

nity. In speaking of the mode of action of different manures, we claim originality for one very important point, the explanation of the manner in which stable manure and green crops act when plowed in. I feel it due to the office which I hold, to state that its occupant, to the best of my knowledge first pointed this out, I mean the agency which green crops and stable manure have in improving the soil, not only by reason of the directly nourishing substances which they contain, nor by their improving the mechanical texture of the soil, but also by their decomposition in affording carbonic acid, which, by its solution in water, makes it a very active solvent of the mineral constituents of a soil, and thus places them in a state of ready assimilation by plants. Baron Liebig, the father of Agricultural Chemistry, the greatest and ablest agricultural chemist of the present day, in his last work, a model of sound philosophy and pre-eminent ability, speaking of the beneficial influence of humus or decaying vegetable matter, says: "To the action of humus, (decaying vegetable matters,) as a solvent for phosphate of lime and earthy carbonates, I first drew attention in 1851 in my 'Chemical Letters,' page 625, 3d German edition." (See Principles of Agricultural Chemistry with special reference to the late researches made in England by Justus Von Liebig. New York, 1855.) Allowing, as we must do, the truth of this to the fullest extent, we yet can show that this fact, of vast importance in agricultural science and corresponding benefit in practice, was clearly and distinctly set forth in my first Report to the House of Delegates, written in 1849, and printed in 1850. In that report, speaking of the influence of decaying vegetable matter, (humus,) I said, "Its use is now restricted to giving the necessary degree of porosity to stiff compact soils, and by its decomposition to render rain-water or dew better solvents of the *mineral* constituents of the soil." And again, "Vegetable matter contains a large proportion of carbon, (charcoal,) which, on exposure to the air is changed into carbonic acid. Water impregnated with this substance, has the property of powerfully dissolving all the minerals in a soil, and by this means rendering it more productive." See First Report of State Chemist to House of Delegates. House Doc. G., p. 8.

Should this fact have been made known by any one else prior to its being taught by me, none will more readily acknowledge the honor due to its discoverer than myself. Baron Liebig claims 1851 as the date of his enunciation of it; I show that it was promulgated to the world, by means of my first report and the copying of it by the press, in 1850; should any one show a prior date, the honor therein is due to him as to priority of discovery.

In the foregoing pages, the means which conduce to the improvement of the soil, either by changing the form of the substances which already exist in it, or by adding those which may be defi-