the collar over the horse's head, one of the maids of the inn happened along, deftly turned the collar upside down and pulled it over the ears of the horse with ease. Here was a case where a little practical experience was more valuable than the wisdom of philosophers, who had come to the conclusion, so it is said, that the collar must have grown on the horse, as they saw no way of getting it off without ripping the collar open at the top.

There appears to be considerable confusion in the lay mind regarding the testing of cream, use of scales, etc. Let us see if we can clear this up, in some degree at least. The Babcock test is based on weight of milk or cream to be tested, but because it is more convenient to measure than to weigh a sample into the test bottle, it is customary to measure 17.6 cubic centimeters (a cubic centimeter, usually written c.c., is from 15 to 20 drops) of milk in a glass tube called a pipette. A c.c. of water weighs one gram, which is the unit of measure in the metric system of weights and measures. A c.c. of milk weighs about 1.032 grams, because milk is heavier than water. Therefore, 17.6 c.c. of milk weighs about 18 grams (17.6×1.032=18+). For milk, the plan of measuring the sample or charge is practically correct, because the specific gravity (weights as compared with water) of milk does not vary much wider than 1.029 to 1.036, averaging 1.032, or 32 thousandths heavier than water. To state it another way—a vessel which would hold 1,000 ounces, pounds, or grams of water, would hold 1,028 to 1,036, averaging about 1,032 ounces, pounds or grams of milk.

When we come to test cream, we have a more complicated problem, for the reason that cream varies a great deal in richness or percentage of fat, and consequently varies much in its specific gravity. This also is a fact, contrary to many opinions,—the richer the cream, the lighter it is, whereas most people speak of a rich cream as a heavy cream. Because of these facts, it was proposed first, to use an 18 c.c. pipette for measuring cream samples into the Babcock test bottle, because 1 c.c. of cream testing 20 to 30 per cent. fat, which is about average cream, weighs one gram, or it is about the same specific gravity as water. We thus see that an 18 c.c. charge of average cream, if the pipette be rinsed to remove all the cream from the inside, will deliver 18 grams, or nearly so, which is the weight of cream desired. However, creams containing over 30 per cent. fat are lighter than water, hence an 18 c.c. pipette of such cream, will not weigh 18 grams. For this reason fine scales or balances were introduced in order to weigh the exact weight required for a test. In a previous article we discussed this question, hence need not repeat, any further than to say, the Babcock test in Canada is used for determining the fat in milk or cream, whether the sample be measured or weighed into the test bottle. The scales or balance is used only for weighing samples of milk where more than ordinary accuracy is needed, and is recommended for testing cream, particularly if the sample contain over 30 per cent. fat, or is difficult to sample properly.

It is unfortunate that our public schools appear to spend more time in teaching "Vulgar Fractions" than they do on teaching "Decimals." We find that a large number of our students do not seem to understand decimals, and require to have problems stated in terms of vulgar fractions before they are able to comprehend them. For instance, if we state a problem in this form—A cow gives 40.5 lbs. milk, in one day, testing 3.5 per cent. fat, how many lbs. fat does her milk contain? Many are unable to solve it. But if we state it this way—A cow gives 40½ lbs. milk testing 3½ per cent. fat, they can "do the question." The former is much simpler, and pupils should be drilled in decimals rather than vulgar fractions; if one or the other is to be neglected, chiefly for the reason that our money in Canada is a form of decimals, but from a milk-testing viewpoint, because it is impossible to make or understand the Babcock test without some knowledge of decimals. It is doubly important to know decimals when we come to apply the results of tests to cows, cans of milk, or cream, churning, etc. Without this knowledge testing is of very little practical use. We are afraid that some persons who send in samples to be tested and have a report made on the same, do not know what the figures mean. Unlike the person asking the second question, they are ashamed to ask for explanations.

The answer to the second question stated in words is: The sample of cream tested or contained, twenty-eight and two-tenths per cent. fat; or, stated another way, one hundred pounds of such cream contains twenty-eight and one-fifth pounds of fat.

Truly as Pope says: "Hills peep o'er hills, and Alps on Alps arise" in this testing problem.

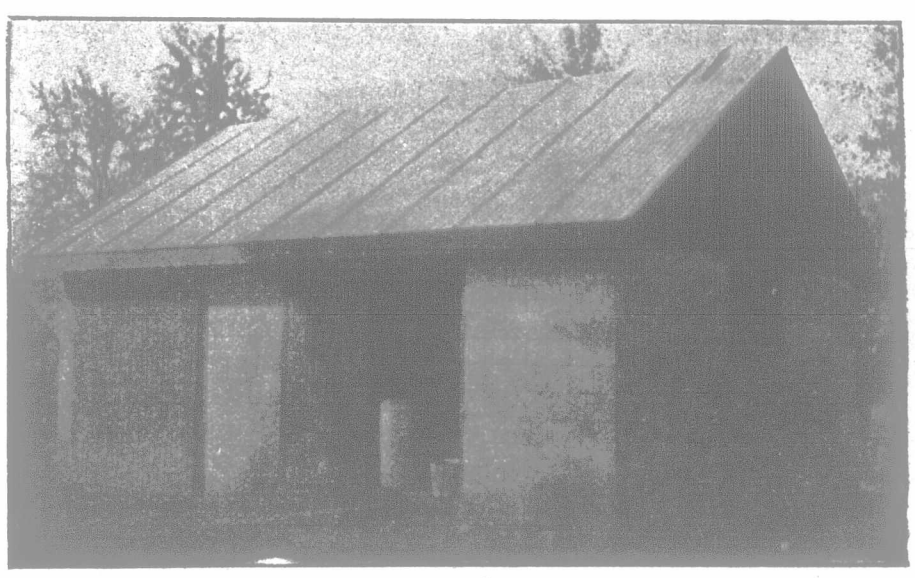
O. A. C. H. H. DEAN.

The fellow who takes no sugar in his tea has the laugh on his sweet-toothed neighbor now, but the latter may be aided by a big crop of Canadian-grown sugar beets another year. The chances of this crop are worth investigating.

A Model Milk House.

Consumers have more confidence in milk that is drawn from healthy cows and properly handled than in the clarified product of modern machinery. Clean milk, untampered with, is the desire of our towns and villages, but even where it is to be clarified, pasteurized or sterilized and made safe for the consumption of infants or invalids, its value is enhanced by sanitation from the start. The accompanying illustration shows a milk-house recently constructed by Fred Scott, of Middlesex County, and considering the modest outlay and material used, it can be recommended to all enterprising dairymen with a desire to produce a sanitary product.

The architectural design of the building is very simple, but within the layout is admirable, since all conveniences are installed that are necessary in a milk-house, and other appliances are there which eliminate heavy lifting or uncomfortable operations. It is situated only a short distance from the dairy stable, yet in such a position that sun and wind have access to it and do their purifying work. The house itself is 24 feet by 18 feet, outside dimensions. The 8-foot walls are made of slop cement, one foot thick, plastered and blocked off on the outside, giving the building a pleasing and substantial appearance, while the top is roofed over with galvanized iron roofing. Inside the building, 13 feet are allowed for the milk-house proper, and between that and the adjoining part is a wall or partition built partly of cement and partly of tile brick, which happened to be about the place and were used only as a means of getting rid of them, otherwise they would not have entered into the construction of the building. As yet the milk-house proper has no covering other than the roof, but Mr. Scott intends later to seal it over with two layers of boarding, the lower one being tongued and grooved stuff. The garret lighted by window at south end, and will be used for storage if required.



House for Wholesome Dairy Products.

The milk-house constructed on Fred Scott's farm in Middlesex County, Ont.

In the north-east corner is a wash table or stand for the cans and utensils. It stands on four cement supports of a neat pattern 18 inches high, and on top of these for the cover of the table is a cement slab 3 inches thick. The slab has a slope to one end and a slight slope to the centre, allowing all water to drain off speedily, It is 6 feet long and 2½ feet wide.

On the south side of the milk-room and 2 feet from the east side is the cooling tank. This very necessary part of the construction is 5 feet long, 2½ feet wide, and 2½ feet deep on the inside, providing sufficient space for four milk cans. One and one-half feet of the tank are above the floor, leaving the 1 foot in depth below the floor of the building. This is the exact depth of a standard milk can. The wall of the tank is 3 inches thick, and thoroughly plastered on the inside with a paste made of cement and water. One important feature of the building and the tank is that it stands midway in elevation between the windmill and the tank supplying water to the stock. This allows Mr. Scott to have a continuous flow of water through the tank and out to the receptacle out of which the cattle drink. This will provide a continuous stream of cold water, eliminating any possibility of stagnation in the tank, and providing the lowest temperature possible without ice.

Eleven feet of the building on the south end are devoted to loading conveniences. A large door, observable on the east side, admits the milk wagon, and the floor under the wagon stand is 10 inches lower than the main floor of the building. Four feet of the floor space, however, behind the wagon is on the same level as the remainder of the floor, thus leaving that space only whereon the wagon stands of a lower elevation. A track much like that upon which a litter carrier works extends from above the tank in the milk-room back through a door in the partition and across the joist over where the wagon is placed. A windlass on this carrier raises and lowers the milk cans into and out of the tank, and into the wagon when the carrier is pushed around. In this way the necessity of lifting heavy cans is done away with, and no easier device is necessary for loading and handling the heavy cans of milk than is installed in this milk-house at very little extra expense.

Two windows are built in the walls of the milk-house proper. One is 3 feet, 8 inches by 2 feet, 6 inches, and the other is 2 feet, 2 inches by 3 feet, 2 inches thus admitting plenty of sunshine into the room. The door entering the milk-house is 3 feet 4 inches wide, and that for the wagon stand is 6 feet 8 inches. The walls are mixed in the proportion of 1 to 8, and these with a 3-inch flooring and a small part of the partition required 24 barrels of cement.

Some dairymen might find it convenient to load the wagon entirely on the outside, protected perhaps by a small canopy. Under such circumstances the extra cost of the eleven feet of construction to accommodate the wagon would be eliminated, or perchance it could be used as an ice house and storing room. For Mr. Scott's conditions the present plan is most convenient, but the ideas either in part or in there entirety could well be made use of on many dairy farms.

POULTRY.

Fitting the Surplus Chickens.

Why so many birds go on the market in a careless, unfitted manner, is not easily answered. Dealers can afford to buy the birds and grain in the country, express them to the city, hire men and pay high rental in the center of the corporation for accommodation to feed these birds in crates, and fit them for the retail butcher's counter, yet the farmer and his wife, with everything at their hands, find it inconvenient to do anything more than allow the fowls to run at will until the day set for their despatch arrives, when the surplus cockerels and cull pullets are prepared for sale. Their muscles are hard from so much roaming about, and they have not acquired the flesh and weight they should. In this condition they are passed over by the fastidious customer, and picked up for the second-class trade at the corresponding price. Quietness is one of the essentials in economical feeding of chickens, and the time will come when dealers or the raiser of the poultry himself will finish in crates the majority of the birds grown. Harvest fields and cultivated land make suitable places for poultry to grow and mature, but the finishing touches should be applied under different circumstances, and now that the winter is at hand the extra cockerels and discarded pullets should be put in crates for about 21 days, and finished off in accordance with trade demands.

An elaborate feeding crate is not one of the first requirements in feeding chickens. Any small box with slatted front and bottom or wire bottom will answer the purpose. In making up-to-date crates feeders use one about 7 feet 6 inches long, 18 to 20 inches high, and 18 inches wide. This crate should be divided into three compartments, and each compartment should contain not more than 4 or 5 birds, according to their size. The crates are made of slats, except the ends and partitions between compartments, which are solid wood. Those on the top, bottom and back running lengthwise of the coop, while those in the front run up and down. The slats are usually 1½ inches wide, and ⅝ inches thick. Those in front are placed two inches apart to allow the chickens to put their heads through for feeding. All this is not necessary, however, for any box that will allow the chickens to feed through the front, and give them sufficient air will answer the purpose. They should be raised some distance from the floor, and have a small V-shaped trough attached to the front of the crate immediately outside.

The actual feeding should not require any great amount of time. It can be done by lamp light, if preferable, but if one starts to feed the