



ON THOROUGH LAND DRAINAGE,  
AND THE RESULTS OF  
ACTUAL OPERATIONS IN CANADA.

*A Paper read by H. J. Boulton, Esq., of Humberford, Etobicoke, before the City of Toronto Electoral Division Agricultural Society, March 3rd, 1863.*

How little are we aware of, or do we appreciate the intimate relationship and similarity which exist between the animal and vegetable world. This similarity is shown in an almost startling manner by the investigations of chemists, who in their researches have proved that one of the necessary constituents in the formation of all animal, as well as vegetable bodies, is sulphur, and that the sulphur compound dissolved in the juice of plants is identical with the albumen contained in the serum of the blood and in the white of an egg; that the sulphur compound in the seeds of the cereals, possesses the same properties and composition as the fibrin of the blood; and that the nutritious constituent of peas and beans is actually of the same nature and composition as the casein of milk.

This identity then having been established in the actual constitution of these two kingdoms, let us pursue the comparison further into the conditions of life of their members. What are the consequences liable to animals of being fed on an impure and scanty diet, of breathing a vitiated atmosphere, of resting in a reeking loathsome lodging? Is it not a slow and stunted growth, the form shrivelled and prematurely aged, and its very poverty feeding its further misery by the propagation of noxious vermin over the surface of the body? Compare this state of things with an analogous one in the domain of vegetable life. A tree is planted in a poor and barren ground, soured with stagnant water, in a dank and heavy atmosphere. Its growth also, spindling and weakly, soon ceases; if it bears fruit, this is shrivelled, every branch and fibre will be found covered with parasitic insects, while the very flow of the sap is arrested by canker and decay. I have now adduced a case to which every eye can be witness, on account of the size of the example I have set forth, and lengthened period during which these results are produced from the conditions I have supposed. Continuing our examination down to the lower orders of vegetable existence, I think very slight consideration will lead us to the irresistible conviction, that the same effects are worked even more fatally when the plant lives but through a few short months, instead of years. A warm and dry lodging, with a free and moderately moistened atmosphere, are necessary appliances of the bodily comfort of animals; the same are indispensably requisite to vegetable healthfulness. It is not every one that seems awake to the fact, that his dumb animals stand in the same need, even comparatively, of the same treatment as himself, much less would it be generally supposed that the motionless, breathless herb could be amenable to evils or necessities in any way akin to those of either. The subject of this paper leads us at once to an element which, by the excess or sufficiency of its supply, affects to the last degree every form of life. I mean, of course, water, and it is to the command and control of this element that much of the labor of the husbandman has been directed, though the How and the Why have been generally too little understood and considered. As a soil impoverished by a super-abundant and stagnant moisture will produce a plague of mosses and parasitic insects upon the stalwart denizen of the forest or orchards, so will the same causes produce the