

drainage on the hillsides is just as important as on the levels. I may say, Mr. Editor, that I believe the people generally are waking up more than ever to the importance of better roads. They are coming. Keep up your campaign.

T. G. RAYNOR.

EXPERIENCE WITH CEMENT FENCE POSTS WANTED.

Most of our readers will remember the article published on page 361, in "The Farmer's Advocate" of March 8th, 1906, describing the making of reinforced cement-concrete fence posts. We believe these have been tried by a number of Canadian farmers, and wish to publish a number of short letters from those who have used them, covering such points as methods of construction and setting, serviceability and cost, compared with wooden posts.

THE DAIRY.

TWO METHODS OF SKIMMING.

There are two forces known to man that can be used for the profitable skimming of milk. One is gravity—the old-time crock, pan or can setting system in use ever since man learned how to milk. Gravity is the force that pulls every object downward—the force that gives all things weight. When milk is set in pans, crocks or cans, the force of gravity pulls down on every particle of skim milk or cream the crock, pan or can contains. But this force of gravity pulls harder on the skim-milk particles than on the butter-fat particles, so that we say skim milk is heavier than cream, bulk for bulk. In consequence of this difference in weight, or pull of gravity, the skim milk settles down and the cream is squeezed up. But not all the cream is squeezed to the top. Some of it fails to rise. There is a reason for this.

When milk is set away in pans, crocks or cans it begins at once to grow stale. One of the constituent parts of milk is the casein or cheese part. The instant milk begins to grow stale, this casein or cheese part begins to coagulate or thicken. It first forms a sort of invisible net or web all through the milk, and this web grows gradually thicker and thicker until it forms the solid curd or clabber of sour milk. This web cannot easily be detected until it has become very thick, but it is there, even though we do not see it. As this web forms it entangles and holds fast many of the butter-fat globules. The force that skims the milk must be strong enough to pull the entangled fat globules out of this cheesy net, or a considerable portion of the butter-fat will be left in the skimmed milk and be lost. Because it is weak and slow, gravity must be allowed, say, twenty-four hours, to skim a batch of milk. And all that time the milk and cream are standing round taking up odors from the air, growing stale or sour, and the fat-entangling casein web is getting in its work to your loss. The result is bad in every way. The loss of cream sometimes amounts to from one-quarter to one-third, and possibly more in very warm weather; the other portion is left in the skimmed milk and goes to make six-cent pork or veal, instead of twenty-five to thirty-five cent butter. The cream that is secured will be off flavor, the butter will show the effect, and stale or sour skimmed milk is not the best sort for your young stock, even though such milk be warmed before feeding. In this way gravity causes the dairyman a great falling off in quantity and quality of butter, and in the value of the skimmed milk. This figures up a heavy cash loss in a year.

Gravity entails needless work upon dairymen. There are all the pans, crocks or cans to be filled and set away twice daily; later, they must all be brought out, skimmed, emptied and washed; also, the cold skimmed milk must be warmed before feeding if the farmer desires to avoid bad results in his calves. All this takes time and strength—both of which should count as part of the expense of operating the dairy.

But how about the other and newer skimming force—centrifugal force? How does it work? How strong is it? What does it accomplish that gravity fails to do? You have often watched mud flying off a running wheel; you have doubtless frequently whirled a pail of milk or water about your head without spilling a drop; you have probably tied a stone to a string, whirled it about a few times, and sent it sailing much higher and farther than you could throw it with your arm. Centrifugal force did the work. It is the power that makes whirling bodies pull away from the center about which they are whirled. When a vessel containing milk is rapidly spun around, top like, centrifugal force is generated and pulls outward on the particles of skim milk and cream. But centrifugal force, like the force of gravity, pulls harder on the skim-milk particles than on the cream particles, so that the skim milk is drawn outward against the sides of the vessel, and the cream is squeezed inward toward the center. Add to this spinning receptacle proper driving mechanism and proper tubes for drawing off the skimmed milk and cream into separate vessels, and you have a centrifugal cream separator—a machine that separates cream and skim milk by the use of centrifugal force.

The most interesting and valuable characteristic of centrifugal force is this: its strength or power can be increased as greatly as necessary, requires. That is the great advantage centrifugal force has over gravity.

changeable weak force of gravity. Centrifugal force can be made strong enough to do perfectly and almost instantly what the force of gravity does incompletely and slowly. Centrifugal force is so great that it can wring practically the last drop of cream from the milk so quickly that the skimming of the entire milk from an ordinary herd may be finished, the single can of cream set away to cool and the skimmed milk fed to the calves before the skimmed milk can grow cold.

The gradual growth of the casein web which so seriously interferes with gravity systems does not interfere with centrifugal force. This great force easily breaks up this web in stale, cold milk and rescues the imprisoned butter-fat particles.

So what will you gain in dairy profits by using centrifugal force, as applied in the centrifugal cream separator, instead of some gravity system in the form of pans, crocks or cans?

(1) A skimming force which may be made ten thousand times as strong as gravity.

(2) A possible gain of one-quarter to one-third—sometimes even more—in the quantity of butter you get from the same amount of milk under the same conditions, depending upon the separator and how used.

(3) A gain in butter quality that will run from one to five cents per pound, according to local conditions.

(4) You will have fresh, sweet skimmed milk, still warm with the heat of the cow, which will be much better for your young stock than the stale, sour or diluted skimmed milk from pans, crocks, cans or creamery.

(5) You will have a single can of cream to set away or haul to the creamery, instead of several crocks, pans or cans of whole milk to care for, and your trips to the creamery will be decreased by at least one-half.

(6) You will require less storage room, less ice and practically no pans, crocks or cans, thereby greatly reducing the cost and labor of handling milk and cleaning milk utensils.

The man who hauls his whole milk to a creamery and carries the skimmed milk back gives his own time and the time of his team and wagon in making his daily trip. Every addition to the load he hauls sinks his wheels so much the deeper into the mud, or wrings the sweat so much the more freely from his horses. He must haul one load each way every day, and then the man who takes skimmed milk home from the creamery gets a stale article, diluted with washings, which may be the means of introducing into his stock tuberculosis or some other disease which afflicts some neighbor's herd.

MILKING-MACHINE PROSPECTS.

H. H. Lyon, writing to Hoard's Dairyman last month from New York, thus summed up the question of milking-machine prospects:

"Milking-machine gossip is about as usual. There is much of a tendency to discredit the small machines. The foot-power machine has been tested by quite a number about, and has in every case, I think, been discarded. The hand-power machine does not inspire any confidence. The Globe machine is now admitted by its manufacturers to be an infringement upon the Burrell, and is controlled by the Burrells. In two cases of which I heard, the Globe has been taken out. The Lawrence-Kennedy-Burrell machine seems to be the one now which must sustain the reputation of milking machines, if they are to be sustained.

"It is true that one or more of the others may yet come to the front with a claim of efficiency, but the public in this vicinity is not looking for it to be done. The next few months are likely to tell considerable of a story regarding the real claims of the machine that people are still looking to for success. Fortunately, many of the tests are in the hands of men who will be able to make them very thorough."

AFTER COLD FACTS.

Editor "The Farmer's Advocate":

I have been keeping cow records since 1906. It takes only a few minutes each day. I have a spring scale and blank forms tacked on a board and hung on a nail. I started because each year, in my business as a smith, I take stock and balance the year's accounts. I wished to know what my cows were doing for the year—not as I hear my neighbors saying, this cow gives two-thirds or three-quarters of a pail of milk. I cannot get any solid true facts about that, but scales and Babcock test tell the tale correct. You are interested in your cows, and detect a shrinkage at once, and enquire the cause, and in most of cases learn the cause.

A. D. MURRAY.

King's Co., N.B.

SWINGING STANCHIONS WITHOUT STALL PARTITIONS.

Editor "The Farmer's Advocate":

With two years' experience stabling dairy cows with swinging stanchions, I am quite well satisfied without stall partitions, but want separate mangers, so I may know what each cow eats. I am overhauling more stables, and fitting them with stanchions, without partitions in stalls, but with separate mangers for cows. For feeding would be required.

ANSON GROH.

Washington, Co., Ont.

VALUE OF A GOOD DAIRY SIRE.

Everyone is familiar with the saying that the sire is half the herd. This is literally true, writes Professor Wilber J. Fraser, Chief in Dairy Husbandry in the University of Illinois. That is, of the qualities bequeathed to the calves the male parent furnishes half. The cow influences the character of but one calf a year; the bull passes on his personality to many calves, to all the calves of a herd of ordinary size. When he is chosen, half the character of all the calves is determined. In a herd of forty cows his influence is as much as that of the whole number of cows taken together.

If he is of stronger prepotency than most of the cows—that is, able to transmit his qualities more surely and strongly to the progeny, which is usually the case with a well-bred sire—then the bull represents more than half the herd. In that case more than half the characteristics of the calf, or the stronger and predominating half, come from the sire.

Now if the sire, as an individual and in his pedigree, is superior to the cows—and this will be true where a pure-bred sire is used on a grade herd—the characteristics he transmits to the calf will be of more value (of higher quality or greater quantity) than those that come from the mother, and in this sense also the bull will be more than half the herd.

If the sire is kept with the same cows several years, each year he starts out a generation of calves more than half of whose qualities and strength were transmitted by the sire. This single step is a great improvement. But his successor, of similar type and breeding, mated to those improved heifers, carries the improvement forward another step, fixing the qualities and the power to transmit them more surely and strongly, carrying them to a higher degree and eliminating defects that have come from the mother's side. From generation to generation the succession of well-selected sires goes on increasing and intensifying the improvement of the herd. In this way the sire becomes three-fourths, seven-eighths, fifteen-sixteenths, etc., of the herd. In fact, in a few years the sire is practically "the whole thing."

So the sire may be much more than half the herd whether judged by the strength, quality or accumulated effect of the characteristics he transmits. It is literally true that the sire may thus, within a few years, at slight expense, completely transform a dairy herd and more than double its profit.

A GOOD BUSINESS PROPOSITION.

One can obtain a fine dairy sire for \$150, and forty grade cows for \$45 each, or \$1,800. Then a good bull costs only one-thirtieth of the investment; or, in other words, one-thirtieth of the investment is so placed as to exert more influence in the improvement of the future herd than the other twelve-thirtieths of the investment. Isn't that a good business proposition?

Won't the extra \$100 put into a good sire be better spent than any other \$100 invested in the herd? Forty-one animals are purchased. The purchase of one animal will influence the succeeding herd more than the purchase of the other forty animals. Isn't it worth while then to give some extra time and study to the selection of that one, the sire?

THE SIRE AND THE MILK RECORD.

In breeding for improvement, the milk record of the sire's female ancestry is of just as much importance as that of the ancestry of the cow with which he is mated—is of more importance if the sire's ancestry has a better milk record.

And the good dairy sire, pure-bred, is almost certain to have a line of dams with a superior milk record; they have been bred for that very thing. Whether or not these dams have been tested, so the actual figures can be given, they are far more likely to have been high-producing cows than are the dams of the grade cow. One of the very greatest things to secure for the heifer calf is the inheritance of a large capacity for milk production, and this comes from the mothers in both lines of ancestry.

The calf will be much more certain of getting a high degree of this quality through an improved sire than from a grade mother. A high milk record in the sire's ancestry affects all his female progeny—all the next generation in a common-sized herd. But such a record in the cow's ancestry can affect but one calf a year (and not that many unless they are all heifers).

ABSOLUTELY PROVEN.

And in general as to all the good qualities that it is desired to transmit, it should be clearly recognized that these may be secured far more surely from the pure-bred sire than from the general run of grade cows. Nothing is more certain than this. But all that is here urged for the great value of proper breeding is no excuse for a poor or weak animal, simply because he is pure-bred. No pure-bred bull is fit to head a dairy herd unless he is also a thoroughly good and strong individual, exhibiting in himself the typical characteristics and high qualities of the breed.

Every man who has had any extended experience or observation in the use of a good pure-bred sire from high-producing dams at the head of a dairy herd, will agree that this sire was of peculiar value and great economy in building up the herd. The records of dairy breeding have proven it conclusively a thousand times over. No man who studies the facts can doubt it. The evidence is to be seen in the heifers of every such sire, and in their contrast with heifers lacking such percentage.