

ON THE COMPOSITION OF CANADIAN VIRGIN SOILS.*

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The soil investigations carried on in the Laboratories of the Dominion Experimental Farms, at Ottawa, have included the chemical and physical examination of certain typical virgin (uncropped and unmanured) soils. The samples, over 100, were carefully collected in the various provinces of the Dominion and may be regarded as types or representatives of areas of fair uniformity and considerable magnitude.

The majority of these samples are surface soils, but in a large number of instances the results upon their respective sub-soils have also been obtained. The paper is accompanied by six tables of analytical data.

The exact value of an ordinary soil analysis in ascertaining the fertility or productiveness of a soil, is considered, and while it is admitted that hot hydrochloric acid sp. g. 1.115 dissolves larger amounts of mineral plant food than are of immediate availability to crops, it is pointed out that a knowledge of the "maximum" amounts shows decisively deficiencies, if any exist, and thus indicates lines for rational and economic treatment of the soil with fertilizers. Further, it is pointed out that soils possessing large "maximum" amounts will in all probability prove more fertile than those showing smaller percentages, the climatic influences in both cases being equally favourable.

The diagnosis of a soil as regards productiveness cannot be made from a chemical analysis alone—even if such includes a determination of the so-called "available" plant food. The physical condition of the soil, drainage, rainfall, mean tempera-

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