attempt made to grow crops—an entire failure ensues. The one side, after the heaviest rains, gives no further colour to water than the most fertile loams; the other side* gives, after the operation of burning, a deeper tinge to the rain water than it had done heretofore, and the land is found to be far inferior in fertility to that on the opposite side which had been limed. In fact the whole of the cruciform plants died almost as soon as they had vegetated. Having seen what has taken place in what may be termed the large scale, we will take a little of the soil from each and pursue our experiments in the kitchen. We lay our two parcels on the kitchen table, and procure from the dame two clean tall ale glasses, usually christened tall-boys. We have already procured from the druggist two or three pennyworth of ammonia, commonly called hartshorn. Here we are set up with as complete a laboratory for the present investigation as though an expense amounting to £20 had been gone to for the purpose. After marking what description of soil is placed in each glass, we pour a little ammonia over each, rather more than will cover the same, say about a quarter of an inch. We sit down and mark the result—when the liquid in the glass containing a portion of the soil which has been only pared and burned will speedily appear of a deep brown colour, as before related. We await a little longer, to see if any change takes place in the glass which contains the rich garden (but limed) soil, but wait in vain; not the slightest appearance of change is to be seen. If the liquid in the last mentioned glass is now analyzed, we shall only find, in addition to the ammonia, a little potash, lime, &c. as the results. Not the slightest portion of carbon is held in solution, not a trace to be found. Now here is a complete contradiction to Mr. M'Turk's theory of lime acting upon or disorganizing the animal and vegetable remains, rendering them soluble, &c. for which, see quotation. Mr. Anderson also says, (quicklime) enters into the union with these organic substances and forms compounds partially soluble in water. Mr. Anderson does certainly afterwards state the *modus operandi* to be different when converted into a hydrate, but as he does not give the slightest proof of its doing so, the agriculturist may take it for what it is worth, viz., mere assertion.

Well, we are not quite satisfied that this striking difference is occasioned solely by the use of lime. We shall continue our experiments a little further, pour out the contents of the glass containing the soil which gives the colour to the ammonia, and wash the same clean. We put a little of the unlimed part again into it—we have a bottle of clean lime water ready for the occasion—we fill the glass to the brim with lime water; we let the same stand, and by this time (always suppose the evening is used for these experiments) it will be time for bed. After a sound sleep, which the fatigues of the previous day have fully prepared us to enjoy, we rise with the lark in the morning, go to the glass left the night before, with the lime-water and peat, and give the same a shake up, then proceed to our ordinary business. After the breakfast is over we snatch a couple of moments from our usual duties, we pay another visit to our glass, dip our finger in in order to taste the contents, and find that the strong alkaline taste so well known as lime-water has nearly, if not wholly, disappeared. If there is no perceptible taste of lime-water, we begin to think that it is time to see whether it is our senses have deceived us or that the lime-water really has disappeared. We go to the cupboard, (always safely locked, as the substance we are about to bring out is a deadly poison, and fatal results have ensued in consequence of having been mistaken for Epsom salts), we procure a little oxalic acid, and dissolve a very small portion in cold water; we pour a little fluid from the glass in which the lime water was placed over night into the vessel containing the oxalic acid in solution. Not the slightest change of color takes place—a certain sign that the whole of the lime contained in the water has been absorbed in some manner or other by the peat. Well, we continue repeating our experiment, daily pouring fresh lime-water over the peat, until at last (which will take some time, as lime is only held in solution in 780 times its own weight of water) we find that, on decanting the fluid into the solution of oxalic acid, it assumes a milky appearance, and a heavy white powder (the oxalate of lime) is eventually precipitated. We know now that the peat will absorb no more lime.† After this,

* This was, no doubt, caused by the great quantity of carbonate of potash set free by the burning, as potash combines with humic acid, forming humate of potash.

† This experiment can be performed by merely