

gnawing at the boards on the barns : the same in the summer as in the winter. They are usually salted twice a week.

Please give cause and remedy.

I remain yours resp., A. FARMER.

Frelighsburg, P. Q., Dec 30, 1891.

Try bone-dust on the pastures, and mix about 2 oz. a day of the finest with what grain-feed is given. Feeding good bran would help greatly.

E. A. B.

No doubt, this arises from a form of indigestion of some sort. A variety of food might have some effect, as it is clear that some important constituent of the soil is exhausted, and very likely the phosphates, as they are the first to go. At all events the cows in gnawing the boards, &c., show that they want something they cannot find in their usual food. I should like to know if the cows, on the neighbours' farms are affected in the same way. By all means try bone-dust on the pastures : this restored the Cheshire (England) cheese-land in 1845, when everything else had failed.

A. R. J. F.

ED. A BARNARD Esqr. Dep. Agr. Quebec.

Dear Sir.—Owing to press of other affairs I was not able to write you before and so concluded to make you in this letter a final report concerning all the work of the butter-school.

I believe in my first letter I gave you a description of the opening and the formation of the school. Now, I will endeavour to give a report of the work accomplished.

The first two weeks in the lecture-room were devoted to a description of the Babcock test.

The method of using it with practical work in testing ; its value to the creameryman, to the creamery-patron, and to the individual farmer in testing the value of his individual cows as butter-producers.

With regard to the description of the Babcock test and the method of using it, it is not necessary to say anything, as all this information can be obtained of any dealer handling it ; but too much stress can not be put on the absolute necessity of great care in taking samples to be tested and in putting the samples themselves through test in order to get correct results ; moreover, I will say this for the Babcock test : if proper care is taken in all this, the results obtained will be perfectly reliable and correct, and it has been proved by comparisons of many tests with the full chemical methods to be sufficiently correct for all practical purposes, and to be much more economical both in time and money.

To the creameryman in relation to his own work the Babcock test may be considered as indispensable and no creamery should be considered complete without it : In fact, the committee of every creamery should insist that the manager should be provided with the Babcock test and that the skim milk and the butter milk from the main factory and its branches should be tested daily, a record kept, and a report made to the committee at frequent intervals.

The object of this would be, to correct any waste that might occur, in either the skim or butter milk, or both, due either to any defect in the apparatus used, or the management of it, or to the negligence or ignorance of the employes.

By the creamery patron the Babcock test may be hailed with delight as a sure and simple means of detecting dishonest patrons in the attempt to rob and steal from their more honest neighbours by adulterating their milk ; and to the individual farmer, of great benefit in testing the butter capacity of his individual cows and thereby correcting bad results by good breeding.

The paying patrons by the  $\frac{1}{100}$  of fat value of their milk as determined by the Babcock test was fully explained and taught by Prof Hill, showing how it was possible to pay pa-

trons according to the fat value of their milk, doing each one justice instead of the old eminently unjust method of paying each according to the quantity, without regard to the quality, thereby encouraging the breeding of cows giving a large flow of milk without regard to the quality rather than encouraging the breeding of cows giving milk rich in butter-fat.

In adopting this method however the thing *absolutely* needful to success is the careful and correct sampling of the milk, as it is evident any inaccuracy in the sample obtained for testing would give incorrect results.

The rules laid down are these : first, see that the milk to be sampled is thoroughly and evenly mixed so that any cream that may have risen to the top be thoroughly incorporated in it, then take the sample either with the dipper, or, which is usually considered a safer plan, by means of a small tube called a "Milk-Thief" trier, which is used by running the tube into the milk to the bottom of the can and then placing the thumb over the top of the tube excluding the air, when the tube can be taken out bringing with it a core of milk which represents a correct sample of the milk in the can. Secondly : a sample of each patron's milk should be taken every day, or nearly so, *never* less than four days out of the week, and placed in a jar and labeled with the patron's number, so that no mistake may occur and so that these accumulated samples be tested once a week

These samples may be kept from souring by adding  $\frac{1}{10}$  of an oz. of corrosive sublimate, which, while it poisons the milk, will keep it perfectly sweet ; in order that no one might drink it through a mistake, a small pinch of magenta dye is also added to color it pink : as Prof. Hill remarked : any one that would drink pink milk *ought* to die.

I understand that this method is adopted by nearly all the large creameries in Vermont State. Another plan is to allow the milk to sour, and then render it soluble by adding a small quantity of powdered lye, which will cut the curd and allow a sample to be taken with the pipette.

By this means a composite sample is obtained, which will be found to represent a correct average of the week's delivery of milk, and the  $\frac{1}{100}$  of fat thus obtained will be found to be correct. By multiplying the whole amount of milk delivered during the week the total amount of fat is obtained. By repeating this process weekly during the month, the whole amount of fat delivered by each patron is obtained, when, by a simple mathematical process, the amount due to each patron is found.

I believe that this method is a very correct one, and any modification of this method would be likely to bring incorrect results.

I understand that some creameries in this Province have attempted to pay on this plan by taking a test, say, once during the month, of each patron's milk and paying him for the whole month by this test. This plan should be put aside as wholly untrustworthy, and would be likely to do more injustice than the old pooling system. A sample once a month, or two weeks, or even once a week, is not sufficient unless it be a composite one, and in that case, to be accurate, the test should be made once a week, and never less frequently than once in two weeks. The method of detecting adulterated milk, that is, milk either skimmed or watered or both, was taken up and interesting formulæ were given, whereby, with the use of the Babcock test and the Lactometer, the  $\frac{1}{100}$  of total solids in the milk could be accurately obtained, and by comparison with a sample, known to be correct, the amount and character of adulteration could be easily determined ; rendering it quite easy by careful testing to obtain such positive evidence as would in any court of justice convict a man who was guilty of such bad practices.