

that a careful and intelligent oversight be had of the work. Skim milk and buttermilk should be tested in double-necked bottles. At the Western Dairy School we find the Wagner bottle the best we have yet used. About one-third more acid should be used for skim milk than for whole milk. The reading of tests of skim milk and buttermilk would indicate the actual content of fat much more accurately if the spaces on the neck of the bottle be read as one-tenth of 1 per cent. than if read as one-twentieth. Gravimetric analyses prove this. We are quite sure that when operators at factories and others tell of skim-milk tests of .06, .04, .02, and suchlike, that in nine cases out of ten the actual content of fat, if left to the work of a skilled and well-versed milk-tester, would show results very much higher. When testing cream the weigh scale and not the measure should be used.

Patrons and Per Cent. of Fat.—When any patron is dissatisfied he should repair to the management and not to his neighbors nor to his fellow patrons. It is to be remarked that it is very rare to receive complaint from a patron when his test goes up, but always when it is down. Surely this is peculiar! Are not mistakes as likely to result in too high a reading as too low a reading? But "the best cow is just in." Yes, and by what method has this "best cow" been determined? Usually by guess, seldom, if ever, by accurate methods. "My cows are on better pasture and the test should be up." Not necessarily, by any means. "My treatment is exactly the same as it was, and why should my test be down?" This may be difficult to explain without all the facts, or even with them, but not more difficult than if the test had been up. When a patron takes a sample of milk from the can and has it tested by the operator of a rival factory and the resulting test is higher than his previous monthly test—strange to say (?), a frequent occurrence—this is no proof that the monthly test was wrong. Indeed, such test is valueless for the purpose intended. We know there are a number of incompetent persons operating the Babcock test, and patrons have a right to make a noise, and a big noise, in such cases, but as a rule the less patrons know about milk testing the more they find fault if their test is not just to their liking. The writer strongly recommends all patrons having an interest in creamery and cheese-factory operations to attend their nearest dairy school and learn something about testing.

Cream Separation.—The machine is the great one matter to be considered. Some machines cannot be made to skim properly by any possible skill of operation. The writer is quite convinced that this question of skimming power is not given one-half the consideration among buyers of separators that its financial meaning warrants. Consider these figures for a moment:

A, B and C are three separators, each skimming 10,000 lbs. daily. Tests of skim milk are as follows:

A—	77 of one per cent. fat.
B—	15 of one per cent. fat.
C—	2 of one per cent. fat.
Butter-fat.	Butter.
Daily loss—A—	7 lbs. 7.7 lbs.
B—	15 lbs. 16.5 lbs.
C—	20 lbs. 22.0 lbs.

Allowing that the work of A represents first-class skimming—and it does—then the daily loss by B=16.5-7.7=8.8 lbs. @ 17c.= \$1.49, and the daily loss by C=22.0-7.7=14.3 lbs. @ 17c.= \$2.43. To all prospective buyers these figures will pay for thought. They are the results of a personal oversight and observation. They mean something. And they are not imagination merely, but fact. They are taken from actual everyday operation of cream separators. Among other things, they mean that a factory operating machine A would make enough money in one year, over and above that possible by B, to buy the best power separator offered for sale in any Canadian supply house. But enough.

Losses in skim milk often occur through the fault of the machine not being properly set and operated. Vibration of the machine, overfeeding, speed not high enough, and in summer time "clogging," each and all tend to result in poor skimming. The first three can be rectified. When a machine "clogs" during the morning's run it should be stopped and the bowl cleaned. Carelessness in this matter means serious loss to many creameries. All careful and reliable operators will test the contents of the separator bowl to know, not guess, whether or not enough water has been run through to ensure the complete flushing out of the cream at the close of the run.

Heating Milk.—Milk should not be heated higher than eighty-five to ninety degrees unless a special cooler is available for cooling the cream. It may be partly heated in the receiving vat and finished in the tempering vat, which latter should be of liberal capacity. The tempering vat should be filled with water and the heat turned on before any milk is pumped in. This will make easier the cleaning of the vat, and ensure the first milk being sufficiently heated. It is known that cream separates better from milk at high temperatures than low, and many suppose that this is due to the effect of heat upon the specific gravity of the serum and the cream of the milk respectively. According to the laws of physics, however, this effect is so slight that it has little bearing on this question. The reason lies rather in the fact that the cream, or the fat, is really not heated to the temperature shown by the milk. For example, when milk heated to 157° F. is running through a separator the skim milk will show a temperature fully ten to fifteen

degrees higher than the cream. Milk heated to 157° F. in a pasteurizer, or more properly a "scald-er," will result in the delivery of a cream from the separators at about 130-135° F.

How the Silver Medal Butter was Made.

To the Editor FARMER'S ADVOCATE:

SIR,—At your request I send an account of how we made the butter which was awarded two first prizes and the silver medal at the Western Fair, London. At that time we milked fifteen cows, five of which were fresh milkers, the remaining ten having been giving milk from five to nine months. Some are pure-bred Jerseys, the balance are grade Jerseys of a particularly fine butter strain. Having been selecting and weeding them out for seven years, we have raised their average yearly yield of butter from 294 lbs. to 330 lbs per cow.

Their pasture was fresh, sweet natural grass, supplemented with a daily feed of white flint corn, well matured and fed in the field, in which they have an abundance of pure running water at all times.

They were milked in the stable, which is a basement one and properly ventilated, at 6.30 o'clock morning and evening. Each cow was fed daily about 5 lbs. of bran, with about 1½ oz. salt in the manger. Fresh sawdust was used in the gutters to absorb the liquids, and land plaster was also used as a deodorizer of any foul odors. The cows' udders were well brushed and washed, if necessary, to make them perfectly clean. After each cow was milked, the milk was weighed and booked on a weekly sheet. It was then immediately strained and taken to the dairy, where it was separated by means of a No. 7 Alexandra separator. Immediately after separating, the cream was cooled to a temperature of 60° F. About 10% starter was then added and again cooled to 50° F., at which temperature it was held 48 hours, at end of which time it was ready for churning. Before entering the churn it was heated to a temperature of 58° F., which brought butter in 40 minutes. The butter was gathered until the granules were about the size of wheat grains, and the same quantity of buttermilk was drawn off and the same quantity of water added. The churn was then turned swiftly a few times. This having been drawn off, water equal to the amount of cream churned was added and the churn turned again a dozen times. After this was drawn off, it was salted while still in the churn with 1 oz. of salt to 1 lb. of butter. Having been sufficiently worked, it was put up in square prints, each weighing one pound.

Our butter is shipped weekly, while fresh, to high-class grocers in Toronto and Hamilton. They never experience any trouble in getting ready sale, as the wrappers are all stamped with our own trademark. This is a great benefit when selling to regular customers.

We have used a No. 6 Daisy churn for the past five years, and have not during that time been able to find fault. It has given satisfaction in every respect. MRS. W. C. SHEARER.

Springdale Dairy Farm, Oxford Co., Ont.

Adding Cream to Milk.

Creameries should strongly discountenance the skimming of cream and adding it to the milk sent to the creamery. This is oftentimes done by patrons to save the cost of hauling and to increase their test. Now, as a rule, such added cream (often found in Monday morning's milk) is largely lost to the creamery, especially in hot weather. It does not become thoroughly mixed with the milk, but adheres to the vats, etc., and but serves to clog the separator. In no case need the operator expect to take all of this cream out of the milk. Such milk should not be sampled, for then, if part of this added cream is taken in the sample, the creamery pays for butter-fat that was never wholly recovered. When a competent man is at the weigh can no patron need expect to make any money out of this plan. F. J. SLEIGHTHOLM, Supt.

Western Dairy School.
P. S.—In article on "Separator Creamery and Its Equipment," in October 1st issue, page 465, near the end of the first paragraph, in the statement "With water at 55 degrees Fahr., fully 350 inches to 400 inches of ice, etc." the word "inches" should be "pounds."—F. J. S.

Mr. J. A. Ruddick's Successor.

The Governors of the School of Mining and Agriculture nominated Mr. J. W. Hart, dairy instructor of Clemson College, S. C., for superintendent of the Dairy School, to fill the vacancy caused by the resignation of Mr. Ruddick, and the Ontario Government has appointed him to the position. Mr. Hart is a Canadian and an associate of the Ontario Agricultural College.

The Lennoxville Creamery, which won first prize for its butter at Ottawa Show, is preparing an exhibit of 100 boxes of butter to be sent to South Africa, where it will be exhibited at the Cape Town Show, which will be held in December next. The president of the Quebec Cold Storage Company, Hon. R. R. Dobell, who selected the Lennoxville Creamery for this work, is paying somewhat over 21 cents per pound for the shipment.

POULTRY.

Winter Quarters.

A BRIEFLY DESCRIBED POULTRY HOUSE AND ARRANGEMENTS—LAYING IN WINTER SUPPLIES—FATTEN THE BIRDS FOR MARKET—HOW TO FATTEN THEM.

BY A. G. GILBERT, MNGR. POULTRY DEPT. EXP. FARM, OTTAWA.

It is poor economy to have a cold poultry house, particularly in those portions of the Dominion where the winters are rigorous and where artificial housing and feeding of the laying stock extend over several months. But under all conditions it will pay to have the poultry house comfortable. It must be borne in mind that the winter rations are first drawn upon to supply animal heat. It is the residue that goes into eggs. About 38 or 40 degrees will be found about the right temperature in coldest weather, just warm enough to keep the drink water, vegetables and droppings from freezing. A few degrees higher will certainly do no harm, but a high temperature is apt to encourage the lodgment of that bane of many poultry-keepers—lice. Assuredly will they make their appearance if the house is allowed to remain dirty. We are about to prepare for cold weather, and our first care is to see about proper quarters for our winter money-makers.

A BRIEFLY DESCRIBED POULTRY HOUSE.

If you have a poultry house we will presently see about getting it in order for the winter. If you have not a house we may tell you that there is no cast-iron rule to be observed in the construction of a poultry house. There are some general rules, however, that experience has taught to be good and which may be applied to large or small buildings. Your house should be divided into pens, each to hold 15 to 25 layers, allowing at the least five square feet to each bird. It should be so arranged that the cleaning of the platform, collecting of the eggs, renewing of the straw in the nest-boxes, may be conveniently and expeditiously done from the passageway. The following diagram will convey an idea of what is meant. The plan may be improved upon by having one instead of two hinged doors (1 and 2), and doing away with the sliding feed trough (3).

WHAT THE PENS SHOULD CONTAIN.

In each pen there should be the following furniture, viz.:

1. A narrow trough, 2½ inches wide at top, to be screwed on to side of the pen. It is for the proper feeding of soft feed and cut bone.

2. A small box, 2½ by 6 inches, divided into two parts, one for grit and the other for old mortar, oyster shells, etc., for supplying lime for shell.

3. A shallow box for holding dry earth, etc., for dust bath.

4. A fountain or pool to hold drinking water. It can be so placed that one will do for two pens.

On the floor of the pen should be litter in the shape of dry leaves, chaff, oat hulls, cut straw or hay, etc.; and in this litter should all the whole grain rations be thrown, so as to induce and keep up the exercise so necessary. Green stuff in the shape of cabbage, mangolds, turnips, carrots, etc., should always be in supply and may be placed in the narrow trough aforementioned. If possible, have the house so situated that the windows of the pens will face the south and be large enough to admit plenty of sunshine. If necessary, the windows should be doubled. If properly constructed there should be no necessity for artificial heating in a small house. If the house is on a large scale, furnaces specially constructed are sold for heating such buildings. The furniture should be so fastened that it can easily be removed for cleaning.

PREPARING FOR WINTER.

If not already done, the poultry house should at once be thoroughly cleansed and disinfected. Of course, we are not now speaking of our newly-built house. The furniture should first be removed, as also the straw in the nests and litter on the floor. The most potent destroyer of disease germs, lice, mites, etc., and perfect cleanser, is a solution of bichloride of mercury or corrosive sublimate. A druggist will give the proper proportions and directions by telling him the size of your house. Spray carefully every nook, corner and crevice. Be careful in handling the solution, for it is a deadly poison. The work should be done in the daytime, and the stock kept outside during the application. The house being now thoroughly cleansed and disinfected, see that the laying stock go into it free from lice and in robust health. It is better to kill any bird with symptoms of roup than to allow it into the winter quarters of the healthy ones. If a prolific layer or valuable breeder, keep it in a separate building until a thorough cure is effected. To rid the hens of lice, use a good insect-destroying

