

in the best trade channels is in cold storage from the day it is made until it is sent to the table of the consumer; hence but little is said or thought of its keeping quality.

Attractive Appearance.—Under this head I may say that we use none but A1 boxes (56 lbs. net), and we keep them clean. All boxes, after being filled, are stamped with our own private brand and also by our registered number; and this is done neatly and always placed on the same side of the box, and the same position on the side. At present we are using the slide-lid box. We line the box (which is, of course, paraffined) with the best parchment paper we can secure—a very fine quality, weighing 60 lbs. to the ream (size of ream, 14 inches by 50 inches). We use five sheets to line a box, two of which cover the bottom and two sides, two more cover two sides and lap a little top and bottom, while the fifth covers the whole top of the butter. We buy all our paper cut to order. Covering the paper is a light layer of dampened salt. We have seen no more attractive appearing box than this when thus finished. We are not using sacks at present, the chief reason being that the ordinary jute sack has so strong an odor.

Middlesex Co., Ont.

F. J. SLEIGHTHOLM.

Prof. Dean on the Central Testing Station.

SIR.—Your correspondent, Mr. Frank Hunt, Elgin Co., whom I have not the pleasure of knowing personally, has so ably replied to the tasker, Mr. T. B. Scott, that there is little need of me saying more on the subject, except to make a few general observations. The main point of Mr. Scott's article, which referred to my suggestion to have central stations for testing as an insinuation that "factory managers are incompetent and dishonest," has been most effectively answered by Mr. Hunt. There is no business under the sun, where an equal amount of money is involved, which is transacted so loosely and with so little auditing of accounts as the dairy business. This speaks volumes for the honesty of dairymen—or indicates a trustful indifference among them. I may further add on this point that it was not my intention to reflect on the honesty or incompetency of factory managers, when making a suggestion for a central testing station, but my sole object was to suggest a remedy for the existing cause of dissatisfaction among patrons in reference to the testing of milk and cream, and to place the whole question on a business basis. No one can deny that there is a good deal of dissatisfaction, but if the work were done by parties solely disinterested, and under the control of the Butter and Cheese Associations of the Province, there could then be little cause for complaint. During the past month we have received samples of milk and cream nearly every day for testing, and so far as our time will allow, we are always glad to do this work, but we cannot begin to cope with all disputes about testing. We, possibly, hear more about the dissatisfaction in reference to testing than many others, owing to the position which the Dairy Department at the College holds in reference to dairying in the Province.

With regard to my "2 per cent. theory," and the statement that not one factory in Canada or the U. S. has accepted it, I would merely observe that a number of factories have adopted this system. I may mention a few: Tavistock, Elma, Thamesford, Avonbank, Blackstock, Roebuck, and Norval. There are many others which I cannot recall at present, but the foregoing will be sufficient to refute the statement. Mr. Rice, on page 348, quotes the newspapers in Oxford district as favorable to the "butter-fat+2 system." I shall pass by his fling at "profs." We are so accustomed to being smitten that we find it easier and better to follow the Scriptural injunction than to try and "get even" with our smiters. Leaving Mr. Scott's article, allow me to notice some difficulties pointed out by Mr. Stonehouse, on page 350.

1. **Good and Bad Testers.**—I would say to all persons using a tester, be careful to use *none but the best*. For factory or station work, the steam tester of the modern type is a great improvement on the hand testers or old-fashioned turbines. We are not in the habit of recommending any special dairy machinery, but I have been doing some work this spring with "The Facile," sold by The Ballantyne Dairy Supply Co., which is so far ahead of any hand or steam tester we have ever used, that I feel like saying a word in its favor. It has a "reversing jet," and is such a tester that anyone doing much of this work should look into its merits. There may be, and doubtless are, others just as good.

2. **Liability of Samples being Churned.**—This can be overcome by filling the sample bottles to the top before shipment to central station. The maker, or sampler, can gauge the size of sample in such a way that it will be full at the end of a month. With a full bottle there can be no churning. I was at the St. Mary's Creamery recently, when the monthly samples were being tested from the skimming stations, and there was apparently no difficulty in testing these samples, which had been driven several miles to the central creamery. The heating to 160°, as suggested by Mr. Stonehouse, would melt any fat on corks, necks of bottles, etc., and if done with reasonable care, would be little danger of breaking or spoiling samples. It would be necessary to have samples numbered properly to avoid mistakes at central testing station. While there would doubtless be many difficulties to overcome, the plan of having the milk and cream tested at central stations is a feasible one.

H. H. DEAN.

O. A. C., Guelph, July 7, '90.

Dilution Separation.

"Inquiries are constantly being received regarding the dilution or hydraulic separators. It is evident that large numbers of them are being sold and that claims are being made as to their efficacy in separation which are unsupported by facts.

"The dilution separator is a tin can with a faucet at the bottom, and more or less complicated in construction by tubes for the addition of water, or as a means of introducing air, or other so-called improvements. The tubes add nothing to the efficiency of the machine, and only are a pretext for charging \$10.00 to \$15.00 for a tin can, which without them would be worth one to two dollars.

"Everything claimed for the hydraulic separator can be equally well done in a shotgun can, and if water below 40° F. can be obtained, or ice to bring the temperature down to 40° F., the thoroughness of separation will be far superior to any hydraulic separator.

"The only case where there is any advantage in using the method is in milking from cows far advanced in lactation, and then the efficiency of the process is about equal to deep setting in ice. They are no more efficient than the old-fashioned shallow pan setting, with the disadvantage of greatly increasing the volume of skim milk to be handled, and in case hot water is used, as is sometimes advised, there is the added inconvenience of the rapid souring of the skim milk.

"If any dairyman wishes to try the method there is no patent to prevent his using the process to his heart's content. Numerous patents have been granted on the various forms of cans used, but these are of no particular value, except to their owners, and certainly are not worth to any dairyman the \$10.00 or \$15.00 which are asked for the so-called "hydraulic separators."—*Hoard's Dairyman*.

[NOTE.—As in the U. S., so in Canada, farmers have been vigorously canvassed by agents for these dilution cans, and not without success, we believe, as occasionally we hear of a man having purchased and using one of these separators, which are simply cans or tanks in which the fresh milk is mixed with an equal quantity of water, and the cream rises by gravity, as in shallow or deep setting. The strange thing about it is, people seem content to go on using such a system without going to the trouble of satisfying themselves, by a sure method, whether or not the work accomplished is worthy of confidence. We have no hesitation in believing that if careful tests of the skim milk were made by the Babcock test, the favorable impression of the system, if, indeed, such exists, would very soon cease to be. So far as we can learn, what *Hoard's Dairyman* says concerning the dilution plan is correct, as taught by proper tests. In our issue of Jan. 16th, of this year, we pointed out to our readers what careful investigation had discovered regarding the system. In fifteen tests made at Cornell University by Prof. Wing, an average of nearly one per cent. of the fat (which means from quarter to one-third of the total quantity) was left in the milk, while centrifugal separators seldom leave more than from one to two tenths of one per cent., shallow pans a little over three-tenths of one per cent., or deep setting three-tenths of one per cent. of fat in the milk. We did not feel warranted in commending these "separators," and declined to advertise them. We trust our readers will observe what authorities agree upon regarding some of these new things that receive no sanction from responsible institutions.—EDITOR F. A.]

Buttermaking for Exhibition.

In buttermaking one cannot lay down certain rules and rigidly follow them out, but the butter-maker must use his own judgment to a great extent—varying his methods at different seasons and also to suit the circumstances in which he is placed, so that the method which I shall give here may not successfully be carried out at all seasons of the year or in all of the different creameries of the Province.

In describing my method of making exhibition butter, I am simply describing the way I would make butter every day, if circumstances would permit, but during the warm weather, owing to the lack of care which some patrons give their cream, and the infrequency of gathering the same, the butter-maker has not always got the ripening of the cream and the flavor of the butter under his control.

Have the cream gathered perfectly sweet—separator cream if possible—and at a temperature of about 54°; this can be accomplished by the drivers taking a supply of ice, which is added to the cream as it is collected. Having strained the cream into the receiving vat, I stir thoroughly to have the different lots of cream well mixed so that they will ripen evenly. Then I would add two per cent. of starter which I have previously prepared. During the hot weather it is usually not necessary to use starter, as the cream contains the necessary amount, or more, of lactic acid when it is delivered at the creamery; in that case I would cool the cream down to below 50°, let stand over night, then heat to the proper temperature and churn next morning.

In preparing the starter it is better to use whole or skim milk, but as we only receive cream I use cream. Take nice, fresh, sweet, separator cream skimmed from the milk of cows not far advanced in lactation, heat to 90°, cover, and set away in a corner, where the temperature will be even, to ripen. When ready for use it will have a mild acid flavor and will be quite thick; before adding to the cream it should be broken up by pouring from one

vessel to another or by pouring it through a strainer. After adding the starter, stir occasionally so that the body of cream will ripen evenly. Always keep the cream covered to keep the air from the surface of the cream. When ripe the cream will have a smooth, glossy appearance, will be fairly thick, and will show from .55% to .6% acid. Strain the cream into the churn, which should make from 60 to 70 revolutions per minute, and churn. This operation should take from 45 to 60 minutes. When the granules of butter are about one half the size of a grain of wheat, draw off the buttermilk, straining it through a horse-hair strainer. After the buttermilk has drained off add as much water as there was buttermilk, at a temperature of 52°, and also add about 3% salt, so as to expel the buttermilk from the butter. After giving the churn 12 to 18 turns, let the water off and wash the second time with water at 50°. After washing the butter the second time let it drain 20 minutes, and salt in the churn, using 1½ ozs. salt per pound of butter. The amount of butter can be ascertained within a few pounds by testing a sample of cream from the vat with the Babcock tester, and calculating by the number of pounds of cream. After salting, take the butter from the churn, place it in large tubs or boxes in the store-room, which should be at a temperature of 54° or 55°, until next day. Next morning work the butter until the salt is evenly distributed through it, and the whole is an even color. I work in a Mason worker, and find 12 to 18 rounds sufficient.

In packing the butter, spray the inside of the boxes with formalin to prevent mold, and line with heavy parchment paper, which has been soaking in strong brine for 24 hours. Cut the squares of butter rather smaller than the box, and pack down solid, so there will be no spaces left in the butter. Begin packing at the outside, working gradually towards the center; this has a tendency to force the butter tight against the sides of the box. I fill the box flush and cut off level with a piece of string. With the 56-pound boxes I allow 1 pound for shrinkage, and a ½ pound on the 28's and 14's. The boxes I am using this year hold just about the proper weight of butter. When too heavy, I take out some by leveling off the edges all around the box. After the paper has been folded neatly over the top of the butter, spray with formalin, and nail on the covers with 1½-inch nails. Then place it in a jute sack, and the butter is ready for shipment.

I would advise all creameries to use sacks for their butter boxes this season. We are using them this year, and find that they not only keep the boxes nicer, but that the butter is not so much affected by the sudden change of temperature which is incident to shipping it.

A. K. BAIRD,
Maker, Rapid City Creamery.

Paying for Milk on the Fat Basis, Plus Two Per Cent.

To the Editor FARMER'S ADVOCATE:

In response to your request, it affords me much pleasure to give a little of my experience with regard to paying on the fat basis, plus two per cent. We paid on the fat basis for two seasons, '88 and '89, and since then we have added the two per cent. to the readings. This plan I am pleased to say gives the best of satisfaction. Of course, there are a few patrons at our annual meetings who oppose it, but the number is so small that the motion to continue paying on the fat basis, plus two per cent., is always carried with a sweeping majority. In former years we had more or less trouble with patrons tampering with their milk. A committee was obliged, therefore, to go and see their cows milked, etc., and in some cases the milk had to be confiscated and fines imposed. Anyone in the dairy business will admit that this is a highly disagreeable and unsatisfactory state of affairs. With regard to the plan above referred to, the taking of samples, testing, and paying on the fat basis, involves a considerable amount of work and extra expense, but a cheesemaker or proprietor will find himself amply repaid for all trouble. He thus rids himself of the necessity of having his patrons' cows milked under the supervision of committee or inspector. However innocent a patron may be, his neighbors will be likely to lose faith in him if the inspector has once been obliged to perform this disagreeable duty. I may safely say, in conclusion, that I would be very sorry indeed if compelled to return to the old way of pooling milk.

A. T. BELL,
Oxford Co., Ont.

Breeding Shorthorns for the Dairy.

John Evans, of Burton, near Lincoln, England, is a breeder of Lincolnshire Red Shorthorns, and has, for the last seven years, been breeding them with a special eye to dairy purposes. Selecting only from his own herd, he has gradually increased the yield, in eight years, 150 gals. per cow. Profit, one of his herd, was champion dairy Shorthorn for 1897. She gave a total yearly yield of 15,531 lbs. milk, or 37 lbs. daily, producing 420 lbs. butter. For seven years the average stands:

31 cows, 1890, averaged 740 gals. per cow.
35 cows, 1891, averaged 720 gals. per cow.
34 cows, 1892, averaged 795 gals. per cow.
38 cows, 1893, averaged 732 gals. per cow.
39 cows, 1894, averaged 834 gals. per cow.
43 cows, 1895, averaged 867 gals. per cow.
43 cows, 1896, averaged 879 gals. per cow.
45 cows, 1897, averaged 890 gals. per cow.

We can see, in the above example, the profit that lies, even in so short a time as eight years, in being obedient to the true principles of dairy breeding.