

absorbed. Then the manure must be preserved more carefully, protected from excessive rainfall which leaches out its best constituents. Attention to this matter will bring about good water and more and better manure for the fields.

By the Chairman :

Q. Have you given any attention to the subject as to how far a distance these deleterious agencies may be carried through the soil to the wells?—A. I have not tried any experiments but I can say this: what would be quite a safe distance with a heavy clay soil and under good conditions in the barnyard, would be dangerous if the soil were of a light and sandy character with no proper means for the preservation of the liquid manure. One cannot lay down any hard and fast rules with regard to this matter. The porosity of a heavy clay soil does not in any way equal that of a light and sandy soil. Again, the barnyard and buildings can be kept so clean that practically none of this valuable plant food would be allowed to go to waste or find its way into the well. We should have to consider the circumstances of each individual case. I do not think it would be wise to state any exact number of feet that a well could be placed from a source of contamination, so as to be quite safe.

By Mr. McMillan :

Q. A good deal would depend upon the depth of the well.—A. True.

By the Chairman :

Q. In the Old Country they will not allow a deep well to be within 200 yards of a burying ground.—A. Yes, and if it were a light and sandy soil I scarcely think that would be sufficient. It is really extraordinary the distance which it has been proven contaminating matter can travel. There are a great many factors to consider. First the porosity of the soil and then the amount of the infiltrating filth and the rainfall. Necessarily a small amount will take a long time to travel a certain distance; multiply the quantity by ten and it will take one tenth of the time to travel the same distance.

While on this subject, I might say that such has been the interest awakened amongst those who are taking an active part in the management of our creameries and dairy associations, that they have asked for a more general and systematic examination of the well waters of those who are supplying milk to the creameries and to the cheese factories. They hope to have a system of inspection which will allow them to compel all farmers supplying milk to them, to have the water examined and pronounced pure before allowing them to furnish milk for these purposes. Such a step is nothing but right. I have always been working towards that end and I only trust I shall be in such a position with due assistance and opportunity to carry out at an early date this request of the dairy associations.

ORIGINAL RESEARCH DURING THE COMING YEAR.

I shall close my observations by referring to the lines of original research which I hope to pursue during the coming year. The first is concerned with the economic treatment of muck soils. Something has already been done in this connection, but much remains still to be accomplished. Generally speaking, we may say that such soils should first of all receive thorough drainage, followed by an application of lime, and, if possible, of wood ashes. Lime and wood ashes to furnish those elements of plant-food which are lacking in muck soils. Such soils are not particularly benefited by barn yard manure, because they themselves contain large quantities of nitrogen. We have depicted in the photographs which I now exhibit, the results of some experiments we made toward this end. They will give you an idea of how experiments in this way are conducted. The pots shown in these photographs contain the muck soil under treatment. These pots, severally, are fertilized with varying amounts of potash and phosphoric acid, and were sown with peas. The plants are measured from time to time and at the close of the experiment are photographed and weighed. We have as a result the relative value of the different fertilizers. In round numbers, I might say that treatment with wood ashes in this preliminary examination has resulted in an increase of 50 per cent in the product of growth, peas being under examination.