ensilage if exposed to it for any length of time. Right here let me say that a great many people make the mistake of thinking that warm milk will not absorb odors, but it will, in some cases, more readily than cold milk. The feeding of ensilage has been blamed in this way for what is due to carelessness in leaving the milk exposed in the stable, where the air is heavily charged with the smell of the silo. Some foods, first-class if fed in moderation, will, if fed to excess, induce indigestion, which, in turn, spoils the milk. But this is a feeding question, rather than one of buttermaking.

That the period of lactation affects the flavor of butter we know, because we find we can make a finer flavored article from cows fresh in milk than we can from those nearly dry, other conditions being the same. As regards the action of bacteria and their influence on the flavor of butter, one has only to think of the difference between sweet cream butter and that made from ripened or sour cream, and then consider that this difference is wholly due to the growth of these minute plants in the cream during the process of ripening, to be convinced that bacteria play a very important part in fixing the flavor of butter.

The temperatures employed during the handling of the cream or making the butter, have a very decided effect on the grain, high temperatures making it soft, while too low a temperature gives it a "tallowy" consistency. Of course overworking is a common cause of injury to the grain.

As regards the color, it is impossible to lay down any standard. The English market, which is so much sought after, demands a very pale shade, while local tastes favor a more pronounced color. Among the faults of color we put such things as mottles, white specks and white thread-like streaks, three things much confused but all due to different causes, and the result of bad buttermaking, as we shall presently see.

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