

31. If butter colour is to be used, it should be added to the cream before the churning is commenced.

32. The regular speed of a factory revolving churn should be about 65 revolutions per minute; and when butter granules are formed in the churn, a few gallons of weak brine (salt and water) should be added, to assist in the separation between the granules of butter and the buttermilk, and also to give a firmer body to the butter.

33. The churning should then be continued until the granules of butter become a little larger than clover seed. The buttermilk should then be drawn off and a quantity equal to the butter milk, of pure cold water, at a temperature of from 50° to 55° Fahr., according to the season, should be put into the churn, for the purpose of washing out the buttermilk from the butter granules. The churn should receive a few quick revolutions, and the water should be drawn off immediately. Attention to this is of some importance, as the water will contain more or less curdy matter, which, if allowed to settle on the sides of the churn, forms a film there, where it is apt to adhere to the butter when that settles gradually as the water is drawn off.

34. After the butter has been left to stand for some 20 minutes, it should be salted at the rate of from one-quarter of an ounce of salt per pound of butter, to one ounce of salt per pound of butter, according to the preferences of the market which is to be supplied. The very finest quality of pure butter salt only should be used. That which is of a uniform fineness of grain and velvety to the touch is suitable.

35. Care should be taken to prevent the salt from being exposed to an atmosphere that may leave on it impurities causing foul odours and taints, as these may readily be introduced into the butter by that means.

#### THE WORKING OF THE BUTTER.

36. After the butter is salted it should be left for 2 or 3 hours, to allow the salt to dissolve. Then, by a second working, the excess of moisture may be expelled, the salt thoroughly mixed, and any streakiness in colour corrected. Care must be taken that the butter be not overworked and made greasy. This may result from the butter being worked at a temperature either too high or too low. Where practicable, it should be worked at a temperature which leaves it in a waxy condition, causing it to bend about one half towards the under layer when it is being doubled on the butter worker. A temperature of 50° Fahr. will usually put the butter in the best condition for being worked. Some times injury results from a larger quantity being placed on the butter worker than can be handled conveniently.

#### PREPARING PACKAGES AND PACKING THE BUTTER.

37. Where the butter packages are not tinned or paraffine lined, they should be filled with strong hot brine and left to soak for a day. The brine may be used several times if boiled each time. The insides of the packages should be lined with butter cloth or parchment paper—preferably the latter. The package will then be ready for filling.

38. In packing, the butter should be pressed against the side of the package, keeping it slightly hollow in the centre of the package, the object being to pack the butter so close to the side that no air spaces will be left between

the butter and the package. These are often seen when a tub or box of butter is "stripped." Care must also be exercised in using the packer, not to move the butter more than is really necessary to make it compact. When the package is filled, the surface should be smoothed with a hardwood ladle, or scraper, and then covered with fine butter cloth or strong parchment paper.

#### CLEANING THE UTENSILS.

39. In the washing of churns and all other vessels for milk or cream, they should first be rinsed with cold or tepid water. The addition of washing soda, or a small quantity of borax to the water, will increase its cleansing properties. They should then be washed with warm water, and scalded with water "boiling hot." The use of a brush for the cleansing of dairy utensils is much preferable to the use of a dishcloth.

40. All wooden utensils and vessels should be scalded, cooled and dipped into cold water before they are used. Small wooden utensils should be kept floating or immersed in cold water.

41. Where closed drains flow from a dairy or creamery, they should be flushed out occasionally with a strong solution of concentrated lye, followed by hot water.

I certify this correct as an appendix to my evidence.

JAS. W. ROBERTSON,  
Dairy Commissioner.

#### THIS AND THAT.

##### Effect of a Grain Ration in Summer upon Quantity and Quality of Milk.

ED. HOARD'S DAIRYMAN:—The following experience is related by a fellow dairyman. He was feeding twenty-four cows up to the second week in June when he removed the grain ration. His cows were testing 4.7% while feeding the grain, (milk taken to the creamery.) At once, the grain being removed, they began to shrink, and in a few days were 100 pounds short, and the milk tested but 4.3%. After two weeks or so he began feeding grain again, and after a week they had gained 46 pounds. I did not learn that a test was made after this gain in quantity.

Notwithstanding our learned scientific investigators strongly contend that feed has little or no effect in changing the butter fats in milk, facts like these seem very stubborn things. It will be a hopeless task I think to convince my friend, Mr. J. S. Woodward, one of our ablest institute workers, that the quantity of fat in milk cannot be changed, so long as he continues to fill his stables with cows from the general market, whose milk, at the time of purchase, contains but one pound of butter, or more properly, butter fats that will churn a pound of butter in 28 pounds of milk, while the same cows, under his liberal system of feeding, will soon make a pound of butter from 18 pounds of milk.

I hope none will gain the impression that I am in any sense an opponent of science as applied to dairying. On the contrary, too much cannot be said in praise of those who have given us the many grand results already obtained through scientific research, and yet the truth remains that the cow has some mysterious way of finding certain elements in foods that seem to

evade the grasp of the chemist. With hundreds of others, I look upon Prof. Stewart's book of "Feeding Animals" as of great value; and yet I agree with a certain director of farm institutes, who said the ordinary farmer could not profitably follow his directions for feeding. There are so many things we do not know.

#### CLEAN ROAD SIDES AND FENCE CORNERS.

It is a continual surprise to me in going about among farmers to see roadsides filled with bushes, weeds and briars, and to see a hedge row of unsightly bushes of every variety occupying from five to fifteen feet along the fences around the meadows. We have a law in New-York state that says the overseer of highways must see that all weeds and brush are cut each year along the roadside; but it is not enforced. It would seem, however, that any farmer would feel sufficient pride in his own premises not to allow such a nuisance upon his farm or on the roadside adjoining his grounds.

Some twelve years ago, a farm in an adjoining town was owned by a man who always took great pains to keep everything about him in the neatest manner. No bushes or weeds along the road side or by the inside fences. Gates were always kept in order. The farm buildings were not expensive, but kept in good repair. A gentleman living in town was attracted by the air of neatness that pervaded everything and bought the farm at \$10,500. Had the same farm been in the condition of many we see, with lawns broken down, and an appearance of neglect everywhere, it would still be seeking a buyer at one-half the price; in fact, the farm has, within a year or two, been re-sold at about one-half the purchase price.

#### SELLING MILK OR MAKING BUTTER, WHICH?

I was so thoroughly pleased with the answers given by Mr. J. B. Shattuck to the questions I fired at him some time ago in regard to pork raising, that I desire first to thank him for myself, and also in behalf of my fellow farmers, who have spoken to me of its worth to them, and I beg his indulgence while I send in a few more. The Borden Milk Condensary Company are putting in a bottling establishment in Delhi, to be merged into in condensary as well, as I understand. Our farm is about five miles from this institution, nearly every rod a gentle down grade.

Our dairy consists of grade Guernsey and grade Jersey cows, and we have twenty-two head of high-grade yearlings and calves coming on, bred for butter purposes. We have never reached the 300 pound mark, as we have practiced selling off springers during the fall, and filling in with heifers, but have been selecting and breeding with the view of something still better ahead. Will Mr. Shattuck kindly give to the Dairyman readers his view of the comparative profits of milk selling and butter making, taking into account the profits of pork, calves raised for keeping up the dairy, manure on the farm, &c. A large number of farmers in this vicinity will be interested in his answer. I wish to say that we are following Mr. Shattuck's directions in pig feeding as nearly as we are able. We have, at present, two brood sows at pasture doing well, and twelve spring pigs in the pens, making a very fine growth on a mixture of wheat shorts, oil meal and skim milk.

It is reported, but not officially, that the bottling works expect to pay about 2½ cents per quart on an average for the year, but I fear this estimate is higher than farmers will realize, although not higher than they should get.

J. D. SMITH.

Delaware Co., N. Y.

#### BUTTER IN THE WINTER AND CHEESE IN THE SUMMER.

Several years ago Hoard's Dairyman tried very hard to get the dairy-men to organize the factory business on the basis of making butter in the winter and cheese in the summer. Our efforts however proved of no avail, and so we said no more about it. Prof. Robertson, of Canada, has been working up this system with very flattering results in several establishments, and we understand the patrons are very much pleased with the arrangement. From an economic point of view it is the most perfect and profitable for the patron. The main portion of his cows calve in the fall. That gives him plenty of skim milk on which to rear what calves he wants and feed his fall dropped pigs for the spring market. In May the milk is turned into cheese and the calves are ready to turn out in good shape to go without their daily ration of milk. In July and August the cows are dry just when the prices of butter and cheese are the lowest, consequently the milk worth the least, and the farmer is the busiest of any time of year with harvesting of his crops. As a rule also milk is worth more for cheese in mid-summer than for butter. By adopting this system, the factory and farmer are both in position at any time to take advantage of the market for either butter or cheese. All that is needed is to exercise a little Yankee gumption in the matter. Maybe we had better call it "Canadian" gumption.

#### GRANULAR BUTTER.

ED. HOARD'S DAIRYMAN:—On page 105 of the Dairyman is copied an article on the above subject from the Practical Farmer, which contains some good instruction. The difficulty to impart information on this subject, and in fact any other subject, is to adopt the instruction to the size of the mind which is to receive the instruction. In this case the pupil seems slow to understand a very simple thing, to wit: that the object of churning is to separate the butter fat from the milky part of the cream. If the pupil can understand that cream in proper condition churned to granulation at a temperature of 62 degrees or less, and the churning stopped at that stage, the butter is distinctly one thing and the milky portion distinctly another, and will run out almost entirely if permitted by pulling out a properly adjusted cork. After a little drainage, if cold water is added it percolates the whole mass, hardens the granules and rinses out the remaining butter milk and leaves the butter in fine particles (granules), a perfect condition to receive the salt, particularly so if a revolving churn is used that has no inside machinery to grind or injure the grain of the butter.

On the other hand, had the churning been continued until the butter had formed into lumps or a mass, considerable butter milk would have become imprisoned in the mass of butter