

REPORT OF THE CHEMIST.

(FRANK T. SHUTT, M.A., F.C.S.)

OTTAWA, 10th February, 1888.

PROF. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit to you my report on the character and extent of the work done by me since my appointment to the office of Chemist to the Experimental Farms of the Dominion in August last.

On 10th August, 1887, at the request of the Minister of Agriculture, I accompanied you on a short tour through the Eastern States, with a view to the inspection of the laboratories, both as to fittings and the latest forms of apparatus, of the more principal agricultural stations and universities; the object of gaining such information being that we might be able the better to equip our permanent laboratory (not yet built) with the most modern improvements for analytical work and work of research in all the branches of agricultural chemistry.

Proceeding first to New York, I was extremely gratified to find that the American Association for the Advancement of Science was holding its annual session. During my two days' stay in that city I was therefore enabled to hear read and discussed many valuable papers by some of the foremost men in science in the United States, and also to meet personally many of the chemists engaged in agricultural work in various parts of the country, many of whom very courteously invited me to inspect their laboratories, and gave me every information in their power. My subsequent travels proved their kindness to be of great benefit to me in this respect, and to these gentlemen I would tender my thanks.

As emphasizing what I have just said with regard to the value of hearing read and discussed scientific papers upon subjects of almost universal interest and importance, and as this city has lately been visited with a severe epidemic of typhoid fever, I think it may not be out of place here to refer to a paper read on The Causes of Typhoid Fever, and the means of eliminating such causes, by Dr. Albert R. Leeds, of New Jersey. He instanced many cases of typhoid fever in various towns which he had traced to an impure and contaminated water supply. He clearly showed that in such cases as he had examined, the investigation proved that the water used by persons suffering from this disease was contaminated by the excreta of other victims of typhoid. In some instances the source of the trouble was many miles distant from its direful effects.

The cause of typhoid fever is generally believed to be due to a bacillus, of which usually there is a large number in water infected, and probably the most practical portion of this paper was the means proposed by the author to rid the water of these bacteria, rendering it fit and wholesome for drinking purposes. The process consists simply in adding half a grain of alum to each gallon of the water to be used. By this process all the peaty matter is precipitated along with the Bacteria, leaving a water brilliant and limpid, and better than distilled water. The alumina is all taken out by the precipitation, and chemical tests failed to reveal its presence in the supernatant liquid. A contaminated water from Mount Holly examined by the author containing 8,000 bacteria per cubic centimetre showed after this treatment only 8 bacteria per c. c., this water then passed through two sterilized filter-papers was rendered *entirely free* from bacterial life. Many other interesting and instructive papers and discussions were listened to, but the time at our disposal was altogether too short to reap such benefit as is obtainable by attending the full session of such an important scientific society.