SHUTT-SOILS.

1900]

year lose, it is stated, more nitrogen by this humus oxidation than is removed in the crop, and this loss is greatest in those soils which are richest in nitrogen. At the Minnesota Experiment Station it was determined that for every 25 pounds of nitrogen absorbed by the crop (grain following grain for a number of years) 146 pounds of nitrogen were lost, due to oxidation of organic matter.

These facts are of the widest importance and worthy of study by our farmers not only in the older provinces, but also in those Western areas which to-day are overlaid by such phenomenally fine soils.

During the past twelve years a great many Canadian soilsboth virgin and cultivated-have been examined in the laboratories of the Experimental Farms. We have placed on record in our reports complete analyses of over one hundred samples, and data of a more or less incomplete character respecting many more. examined are representative of many districts The soils and large areas in all the provinces of the Dominion,* but we cannot now discuss the data of these analyses in detail. It must suffice to say that judged by the standards accepted by agricultural chemists we find many soils in Canada fully as rich in plant food as the most fertile soils of any part of the world. I refer now particularly to soils over large areas in Manitoba and the Northwest Territories-quite the equal, as shown by analysis, of the renowned black soil of Russia. In all the other provinces there are virgin soils of more than average fertility, comparing most favourably with those of other countries. As is only natural to expect, there are areas also of poor, impoverished soils.

It is well to have some idea of the amounts of plant food contained in an acre of soil, taken, say, to a depth of eight inches, a quantity that would weigh in the neighbourhood of 2,500,000 lbs. From data obtained in the Experimental Farm laboratories, I estimate our soils of extreme richness will contain from 10,000 to 20,000 lbs. of nitrogen, from 15,000 to 25,000 lbs. of potash, and

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^{*} In the year 1897 a paper giving the results of our soil work to date was presented to the Chemical Section of the British Association. It appears *in extenso* in the Report of the Chemical Division of the Experimental Farms, 1897.