

The Dairy.

Simple Rules in Butter Making.

The following is the address of Professor J. P. Sheldon, of England, delivered in connection with the working dairy exhibit at the Dominion Fair recently held at St. John, N. B. :

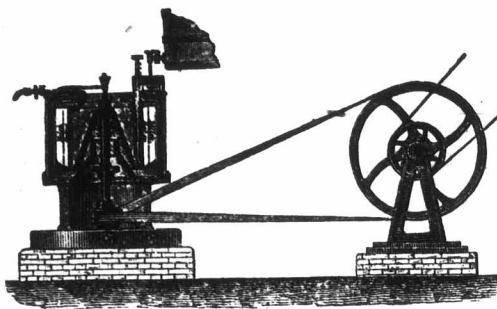
It appears to me that good butter can be made almost any where and by almost any person, providing rational facilities are at hand, proper utensils are provided, and ordinary attention is paid to the details of the process. I do not say that the finest butter can be thus produced with ease, for to specially excel seems to be the reward of genius in butter-making as in everything else ; but good butter, butter that will win approval wherever it goes, can certainly be produced where now an inferior article only appears, if due care be taken. And I may say, further, that the volume of care required is not by any means difficult to learn or irksome to practice, but that, on the contrary, it is just as simple and easy as the careless ways of unsuccessful people. Butter has to be made somehow, by every one who makes it, and the difference in the "how" makes all the difference in the butter. Bearing in mind that the work has to be done, it is well to remember that anything that is worth doing at all is worth doing well, and especially is this true when to do it well is just as easy as to do it badly, and far more satisfactory.

It is a slight on good milk that bad butter should be made from it ; it is an insult, too, to the cow who gives the milk—the cow who has done her part of the contract well ; it is anything but complimentary to the public who are invited to eat the butter, as if to say they have no such thing as delicacy of taste ; it is, also, anything but creditable to anyone to turn out such stuff, and a loss to the producer as well as to the consumer. Many butter makers wonder how it is that they realize poor prices for the butter they have to sell ; yet it is at the same time true that the public never object to pay good prices for a good article. The best butter makers in America command 70 to 100 cents a lb. all the year around ; the most of them are down in the tens or in the twenties at most ; and the difference is the reward of the careful man or the careless woman, as the case may be.

The first thing to do is to take proper care of the milk. Assuming that it is cleanly taken from the cow into a clean pail, it should be put into clean pans, in a clean room, whose temperature should not vary beyond reasonable limits, the year round, say from 50° to 70°. The room should be clean, I say, and it should be outside the influence of impure odors ; the last because milk absorbs such odors and reproduces them in the butter. I may mention here that cows should have food which does not communicate an unpleasant taint to the milk they give. Should there be any such taint in the milk, or odor in the room, a pinch of saltpetre in the milk will go far to checkmate them. But in any case, taint or no taint, odor or no odor, it is of the first importance that milk-rooms should be kept clean, should be lime-washed occasionally to sweeten them, and should be swilled tolerably often to remove dirt, and other "matter out of place," from the floors. The utensils should be scalded each time after being used for milk, scalded with boiling water, rinsed with a solution of soda, and afterwards with clean, pure water. The room should be well ventilated, and only with pure air, and the windows should be screened so that no strong ray of light shall fall on the milk—this last because light develops fermentative—the organisms which lead to the fermentive decomposition of milk. Thus, in milk-rooms, cleanliness, ventilation, and regulation of light, are matters of importance.

The foregoing paragraph refers to dairies in which the centrifugal cream-separator has not yet found a place, and to the shallow-pan system of milk-setting particularly. To the deep-can system, and specially to the Cooley system, this refers only generally, as I would have them refer to any room whatever. I may say here that the best of butter may be made on any of the three systems of cream-raising—the shallow-pan, the deep can, or Cooley, and the centrifugal separator—providing care and intelligence are employed. Annexed is a cut of the Centrifugal Separator. The chief advantages of the separator are that the cream can be got from the milk while both are new and sweet, that less of it is left in, and that fewer utensils are required in the dairy. Perfectly fresh butter from perfectly new milk may be thus obtained, if desired ; but the best

authorities here consider that we get better butter from cream that has had time to mellow and ripen, rather than from fresh cream, because the latter is more or less insipid. But in any case, cream should be skimmed whilst it is quite sweet, and, no matter how long it is kept before churning, it should not be allowed to go sour. To let



cream go sour is to injure the flavor and quality of butter, if not to diminish its quantity. To churn it while it is too young, as one may say, is to produce a pure-flavored but an almost tasteless butter ; yet will such butter improve in flavor by keeping, though the flavor is better secured by keeping the cream to ripen—keeping it at a temperature of 50° or 52°, putting in a bit of saltpetre or glacioline to prevent acidity, and stirring once or twice a day to have it all exposed to the air, and to prevent the formation of a crust on the surface. Glazed earthenware crocks are as good as anything to keep cream in, between skimming and churning ; while pans of the same material, or the seamless ones of enamelled iron, answer well for milk-setting.

Of churns there is a large variety, but I have found none better, or easier to keep clean, than the improved barrel churn. There is also another churn, called the "Victoria," an end-over-end churn, which has no blades inside, and, by opening at the end, affords great facility for taking out the butter, as well as for seeing that the interior is perfectly clean. I do not say these churns are better than any other, but I do say that they are good enough for anybody, and that the finest butter can be made in them.

Assuming that the cream has remained free from sourness during the time it has been kept for ripening, and that it is not more than a week old, I may say that the principle of acidity, artificially introduced when the cream is put into the churn, will be prone to do good in helping the cream to relinquish its butter, and in making the butter firmer in body and brighter in tint. And this is attained by simply adding to the cream about five per cent. of its volume of sour buttermilk from the previous churning. Different days' cream should all be mixed together an hour or two before churning, so that it may all be old alike, as it were. Fifty-seven to sixty degrees Fahr. is the normal temperature at which it is best to have the cream when it is being churned, but it may well vary from fifty-five to sixty-five degrees, according to the time of the year and the temperature of the room. These points set right, the churning should be done at a regular speed, which is slowest at the start.

When the butter is forming in the churn, and resembles grains of mustard seed which are just beginning to coalesce together, it is a good thing to drain the buttermilk out of the churn through a fine sieve, and to pour in clean cold water ; the churn should then have a few turns, the water taken out as the buttermilk was, and fresh water put in ; this process should be repeated several times, until the water comes clear of buttermilk out of the churn. This system of washing the buttermilk out of the butter may be regarded as the simplest and most effectual that can be adopted. And as it is of the utmost importance to the keeping quality of the butter that all the buttermilk should be got out of it, so is it necessary that it should be carefully got rid of. Butter that is riddled of its buttermilk, which to a great extent is composed of casein—nitrogenous matter which is addicted to early decay—will keep well for some time, providing the other preliminaries I have mentioned have been properly attended to.

The butter well washed in the way described, requires little or no purification from buttermilk after it is taken from the churn, simply because there is little or no buttermilk left in it. But it requires to be worked in order to compress and consolidate it, to compact it into a solid and coherent body, and to mix with it the proportion of

salt which is thought desirable. If, however, the butter has not been well washed, or has only been partially washed, inside the churn, it must be washed outside of that machine ; and for this purpose, as well as for compacting the butter, and for mixing the salt with it, it is always desirable to use a butter-worker, and not to touch the butter with the hand. The butter-worker, properly used, does its work much better than the hand ; it does not soften the butter as the hand does, and it does less injury to its grain and texture—matters which are of no little importance to the appearance of the butter. During the process of working the butter, pressure, not friction, should be employed, for friction injures the grain of the butter. The quantity of salt to use will be governed by taste, and by the length of time the butter has to be kept, but it will vary from one to five per cent. of the weight of the butter.

The points then to be attended to in butter-making are these : Cleanliness, temperature, and regularity of details.

Rotation of Crops for Milk Dairy Farm

A dairy farmer gives his experience in regard to the management of a milk dairy farm, upon which some grain is grown and soiling practiced, as follows :

No dairy can be managed profitably without some soiling and a field of roots for winter use. Pasturing is convenient, but not profitable, excepting on cheap land. Where land is high-priced, and where labor is costly, one must make the land produce enough to feed more cows, or at least to keep them in full flow all the time. This can only be done by growing some fodder crops. A seven-year rotation is very convenient for a mixed grain and dairy farm. There will be a field of wheat, one of barley or oats, one of corn, one of roots, one of clover or fodder crops, one of grass and clover, and one for pasture. By keeping the land under crop all the time some fields will produce two crops in the year. For instance, I will go through the treatment of one field for the seven years, and all, of course, will come under the same rotation. Let us begin with a field newly seeded to timothy and clover with wheat. This is cut for hay, and as soon as the hay is off it is top dressed with plaster and some artificial fertilizer, a mixture of 150 pounds of bone flour and 100 pounds of nitrate of soda. This will help to produce a second crop as heavy as the first, and excellent pasture the second year. It is plowed the third year for corn, well manured if possible. Then follows a crop of mangels and fodder corn for soiling, after which follows barley or oats seeded with clover the fifth year ; the sixth year the clover is cut for hay, pastured and turned under for wheat, which brings us to the beginning again. If instead of clover the barley or oats is followed by fodder crops, a great quantity may be produced. For instance, as soon as the barley or oats is cut the ground is plowed and planted with Early Canada or Evergreen Sweet corn, in drills three feet apart, and seeds one inch apart in the drill. Four to six tons of the best cured fodder can thus be grown on an acre, and the ground can be sown late in the fall to rye, which can be cut in June green for green fodder, or cured for hay, and a crop of corn fodder again taken off in time to plow the ground for wheat. By using some artificial fertilizer, at a cost of \$5 or \$6 per acre, a crop worth \$30 can be grown, and the ground left in better condition for the wheat. All this fodder will feed a great many cows. It is in this way that the most can be made of the land, and the land be increased in fertility year by year.

PROBABLE YIELD OF CROPS.

The yield of crops grown in such a rotation on 64 acres should be as follows :

Eight acres of wheat, bushels.....	200
Eight acres of oats, bushels.....	400
Eight acres of corn, bushels.....	400
Four acres of mangels, bushels.....	3,000
Three acres of fodder corn, tons, green...	60
Seven acres of hay, tons.....	10
Eight acres of clover, tons.....	16

(or of green fodder, 100 tons.)

Eight acres of pasture. In addition there would be about 20 tons of straw and 20 tons of corn-stalks. A farm of 64 acres thus managed, and in good condition, should feed at least 25 or 30 cows. I would certainly advise that one field be cultivated in fodder crops adjoining that used for pasture, and that these crops be fed in racks on the pasture-field, by which it would be highly manured and fitted to produce 100 bushels of corn per acre.—[Dairy.