

The Dairy.

Heating Bad Milk.

One of the principal subjects discussed at the Dairyman's Meetings last year was the feasibility of heating milk that was set for cream but was suspected of some taint or odor. It was advanced by some good authorities, Mr. L. B. Arnold being chief, that the milk would thus be rid of its volatile impurities, that the germs which caused fermentation would be killed and that better butter would be got than by the old style. During the summer, Mr. Arnold was at Elgin, Ill., and while there he was asked to exemplify his heating theory. The *Utica Herald*, from which we are quoting, gives this account of the experiments:—Two vats of milk were taken. One was treated in the ordinary way the other was heated to 130°. Both were allowed to stand 36 hours. The vat treated in the old way kept sweet until the expiration of the time, and the cream skimmed from it yielded 60 lbs. of butter. The heated vat was sour in 24 hours, and at the end of 36 hours was a "frothing, foaming mass," and 48 lbs. of butter were made from the cream. These, in brief, are the facts of the experiment in heating milk for butter making. Upon the face of the matter, it appears to be an overwhelming verdict against the heating theory.

Where Does the Meal Go To?

In the CANADA FARMER for June was an account of experiments which tended to upset the generally received notion that meal fed to cows passes, not into the first stomach, but directly into the fourth or true stomach. Mr. L. W. Miller, of Chautaugua Co., N. Y., has been investigating the subject thoroughly in connection with his theory and practice of feeding meal alone. His results confirm other observations that the meal lodges in the rumen just as does coarse food, and does not pass directly to the fourth stomach, as Professors Arnold and Stewart concluded from their dissections. Mr. Miller writes:—

I have just slaughtered an exclusive meal diet beef, and examined the contents of the several stomachs, feeding meal immediately before killing. I found none of the meal fed in either the manfolds or the fourth stomach, but all, or nearly all, lodged in the rumen, where I found an accumulation of several days' diet. I should judge from five to seven. In the fourth stomach was a quantity of meal, I should judge about the amount I had been in the habit of feeding at one time, in an advanced stage of digestion. This is probably the first animal ever slaughtered upon an exclusive meal diet, and the evidence is overwhelming as to the passage of the meal into the rumen and its subjection there to the law of rotation which governs that organ in the article of coarse food."

Mr. Miller admits that if cows were fed meal while their first stomachs were already full of coarse food, some of the meal might go directly to the third and fourth stomachs, and he thinks also the death-struggles of animals previously experimented upon may have caused some of the meal to be pushed into the third and fourth stomachs. But he regards his experiments as conclusive upon the point that meal fed alone always goes into the first stomach, and undergoes the same processes as other food is subjected to

How to Milk.

The first requisite to good milking is that the cow be kept where her sides, teats, and udder shall be clean and dry. In the summer, when cows are grazing, this is easy, but in the winter when they are stabled, it requires some attention and effort to keep them clean. But it can, and always should be done with cows which are milked. Some advise washing the udder before every milking. This is all nonsense, except in accidental cases. A cow's bag has no business to be at every milking in a condition to require washing, whether stabled or not. The man who keeps his cows so filthy as to be habitually subject to this necessity has failed, not only in the initial step to good milking, but in the first essential to neatness in dairying. The udder of a cow is not likely to become filthy without involving other portions of her body. If it were necessary to wash her bag, it would be equally so to wash her sides also.

Milk is a very powerful absorbent, and if there is filth upon or near her, the scent from it will infect the milk, to say nothing of the danger of getting filth into the pail.

The next requisite is that she shall be where she will be comfortable and free from any annoyance or excitement. This is essential to her "giving down" perfectly. A cow's bag, is interspersed with delicate muscles so much under the control of her will that she can easily contract them and hold back a portion of her milk. There are but few cows which can long "hold back" the milk of a full udder, but it is very easy for them to hold back whenever there is but little in the bag, as at the last end of the milking; and this they are very sure to do if there is anything unusual to disturb or excite them, as loud talking, being milked by a stranger, or even his presence. I had my dairy of twenty cows fall short in their yield a painful milk several times one Summer simply from a neighbor's dog following into the milking barn when I was milking, my cows not being accustomed to the sight of a dog.

Assuming that the cow and her bag are clean and dry, and that she is comfortable and quiet, the milker should sit down gently on a firm stool, and with a light and careful motion brush the teats, udder and side of the cow next to him, to free them from any specks of dust or dirt or hairs that would be liable to fall into his pail. A tin-pail with the top wider than the bottom is the best vessel to milk in. Let this be held firmly between the knees, with the bottom resting on the ankles, as this is the safest and best way to hold a pail to protect it against any sudden motion of the cow. If the bag is much pendant, and the cow is very gentle, there is no objection to setting the pail on the ground. Let the milker now grasp the teats with his whole hand, and by a firm and rapid but steady pressure crowd the milk out by closing the fingers next to the udder a little in advance of those below, being careful not to hurt the cow by pinching her teat between the ends of his fingers and his hand, or by pressing his finger-nails into the teat as his hand is closed. Milk the left hand teat with the right forward one, and the right hand with the left forward, always holding the left wrist firmly so as to be ready instantly to crowd the cow's leg back if she should attempt to kick or step suddenly forward. The milking should always be done with dry hands, both on account of cleanliness and for the sake of keeping the teats in good order. If the teats are too dry and inclined to crack, they may be wet after milking with a little of the strippings, or with a little linseed oil or other soft grease. The hands should press alternately and not both at once; and when milking is once begun it should go on as rapidly as it can consistently with the comfort of the cow and the strength of the operator, and without any cessation until the milk is all drawn, otherwise the cow will get out of patience and hold back the last part of her milk.

The milk in the udder is contained in branching tubes and in numerous small cavities distributed through it, the tubes coming together just at the upper end of the teat, and forming a single constricted channel, which is inclined to keep closed, and is nearly equivalent to a valve. Toward the close of the milking a little pulling down as the teat is pressed, works the milk out of the little cavities by stretching and flattening them, and at the same time pulls open the constricted channel to let it flow through. This pulling down must be gentle and moderate. As done by the calf in sucking it is just right. If the teats are pulled too hard, the severe stretching of the walls of the passage at the upper end of the teat causes them to pull up and thicken, so much as to impede the flow into the teat, and often stop it entirely. For this reason the practice of stripping the milk out by pulling down with the thumb and fingers, and letting the teat slip between them as the milk is driven out, is not a good practice. It often causes the passage at the top of the teat to pull up and close, as just described, and to make the thickening of the walls apparent by a hard bunch which feels like a kernel of corn. The stripping method pulls too hard.

To get out the last drop of milk is an important means of keeping up and prolonging the flow. Nothing will dry up a cow faster than to leave a part of her milk in her bag at each milking. It will often aid in getting that important drop to clasp the lower part of the udder, or so much of it as can be taken in, and slide the hand down gently pressing, so as to help crowd the milk forward, till the hand comes to the position of grasping the teat, and pressing the milk out. All this should be done as expeditiously as possible, as the quicker the milk is got out, the more perfectly it can be drawn.—L. B. Arnold, in *N. Y. Tribune*.

THE YOUNG HEIFER.—So far as it can be controlled, the period of dropping the first calf should be arranged to take place in the month of May and June, so as to induce the largest possible flow of milk, beginning about the second week after calving, when the grass is green and succulent. The milk glands are now in condition of growth to be easily influenced by food, and a greater development of the mammary or glandular system takes place than if the animal came in on dry food. This for the young heifer is extremely important, as it will not only secure the largest possible flow of milk at that age, but create the capacity for large secretions all through the life of the animal. A cow coming in the first time in May or in June will be worth a good deal more than the same cow would be to come in at any other season.—*Ex.*

Concerning the Ear Marks of Butter Cows.

Hon. John Shattuck, a noted butter dairyman of Chenango County, N. Y., said, at the late Convention of the New York State Dairymen's Association, that he had found the color on the inside the ear to be one infallible guide in the selection of a good butter cow. If the skin on the inside the ear is of a rich yellow color, the cow was sure to give a good quality of milk; that is, milk rich in butter. He said in all his experience he had never known this sign to fail. Mr. J. W. North, in the *Maine Farmer*, gives some further information concerning the subject. He observes that cows producing very high-colored butter have a large amount of the ear secretion, in many instances the whole internal surface being covered with a thick, orange-colored oily matter; on the other hand, the light-colored butter-makers present a scanty, thin and pale yellow secretion, in some cases found only at the bottom of the ear. His theory is that every animal has the power of secreting a certain amount of this yellow pigment. If the quantity be sufficiently large, secretion will take place freely in the mammary glands, the ear and skin. If, however, the production be limited, the tendency may be wholly toward the milk glands and ear, causing the animal to exhibit a pink hide, or the skin may be almost the sole avenue of escape from the body, the butter in consequence being light-colored; or there may be so little coloring matter evolved, as to furnish none to the skin, and a very scanty supply to the ear and milk. In selecting Jersey cows, in order to judge in regard to the color of their butter, he recommends the ear to be inspected.

Dr. Sturtevant, in his recent address before the Connecticut State Board of Agriculture, alluded to this color of the ear in selecting cows, but he thought some caution should be observed in clearing away the secretion that may have accumulated on the skin, so that the true color of the skin on the inside of the ear may be seen. Otherwise the accumulated secretion, if taken for the true color of the skin inside the ear, would deceive, as it might be darker, or exhibit a deeper color than that of the true skin. He regarded the color of the ear as a good guide in respect to the color of the butter which the cow would yield.

DAIRY STOCK RETROGRADING.—Dairy cattle are generally inferior. Very good cows are the exception. There seems to have been a retrogression during the last thirty years. There has been too little breeding especially for milk. There is a necessity now to the dairyman for a breed which shall combine the good points in all existing breeds. The milk product could be increased one-third by thus breeding. The advantages are greater now for selecting the best animals than formerly. There are signs by which we can discriminate. There are poor cows in every breed. If the best cows for milk should be selected from each of the breeds, there would be found not a great difference between them. There are native cows as good as any, but take a dairy made of natives, and the average would not be as good as in a dairy of Ayrshires or Jerseys.

GOOD AND BAD COWS.—The difference between a good cow and a poor one is not generally appreciated. Often more than otherwise the price at which cows are bought and sold is made to accord with the amount of milk they will give. But this is not a sound way of estimating their value. Beef cattle may be estimated by the pounds of beef they will make. A bullock that will make 500 lbs. of beef, may be worth half as much as one that will make 1,000 lbs.; but the cow that produces only 100 lbs. of butter a year is not worth half as much as one that will make 200 lbs. in the same time. As it will take the former cow two years to make as much butter as the latter will in one, she will cost the owner a year's keeping more than the other cow will to get the same amount. The butter from the poor cow costs double what it does from the good one, and is produced at a ruinous rate to the farmer. Such a cow will not pay the cost of keeping, and is only fit for the shambles. She ought certainly never to occupy a place in the dairy.

HOW MUCH FOR AN AYRSHIRE BULL.—A young dairyman writes to the *Live Stock Journal* to ask if it will pay him to give \$150 for an extra Ayrshire bull for a herd of thirty cows. He gets this reply:—Let us see what the basis is for this extra price. Suppose you get fifteen heifer calves from your herd. These you would, of course, expect to keep, and if a good two-year-old heifer is worth \$14 more than a poor one (and who does not think the difference more than this?) then the calves of the first year would wholly reimburse you for the whole price of the thoroughbred. But you have still got him, and he is worth more the second year than the first. Suppose you keep him four seasons, and that during that time you get fifty heifers from him, it would cost you only \$3 per head extra. We make no account of the bull calves, because grades should never be used as bulls. We have not counted his use for your neighbors, but for this you might probably get nearly enough to pay his keeping. You should remember that "like produces like," and never allow yourself to be betrayed into the use, for breeding, of a poor animal, because he is cheap. It will always prove a "dear" investment, in the end.