



Ayrshire Cow "BLYTH," property of C. P. Blanchard, Hillside Farm, Truro, N. S. "Blyth" was imported in 1876, previous to which she was shown at Lintilthgow, when a two year old in milk, and won first honors, competing against aged cows. She has since been exhibited at all our Provincial Shows and taken first prizes.

has sometimes diminished, and that in other times, it has broken out with new fury.

And should we not regard as a thing demonstrated, that the distemper, in the same way as all other epidemic diseases, and particularly the small pox, prevails at certain times with violence; whereas at others it appears to be absolutely extinct; although by accurate observations it would seem that we nevertheless always find here and there some animal which is infected with it? If this contagion is not as old as all the other diseases it has at least been known about two thousand years. It will undoubtedly abate by natural causes, as well as break out at other times with more violence. It is consequently our duty to employ all the means which the Supreme Being has furnished us in order to find efficacious remedies, of whatever kind they may be, which may make us easy as to the existence of our most valuable possessions.

I pass now to the description of the symptoms of the distemper, in order that you may better catch my ideas upon the causes and nature of this disease.

(To be continued.)

#### PROFESSOR CALDWELL'S ADDRESS ON PHOSPHATES.

Superphosphates are made by the action of oil of vitriol on the tricalcic phosphate, which is partially converted into the mono-calcic phosphate. The tri-calcic phosphate may be in the form of bones, or of bone-black, or of South Carolina phosphate. The product is the same in all cases, except that when bone, or bone black, is used, it contains some nitrogen.

Plain superphosphates are those that do not contain nitrogen. Nitrogen, in soluble forms of combination, such as ammoniacal salts or nitrates, is generally estimated to be worth almost, if not quite, twice as much as soluble phosphoric acid; but the condition of the nitrogen, in superphosphates containing it, is very uncertain. Sometimes, doubtless, it is in the form of these soluble and valuable compounds, but oftener in the shape of dried animal refuse, or fish guano, where it is not worth over one-half more than soluble phosphoric acid, or about eighteen cents a pound.

Many enquiries have been made and many and various opinions expressed in regard to the home manufacture of superphosphate. It is argued in its favour that a purer article will be obtained at a lower cost, and that the farmer may be sure that he is not the victim of fraud and adulteration. Some few farmers have for many years made their own superphosphate, and they have much to say in favor of the practice. While I am willing to allow that there are a few among the many farmers who can execute this operation successfully and profitably, I must say that I can not recommend it in general. It is in the first place attended with some danger in the handling of the heavy carboys, or large glass vessels, in which the vitriol is received; one serious accident with such substance would sadly diminish the profits of many successful ventures in the manufacture. The acid is very

corrosive, and might make terrible havoc with any part of the body with which it should come in contact. In the second place, bone meal must be used in order to be sure of good results. It is not easy to reduce whole or simply broken bones by acid; and bone meal can be adulterated as well as the superphosphates, though perhaps not quite so easily. Hence one of the supposed advantages of home manufacture may be no advantage at all, for the product may contain no more superphosphate than an adulterated article of superphosphate from the regular manufacturer. In the third place, the manufacturer can get his raw materials, or at least a part of them, much cheaper than the former can, so that there is good reason to doubt, whether there is any profit in home manufacture, provided that there are reasonably fair facilities for getting a good article from responsible dealers. If you can get bones cheaply in your neighbourhood better reduce them by lime and ashes, or in the compost heap, than to resort to the use of oil of vitriol.

As to the best way to use superphosphate, it is not possible to lay down a set of rules that will answer for all conditions and places. It is unsafe to attempt to do this with any special fertilizer; but the statement given in the early part of the lecture as to the quantity of phosphoric acid required by various crops, certainly furnishes one important hint. It was there seen that the root crops require by far the largest quantity—one hundred and