

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; you have read how David slew Goliath, the Philistine giant, with a sling; you may have watched the automatic steam regulator which controls the steam supplied to various sorts of steam engines; in each instance, centrifugal force did the work.

Centrifugal force 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 of 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 necessity requires. That is the great advantage centrifugal force has over the unchangeable 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.

Imagine the great advantage to you of a skimming force ten thousand times stronger than gravity. The centrifugal cream separator is said to exert upon milk a centrifugal force actually ten thousand times stronger than the force of gravity. This amount of centrifugal force is so great that it can easily wring 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.

This centrifugal force being actually ten thousand times stronger than the force of gravity, does thoroughly, and almost instantly, the skimming that gravity would do but imperfectly in twenty-four hours. The gradual growth of the casein web, which so seriously interferes with gravity systems as to cause them often to leave one-quarter to one-third the butter-fat in the skimmed milk, does not interfere with a centrifugal force ten thousand times stronger than gravity. This great force easily break 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, the amount of force depending upon the make of cream separator you select.

(2) A 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, the amount of increase depending upon the kind of separator you select.

(3) A gain in butter quality that will usually run from five to ten cents per pound, according to local conditions, the increase in quality depending partly upon the simplicity of the separator you select.

(4) You will have fresh, sweet skim-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.

Do not make the mistake of thinking that the man who hauls his whole milk to a creamery and carries the skimmed milk back has solved the problem, for this man gives—wastes would be truer—his own time and the time of his team and wagon in making his daily trip. Every pound added to the load he hauls sinks his wheels so much 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. In addition, 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.

N. N. SPEAR.

"More tuberculous meat walked into Glasgow in one week from other parts of Scotland and Ireland than was carried into the city in one month from America. It ought not to be so."—*Scottish Farmer*.

Prof. Oscar Erf on the Milking Machine.

We have made a very thorough investigation in the milking machine line. As you probably know I have been interested and working along this line for some time, and can say that the milking machine is practical when in the hands of a competent man, and with cows that are adapted to the conditions.

There are some cows that respond to machine milking better than hand milking, while the reverse is true of others. The per cent. of cows that do not respond is indeed very small. Out of 465 cows we have tried this last summer, about four per cent. held up their milk. We have found it to be the case that some cows will positively dry up, when milked by the machine.

For average conditions, such as are found in Kansas, we find the machine very practical, in spite of the fact that some cows do not respond. The milking machine is doing a little better than the average hand milking, although it does not do so well as a good milker. However, in connection with this, the operator has much to do. We have a Japanese student, who has proven himself to be very efficient in this respect.

He soon learned to operate the machines here and operated them quite successfully. I had so much faith in the milking machines that I introduced them on our home farm in Ohio and sent this student there to operate them for several months.

We found a marked increase in the flow of milk when the cows were being milked by a machine and this continued until this gentleman left it in the hands of his assistant. We immediately found a marked decrease in the flow of milk. On his return the cows again resumed their old place. We have experienced the same thing here at our institution. The chief point we have not been as yet able to determine is the effect of the machine on the cow in the future period of lactation. We have now several cows which have been milked the last period of lactation with the milking machines and have recently calved. In three instances out of four we find a marked increase in the flow of milk over the same time in past periods of lactation. One cow retains about the same capacity. We are not ready yet to say, absolutely, what effect the milking machine will have upon the future period of lactation, but from our present knowledge we do not anticipate any serious difficulties.—*Kansas Exp. Stat.*

POULTRY

Care of the Young Turkeys.

Those who raise poultry for profit usually have at some time or other tried raising turkeys. Some have found them very difficult to rear; in fact we might say all have found them very difficult to rear and while some quit disheartened others kept on perhaps having a reasonable amount of success and realizing that the price being very high for dressed turkey it did not take very many to make them profitable. For leaving out the fact that a great many young turkeys die in the first few weeks, a mature turkey is one of the most profitable of domestic fowl, especially on our large prairie farms where they can get so much free range and glean a great deal of what

would otherwise be lost. The most peculiar thing about turkeys is that although they are exceptionally delicate when hatched they almost always hatch without trouble and usually a chick or poult in every egg. They are very fertile. We have come to the conclusion that lice and indigestion are the two greatest evils to contend with. Young turkey cannot live where lice are and you cannot be too careful in feeding. One year we took a flock of about forty to raise and raised every one until about three months old. Then several got killed in a thunder-storm. We took a very light form of food and fed it without a change, sour milk made into clabber cheese and plentifully sprinkled with pepper. For green food we chopped onion tops, all they would eat, and they usually eat a lot. We find a hen the best to brood young turkeys, as the hen turkey almost always drags them too far. Always keep them out of the early dew and be sure and not let a shower of rain catch them out until well grown. Feed as above; be liberal with the insect powder and you will perhaps raise more than heretofore. After the turkeys are about three months old they are very hardy and will forage most of their living and pick up a great deal of what would otherwise go to waste.

H. E. WABY.

Horticulture and Forestry

Transplanting Large Trees.

The directors of the Old Leuckenberg Botanica Gardens, in Frankfurt-on-Main, Germany, having to remove their quarters, have requisitioned the services of Mr. William Barron (of the firm of William Barron and Son, of Derby) to superintend the transplanting of a yew tree about 300 years old. As the tree is about fifty feet high and forty feet through, with a trunk eight feet in circumference, necessitating the transport of a block of earth with the roots about fifteen feet square and eight feet deep, the task is not an easy one, especially as this huge tree has to be aken right through the town in an upright position. Amongst other ancient trees successfully transplanted are the celebrated "John Knox" yew at Finlaystone, near Glasgow, moved by Mr. Barron's father in 1900, and the "Buckland" yew near Dover by his grandfather, in 1880; the latter tree is over 1,100 years old, and mentioned in Doomsday Book.

A Celery Humbug.

P. T. Barnum, the great showman, once said that people loved to be humbugged. Whether or not this may be so, there are always plenty who are willing to try it for a financial consideration. Probably no class of people are more victimized by this humbugging than the tillers of the soil.



THE McDONALD FRUIT RANCH.

Six Miles from Nelson, B. C.