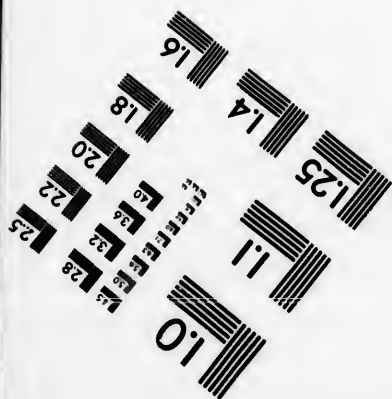
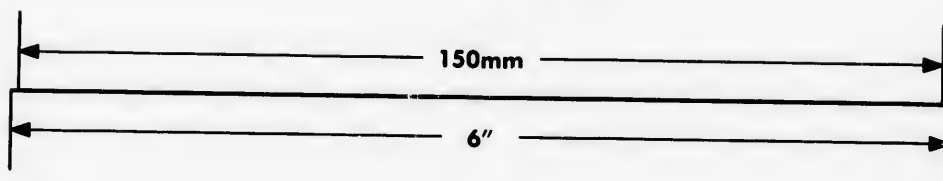
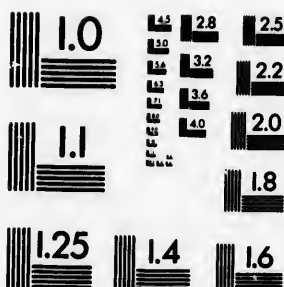
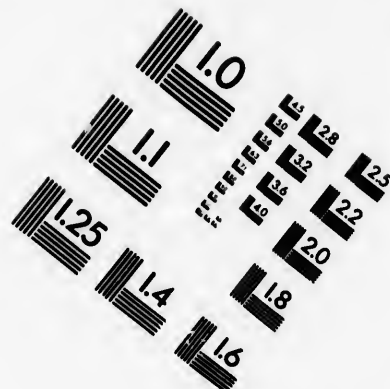
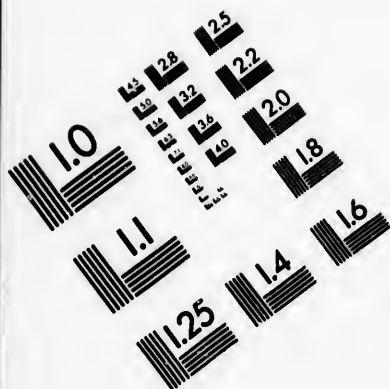


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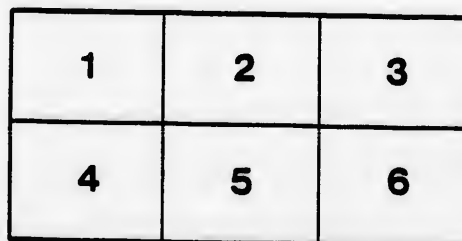
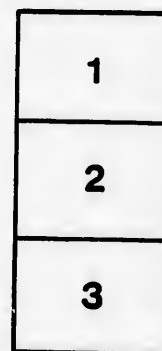
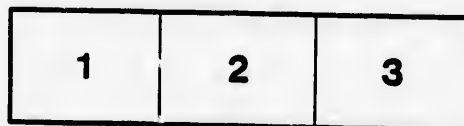
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ONTARIO AGRICULTURAL COLLEGE,
DAIRY DEPARTMENT.

BULLETIN XCIV.

THE CARE OF MILK

FOR

CHEESE FACTORIES AND CREAMERIES

By H. H. DEAN, B.S.A., PROFESSOR OF DAIRY HUSBANDRY AT
ONTARIO AGRICULTURAL COLLEGE, GUELPH.

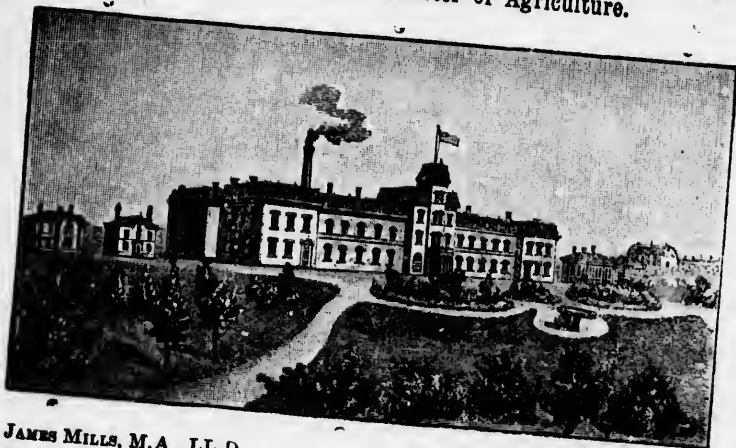
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BULLETIN XCIV.

THE CARE OF MILK

FOR

CHEESE FACTORIES AND CREAMERIES.

That the cheese and butter-makers may be able to make an A 1 article of cheese and butter, it is essential that they be supplied with first-class raw material. It is just as impossible for a furniture dealer to make excellent furniture out of decayed, worm eaten lumber, or the manufacturer of "all wool" goods to make them out of shoddy, as it is for a maker to produce fancy cheese or butter from bad milk.

A cheese-maker of several years' experience said to me recently that the chief faults he found with the milk supplied in his locality were :

1. WANT OF AERATION.
2. LACK OF STRAINING.

In the older cheese and butter sections, these two are doubtless the points chiefly neglected.

AERATION OF MILK.

MEANING : To aerate milk is to put *air into it*, hence the importance of pure air where this is done. Not only this, but aeration implies the driving off of gases that may be already in the milk. These are most easily driven off while the milk is fresh and warm, and for this reason aeration should be done *at once* after milking and *before* the milk is cooled.

(NOTE.—Attention is directed to the spelling and pronunciation of this word. In nine cases out of ten it is pronounced as if spelt ery-ation or air-y-ation, whereas it should be pronounced a-ur-ation.)

IMPORTANCE: The flavor of the cheese and butter largely determines the price. The flavor of these depends, with a competent maker, upon the flavor of the milk; therefore, the price depends, to a great extent, upon the flavor of the milk. This something which governs price depends upon proper management of milk at the farm. Proper aeration will get rid of any objectionable odors that may have come from the cow or food. Where paying by test is practised, aeration and stirring will prevent the cream from rising, and consequently the milk will give a higher average test and one more uniform.

HOW TO AERATE: It may be done by dipping, pouring or stirring or by the use of an aerator. An aerator properly used is a help, but abused, it is a hindrance. Simply running milk through an aerator once after milking without any further stirring is not sufficient. It should be stirred two or three times at intervals of 10 or 15 minutes after being put through one of these aerators and again before going to bed. Not only to improve flavor should this be done, but also to prevent loss of cream in the vats, especially in the fall, when milk frequently stands some time before being set.

Some keep their milk over night in pails hanging on hooks. These hooks are fastened to a strong pole or scantling supported by means of a couple of posts in the ground.

The morning's milk needs aerating as well as the evening's.

AERATORS SHOULD BE KEPT CLEAN: Look out for grease and dirt in nooks and crevices. Do not buy an aerator that is not easily cleaned. One good maker in Western Ontario does not advise the use of aerators at all, for the reason that patrons do not keep them clean.

A good thing for purifying milk may be made by taking an ordinary shallow milk pan made of strong tin. On the outside bottom of this, fasten a handle about $2\frac{1}{2}$ feet long. Punch 8 or 10 small holes in the bottom of the pan. In using, put the inverted pan squarely down into the milk and allow this pan of air to bubble through the milk. When it ceases bubbling, draw out and then insert again. Do this a dozen times each evening and morning. The evening milk should be treated about three times in the foregoing manner, once immediately after milking, then in 15 minutes, and again in about half an hour. Stir before retiring for the night.

STRAINING.

WHEN TO COMMENCE: Straining *should begin before commencing to milk*, by brushing off all dirt, hairs, straw, etc., from the udder, teats and body of the cow. Let it be the duty of some one person to go over all the cows with a soft brush, or a damp cloth, before the cows are milked.

HOW TO STRAIN: An ordinary wire sieve strainer does very well, but we add to this by doubling cheese cloth or thin cotton so as to have four thicknesses. Lay the cloth across the bottom of the strainer and then fasten it on by means of a tin ring which slips over the cloth and bottom part of the strainer. For quickness we use a strainer that a pail of milk may be put into at once. This sits in a wooden frame over the can. Some use a woollen cloth to strain with. Cloth of some kind is necessary to catch hairs and fine dirt. This cloth must be kept clean. Scald it thoroughly each time after using.

WHY STRAIN? Cheese and butter are articles of food to be eaten by men and women. A great many forget this. They seem to think that it does not make any difference what kind of milk is sent to the factory, judging from what may be seen on the strainers of factories. It all goes—well, goes somewhere, and they do not eat it.

OTHER POINTS TO BE OBSERVED.

1. Keep none but cows that will give at least 6,000 pounds of milk or 250 pounds of butter a year. Weed out the poor ones and replenish the herd by raising calves from the best. Send milk to the factory from none but healthy animals. When a cow shows symptoms of not doing well, she should be separated from the rest of the herd and her milk not used for food.

2. Colostrum, or the first milk after calving, should not be sent to make either cheese or butter. Not until the fifth day does the milk become normal. Previous to this it contains a high percentage of albumen, which is of no use to either the cheese or the butter-maker, but is a decided hindrance.

3. In the spring and fall, while the cows are in the stable, it should be kept clean. To keep a stable clean, the following are necessary: Two brooms—a stable and a house broom; tight floors;

land plaster for the gutter; lime for sprinkling around the passages; whitewash for ceilings and walls. Let the men borrow a little white-wash and a brush for an hour from the women this spring, go down to the cow stable, sweep off the cobwebs and dust that have accumulated there ever since the stable was built; whitewash 10 square feet, and then if it is thought to be a waste of lime and labor, don't do any more this spring, but observe the contrast with the rest of the stable. A cow stable is a place for a cow to *live* in, not to exist in. The health of men and women depend, to a large extent, upon the cow; the health of the cow depends largely on her house being properly aired and cleaned; therefore the health of children and men depends in a great measure on how the cow stable is looked after. Aim to keep it as clean and pure as the house. In addition there is need of some handy method of cleaning the stable *twice* a day when the cows are in all the time, and somebody to make use of the things mentioned.

4. While in the stable, cows need currying and brushing once a day. If more time is spent in brushing the cows and less, if necessary, in brushing horses, it will pay better at present.

5. Feed nothing but pure, sweet, clean, wholesome food. Anything which gives a taint or bad flavor to milk should not be given to cows. If a taint or flavor in the milk is caused by the food, it will be at its worst when drawn from the cow; if caused by some fermentation, it will grow worse as the milk is kept. The remedy for the latter is cleanliness. Use scalding water in washing the utensils and strainers. The following foods are prohibited in the dairy: Sour brewers' grains, distillery slops, Swede turnips and tops, rape, sour mouldy silage, musty meal, cleanings from the horse stable, and hay or grass having bad smelling weeds, such as leeks or rag-weed. Allow cows access to plenty of pure water and salt at all times.

6. Milking needs to be done by clean persons. Hands should be washed before commencing to milk. Have a wash basin, some soap, water and a towel in the stable and use them. Clean aprons to put on while milking will be useful. Milk each cow regularly and milk out clean. It will pay to "strip" the cow a minute longer than usual, if you are being paid by test.

7. After straining and aerating, the milk may be cooled for the creamery. For the cheese factory it is not necessary, except during very hot weather. The milk may as well be ripening while the maker is sleeping, as to have him sitting around waiting for it to ripen during the day.

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8. Set the milk can in a place where the air is pure, and in winter where it will not freeze. Milk should be protected from sun and rain. These are good in their place, but poor things to make cheese and butter out of.

9. The milk stand should be 100 feet from the barnyard and from where pigs are fed. It should have a cover allowing a free circulation of air, at the same time preventing the milk from being heated, or allowing rain water to get into it. Rain water is said to spoil the flavor.

10. Milk wagons should be kept clean. The boxes or racks for holding the cans need scrubbing with hot water once a week to remove spilled milk, etc. This is especially necessary where whey is hauled on the same wagon as the milk. The odor of some milk wagons is sufficient to taint the milk. The horses need proper grooming that no odors from them reach the milk. The driver and his clothing should be clean and tidy. Cans of milk protected from sun and dust while on the road will reach the factory in better condition than those without cover.

11. If the can is ten years old and rusty, leaks badly, has a dinged cover, and spills one half a gallon or more milk every day it is sent to the factory, should you continue to use it? Will it not pay to buy a new one?

12. Where possible, insist on the whey being returned in the milk cans. (Sour whey, alone, is an excellent article to keep pigs in good squealing condition). Let it stand in the can until just before commencing to milk, then empty, rinse very slightly with warm—not hot—water. Put the evening's milk at once into this can without straining and aerating. If it gets to the factory before it sours, step into the factory about noon and hear the cheese-maker give an exhortation on gassy curds and whey ("bucky," some call it) flavors. Observe the look on his face which says, "If I get through by 8 or 9 o'clock to night, I'll do pretty well." Come round again in about a month and see the buyer look at the cheese made from the vat into which but *one* can of such milk was emptied, and notice him set this cheese aside for further inspection or a lower price. He may refuse it altogether for export. It will do for the home market and will have a great tendency to develop home consumption.

If the patron who sends milk like the foregoing suffered alone, it would not be so bad; but if it is taken in by the maker out of pity, every patron of the factory has to bear the consequences. This is bearing one another's (useless) burdens.

13. To wash milk pails, milk cans, strainers, etc., they should be first rinsed in lukewarm water, next washed with hot water, and then be scalded, after which, put them in a nice place to air and dry. Do not wipe dairy tinware with a dishcloth. Make a bonfire of all the old dishcloths that are used for wiping dairy utensils and the flavor of the milk will go up 10 per cent.

14. Milk should be sent to the factory of the same quality as given by the cows. Nothing should be added to the milk and nothing taken from it (except bad odors). Removal of cream, keeping back "strippings" or skim milk, or "first milk," should be prohibited. It is as great a crime to keep home skim-milk, or the "first milk" from a cheese factory as it is to keep home cream or "strippings." Adulterated milk is milk to which anything has been added, or from which anything has been taken. Persons offering for sale such milk should be prosecuted.

15. The patrons having done everything to supply the makers with good, pure milk, it is the duty of the factoryman to make first-class goods. Patrons! step into your factory occasionally and see that everything is neat and clean in and around it, and that there is good cheese or butter on the shelves or in the store-room. If it is not so, ask why, and if the defect is not remedied, insist on a change of maker next year.

