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# THE CANADIAN Cheese and Butter Maker.

Vol. 1. No. 2.

KINGSTON, ONT., CAN., AUGUST, 1898.

50c. Per Year.

## America's Six Greatest Dairying Authorities on Cream Separators.

### UNIVERSITY OF WISCONSIN EXPERIMENT STATION.

Madison, Wis., Jan. 10, 1898.

"Another year's experience in our creamery, which we operate in a practical way as well as for experimentation and instruction, has given us still higher appreciation of the 'Alpha' De Laval separators. The exhaustiveness of the skimming under the varying conditions of milk-flow and temperature continues highly satisfactory, and the machines give full evidence of lasting qualities under daily use."

W. A. HENRY, Dean and Director.

### CORNELL UNIVERSITY EXPERIMENT STATION.

Ithaca, N.Y., Jan. 10, 1898.

"Another year's experience serves to confirm our opinion of the 'Alpha' De Laval separators. It has been my good fortune to observe closely the operation of a large number of separators of the various kinds in general use, and my operation has led me to believe that in material, workmanship and efficiency of separation, the 'Alpha' De Laval machines easily rank first."

H. H. WING, Professor of Dairy Husbandry.

### MICHIGAN EXPERIMENT STATION.

Agricultural College, Mich., Jan. 12, 1898.

"It gives me great pleasure to repeat my testimony as to the value and efficiency of the De Laval separators. For another year they have been in constant use under my immediate observation. The per cent. of fat in the skim milk is seldom more than a mere trace. Although subjected to the trying conditions of our dairy course, where beginners must put them together and operate them, they have required little or no repairs and are still in excellent condition. The results of a long course of experiments, during which these machines have been subjected to every reasonable test, commend them for efficiency, thoroughness of skimming, small power required, ease of management and perfect construction."

CLINTON D. SMITH, Director.

DR. S. M. BABCOCK.

University of Wisconsin Experiment Station.

Madison, Wis., March 5, 1897.

"For the past six or seven years we have used at the Experiment Sta-

tion and in our Dairy School nearly every type of De Laval separators, and without exception they have given excellent satisfaction. We have had the 'Alpha' machines in our Creamery and Dairy School since their first introduction in the United States. These machines are easily managed, skim close under varying conditions, run light, cost little for repairs, and give a smooth cream, well suited for pasteurizing, and the general trade, as well as for the manufacture of butter."

S. M. BABCOCK, Chief Chemist.

### THE AUTHOR OF "AMERICAN DAIRYING."

De Kalb, Ill., Jan. 17, 1898.

"I became acquainted with the 'Alpha' separators when first introduced in this country, while in the employ of the Wisconsin State Experiment Station as Dairy Instructor, in 1891. Its work then convinced me that it was superior to any separator in the field. This opinion has been fortified more strongly each succeeding year by what I have learned of its work in comparison with other separators."

H. B. GURLER.

### UNIVERSITY OF MINNESOTA EXPERIMENT STATION.

St. Anthony Park, Minn., Jan. 24, 1898.

"We have now operated the different sizes of the 'Alpha' De Laval separators in our college of agriculture, school of agriculture, and experiment station for the past seven years, and in every instance they have given entire satisfaction. They all skim clean to their full rated capacity, and at a wider range of temperature than is claimed for them. I do not see how it could be otherwise when the law of gravity and the distance the milk must travel in passing through the separator is taken into account. The thinner the layer of milk as it passes between the discs, and the further the milk must travel under centrifugal pressure the more exhaustive and complete the separation. It, therefore, follows that the 'Alpha' is the ideal separator."

T. L. HAECKER, Professor of Dairy Husbandry.

The sale of "Alpha-Baby" cream separators is now almost universal. The number in use exceeds 125,000. Their sale is ten to one of that of all imitating machines combined. The improved 1898 machines are better than ever, and possess from 10 per cent. to 25 per cent. greater intrinsic cost and producing value than ever before. Send for new "Dairy" catalogue No. 268 or new "Creamery" catalogue No. 508.

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Western Offices :

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# CANADIAN DAIRY SUPPLY CO.



327 COMMISSIONERS ST., MONTREAL.

TO CHEESE MANUFACTURERS

BRANDING CHEESE.

Patented February 25, 1898

A means of permanently marking cheese without waste injury and at exceedingly small cost is provided by the "Bate" Brand. The location of the factory is always clear and imitation impossible. A list of factories that are branded is in course of preparation for distribution amongst importers in England. Prompt application for brands will ensure this valuable privilege to your factory. When application is made for Brands the registration of your factory will be accomplished by the undersigned without charge or cost to you. References may be made to the President or other officers of Brockville Dairymen's Board of Trade in which section it is used by a majority of the best factories.

CHARLES BATE,

Brockville, Ont.

Prof. Jas. W. Robertson, Commissioner of Agriculture and Dairying, Ottawa, Ont., writes under date Nov. 26th, 1897 :-

"I am in receipt of your letter, 24th inst. I am of opinion that if the registered number and the district brand could be put on the cheese by having the letters indented or raised, in the rind of the cheese itself, that would prevent any possibility of the erasure of the marks or substitution for them."

And under date March 8th, 1898 :-

"I received the sample brand I am glad you have succeeded in getting that made. I would like to see every Canadian cheese with the word 'Canada' impressed into its ends."

Hon. John Dryden, Minister of Agriculture for Ontario, addressing a meeting in Brockville, on the 13th day of November, said in reply to a question for his opinion :-

"I have seen this brand to-day for the first time, and would like to say that in my opinion it will be a great blessing when it is found in every factory in this country. I know of no way in which a brand can be placed on cheese that will so thoroughly protect against deception as by the brand mentioned. It is there to stay and, unlike the stencil, cannot be rubbed off. It is time there was greater discrimination in products, and the consumer must pay a higher price for the better article. Every cheese in Brockville district should be marked 'Brockville' as it is the best and should bring the highest price. I am very much pleased indeed with the brand invented by Mr. Bate."

THE

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Farms in the different townships of Lennox, Addington and Frontenac Counties.

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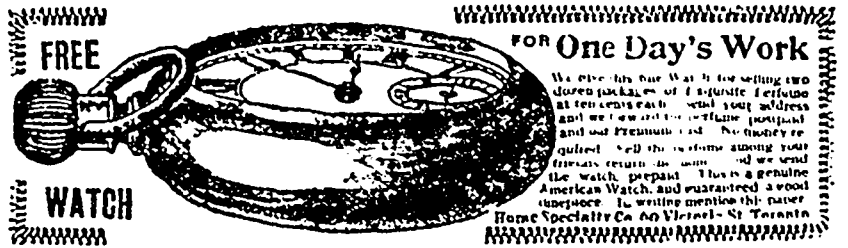
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First Class Work and Prices Right The Canadian Cheese and Butter Maker.

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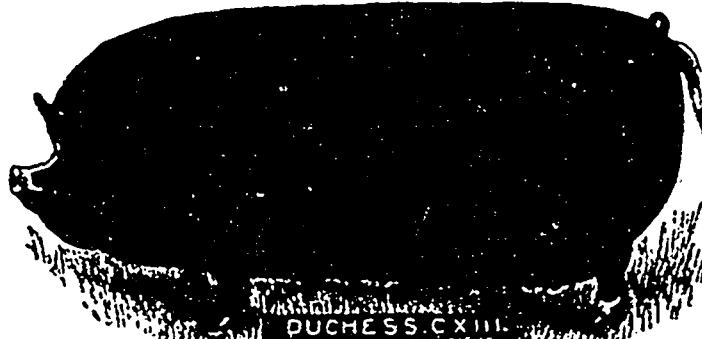
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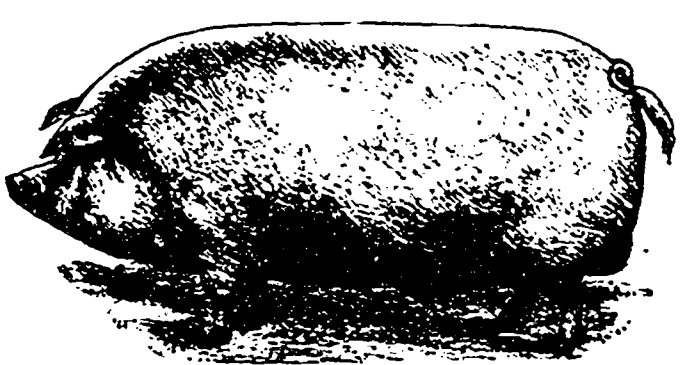
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Up-To-Date Berkshires.

Thirty young pigs of different ages for sale. Can supply pairs not related, bred from aged sows, weighing from 400 to 600 lbs. Have in herd pigs bred by such breeders as Russell Swanwick and N. Benjafield England. Write your wants.

W. J. SHIBLEY, Harrowsmith, Ont.



Frisker 3rd, 2093.

OUR HERD Is headed by Frisker 3rd, 5093, the highest priced Chester Boar in Canada.

Frisker 3rd, gd. sire and gd. dam won sweeps akes in Chicago. We challenge competition in Chesters 32. Specimens of our herd will be exhibited in Toronto this fall. Our Guernsey herd is headed by King of Maple Hill, 4583, winner of silver medal, Toronto, 1897. Our herd won sweepstakes in Toronto, 1896-7. Young Heifers and Bulls for sale. Duroc Jerseys (a bargain). Our entire herd for sale, comprising 7 boars, and 18 sows, and 60 young pigs. Some of these have won first in Toronto, and several are imported. Price \$500 if taken at once. Alexandria Separator, 600 lbs, in good repair, price \$50. WM. BUTLER & SONS, DEREHAM Ontario.



PATRONS' BULLETIN NO. 2.

**The Hog, and How to Make Money by Raising Them.**

I will say that I love the hog. I love it for what it is, for its shrewdness in sustaining life under adverse circumstances, for its peculiar cunning wink, for its beauty as an article of human food, when properly prepared on a table or in a market.

Dear reader, did you ever see a hog dissected—or a man cut open and examed? I have.

There is not much difference between the intestines of a man, or a swine. Certainly one set of intestines are held up by two feet, and the others by four feet.

There are many instances of human beings becoming, as hogs. Some by overdrinking water, alcohol, etc.; others by overfeeding, on any substance.

Therefore, never overfeed your hogs if you wish to make money from them. Hogs more than pay their rent, if only half used.

Do not throw all the vile poisonous soap suds, stale and rotten stuff, old tin cans, boots and broken glass to the pigs.

The hog and cow, would at once go into partnership if they could be allowed.

I would advise the production of bacon pork to the extent of the keeping of one brood sow, to every 4 cows. The sows should have their litters during March and again in August. The March pigs should be kept during the summer on clover pasture with additional feed of shorts and Germ meal along with milk and whey. They should be kept growing and fattened to weigh 200 lbs. in the month of October, then sold, and the August litters turned out on the same pasture until early winter when they should be sold and should weigh 75 to 100 lbs. I strongly disapprove of keeping pigs over winter, the risk of loss is great and the profit is greatly reduced. I have found from experience and observation with an average market for bacon pork that brood sows and pigs treated in this manner will give a money return in pork of \$75 to \$100 from each sow, and a clean cash profit of \$40 to \$50, and also a return of fertility profit to the pasture of soil of \$25 to \$35. One acre of good clover pasture will keep 25 to 30 pigs during the entire season.

Hog raising, on either a large or small scale, pays better in connection with dairying, especially butter-making, than under any other conditions known to us in this Province.

It is no doubt true that sour whey possesses little or no value as food for pigs, calves, or anything else, but sweet whey is worth from 6 to 10 cents per 100 pounds when fed with shorts, middling, or some kind of meal. Buttermilk is more valuable, and skim-milk is one of the very best and most profitable foods that we can give to pigs at any age after the first few weeks of their existence.

Pigs fed on grain, or even on slops, grow faster, produce a better quality of pork, and pay better, when they have access to some kind of pasture, especially white or red clover about four inches long—say six to ten pigs per acre.

This fact should be considered when we are locating our pens.

Breeding pigs—male and female—must have plenty of exercise summer and winter, and should have some sort of green feed—pasture in summer, and turnips, mangels, or sugar beets, in winter.

This fact should receive due consideration in the laying out and fencing of yards connected with the pens in which it is proposed to keep our breeding stock.

The most expensive pens are not always the best—that at least three things are essential in every pen, viz., ventilation, warmth, and provision for keeping pigs perfectly dry.

Those who cannot keep their pigs warm, dry and comfortable in fall, winter, and spring will save money by giving up the hog business and turning their attention to something else. It does not pay to feed pigs after they are seven or eight months old,

that pigs should be sold when they weigh from 150 to 200 or 220 lb. live weight, which weight should be attained in from six to eight months.

Swine are a very clean animal if properly taken care of.

I have walked through a well-cared for herd, and, no bad smell was noticed, and they followed along, endeavoring to make friends, as faithful dogs would do.

There is a splendid chance to make pigs and pork profitable by farmers living near creameries. It is surprising that the privilege is not prized more highly. Many creameries can scarcely sell their pig feed, and have to waste a portion of it every year. The sale of young pigs alone ought to pay all feeding expenses, and leave the young pork sold as clear profit.

The hog crop is very important, producing a large revenue to the farmers of this country, and we hope to see the system of feeding constantly improved, that its profits may be greatly enlarged. The pig is, no doubt, the greatest economizer of food among farm animals—that is, it takes less food to put on a pound live weight on the pig than upon sheep or cattle, and the price of the pig, live weight, is generally higher than that of either sheep or cattle, thus producing a larger profit. Surely it will pay farmers to study closely everything relating to feeding pigs, improving their pens and their rations.

In the first place I take pains to secure healthy parents to breed from. I keep the boar by himself, and allow only one service for each sow. I find by this plan that the sows have more and stronger pigs, and the boar will do better and make a finer hog than when allowed to run with the sows. While the sows are carrying their pigs I feed them bran, and always keep corn away from them in warm weather. I let them have plenty of clover.

No man who raises hogs can afford to neglect clover pasture. It will pay him better than any other crop. During the period of growth it would be as sensible to feed horses all grain, as hogs all grain, and yet many do not remember that the hog is a grass-eating animal.

My pigs consume the skim milk. This, with middlings and ground barley, makes more muscle than corn can do, and there is none of that heating so detrimental when corn is largely the diet of growing pigs. Clover pasture is another good accompaniment.

It has long been supposed by many people that hogs and corn must go together. Somehow, natural corn countries are looked upon as natural hog-growing sections, and many people argue that the hog cannot be grown profitably outside of the corn belt. We are learning new things about stock feeding all the time. Bulletin No. 14 of the Montana Station (Bozeman), gives a record of a litter of Montana pigs 11 in number, which sold at 6 months and 27 days, for \$82.27. Montana is not a corn-growing country. The nights are too cold, and the altitude too high. These pigs were grown on Alfalfa, clover, peas, wheat, and barley, and they were grown to the weight of 150 pounds each, at a cost of only two cents a pound. Such reports often make us think that there may be something wrong in our old idea of stock feeding. Every now and then, some one comes along with a record that proves what we had supposed was an iron-clad rule, and when we think of a cold, mountainous country like Montana, producing pork at a cost of two cents a pound, we may overhaul our own plans, and see whether we are not paying too much for our hog supply of meat.

A pound of pork can be produced with much less food during the warm weather than during the cold weather of our fall and winter. Hence, a much better chance for profit is left where the cost has been reduced by feeding during warm weather, and where the price has been enhanced by marketing before the cold weather and consequent low prices have set in. Cooked food puts on fat very rapidly.

We know that boiled potatoes, previously washed, pounded with the water in which they are boiled, seasoned correctly with salt and stiffened to a nice consistency with chopped oats and peas, put on flesh of a good quality with marvellous rapidity. Perhaps there is no food which will surpass, or even equal, this preparation in the two respects mentioned.

Pigs, as a rule, do not live long, but that is not their fault. This comes more from the supposed principle that "the good die young."

Do not forget the hog is a foraging animal, and needs exercise.

No single food is as good as a combination of foods.

Feed evenly. Never overfeed. When a farmer feeds his pigs beyond 8 or 9 months he needlessly throws away his profits.

When hogs are in the pen they should at all times have access to sod (clay is best) with the earth on. In the autumn it should be piled up in the corner of your granary, as you would your winter supply of wood, before the frost comes.

Always leave a supply of wood ashes, also rock salt, and charcoal, within reach at all times, an occasional piece of half rotten wood will please them.

Throw some sulphur in the ashes once in a while. It is necessary to the health of the herd.

Do not make their slop too rich, nor make violent changes in the quantity or kind of food; do not give them more than they will eat up clean at one time, and do not feed at irregular hours. These are very important things in swine feeding. Some men claim it does not injure pigs to have food before them all the time, but I claim that it does. Let your pigs have a good appetite, and when the time comes for feeding they will speak for their food.

I would say from six to nine months is the most profitable age. It is about time that farmers should see that greater profits are realized from feeding young animals than old ones. Good breeding will tell, and that common sense is just as necessary in swine breeding and feeding as in any other business. In a well bred hog that is growing fat and feeding right there is no time when it will make more pork for the food consumed than from ten weeks to six months of age, but this rule will vary somewhat in different animals.

Good breeding and good feeding are so closely related that they must go together; unless one without the other. By neglect we can run down a herd of pigs as fast as the best breeder can breed them up, and on the other hand we can feed up a herd of swine as fast as they can be bred up. In other words a good feeder but bad breeder can bring up a herd as fast as can a good breeder but bad feeder.

When the pigs are three or four weeks old, partition off a corner of the pen and place a small trough therein and teach the little pigs to eat. By the time they are eight weeks old take the sow out of the pen, and they will be weaned and won't know it. Following this course you will have no runts from weaning.

It is necessary to give the business your personal attention. Do not be afraid of soiling your clothes, if need be to wait on your pigs.

The price of success is eternal watchfulness.

Always provide a warm sleeping place. No animal is more susceptible to chilly or icy blasts.

If one side of a pen is kept clean for a week, the swine will fall into the habit of using it for a bed, and will afterward keep it clean themselves.

The period of gestation in a sow, is generally 118 days. A comfortable bed of short clean straw should be given. She will make her own bed.

The weaning should take place when about 7 to 8 weeks old. Weaning too soon is a frequent cause of "runts."

The pen should have a board about twelve inches wide, nailed or otherwise securely fastened on all sides so as to stand out as a fender about eight inches from the floor. This will serve as a protection to the pigs when the mother lies down. It will be a refuge which will save the life of many a little "rooter."

I find that the better our sows know

us, so much less the loss from young pigs.

Gastrate young hogs at three weeks of age. They do not mind the operation at that age.

What is needed for bacon pork is the long, lean, deep sided, thick bellied hog.

I like a Yorkshire father and a Chester white or Tamworth mother. With careful breeding, it makes an ideal bacon hog.

I don't like a short dumpy pig for profit at any time.

The Berkshires have of late been improved and drawn out of such length, and deep sides, that it makes an excellent cross as father or mother. With a Tamworth, Chester, white or York, for bacon pork, one of the most successful breeders of this bacon Berkshire is Mr. W. J. Shibley, Harrowsmith, Ont.

New packing houses are being erected in various sections of Canada. Our bacon is well liked in Great Britain. Let us put ourselves in shape to earn more money on every farm.

Add from one to one hundred pigs to the sty, and see if you do not make from \$5 to \$500 a year more than you do now.

J. O. LINGENFELTER, Kingston, Ont.

(To Be Continued in Our Next.)

**Butter-Making in Winter.**

At this season of the year, a great many butter makers have trouble, and wonder why it takes so long for butter to "come." I make butter the year round from Jersey cows; for the special trade, and have had many things to learn. I use the deep-setting, submerged system, using ice when needed; skim at 18 and 24 hours; keep cream in one end of creamer until enough is collected for churning, and churn at least twice a week. At this time of year trouble began, having to churn one to three hours before butter appeared, and in several instances, after all day work, gave it up. I use the barrel, end over end, churn.

As the result of experiments I now, at this season of the year, warm the cream the day before churning, to 70 degrees, and set in a warm room, adding buttermilk sufficient, as a starter, to fetch to a molasses consistency at the end of 24 hours, when it should be churned. Delay will endanger flavor of the butter.

The temperature of churning must be ascertained by trial. Cream must be warmer from cows long in milk. I use five-gallon pails; heat in warm water on the stove. Churning to-day came in 30 minutes. Cream for the churn was heated to 74 degrees; from old milk mostly.

At time of breaking add a little cold water. As soon as the buttermilk will run draw what you can; use several waters, letting stand to cool and harden, being careful not to churn too much, to lose the granular form. I use a strainer on top of pail to save particles of butter. Use the wooden shovel or ladle, and give time to harden. I salt in the churn to the taste of customer. I measure the cream instead of weighing butter, to save labor. After the butter has stood half an hour or thereabouts, to dissolve the salt, I take out into the worker, being careful to stop when it is ready for the printer or jar. Do not spoil the grain by overworking. This butter thus handled is selling as fast as I can furnish at 35 cents per pound. I venture the opinion that your subscriber's cream was too cold and not sufficiently "ripened."—H. G. Haviland, in Ohio Farmer.

**The Dairy Cow.**

Interest in the dairy line continues unabated, and the creamery has become the strong staff of many a farmer. This method of operation in butter-making seems to have come to stay. The price received for butter during the year averages nearly 25 cents per pound. Good butter cows are always in demand. The little Jersey, so sneered at by dairymen a few years ago, is now finding her way into every neighborhood. Our farmers are learning that beef-raising and butter-making are two distinct lines of business and that it is a mistake to attempt either with a type of cow intended for the other. The long, fruitless search for the general-purpose cow is changing to a scramble for the special-purpose animal.—Country Gentleman.

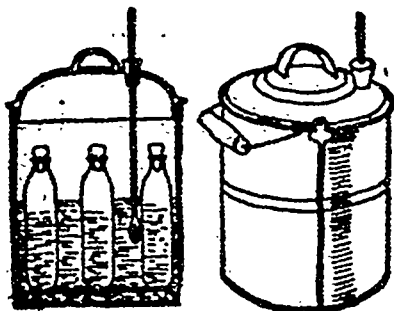


# THE DAIRY

## STERILIZING MILK.

A Simple Method of Destroying Germs in Milk Used for Table Use.

The sterilization of milk, now quite extensively practiced in order to destroy the injurious germs which it may contain, can be satisfactorily accomplished with very simple apparatus. The vessel containing milk, which may be the bottle from which it is to be used or any other suitable vessel, is placed inside of a larger vessel of metal, which contains the water. If a bottle, it is plugged with absorbent cotton, if this is at hand, or in its absence other clean cotton will answer. A small fruit jar, loosely covered, may be used instead of a bottle. The requirements are simply that the interior vessel shall be raised about half an inch above the bottom of the other, and that the water shall reach as high as the milk. The apparatus is then heated on a range or stove until the water reaches a temperature of 155 degrees Fahrenheit, when it is removed from the heat and kept tightly covered for half an hour. The milk bottles are then taken out and kept in a cool place. The milk may be used any time within twenty-four hours. A temperature of 150 degrees maintained for half an hour is sufficient to destroy any germs likely to be present in the milk, and it is found in practice that raising the temperature to 155 degrees and then allowing it to stand in the heated water for half an hour insures the proper temperature for the required time. The temperature should not be raised above 155 degrees, otherwise the taste and quality of the milk will be seriously impaired. The simplest plan is to take a tin pail and insert a perforated tin plate in the bottom, or have made for it a removable false bottom perforated with holes and having legs half an inch high, to allow circulation of the water.



A MILK STERILIZER.

The milk bottle is set on this false bottom, and sufficient water is put into the pail to reach the level of the surface of the milk in the bottle. A hole may be punched in the cover of the pail, a cork inserted, and a chemical thermometer put through the cork, so that the bulb dips into the water. The temperature can thus be watched without removing the cover. If preferred, an ordinary dairy thermometer may be used and the temperature tested from time to time by removing the lid. This is very easily arranged, and is just as satisfactory as the patented apparatus sold for the same purpose. The accompanying illustration shows the form of apparatus described, and recommended by the United States Department of Agriculture.

### Success in Dairying.

Success in dairying depends in a very large measure upon the individual effort of the dairyman. Unless he puts skill and intelligence into the business by selecting the proper cow, providing her with the proper food, and giving her his best attention, he cannot expect to reap a very large profit out of his investment. Too many patrons of our cheese factories carry on the dairy branch of their farming operations in a sort of haphazard way, and then condemn the business because it does not return them a handsome profit.

It pays to keep a good cow or none. It is sure to pay how many poor cows are

kept in some of our oldest dairy districts by men of long experience. In many factories last season where one patron would realize \$45.00 per cow for the season, his neighbor would only realize \$35.00. This is due nearly altogether to the good judgment and superior intelligence of the \$45.00 man in selecting and feeding his cows, as compared with the lack of good judgment and carelessness on the part of the \$35.00 man.

It costs on an average about \$28.00 or \$30.00 to keep a cow during a year, and about half of the cows kept by the average dairymen give in return for this expenditure about \$30.00 per annum, and a great number come far short of this amount. This means that there are numbers of cows that might as well be taken to the butcher's "block," for all the benefit they are to their owners. If it were pointed out to a farmer that his hired man, for example, was not worth his board or the wages he was receiving, the farmer would simply rise up in his wrath and get more work out of that man, or give him the G. B. Why should not as much good sense and superior judgment be shown in dealing with the cow that does not pay for her keep?

The profit in any business is not always at the market end of the concern, but at the home end. The profit depends upon the difference between the cost of production and the price obtained. Therefore, the man who can produce goods the cheapest is going to reap the largest profit. The logic will apply especially to the business of farming, and particularly dairying, as the market price of dairy products does not vary considerably in comparing one season with another.—Farmers' Advocate.

### WINTER DAIRYING.

The Substance of Prof. Robertson's Recent Address on the Subject.

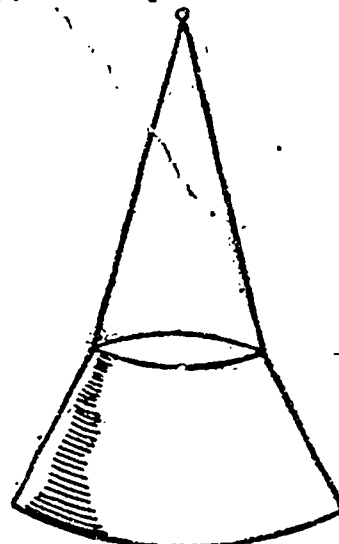
Prof. Robertson expressed the conviction that dairy farming was the farming which should be pursued in Ontario. He spoke of the splendid advantages offered and the high plane of civilization which existed in this Province. He attributed this excellent state of affairs to the prosperity and material comforts enjoyed by the people, and to maintain and increase this condition of things this prosperity would have to continue and increase. To obtain more of the comforts of life the farmer would have to produce what would bring him the widest margin of profits. Wheat crops at one time had been profitable, but the increase of the production and the decrease in its use had made it no longer so. The trend of consumption now was towards animals and animal products, and accordingly, the farmer, wherever he could produce these well, should do so. In Canada the condition for their production were most favorable. The climatic conditions were good and fodder could be easily and cheaply produced. He then pointed out how the cheese industry had been of such incalculable benefit to the farmers, how it had furnished them with money which they otherwise would not have obtained. He pointed out what a still greater benefit it would have been had this cheese money been twice as large as it was, and he insisted in clear and logical arguments that this increase to twice the amount could be obtained by means of winter butter-making in the cheese factories. He said that a great risk was run in the cheese manufacture of pushing it too far; there was also a risk of a fall in prices, but with the winter butter business there would be something to fall back upon. The question of whether this winter industry was practicable was gone into and he proved, evidently to the satisfaction of his audience, that it was practicable. He said he had proved that it was so to himself by working the problem out in the concrete. He had established three factories in Ontario, which made \$12,000 last winter. The cost of adapting the cheese factories for this purpose during the winter he placed at a little over \$1,000. He produced figures from the establishments already in operation to show not only that these winter butter factories would pay, but that they would put more money than that simply obtained from the sale of milk in the pockets of the farmers. The skim milk could be

red swine and calves and money would also be obtained from these sources. If then, the Professor argued, one out of every ten factories in the Province were utilized in this way in the winter it would net over \$600,000. He combated the idea that this industry was hostile to the cheese industry. It would make cheese-making more profitable. He then went into the needs of winter dairying, the proper management and feeding of cows, and the way to handle the milk. In concluding he said that the business of agriculture in Canada was daily becoming to him a question of more serious import. The whole stability of the country was staked on it, and would be jeopardized if farming was not conducted on better paying principles. It was a question which concerned every Canadian, him and his children and his children's children, and it should be the duty of all to adopt any possible combination of conditions which would render this great industry permanently secure and beyond the possibility of being adversely affected.

### A Convenient Cream Stirrer Easily Made.

As every month should see some added improvement, even though a little thing, we name one to be provided this month.

It is a cream stirrer and is illustrated herewith. The tinner can make one for 15 cents, and if you take the paper with you, it will help him understand it.



A CREAM STIRRER.

Cream needs stirring every time an additional quantity is added; and if this convenient device is in the cream can, it is quickly and thoroughly done. It works to perfection, throwing the cream up from the bottom as if a young geysier were there. The one we use is 7 1/4 inches in diameter at the bottom and 4 inches at the top. It is 4 1/2 inches in perpendicular height, and resembles an inverted basin with no bottom, just a hollow shell. It is made of tin; the handle being a stiff copper covered wire, soldered on and long enough to reach to the top of the cream can and yet permit the can cover to go on when the stirrer is left in.—Orange Judd Farmer.

### Costly Dairy Apparatus.

Much fine butter finds its way to the market without the assistance of any patented apparatus, and tons more will follow. Good machinery alone cannot produce fine butter. It is understanding the requirements of the process under varying conditions, and not being afraid to do some work if needs be. On the whole, where a separator cannot be afforded, we think deep setting the best, but a pail eight inches in diameter and eighteen inches deep, if set in plain board tank of ice water, will cream milk very well. The improved machines save work in various ways, but so good an authority as Prof. Babcock says that if the conditions of setting are equal, the cheaper creamer will often do as good work as the more expensive and highly lauded machines.—American Agriculturist.

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### Flavor in Butter.

The reason why butter varies so markedly in its market value is almost entirely owing to the difference in its flavor. Flavor in butter is that quality which affects the taste, and it is the presence or absence of flavor that commends or condemns the butter to the consumer. Generally speaking, the principal sources of butter flavor are two—namely, the conditions under which the milk is secreted and drawn from the cow and the conditions to which the milk is subjected after it is drawn and before it is manufactured into butter. It is generally conceded (although some experiments have proved otherwise) that as a cow advances in her period of lactation the flavor of the butter she produces deteriorates. Why this is so the writer is not advised, but it is a fact, however, that as a cow approaches parturition the milk becomes more or less abnormal in that the milk serum becomes more viscous, the fat globules smaller, and the milk creams less exhaustively and churns with more difficulty. The flavor of the butter is not necessarily bad, but there is a decided lack of that fine, quick, aromatic odor which the best markets demand and are willing to pay for. The difference in flavor between fresh cows and strippers is so marked that some dairymen will not pay as much per 100 pounds for milk from a herd where most of the cows are well advanced in their period of lactation, even though it be richer in fat, as they will for milk from a herd the most of which are fresh cows.

### To Keep Cows From Kicking.

It is always the best milker that gives the most trouble in milking. This is really cause and effect, for having the udder filled with milk makes it very sensitive to the touch and requires very careful handling not to hurt the cow. The natural result is that such cows are beaten and ill used, thus causing them to hold up the milk and usually to do some vigorous kicking as the result of the pain they are suffering. If there is a large amount of milk thus retained, it is likely to cause garget and permanently spoil the cow. Generally if the cow kicks most milkmen will either kick back or will take a safer means by getting far enough away so that the cow cannot kick them and belabor her over the back and sides. Such measures are cruel and wholly unnecessary. If a ring is put in the cow's nose and her head is fastened up so that she cannot get it down, she cannot kick. Each vicious kick is accompanied with a lowering of the head, as if to hook. When the cow goes to lower her head, she finds that tending in her nose hurts her and that at once will make her desist. It is a very simple method and has always proved effectual when tried.—American Cultivator.

### Dairy Suggestions.

If you have never churned granulated butter it is time to begin. Canada forbids the adulteration of cheese, and Canada is right. If the cows are "home grown" and are not gentle it is apt to be the owner's fault.

It never increases the milk supply to pitch milk stools at the cows or swear at them.

If you mean to make a success of dairying this winter, believe you can and go ahead.

At the price of feed and milk this season it will not pay to feed poor cows—it never does.

Perhaps one of the things needed about your place is an icehouse; if so, do not wait till the crops are wasted before building the house.

Look out for the man that wants to sell you the "right" to get more butter out of the milk than the cow put in it. Take the right to get out all there is in it, but pay no royalty for doing it.

**SHOULD THE CHEESEMAKER BE HELD RESPONSIBLE FOR BAD FLAVORED CHEESE.**

If I were asked the above question I should without any hesitation say No, providing the maker has done his part by keeping his factory and utensils in a cleanly manner. But I do not expect that my readers will be willing to take my simple negative as conclusive, therefore let us look into the matter and see what the facts of the case are.

As it now stands, if the cheese at the time of shipment are faulted on account of flavor, and there is any cut in the price on that account, the rule is that the cheesemaker shall bear the loss. This implies that the maker is to blame for the presence of the bad flavor, or, in other words, that the best flavor is due to improper handling of the milk or curd during process of manufacture into cheese. Such an assumption, however reasonable in times past, is not in accord with our present day knowledge of cheesemaking. It should be understood that the development of flavor is a process quite separate from anything which controls those other qualities such as "body," "texture," etc. The body of cheese is influenced by the handling of the curd, and the proper regulation of moisture and salt to some extent, but these things have very little influence on the flavor. At any rate, if the flavor is injured say by reason of an improper balance of moisture, the body of the cheese will also be spoiled. What I contend is that if they are well made and show no other defect than that of flavor, the cheesemaker should not be held responsible, if as I have said before, he has done his part well in the matter of keeping the factory clean.

The flavor of cheese is due to the presence of various kinds of bacteria, which get into the milk mostly before it arrives at the factory. Some kinds produce desirable flavors, while others give rise to the bad flavors on taints. The latter kind find their way into the milk through some form of filth and are sometimes called filth organisms.

The most common source is the small particles of cow manure which careless milkers allow to fall into the milk (straining afterwards does not remove the germs), and the dust floats in the air from barnyards, milking yards, or any place where animal droppings are allowed to lie and get dry. The reason why such dust is liable to carry with it the danger of infection is because all animal droppings contain large numbers of a germ known as the Bacillus Coll. Coliformis, which has the power of producing very foul odors in milk or cheese. Our experience at the Kingston Dairy School, as well as many other institutions, goes to show that this germ is the one great cause of bad flavor in milk and cheese.

Out of some thirty cases of bad flavored milk or cheese which has been investigated at the school with the aid of Dr. Connell, bacteriologist, all but one were found to be due to this cause. Of course we exclude from this all bad flavors due to unsuitable foods, such as turnips, rape, etc., but like the others they cannot be eliminated to any extent by the cheesemaker, therefore he should not be held responsible.

I have known cheesemakers to say that they could get rid of the flavor of turnips in making cheese. The man who makes such a statement is either sublimely ignorant or else has some ulterior purpose in making it.

I am not an apologist for the very bad practice of taking whey home in the milk cans, but so long as this system is followed it ought to be carried out in such a manner as to reduce the risk to the lowest possible point.

The whey tank should be kept as clean as possible by thorough scalding every few days, the oftener the better. This cannot be done unless the whey is regularly removed, and it is clearly the duty of the patrons to remove the whey. It is their property, and if they allow it to remain and become a nuisance they are both legally

and morally responsible. If there is proper drainage so that the whey can be run off without creating a nuisance in that way, the difficulty is easily got over. Of course I know that in most factories there is a shortage of whey at times, but it is usually late in the season when the weather is cool and not so dangerous.

There is another aspect to the question under discussion. Cheese which are found to have a bad flavor during hot weather would very often be alright if cured at a proper temperature, such as might be had in a suitable curing room. The experiments which have been conducted at the Kingston Dairy School prove this very conclusively. It is not necessary to repeat here the details of those tests, but it will serve our purpose to say that certain cheese cured in a favorable temperment (60 to 70 degrees), held their flavor while others from the same batches cured in a temperature which varied according to the weather, and went as high as 90 degrees, were "off" flavor in three weeks, to such an extent that buyers who examined them at the Cheese Boards placed the difference in actual value at fully one-half cent per lb. This difference in the ordinary course of things would have to be made up by the cheesemaker. Should he be asked to do so, under such circumstances? Decidedly not.

Remember I am not trying to shield the incompetent maker, nor to provide loop holes for the careless ones. I have nothing but contempt for the slovenly makers, who keep their own persons and their factories in a condition fit to ruin any business, but there are plenty of faithful, ambitious fellows, who are doing all they or any one else can, and yet are being badly treated by the patrons who are not putting forth the same efforts to improve the business which is doing so much for this Canada of ours.

The painstaking and careful cheesemaker deserves more credit and better treatment than he has received in the past, and I would do what I can in my feeble way to secure for him a better recognition of his valuable services. People are very fond of shouting the praises of Canadian cheese, and the "proud" position which we hold in the markets of the world. While the man who makes the cheese works for small wages and pers out of them often for the errors and neglect of others.

I have not attempted in this article to discuss the question of the production of milk for cheesemaking, but there is plenty written and said on that point if the patrons and factory owners could only be made to realize their share of responsibility in the matter.

I have tried to show that the cheese maker often has to pay for faults in the cheese which are not wholly under his control, that bad flavors in cheese can generally be traced to an origin in the milk which might be prevented by proper care of the milk.

It might be said in answer to this that the cheesemaker should protect himself by refusing milk which is out of condition. This is quite true, but it is easier said than done. In the first place it is not always possible to detect the presence in the milk of taints which will afterwards develop into the worst kind of flavors. In the second place if the makers try to improve the matter by returning milk unless it is actually sour he makes all kinds of trouble for himself, to such an extent that it is practically impossible, under the present state of feeling, for him to return all milk that should be rejected.

If factory managers would combine and again agree not to take a patron who leaves another factory because his milk has been returned, then makers would be able to do something.

J. A. RUDDICK,  
Supt. Dairy School, Kingston.

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## GENERAL PURPOSE CATTLE.

*Little System in Judging Them at Fairs and Exhibitions.*

The Breeder's Gazette says that the judging of the general purpose breeds is a problem that has not yet been properly met by fair managers. This results in some measure from the fact that the breeds which are classed as general purpose cattle are not shown in large numbers, and fair managers are therefore loath to go to the expense of providing experts to judge them. It therefore comes about that at some fairs they are taken in hand by the judge of the best breeds and at others by the judge of the milk breeds, until an exhibitor of Devons, Red Polls and Brown Swisses never has the slightest idea of the standard by which his cattle are to be judged. He goes to his fate blindly, knowing that it can be only a lottery at the best.

Such breeds deserve better treatment. By common consent of a majority of the best breeders of each of these varieties of cattle they are esteemed both for their beefing and their milking properties, and they should be judged by the dual purpose standard. Unfortunately some exhibitors of Red Polls and Devons elect to show their stock in beef condition, thus rendering difficult the application of the dual standard, and it may be observed that the men who thus fit their cattle ordinarily win the most prizes. This happens because judges of the beef breeds are generally assigned to these sections, although it sometimes transpires, as at a prominent north-western fair, that a dairyman gets hold of these breeds, and then we betide the fat ones. On such an occasion, in reply to a remonstrance that he was overlooking typical cattle of the breed before him in awarding the prizes and ignoring the dual standard to which the cattle were bred, the judge retorted that he did not care what the standard was, his experience had shown him that the milk form was better for milk than the milk and beef form, and he intended to pick out for prize winners the animals that looked most like dairy animals.

Of course there can be no justification of such a course. The man who is not willing to judge a breed by its accepted standards ought not to attempt the work. He has no right to thrust upon exhibitors a standard of his own. It would be well if fair managers would make a special effort to secure as judges of the three breeds mentioned men who are accustomed to estimate the value of an animal from the double purpose of milk and beef. It is admitted that this is a much harder task than merely judging by one or the other single standard, but that is no reason why an attempt should not be made to secure men competent for this work. At all events, every judge put to work on these breeds should have explicit instructions to take account of both qualities, and if he declines to do this he should be invited to resign the job.

## Grain For Horses.

Professor Thomas Shaw of the Minnesota experiment station writes on the value of corn, oats and bran for horses, and says the proportions of corn and oats which are best for working horses will depend somewhat upon the nature of the work and somewhat on the season of the year. The harder the horse is being worked, it would be correct to say, the larger the proportion of corn that may be given to him, and the colder the weather, the more corn, relatively, he may be fed. But to keep the system in tone he should be given oats and corn, and if some bran can be added, heavy feeding can be continued with safety for a longer period than in the absence of bran. When horses are being worked hard, they will do very well on a grain ration in winter, two-thirds of

which is corn, and in summer on a grain ration one-third or one-half of which is corn. But if one-fourth or one-fifth of the grain fed is bran, there is much less danger of digestive derangement than when bran is not fed. So advantageous is bran to the grain food that the aim should be to feed some of it during much of the year. The proportions named above relate to shelled corn and to weight rather than bulk. It would not be very material whether the corn, oats and bran are all mixed before feeding or whether they are fed separately.

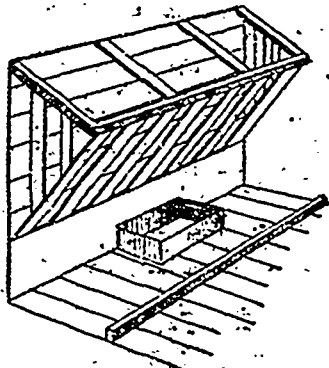
## STABLING THE COWS.

*Extracts From an Essay Recently Read by Ex-Gov. Hoard of Wisconsin.*

How to keep cows clean in the stable has been an unsolved problem. Drops, stanchions of various kinds and a variety of stalls have one and all proved themselves useless in this respect. Latterly, however, I have been using a rack and floor which seem perfect. With Watts, I can say:

"This is the way I long have sought; And mourned because I found it not."

In place of a manger is a rack for hay, slanting towards the cow at an angle of forty-five degrees. The other side of the rack is boarded up four feet high. Into this all the coarse fodder is thrown. The cut and ground feed is given the animal in a strong box, placed under the rack as shown in the cut. The cow is held by a halter to which is snapped a rope. This is tied to a ring in the rack and gives her



perfect liberty of motion so she can rub or lick herself at pleasure. The floor unlike most modern floors, many of which damage dairy cows, is planked level. As the cow stands feeding at the rack a two by three inch scantling is laid down just forward of her hind feet and sniked firmly. Between this scantling and the rack a little dry boarding is placed. The cow in lying down soon learns to step forward and not lie across the scantling, but occupy only the dry, clean and comfortable portion of the floor. When she rises the sloping rack forces her to step back and there the manure is dropped. The bedding inside the scantling will remain dry until ground to powder.

The bottom of the rack is twenty-six inches from the floor and its top twenty-six inches from the partition. The latter is frequently criticised, because it prevents visitors from passing along and looking at the faces of the stock; but the cows seem satisfied. Our stables are too frequently made for the comfort of man instead of beast. This stable is preeminently adapted to the comfort of the cow. I used two snaps on the ropes which fasten my cows. In this way if one gets loose the other is sure to hold her.

## Tiny Oxen.

One of the greatest curiosities among the domesticated animals in Ceylon is a breed of cattle known to the zoologists as the "sacred training oxen." They are the dwarfs of the whole ox family, the largest specimen of the species never exceeding 80 inches in height. One sent to the Marquis of Canterbury in the year 1891, which is still living and is believed to be somewhere near 10 years of age, is only 33 inches high and weighs but 109½ pounds. In Ceylon they are used for quick trips across the country with express matter and other light loads and it is said that four of

them can pull a driver of a two wheeled cart and a 200 pound load of miscellaneous matter 60 to 70 miles a day. They keep up a constant swinging trot or run and have been known to travel 100 miles in a day and night without either food or water. No one knows anything concerning the origin of this peculiar breed of miniature cattle. They have been known on the island of Ceylon and in other Buddhist countries for more than 1,000 years.—Popular Science.

## Model Boars.

Two descriptions of a model boar are given in agricultural papers. They are essentially the same until we come to the head, where they differ radically. One recommends a heavy jaw and a straight nose. The other strongly condemns a heavy jaw as meat in the wrong place and describes the model hog as decidedly dish faced. Both are sincere in their beliefs, and according to their experience both are right. They are simply following the model for their own breeds, and each fellow of course has the best breed.

## BACTERIA IN MILK.

*Some Kinds Are Dangerous, While Others Are Harmless.*

If we were to measure the extent of pollution of different substances according to the number of bacteria they contain, writes Professor H. S. Russell, milk would be almost the worst food we could use, for, as a rule, a drop of milk, as we drink it at our meals, contains more bacteria than an equal volume of sewage. A water supply that would contain a fraction of what is ordinarily found in milk would in most cases be considered unwholesome not on account of the mere numbers that it contains, but in the light of what such a condition means. A water supply containing hundreds of thousands of organisms per drop is unsatisfactory, because it indicates indirectly the presence of organic matter in abnormally large amounts, and such material is undesirable in water. In milk this number would not be interpreted in the same way, because normally milk contains organic matter that would support such a growth.

Even under the most favorable conditions milk contains many more bacteria than water ordinarily does. As it comes from the animal it generally has from 100 to 1,000 germs per drop. These immediately begin to multiply, on account of the favorable conditions of growth, so that with increasing age the germ content is greatly increased until in commercial market milk there are frequently millions in every drop.

The character of the bacteria in any milk is of vastly more importance than the presence of mere numbers. Ordinarily the great majority of the contained organisms are harmless so far as their effect on the human system is concerned. They are the kinds that cause the various fermentations to which milk is peculiarly subject.

Not infrequently certain bacteria gain access to the milk that are able to form deleterious substances. Cholera infantum and other disorders of the intestines are frequently attributable to their effect. The presence of even a few organisms of this class is very much more dangerous than the millions of saprophytes that are concerned in the production of the various fermentative changes.

## Keep Flies From the Milk.

One of the troubles of the dairy farm, and, in fact, at the creameries and the factories, says Mr. W. H. Potts, is the ever present nuisance, the fly, and this is more accentuated during the summer

months. Flies will get into the milk buckets and milk cans if special precautions be not adopted to exclude them. At the creameries and factories the receiving vat stands open and affords ample opportunities for flies to perpetrate suicide. With our advanced knowledge of dairy and other bacteriology we are now aware that this element forms a distinct menace to the purity of our dairy products. Dr. Schultz, the eminent bacteriologist of Berlin, has submitted thousands of flies to microscopic examination, and his results and conclusions are simply surprising. The fly's foot is shaped like the mouth of a trumpet. The circular portion secures a grip on a flattened surface. The vacuum being complete, seeing the trumpet shaped foot is hollow, a firm hold is thus secured, and a fly can walk up a perpendicular pane of glass as readily as it can travel over one lying horizontal. In the hollowed portion of the trumpet shaped foot is a space which forms a receptacle for bacterial life. The doctor found microbes in the feet of about 80 per cent of flies caught in the country and in the city about 40 per cent. In the hollow of one foot alone he discovered over 100 microbes. It is known to all how flies will walk over and revel in filth, dirt, dead flesh and other vile matter. The foot retains the objectionable germ life, which is the cause of putrefaction. On getting into the milk they convey to or inoculate it with a hostile element which tends to affect flavor and aroma detrimentally. We should zealously guard against this evil and freely recognize the importance of keeping the flies out of the milk or cream.—Exchange.

## Bad Flavors in Milk.

Under the auspices of the Stewartry Dairy association Mr. Kirk, Craigploch, delivered a notable lecture on the above subject last week, says The North British Agriculturist. The main argument of the lecture was that bad flavors in cheese were the inevitable results of dirt which had been introduced into the milk either directly through a want of sufficient cleanliness in handling the milk or indirectly through the cows drinking dirty water or eating contaminated food. Dirty buildings, dirty udders, dirty milkers, dirty dishes, dirty dishcloths and dirty water supplies, argued Mr. Kirk, were the causes which produced a prolific crop of bad flavors in cheese. Flavors in milk, whether good or bad, were living organisms, as they were due to bacterial organisms. Filth of any sort was the one and only breeding ground of the malignant bacteria producing bad flavors in milk or cheese, and as the bacteria, when once they had got an entrance into a medium so favorable for their development as milk, multiplied with inconceivable rapidity it follows that the slightest speck of filth introduced into milk will inevitably mean the introduction of a rapidly increasing colony of infective noxious germs.

## Calculating Without the Cow.

Those dairymen who are keeping only good cows with records of 6,000 pounds of milk or more in a year and are trying to have them come fresh in October or November that they may have a supply of milk in winter, knowing that milk and butter sell at higher prices then, and hoping therefore for better profits, must remember that it will not be so easy to dry off a good cow when in a good pasture in August and September as it would be if she were being fed in a cold barn on dry hay in February or March. A belief on the part of the owner that she should have 6 to 6 months' rest from milk producing before her calf is dropped will not persuade her to stop it if she is built that way and her feed is such as stimulates milk production.—American Cultivator.





**CONTINUOUS MILKING.**

**Cows Should Have a Rest of at Least a Month.**

W. O. Rockwood, writing in The Country Gentleman, is positive in the belief that cows are injured by continuous milking. In the first place continuous milking where the cow bears a calf once a year is very much on the principle of milking a spayed cow as far as the milk is concerned—the quantity is not increased at the birth of the calf and although an increase may be looked for at the end of a week or two this does not make the difference in the flow that a period of rest does. Four weeks' rest even will cause a cow to "make bag," and a full flow will ensue after the birth of the calf. Thus annually re-enforced the milk flow is appreciably greater than when continuous milking is practiced.

During the last week of pregnancy a marked change occurs in the quality of the milk also. Who will say that it is fit for human food at this time? If mixed with the milk from several other cows, no apparent change may be noticeable, yet in a small dairy it often causes trouble.

Not long since one of my neighbors stopped me as I was passing to ask if I could tell what was the matter with their cream. It would not churn into butter; all efforts were unavailing. Hot or cold, sweet or sour, still the butter refused to come. As they kept but two cows the thought suggested itself that possibly the difficulty lay in the milk of one of them. Inquiry revealed the fact that one was due to calve soon. I advised leaving out the milk from this cow, believing that the cause of the trouble. And so it proved. But one churning was done after this before the cow calved, and this one gave no trouble whatever. After calving the milk from the other cow was used as before, and no further annoyance resulted. This proved to my neighbor conclusively that the milk of the cow soon to calve was the sole cause of the difficulty.

Here we have two weighty arguments in opposition to milking the cow continuously: First, the failure to increase her mass, as if she would do if allowed to rest; second, that the milk is unfit for use. Another might be urged—that the milk which is needed for the regulation of the young calf's system it is deprived of by reason of emptying the udder during the weeks immediately preceding its birth. This may not be essential to life or even vitality, but it has always been considered essential as a regulator of the bowels, and when the calf is deprived of such properties as are therein contained may not some deficiency in future vitality and strength be looked for?

Sentiment has small place in the modern dairy, yet to me it seems but a fitting reward for the year's labors to let each cow have a few weeks' rest each year. Let them run at pasture with the young cattle or come up to the barn with the others, but it seems as if cow sense can and does appreciate a little vacation, as it were, in the treadmill round of life—one perpetual milking night and morning year in and year out. The proper period of rest is about a month.

**Go For Them!**

Cannot something be done this summer either by law or public opinion to abolish filth in cheese factories and creameries? I am not calling for "southern breezes or a bed of violets" nor am I scolding at the distasteful odors that shock the sensitive nerves of the æsthetic, but I mean "those most villainous compounds of disagreeable smells that ever offended nostrils" made up of rotten whey, sour milk and tobacco smoke that are to be found in far too many factories where the patrons

wonder why they cannot get better prices for their goods. It would be a perversion of human justice if they did get better prices.—Cor. Hoard's Dairyman.

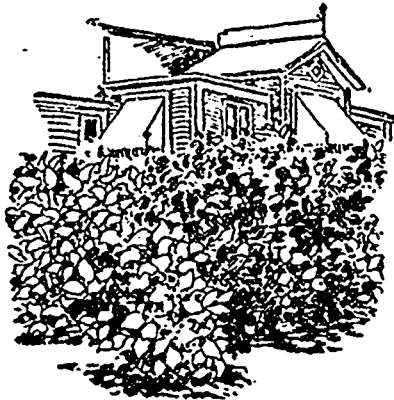
**Unripe Cheese.**

In these days cheese is shipped from factories in from 10 to 15 days from the hoop before, of course, it is sufficiently cured for eating. I consider no cheese really fitted for human consumption until it is from 80 to 40 days old. Probably the bulk of cheese that goes to market at the age of two weeks does not get into the retailers' hands and the consumer's stomach until it has nearly or quite attained such an age, not because of any design for the consumer's benefit, but simply through the process of trade.—George E. Newall.

**THE SOY BEAN.**

**One of the Most Promising of Annual Leguminous Forage Plants.**

The soy bean ranks high among the leguminous forage plants of comparatively recent introduction in this country. Of all legumes in cultivation the



SOY BEANS.

peanut alone exceeds it in the amount and digestibility of its food constituents. The soy bean requires about the same class of soils as Indian corn and will grow about as far north as that crop can be depended on. The best results with it have been obtained in the region between the thirty-seventh and forty-fourth parallel east of the Rocky mountains. The region best adapted to it, then, is the "corn belt," a circumstance which argues well for its future use and value in conjunction with corn for fattening animals.

The soy bean should be planted in late spring or early summer after the ground has become warm. In general the early varieties should be used if a seed crop is desired and the medium or late varieties if it is to be used as forage, it having been found that the latter much excel the former in value for that purpose. In some parts of Virginia the soy bean is planted in the corn rows in alternate hills or between the rows at the time of the final cultivation. Usually, however, it is grown as a main crop, either broadcast for forage or in drills when cultivated for seed. The amount of seed required when it is sown in drills is less than when planted broadcast, varying from two to three pecks per acre and in the latter case three to four pecks. The rate of growth is quite rapid, and unless the field is very weedy the crop does not require much cultivation.

The crop should be cut for hay from the time of flowering until the pods are half formed. Later than that the stems are coarse and woody and the feeding value rapidly declines.

The crop may be converted into good silage and for this purpose should not be cut until the seed is nearly ripe. The chief use of silage is that it provides a succulent food during the winter time when green forage is not available, but as certain changes take place in the silage which render a large part of the

protein indigestible, it is better to depend upon corn than to use any leguminous crop for this purpose.

The ripe soy beans are among the richest of concentrated foods. The yield varies, according to soil and season, from 6 to 18 tons of green forage. The



ROOTS OF YELLOW SOY BEAN.

yield of seed varies from as low as 15 to as high as 100 bushels per acre, the average being about that of corn, from 25 to 40 bushels.

This crop is a heavy potash feeder and requires fertilization with lime and with potash and phosphoric acid when grown on such lighter soils as are deficient in these elements.

According to the year book of the department of agriculture, the source of these statements and illustrations, the soy bean is one of the most promising of the annual leguminous forage crops, and, as before indicated, may prove of special value in connection with Indian corn, the latter supplying the "roughness," the soy bean producing the digestible crude protein necessary to make a complete and well balanced ration.

**Economy in Hog Killing.**

As this is the season when hog killing is most common it is worth-while to remind those who have but one or two or even three hogs to kill that it is far cheaper to take these where a larger number are to be slaughtered, and where there are all the conveniences than to kill the hogs at home. Heating the water and getting ready generally take a good deal of time. When this is done, the work of killing and dressing requires comparatively little. It is far better for farmers to co-operate in this work than in any other we know. Each farmer who has only a few hogs to kill can have this job done for him much cheaper as well as more easily than he can do it for himself.

**Cooked Hay For Stock.**

All of the nutriment in grass is in the hay, but it is not in succulent form. If the hay is subjected to steam heat for an hour or two, it will be filled with moisture and be considerably expanded besides. It might pay for cows which do better on succulent food, but horses and sheep will eat the hay dry and get all the nutriment there is in it. Succulent food is not adapted to the horse. To be in good working order his excrement should be nearly dry, and pass out in the round balls that every one, even in cities, has seen on much rotten roadways.—Cultivator.

**IMPORTANT NOTICE TO BUTTER and CHEESE MANUFACTURERS.**

Those cheese and butter men who may wish to do business in Great Britain may find it to their interest to send their names, addresses, average product, month by month, and the capacity of their factories to the undersigned, who have received enquiries from correspondents in Great Britain, who are desirous of doing business direct with the best men in Canada having good dairy products to dispose of. The English house states that they are in close touch with the markets at London, Liverpool, Manchester, Leeds, Glasgow, New Castle, et al., so it may suit some of our readers to communicate in this matter with

**The E. B. EDDY Company, Limited, of Hull, Canada.**

**IT KEEPS MILK SWEET.**

'Twas a most wonderful and fortunate discovery a Quincy, Ill., chemist made when he found the article now manufactured under the name of "Liquid Milk Sweet." It is something that is needed in every city and in every village in the world, and one that must eventually become very popular.

This article of which we write is the most perfect and satisfactory milk preservative known to science. It is recommended and endorsed by the medical profession and is invaluable to all dairymen and milk dealers.

It is a milk preserver, not an adulterant. By its use milk is kept fresh and sweet and wholesome in the hottest summer weather without the use of ice for a period of 36 hours. It is perfectly harmless and is free from objectionable and injurious ingredients of every kind. It checks fermentation, preserves the milk's natural sweetness and natural qualities; it is tasteless, colorless, odorless, and in milk is invisible—a perfect preservative.

"Liquid Milk Sweet" is, indeed, a boon to all milk men, for it makes the use of ice unnecessary; it saves waste, saves annoyance, saves labor and saves money.

If any of our readers desire to test the merits of this most wonderful milk preservative they need only write to the National Preservative Co., Quincy, Illinois, mention the Canadian Cheese and Butter Maker, and receive a free sample of "Liquid Milk Sweet."

No man who handles milk should fail to investigate this matter for himself.

**THE "ACME" MILK TESTER**

Hicks's Patent, London, Eng.

This Instrument has been expressly designed to provide any person with a simple but reliable test of the purity of the Milk supplied to them. The Ordinary Milk Tester (Lactometer) has an attached scale, and mistakes often occur in reading off the divisions upon it; the "Acme" Milk Tester has neither scale nor divisions, consequently no error can be made in using it.

Nothing can be simpler than the "Acme" Milk Tester, as you have only to watch the bead rising and falling. It is guaranteed as accurate and effective as the more expensive Instruments.

It cannot fail to prove a boon where Pure Milk is essential, whether for sickness, culinary or other purposes, as it provides a thoroughly reliable test, so easy to use that a child could apply it. No calculations or tables required.

PRICE 50c., or presented to any person sending us 5 new subscribers.

The Canadian Cheese and Butter Maker, Williamstown, Ont.

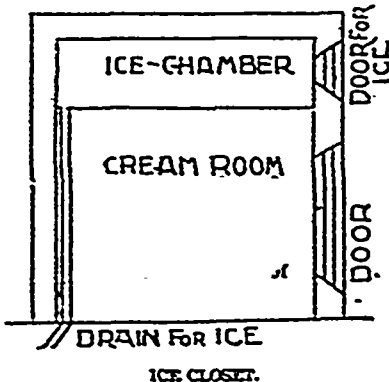
# THE DAIRY

## CREAM IN A HOT CLIMATE.

### Directions For Handling It With the Best Results.

How shall I secure a uniform temperature for milk and cream in a climate subject to extremes of temperature—from 10 degrees below zero to 100 degrees above? My dairy room is 20 by 50 feet in the clear. The floor has three elevations, with a difference of three feet between each, the lowest being a cement lined basement three feet below the level of the ground. The 60 gallon milk vat monopolizes the highest floor, the separator (Dauish Weston) and 200 gallon cream vat take about two-thirds of the middle floor, and the 300 gallon revolving churn and power butter worker about absorb the lowest.

I get from 75 to 200 gallons of milk per day, according to the season, but expect to get more than double this quantity within a year or two. In the severe winter weather, my cream either does not ripen at all, or, if heated by steam, ripens imperfectly or unevenly or cools. In the heat of summer it ripens so fast that it becomes divided into whey and curd before sufficient has accumulated to churn. I should add that my dairy room has three doors and six windows and the machinery is immediately adjoining it. I am inclined as a remedy to increase both the milk and cream vats in small heat and coldproof apartments, amply ventilated if possible, the covering not to extend up to the ceiling of the dairy room.



I indulge the hope that either by making the walls of these apartments double and of good, thick lumber, leaving a space between, or by making them of rock, hewed logs, chinked and plastered (and possibly another wall of plank with space between) I can accomplish my object. It is on this point of the compartments and also on the best methods of ventilating such little rooms that I desire information. My vats are connected directly with cold wall pumps with a temperature of from 54 to 60 degrees, but this seems to make no appreciable difference during our hottest weather.—B. L. Fort Smith, Ark.

This seems to be a case in which there should be no difficulty, for the temperature of the water is precisely right for the management of the cream and for its ripening and the churning. Where the winter temperature is 10 degrees below zero there should be a sufficiency of ice for use in the summer in the cold storage of the butter, or if necessary in the keeping of the cream. That the cream does not ripen satisfactorily seems to indicate some error in its management, for if it were kept at a temperature of 60 degrees it should ripen sufficiently in 26 hours by the mere exposure to the air protected from the outside heat in the summer.

The uneven ripening may be due to the want of frequent stirring to preserve uniformity in the acidification, and an ice closet or refrigerator would prevent the trouble in the hot weather. This might be built in the lower part of the dairy and need not be more than 8 by 10 feet in size, with an ice chamber above and the creamroom under it. This closet may be made in this way:

The walls are double and filled between with dry sawdust, or the space of 6 inches between them may be made airtight by lining them with airproof paper. The ice chamber above should have a floor of sheet zinc, a little skirting to one corner, that the water from the melting ice may drain off. This metal floor will cool the chamber to any desired de-

gree, and in the summer churning it will not be difficult to keep the right temperature by the addition of powdered ice to the cream. The butter when made may be stored in the ice closet until disposed of.

To avoid difficulty with the cream in cold weather the closet may be warmed by hot water to the right temperature. By regulating these points in the management in the ways suggested there should be no difficulty in keeping everything in the precise condition for the best dairy work. It might be desirable to use a stove in the dairy in the cold season and regulate the warmth by a thermometer. The ice closet may be built as shown in the picture. If no ice is provided, the cream may be kept cool by setting it in narrow, deep pails in a tank of cold water, the water being changed as necessary to keep the temperature at 60 degrees.—Professor H. Stewart in Rural New Yorker.

### WHY BUTTER DOES NOT KEEP.

#### Some Points About the New and the Old Fashioned Ways.

It is generally agreed that butter made by the deep setting or creamer system does not, as a rule, keep sweet as long as that made from cream raised in pans in the old-fashioned way. If this is true—and I am quite inclined to think it is—the reason is not difficult to find. Let us look at the points of difference in the two systems.

The old way of straining the milk in to shallow pans set in a room where the temperature was only moderately cool, say 60° or thereabouts, gave an evenness to the temperature of the butter from the time it was set until it was eaten, as refrigerators for keeping butter and other articles of food cold were not then so commonly in use. There was no forcing process from first to last. The cream came to the top in its own time in moderate temperature. The cream skimmed off when it was sour, was already at a proper temperature for churning.

Under these conditions the butter was acclimated, so to speak, to enable it to withstand in better condition the transfer from the dairy to the grocery, and thence to the consumer who probably had no cooler place than a cellar or pantry in which to keep it. As this was not far from the temperature in which it was made, no harm resulted for a considerable length of time.

Now look at the new or deep-setting process. Ice is usually kept in the tanks. At least it is indispensable if the cream is to be obtained between milkings. If not, the water must be changed frequently in order to keep the temperature as low as possible. The cream is removed and kept until churned (except for time it is warmed for souring) as cold as possible. It is cooled again after churning by being placed in cold storage obtained by ice and kept there until taken to the grocer, or sent by rail to the commission man.

This butter will not bear a warming up and still keep its flavor equal to that which is made in open air subject to only a natural degree of cold. If kept continually in cold storage it keeps its flavor almost if not quite as long as the other. It is the changing from the low temperature of the creamer and then of the refrigerator to a warm place in stores, in transit by rail, and finally in the homes of consumers, which hastens its decay. Creamy butter, and all made in other ways than the natural gravitation of the cream, is more or less forced. This accounts for its spoiling so soon when exposed to a warmer air for any length of time.

It is noticeable in speaking of the keeping qualities of butter, that the quantity of June butter now held over

until fall is very much less than formerly. One reason for this is that the creameries now gather up the milk or cream from very many farms which formerly made up the butter at home. Another is that nearly every farmhouse is now supplied with the cold, deep-setting plan in some way and that the butter does not keep well enough to allow of storing it in cellars until fall.

An experiment was made this past summer with granular butter, placed loosely in a new butter-cloth bag (or a bag made of new butter-cloth) and dropped into a crock containing very strong brine. The butter was weighted sufficiently to keep it under the brine and securely tied with paper over the crock.

After it had been in the cellar two months, it was taken out and pressed sufficiently to exclude the brine. It was found to be in good condition, with only enough flavor of packed butter to make it taste unlike fresh made. It had exactly the flavor so many persons like, of good packed butter. This experiment I shall try again next year, keeping it longer before opening. The butter being in granules the brine had access to each one perfectly. This process is similar to the one in vogue on the Pacific coast where two-pound rolls (the only form butter is ever put up) are wrapped separately in butter-cloth and submerged in casks of brine. This is called pickling the butter, and while it cannot be said to retain the flavor perfectly, it makes a very good way of keeping it.—E. E. Rockwood, in Ohio Farmer.

### SKIMMING AND CHURNING.

#### The More Buttermilk There Is the Greater the Loss of Fat.

Take but little milk out with the cream. As we showed long ago, the more buttermilk there is the greater the loss of fat, its "richness" being the same. And, more than this, the more milk in the cream the greater the probable per cent of fat in the buttermilk. Twenty to twenty-five per cent skimmed out as cream makes more than twice as much buttermilk as 10 to 12 per cent skimming does.

Take 12 per cent skimming, 4 pounds of it butter, and we have but 8 pounds of buttermilk per 100 of whole milk, while with 20 per cent skimming we have 4 of butter and 16 pounds of buttermilk—twice as much buttermilk, and therefore twice as much fat lost if of equal richness, more than twice as much loss because the milky cream is more viscid and churns harder. There is a mechanical reason for the increased difficulty in churning. The bulk of cream is increased, the churn is "fuller" and the fall of cream a shorter distance, and therefore the concussive force is weakened.

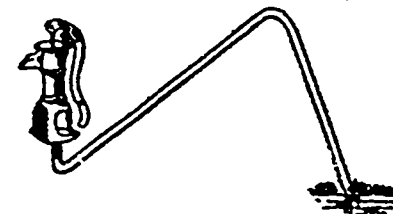
This truth has already gained a widespread acceptance, and we speak of it now because it is gaining fresh confirmation with its spread in practice and because those who skim in the old way that was considered proper before the Babcock test showed its wastefulness needed to be jogged into better work.

The temperature of churning is steadily being lowered also. The old dairy thermometers were marked at 63 degrees for churning. The newer ones are marked at 50 degrees. In practice the temperature must be varied to suit the conditions, and summer conditions at least call for a much lower starting temperature than is marked on any dairy thermometer. Many of our creamerymen now churn at 36 degrees, and a few still lower, while among the select private dairymen who churn for a fancy trade, some of them churn in the forties.—Creamery Journal.

#### Pump or Siphon.

A correspondent of The Rural New Yorker illustrates a cheap and ingenious way of getting water into a dwelling house by means of a siphon as follows:

A few weeks ago an inquiry was made as to the advisability of using a ram to convey water to a dwelling house, etc., from a creek, the water in which was at a higher level than the house. In such a case I think a siphon the cheapest de-



SIPHON WITH PUMP ATTACHMENT.

vice for carrying the water. The pipe can be laid either on the top of the ground or in a ditch dug for it.

All that will be needed is to get the pipe tight and plenty of water at the strainer at the inlet and use a siphon pump at the outlet to prime the siphon. The pipe needn't be over an inch in diameter, though of course its size will depend on the quantity of water needed and supplied. An elbow or T piece can be used on which to screw the pump till the priming has been done.

#### Cow Feed.

I assume that every one knows that there is no food better than good pasture grass for cows in summer, supplemented perhaps with a light grain ration or some soiling crop when pasture grasses fail, and what I say about foods and rations applies more especially to winter feeding. I have never found anything better than wheat bran, ground oats, oil-cake meal and cornmeal out of which to compound a grain ration for dairy cows. Rye, barley, peas and perhaps other grains may be used in the grain mixture. Cows like a mixed ration of grain and do better on it than on any one kind. If cows are inclined to take on flesh, leave out the cornmeal.

For fodder I know of nothing better or cheaper or better relished by cows than corn silage put up at the proper time and manner. Of course corn silage is not recommended as an exclusive fodder ration, but once a day, say in the morning, 20 to 40 pounds to each cow. At evening feed well made, early cut clover hay if possible. At noon feed whatever rough fodder you have at hand. If you are obliged to feed timothy hay, cut it early. Do not expect to get much milk from cows fed on ripe timothy hay. A cow should never be fed more than she will eat up clean.

Where silage does not form part of the fodder ration I strongly recommend the feeding of roots of some kind at least once a day if possible—my mangels, sugar beets, carrots, parsnips or potatoes. These are not recommended so much for their nutritive value as for their corrective qualities. I believe cows are less liable to have garget when fed once a day on succulent foods. Feed liberally; profits lie in the direction of liberal feeding. Dairy cows should have free access to salt. If not, they should be salted at least every other day.—R. S. Clinegan.

#### That "Old Smell"

The correspondent whose butter when fresh made has an "old smell" evidently has a mechanical trouble to deal with, because he has heretofore made good butter. I once had a similar case and found the oil in the coloring matter used was rancid. Again, the same fault came from a barrel churn that was not sufficiently aired and not having a large enough handle. If the fault lies with the cows, you can smell it in the milk when first drawn and waxed. A good dairymen should have a good nose.—Cor. Heard's Dairyman.

#### SUBSCRIBE NOW.

Assist your paper by subscribing; only fifty cents for a whole year. All the up-to-date dairy news.

The Model Creamery and Cheese Factory.

By PROF. H. H. DEAN, O.A.C., Guelph.

Models, or ideals, exist largely in the imagination. Every man has an ideal of what a woman should be, but he has never found it. The model creamery or cheese factory does not exist, even in this good county of Victoria. What and what should such an establishment be? The model factory should be located in a district where there is plenty of pure water and a good soil. Many factors are named, such as not a success to the simple reason that they are not supplied with an abundance of good pure water. Good soil is also required to grow plenty of the best food for the cow with the fewest of labor. Now, you have in this county a good soil, and you have it well watered. You can grow all the crops necessary to feed the dairy cow. You can raise a cow as well as well or perhaps better than we can at Guelph. So it is the plant upon which the dairy farmer has largely to depend to-day. Clover is also a necessary crop, and you will wish that here. Mr. Wm. Remie, Farm Superintendent at Guelph, has a much stock of the importance of growing clover and its place in the rotation. We never know a failure in the crop of clover at the College, and it is only on a very lean and barren soil that clover fails to catch and make a good crop. Peas and oats should also be grown. Every farmer who has cows should make provision to grow next season a patch of peas and oats ready for the drying up of the pastures. Good roads should lead to the dairy creamery or cheese factory. Every man who is interested in dairying should give his hearty support to any movement that will give us better roads.

As regard the patron of the model creamery, the first thing we require of them is that they should be neat and clean in person and habits. I fear that only a small proportion of our patrons have fully imbibed principles which have developed into habits of cleanliness and tidiness in everything pertaining to the dairy. The habit of untidiness too often begins at home with the child. The boy comes home from school and kicks his rubbers into a corner, or into different corner, hangs his coat anywhere handy and drops his hat on the table or the nearest place he can find. There is no method in trailing him into neat habits, and when he comes to look for his things he cannot find them. That is a good way, and what is to be done with you all, my friends? Some of the highest improvements in dairying are being and raising and no method in making his method of doing things. He will stumble over a stick of wood every day in the week and will not think of picking it up, simply because he has not been told to do so. We look to women for a good example in this matter, for men are naturally slovenly, while women are usually neat and tidy. But when you get an untidy woman she is the most slovenly creature in the world. To have a model dairy succeed we must inculcate habits of cleanliness and neatness among both men and women. I fear that the surroundings of our factories and creameries, our stables and barns are every year becoming such as to make it more difficult to make first-class butter and cheese. The atmosphere in which milk or cream is kept must be always pure.

The model dairyman should be a good feeder of his stock. On Monday of this week we got a cow in from a man who lives about seven miles from the Dairy School. I asked the owner if she was a good cow, and he said she was, but that she was a little thin. When we got the cow in we found that she was nearly half starved. The average cow in this country would nearly double her production if fed better. No cow, no matter what her breed, is able to produce her full quantity of milk except she is properly fed. The quantity of milk we get from a cow's udder depends a great deal upon the amount and quality of the food which we put into her mouth.

The patrons of the model cheese factory or creamery should be paid according to the amount of skill and labor they put into their work. Many are so constituted that they generally labor according to their reward. Pay a man fifty cents a day and you need not expect much from him, but if you pay him \$1.50 per day you will find that he will do much more for you. Of course, some men do not look for a reward in cash, but in honor and glory, while others are ready to take everything in sight. We shall never have an ideal factory until we pay the patrons for the thought and skill they bring to their work, and according to the genuine value of the milk they send to the creamery or butter-making. How are we to determine the value? I have no objection in saying that the value of milk for cheese-making depends upon the amount of butter and casein contained in it. The best way to determine the amount of butter fat in milk is by using the Babcock tester. It is not an ideal test, but it is the best thing we have to-day. Now, there is room for some difference of opinion as to the best method of paying money among patrons of cheese factories. Dr. Babcock and other high authorities say that the butter fat alone determines the value of the milk for cheese-making. Others say, "Pay us by the weight of milk and only by that." My own position is in favor of the use of the Babcock test, but we should also take into consideration both the fat and the casein in our early part of the milk. How are we to get at these two factors? To determine the casein in the milk we need a chemical laboratory and a skilful chemist, which no factory can afford to have. But happily we find that casein varies but little in averages about 5 per cent in milk. The fat, casein and fat in the way is usually about four to six per cent of a per cent. Our plan, and one which comes nearest to the actual result, is to add two for casein to the reading of the Babcock test. The effect of this is to increase the premium placed on the butter fat, as in this case where payment by fat alone is practiced. When we add two to the percentage of fat, we have the recoverable percentage of fat and casein in the milk for cheese-making purposes.

The question has been asked: Why have not factories generally adopted this system? Our reason is that some factories will not go to the expense of \$50 to \$70 to ascertain the value of the milk. Another reason is that some cheese makers have a prejudice against the Babcock test. Such makers have not enough money to attend the Dairy School for a short term, or even to get the inspector to come and give them instruction in using the Babcock test. Any good cheese maker could learn how to make the test in half a dozen lessons. Then there are some fellows who are non-progressive, and they want to learn anything new. Too many men are satisfied to pay milk for no other reason than that it has been in circulation in the factory for the past fifteen or twenty years. Then there are some who honestly believe that the Babcock tester cannot tell the amount of butter fat in the milk. Let me assure you that properly handled the Babcock tester can tell very fairly the quantity of fat in milk, and therefore I claim that any factory that will not use this test is standing in its own light. One of our graduates who went to a factory to make cheese said that it used to take 10-12 pounds of milk to make a pound of cheese when he first took charge. He got the directors to buy a Babcock tester, and he began to make tests, and he has now got it down so that he can make a pound of cheese in that same factory from something like 10-12 pounds of milk. In every factory where the Babcock tester is used it takes less milk to make a pound of cheese than formerly. Some people are so weak that they cannot resist the temptation to milk the pump, or let the milk the open milk can stand out in the rain when the good Lord sends a shower. These temptations should be removed from them. This Association has had several men on the road this summer giving instructions in cheese and butter making. I regret to learn

that some of these men have had to spend a good deal of their time with police magistrates prosecuting delinquent patrons. I hold that they would have been much better employed instructing makers, and giving hints on improving factories generally. The general use of the Babcock tester will enable these men to do their legitimate work of instructing, and the industry will make more rapid progress. Paying by quality of the milk, as seen in the fat and casein, will give greatly enhanced desirable condition of affairs.

Milk should be strained before being sent to the factory. If you were to see the sort of stuff that sometimes attaches itself to strainers and other dairy utensils, it would surprise and disgust you. Some people seem to think that cow hals and dirt of various kinds means nothing in milk. I once heard a woman say that she would not eat cheese from a certain factory because she had been there, and had seen the strainer. Milk should be strained immediately after being taken from the cow. In our own practice we use gauze strainers, with four thicknesses of cheese cloth fastened on the bottom with a tin hoop. If you use a cloth strainer by wire that it is thoroughly scalded, or rather boiled, which will dislodge it. Too much attention cannot be given to the matter of straining milk. The milk should then be kept in a clean place, and when waiting for the carrier it should be placed under cover. I have noticed that in some places in those fine cheese counties of Gillingham and Leeds they are building coverings for the milk stands.

The milk should go to the creamery or cheese factory in clean cans, and in clean waggons, for I have known occasions where you could smell the milk wagon before you saw it. Of course such cases are not many, but I hold that one such case of filthiness is too many, because one cannot tell when it may tell against us. The milk wagon should be scrubbed every week or two with lye. The horses that haul the milk should also be clean, and they should be driven by a clean man; and someone has described a clean man as one who washes himself at least once a week. (Laughter.) It is only by paying attention to all these points that we can hold our present position in the cheese market of Great Britain, and if we are to get the inside track with our butter, even more attention must be given than we have bestowed upon our cheese.

The factory itself should be clean. It should have a covered driveway. There should be no old boilers or vats, or earthen sinks, or tumble down wood piles, seen around the factory yard. It is useless for a factoryman to talk cleanliness to his patrons if they can see a dirty factory every time they drive up to his place. Example is better than precept. The factory should be well drained. No bad smells should be permitted about it. In the Black Creek factory owned by Mr. Thomas Ballantyne they run the drainings through the ground about fifty feet away. They lift it to the filtering bed by an injector, and let it drain away to a distant part of the lot, changing the location from time to time.

The model factory should have a competent maker—one who has a Dairy School certificate. Such a man should be paid what he is worth. There are many factories that are losing the wages of a good cheese maker every year, because they will not employ a man who will make a first-class article. A quarter of a cent a pound will pay the wages of a good maker.

At the model factory or creamery only the best supplies will be used. Where there is so much competition in renet and coloring matter the tendency is to cheapen these at the expense of quality. Many makers have had a good deal of trouble this year because of bad renet. I would like here to qualify a statement I made this morning about coloring cheese. So long as people want colored cheese we will have to give it to them. But why do makers color cheese or butter? Is it not practically to deceive the people? However, when the people get their eyes more fully open on dairy

questions, and find that coloring does not add to the cheese they will not want it done. I prophesy that ten years from now there will be very little colored cheese made in this country.

A good curing room is a requisite of every cheese factory. Very few have properly equipped curing rooms. The ordinary box stove is not suited to warming a curing-room. If such a stove is put in the middle of a curing room the cheese near by suffer by some of the butter fat running out. Cheese one foot from a stove will receive four times the heat that a cheese two feet away will. For this reason the curing room cannot be properly heated by an ordinary stove. There must be a good circulation of air. In the ideal curing room the cold air should be brought to the heater and warmed up. The modern cheese-curing room furnace, with openings at the bottom of the casing for cold air to enter and with an extended non-conducting casing to protect the cheese near by, seems to be an ideal heater for a cheese room.

The ideal cheese factory is one in which butter is made in the winter, and I hope the time will come when we will not make a pound of butter on the farm—when it shall be made in the creamery. Then the farmer's wife will be relieved of the drudgery and toil of making butter, for to-day she is the hardest worked person in the land. Let us make cheese for six months and butter for six months in our factories. The model creamery will help to make the model farm home.

A Member: What is a starter? Does all butter need a starter? Mr. Riddick: You can make butter without a starter, but it will take you longer. The object of putting in the starter is to sow a good flavor that will impart itself to the cream in which it is put, and so enter into the butter. A starter is simply a little sour milk of a pure or desirable flavor, which will hasten the ripening and give its own flavor to the cream in which it is put.

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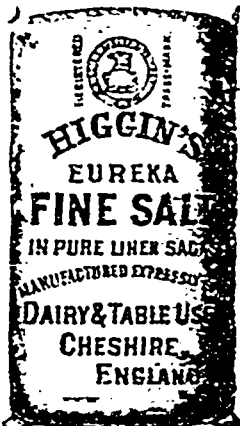
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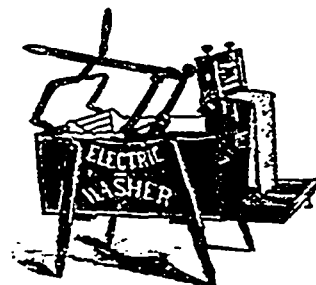
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