

CANADIAN PHOSPHATE.

THE use of animal and vegetable substances for purposes of fertilization is as old as the history of agriculture, but it was only in 1840 that the great German chemist Liebig pointed out that mineral substances might be made available for plant food by treating them with sulphuric acid. The acid is supposed to effect a very fine subdivision of the mineral particles, thus permitting their absorption by the plant. This discovery gave an impetus to the search for minerals containing those substances that had been proved to promote vegetable growth, and which had been discovered by chemical analysis to be component parts of plants and to be present in the soil. As it was evident that the plant extracted these substances from the soil, it was clear that the soil must be replenished or it would become barren. One of the most important of these elements is phosphoric acid, of which every average soil contains about 68.6 lbs. to the acre. As every net ton of wheat contains about 16 pounds of phosphoric acid, the supply of this element in one acre of soil would be exhausted by the production of 4.16 tons of wheat, and in order to preserve the fertility of the soil, this expenditure must be restored to it.

The mineral known as Apatite contains in its purest form, according to the analyses of Prof. Chapman, 92.26 per cent. of phosphate of lime, which is equivalent to 42.26 per cent. of phosphoric acid. The existence of this mineral in Canada had been casually reported by explorers, and in 1829 the occurrence of Apatite near the Lievres river, in the Province of Quebec, was mentioned by Lieut. Ingall, of the 15th Regiment. In 1847, Dr. T. Sterry Hunt reported its existence in North Burgess, Ontario, and in 1860 the first attempt was made to produce it for commercial purposes. The first cargo of phosphate was lost at sea and subsequent shipments to England did not meet with favour, owing to its hardness and the presence of flouric acid, which proved injurious to the workmen employed in its manufacture