

CHAPTER VII.

Improvement of Soils.

In the early days of agricultural chemistry, it was supposed that its most important object was the analysis of soils, and some striking results were occasionally obtained favoring this view of the subject. Occasionally analysis detected the absence of one or more essential constituents and thus indicated the remedy. Our expectations, in this respect, have not been realized; for as knowledge has progressed it has become apparent that, with the advancement of accuracy and minuteness in analysis, the difficulties have rather increased than diminished.

Although, in common with others, I expected much from this branch of research, I have been forced, I may say, reluctantly, to the conclusion that a reliance upon analysis *only* for sure indications of the causes of sterility in soils was delusive and would not hold good in practice. I have repeatedly expressed myself to this effect.

The first professional gentleman with whom I conversed, that fully agreed with me in this, was Prof. J. C. Booth, of Philadelphia. At this time such views prevail generally with chemists and others, who have devoted themselves to investigations connected with this important subject.

Among others, the distinguished Dr. Anderson, Professor of Chemistry in the University of Glasgow, and Chemist to the Agricultural Society of Scotland, has carefully investigated this branch of Agricultural Chemistry. The professor so fully expresses similar conclusions to those I had formed in this regard, that I cannot do better than to give them in his own language. He says:

“It has become more and more obvious that the question of the composition of a soil is one of extreme complexity. We are now convinced that it will be necessary to commence almost *de novo*, and discarding many of the observations hitherto made, endeavor to determine the fundamental principles upon which the fertility of a soil depends.

“It has been found that while in some instances it is possible to predict, with certainty, from analyses, that a particular soil is barren, in numerous others a barren and a fertile soil may approach so closely, in chemical composition, that it is scarcely possible to distinguish them from each other; and so much is this the case that the analyses of a soil must,