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Clover and Turnip Sickness.

In the older countries of Europe where clover and turnips have been cultivated as farm crops for a great many years signs of decay have recently been manifested. Even the Swedish turnip, the hardiest variety of that useful root,—in several parts of England shown of late years unmistakable symptoms of deterioration. Clover too, when brought round in a fourth course of rotation, or the much vaunted system of Norfolk husbandry, has been for many years becoming more and more precarious. Indeed by rendering this important crop more certain and remunerative it has been found necessary to bring it round in the rotation less frequently, and to dress it with manures more specially adapted to its wants; and experience of late years points out a similar way of treating the turnip. We are not aware that similar results,—even in an inferior degree, have as yet taken place in Canada; these crops have not been long enough and so extensively cultivated by us as to produce any very obvious effects of this nature, although by persisting in a system of inferior cultivation, especially when the same crop is frequently grown on the same land, a deterioration will doubtless be experienced. A timely warning therefore becomes necessary. It is well worth being kept steadily in mind that sickness in clover, and finger-and-toe in turnips, are most common on inferior soils,—of such kinds, indeed, as grow a poor quality of

roots and grasses, which is clearly to be attributed to the want of earthy matter within reach of the absorptive powers of the roots. It has lately been suggested that the roots of plants have to select as well as dissolve a large portion of their earthy food. These functions can only be performed when the condition of the vegetable matter within the soil is fitted to maintain the roots in healthy activity. When the supply of earthy food is insufficient, we can easily imagine, from analogous facts, that the juices as well as structure of the plants are not in a healthy state. Under these circumstances insects and mildew appear, and the plants die of diseases having special forms and characters.

The want of a full supply of inorganic food within the turnip plant we consider as the cause of finger-and-toe. The particular insect which lays its eggs in the root, and gives the disease its form, through the infusion of poisonous fluids introduced into the sap of the plant, only does so when the plant is in an unsound state. It may look vigorous enough to the eye, while something is wrong within, which the insect can so nicely distinguish. It is of great importance towards attaining a knowledge of the exact nature of this and other diseases of plants, to bear this fact in mind. Mr. Duncan in a late number of the *Transactions of the Highland Society*, has given an admirable description of the fly which produces the swellings on the roots of the turnips attacked by the finger-and-toe. The progress of the disease is also most lucidly traced.