dition in which it will be soluble in one per cent of citric acid, we shall then have a method which will be practicable for our farmers to use. There is a large amount of low grade apatite or mineral phosphate in Canada, which is practically of no use to us at all—that is to say, the prices are so low that it does not pay to export. I trust that we may be able for these low grade mineral phosphates to suggest some method such as I have spoken of, we shall thus be giving our farmers a very valuable help, because undoubtedly there are many soils which would be benefited by an application of phosphate.

MISCELLANEOUS INVESTIGATIONS.

A great many miscellaneous—as I might call it—investigations have been carried on during the past year, either in connection with my own work proper or in relation to the work of the other departments of the Experimental Farm system. Assistance has thus been rendered both in analytical work and advice to the Horticultural Department, the Entomological Department and the Dairy Department. You will readily understand that there are a great many problems which arise in these different divisions of experimental agriculture that require for their solution some chemical work. Such, consequently, have received attention at my hands.

Well Waters.—The examination of well waters from farm homesteads has been continued and in the report for the current year the analyses of some 65 samples appear. It is to be regretted that, as we extend this work, we only become more and more convinced of the fact that a large number of our well waters throughout the country are very seriously polluted. This matter has been brought before you, and before our people at conventions, and in other ways for the past six or seven years, and I am glad to say that this note of warning and caution which we have been continually sounding, has at last awakened lively interest in our dairymen, in this question of pure water. Not only must we have pure water for drinking purposes for ourselves and animals, but there is an absolute necessity for uncontaminated water for the washing of dairying utensils and general use in the dairy. We know that when milk is contaminated with injurious forms of bacteria or germs, that these arise for the most part through the use of impure water. I believe that the only germ which finds its way into the milk directly through the system of the cow is the tuberculosis germ, so that when cases of typhoid can be traced to the milk supply, as many can be, and have been, the typhoid germ is present from the fact that it has been introduced in some way into the milk after it has been produced by the cow, most probably by washing the milk vessels in the well water containing the typhoid germ.

By Mr. McMillan:

Q. What do you consider the principal source of contamination in the waters you have examined?—A. Organic filth; drainage from the barnyard, from the privy, the stables and the barnyard. We have endeavoured to show the enormity of this contamination and pollution, and at the same time to suggest a means whereby this can be avoided in future. In the first place, no well should be sunk in the barnyard, because sooner or later, whether the soil is light or heavy, that soil must become saturated with an excrementitious matter. Finally and naturally this filth will find its way to the lowest level and the well acts as a sort of cess-pit. Farmers must first of all learn to have the well located at a sufficient distance, so that there will be no risk of contamination by drainage. Secondly, we can appeal to them from the dollars and cents standpoint: that this material which is finding its way into the well should find its proper place in the field, because it is really plant food and it is plant food in the most valuable form, because it is soluble and readily available plant food. It should be upon the field as a fertilizer rather than in the well. Of course this points to better constructed buildings, to better care of the manures, to the use of more litter and absorbents. There are very few parts of Canada where there is a scarcity of litter of one kind or another. Where straw is scarce there are deposits of peat and muck, which, when air-dried, as I have shown on former occasions here, has a great absorptive capacity, and not only so, but contains a large amount of plant food in itself. These should be used plentifully, anywhere and everywhere about farm buildings where there is liquid manure to be