

of the health and life of both mankind and the domestic animals? Is this a subject with which the provincial authorities have to deal, or is it a Federal question?

In an Address bearing upon this subject delivered at the last Anniversary Meeting of the Sanitary Institute of Great Britain, by George Vivian Poore, M.D., F.R.C.P., (Phys. to University Coll. Hospital; Prof. of Clinical Med. and Med. Jurisprud. Univ. Coll., London), the speaker said, "The doctrine has obtained in this country (Eng.), of late years, that it is good economy to waste all our home-grown organic manure, and to import chemicals from South America for the purpose of agriculture. This is a strange doctrine; but as most of our farmers are now too near bankruptcy to pursue this course, we may hope that ere long they will begin to clamour for that which we now waste so wickedly. Again, farmyard manure is stuff which *must* be used, while chemicals are things which *must* be bought, and need to be analysed when bought."

These remarks of this eminent physician and scientist, may apply, at least in a large measure, to Canada.

Dr. Poore goes on to show that the organic manure remains entangled in the soil, and is not readily washed out of it in the winter when the temperature is low, or even in unpropitious summers. "It cannot be washed out until microbial growth has changed it into soluble salts, and when this change takes place, which it does in 'good' weather, the roots of the growing plant seize hold of the ever-forming soluble salts and appropriate them to their own use. In fact the farmer who uses organic manures from the farmyard or elsewhere, need trouble himself very little with agricultural chemistry or experiment. He may feel certain that if he buries his organic manure *directly after it is produced* it will not be wasted. It will not give off ammonia to the air, nor will the juices be washed away by rain to the same extent as when it is left above ground to be a nuisance. There seems to be no doubt whatever, that all heaps of manurial matter which give off ammonia and other

gases to poison the air, and perhaps do more serious mischief, are allowing valuable matter to escape, which ought to be undergoing oxidation in the earth. There can be no doubt whatever, that to the agriculturist *stink means waste*, and it is to be hoped that when the bucolic mind has imbibed this great and important truth, the country will be more evenly pleasant than as it is."

Reference is made by Dr. Poore to Prof. Voelckers article on "Manure" in the Encyclopedia Britannica, in which comparative tables are given (from experiments by Sir John Lawes and Dr. Gilbert), of the value of farmyard manure and artificial fertilizers, and says, "These figures are certainly not such as should discourage us in the use of farmyard manure, especially when we remember that the average agriculturist is not likely to apply his artificial manures with the knowledge and judgment of Messrs. Lawes and Gilbert, and that in the use of farmyard manure it is not easy for him to go very wrong."

Mr. Warrington, F.R.S., in his valuable little book on "The Chemistry of the Farm," says, "The most complete return to the land would be accomplished by manuring it with the excrements of the men and animals consuming the crops. . . Farmyard manure is a 'general' manure; that is, it supplies all the essential elements of plant food. . . The effect of farmyard manure is spread over a considerable number of years, its nitrogen being chiefly present not as ammonia, but in the form of carbonaceous compounds which decompose but slowly in the soil." The immediate return is often less than when more soluble nitrates and phosphates are used, but the return is sure to come.

On the other hand, as now treated, the sewage and excreta of cities, towns and villages, as well as the farmyard manure all over this fair young Dominion, is a source of constant menace, and indeed of disease and death, to thousands upon thousands of human beings living upon its soil.

Dr. Poore dwelt at much length on the serious evils of the present system of water pollution. The first appearance of cholera