

which may have commenced, and will very much prevent that lack of flavor in very hot weather, a point of great importance.

Having got the cream down to a uniformly low temperature, we proceed to set for ripening, and gradually raise the temperature to about 65° in summer or 80° in winter, and during this process the cream should be frequently stirred, so that the cream which is in contact with the vat may not at any time become over-heated.

Any froth floating on the top of the cream must be stirred in if possible as there is fat in this froth and, if left on the top, it will not ripen with the rest of the cream and will not churn so thoroughly, thus causing a loss of fat in the buttermilk. It sometimes also is the cause of mottled butter, as it does not take the color so readily.

Where cream is churned the day after it is separated, it is necessary to use a starter to hasten the ripening process. I use a fermentation starter composed of separated skim milk from a perfectly healthy newly calved cow. This is set to ripen at a temperature of 80° until it loppers, then I skim off about two inches of the top in order to avoid using the impure germs which may have reached it through the air and I also leave about an inch of that at the bottom, to avoid using the precipitated caseous matter. That remaining I stir up and strain through a fine sieve into the cream, and mix thoroughly.

If a supply of new milk cannot be obtained, a starter can be prepared by heating separated skim milk to a temperature of 160° and keep it at that temperature sufficiently long to destroy all living organisms, and then ripen it gradually at a temperature from 65° to 70°, cool down, and keep it on hand at a low temperature.

Pure cultures for the making of starters can be prepared and are now also on the market.

Having mixed in the starter, the cream should be stirred occasionally and then left undisturbed until ripe for churning.

Cream is ripe when it develops a pleasant but slightly acid taste, and is like oil, uniformly thick and smooth in appearance.

When ripe, and at the proper temperature, the cream is strained into the churn, in order to remove any curd or other foreign matter which may be held in suspension in it.

The churn should not be filled much more than half full in order to obtain best results.

The proper temperature at which to churn depends on the quality of the cream and on the surrounding atmosphere.

I always aim to churn as low as possible, say from 50° in summer to 58° in winter, as a low temperature gives much more exhaustive churning, as a rule.

I want butter to come in 35 minutes.

If any coloring is used it should be added directly the cream is all in the churn.

When the grains are about the size of wheat-grains, I stop the churn, and draw off the buttermilk.

Then I add as much pure water as there was buttermilk, at a slightly lower temperature than the cream when it was put in the churn, say 2° lower, and give the churn a few quick turns to wash the butter.

One method of salting is to run off the water in which the butter is washed

at once, and let the grains in the churn drain for twenty minutes, then add the salt as the granular butter lies in the churn, and give the churn a few slow revolutions in order to thoroughly mix the salt.

My practice however, is to convey the butter in granular form to the worker by means of a tin dish with a perforated bottom, taking care not to get too much on the table to work at once.

When the moisture pressed out of the butter runs off the table perfectly clear, I add salt from  $\frac{1}{4}$  to 1 oz. to the pound of butter, according to the requirements of the market supplied.

Care should be taken to procure the finest quality of pure salt on the market, and it should be kept in a sweet and dry place, as it very readily absorbs to it any noxious odors which may exist in the surrounding atmosphere.

The salt being added, it must be mixed thoroughly and uniformly, and the butter worked until all the moisture is expelled. If this can be done in one working, without injury to the grain or without spoiling that clean waxy texture so desirable, so much the better, and it is then ready for packing. On the other hand it may be necessary, after the salt is evenly distributed throughout the butter, to leave it for a few hours at a temperature of from 50° to 55°, until the salt is dissolved, then, with a few turns of the worker all excess of moisture is expelled, and any break in the color removed.

The proper temperature at which to work butter is from 50° to 55°, if worked at a higher temperature we may make it greasy, this may be done too by over-working it.

The appearance of butter when finished should be like wax, and it should be in a condition so that the grain would be the least injured. With regard to coloring, a color similar to straw is required for the British Market, but for the home supply a somewhat higher color is called for. Also in salting 2% is required in England, while 4% and over is called for at home.

Butter should be packed in whatever package the trade demands.

I have been using this summer, for export, the  $\frac{1}{2}$  cwt. (56 lbs.) boxes, which give every a fraction in England.

In packing, no air holes should be left, and all corners should be properly filled, as the tighter the packing and package the better is the chance of the butter keeping.

All packages should be thoroughly scalded, and cooled afterwards, and a lining of parchment paper used to make it air tight.

The bare hands should never touch the butter. In all things connected with creamery work and butter making, let us remember that Cleanliness is next to Godliness. In fact the profitable results attendant on cleanliness in the creamery, would almost award that virtue premier honours.

Beside bad smells, &c., &c., the following irrevocable mistakes in manipulation will injure the flavor of butter: holding cream too long at a high temperature, over churning, and over-working.

Now that we are looking across the sea for a market for our butter, we must study the requirements of that market. And if we try to improve our utmost, and turn out butter with the best keeping qualities, a firm waxy article, colored with a delicate primrose tint, salted just enough to tell it is salted, free from moisture, free from taint and impurities, we shall make better butter than the

Dance are making, and establish for Canada a reputation as great and glorious as our cheese has already earned:

"Facile princeps."

HORACE WESTON PARRY,  
Buttermaker,  
Model Farm,  
Compton, Que.

I heroby certify that this essay is written by our buttermaker, Mr. Parry, maker of our exhibit of butter at the Provincial Exhibition, Montreal.

(Signed) ROBT ROBERTSON,  
Manager, C. M. F.

Sept 11th 1895.

## INTRODUCTORY

### MAKING AND SAVING MANURE

It is an easy matter to lay down the principle to be observed: To make all the manure possible, and save it without waste. But it is the practical application of that principle wherein lies the difficulty.

The writer once attempted to dig a well in a place where a former owner had scooped out a hollow in the yard, and in which for years the manure pile had been made. But finding the manure juice roosting out of the bank at a depth of fourteen feet, he gave it up as a bad job—There was a lesson that has never been forgotten, and a proof of mistaken care of manure.

We read of the system of tank-building, to contain the liquids of stables and yards. That is another costly mistake in the case of manure. We know of those who daily draw the manure from their stables, and scatter it on the frozen ground and snow, to the bleaching winds and sun, regardless of the fact, that a pile of uncovered manure will waste away, with scarcely a mark left. That is another mistake, which is aptly demonstrated in the experience of those who practise the soiling system, by which all the excrements are saved, instead of the waste incurred in the pasturing system. Much has been written of the good effects of hauling muck into the yards and stables. Some writers asserting that one load of muck, and one of dung, are as good as two loads of dung. (See Journal vol. 3 p. 165.—Ed.) Except with the view that dry muck prevents the loss of urine, muck about the stable is a nuisance: "Where there is muck, there is muck." There is doubtless great benefit from its use on certain lands, but the most economical mode of dealing with it, is to draw direct to the field which the farmer has previously proved has been benefited by it. (I am directly opposed to the frequent handling of either muck or manure. I assert that nothing is added to either by handling and without loss: the virtues will be extracted by direct contact with the soil.)

Formerly, in Great Britain, farmers fed the stock in the yards, in the effort to convert the immense crops of wheat straw into manure. That system has almost entirely disappeared. For generations, the *Habitant* of the St-Lawrence-side, with a soil already fertile to the full, could make no use of the manure accumulated by his stables. That, also, is a thing of the past. And the Pioneer, who, with axe and fire-brand made annual inroads upon the forest, and with crotch harrow and "pioche" scratched a living from the virgin soil, has disappeared to the West, the hills echoing back his cry "the farms are running out." I am aware it is the generally accepted opinion among careless farmers, that it

is necessary to use artificial manures for the purpose of keeping up the fertility of the farms. But from an experience extending over half a century as a farmer, I am confident that, if no hay, grain, or roots are sold from the farm, if the soil is properly cultivated; if the excrements of the animals are properly conserved, and properly applied, there is no farm in the Province but can be improved, and be made to pay at the same time. That is my experience, and the experience of parts of China, Japan, Germany, France, Great Britain, also Palestine, dating back thousands of years, proves it to be a fact. I am aware there are those who do not accept it as a fact. Those whose manure heaps are under the eaves of the barn, the juices washing into the brook, the urine having first leaked through the stable floor. The cattle shivering in the yard, knee deep in straw, dung, and slush, with the indispensable gutter, to draw off the overflow. And the steaming stench rising near the horse stable door, discharging a pile of burnt, useless stuff called horse dung, not worth the hauling. It is needless to look for the path to the watering place, that is marked by the hummocks of dung, and by the heaps lying round the trough. And the look on the face of the owner betrays the fact that "farming don't pay, that the farm is running out," by the rain, by the sun, by the wind, by the heated pile, by the stable floor, by the leaky tank, by the poached yard, by the gutter, the brook, running out,—out down to the sea.

It is an axiom that it is easier to show the errors of other systems, than to present one that is perfect. And it is easier to state a theory, than to put it in practice. But my theory has long been in successful operation on my own farm, and I think will commend itself for its simplicity and its economy of labour, if I can succeed in making myself understood.

### THE MAKING AND SAVING OF MANURE

Can be best done in a basement barn. The cattle and horse stables above the manure-cellar. The cellar-floor made of cobble-stones imbedded in puddled clay, and at no time completely uncovered, thus allowing it to become dry. Otherwise the clay underneath may crack. Into this, the entire droppings of the cattle fall through traps in the floor the entire length of the stable. The plank covering the trap resting about an inch on each side of the floor, properly hinged, and about eighteen inches from the drop of the stalls. This makes a gutter, and is a great economy in keeping the stable clean, and the urine is completely saved. The droppings from the horse-stable on the other side of the barn-floor are wheeled into the cow stable and dropped down, thus mixing with the cow dung. Too much weight cannot be placed on the benefit of mixing the horse and cattle droppings. There is too much liquid from the cattle to be taken up by the dung of the cattle, but I find that the droppings of four horses, properly distributed, with that of about twenty cattle, including proper bedding, completely absorbs the liquids. Care must be taken that in no place the heap is allowed to firefang. This will occur unless the horse dung is pretty evenly distributed. Under the best management, the urine will tend toward particular places, this is rather a benefit than otherwise, as with an old pail and tin, it can be dipped up and thrown on any place where the pile is heating too much. It is particularly necessary to see that manure does not fire.