branch of knowledge among my agricultural friends that I wrote chapters 1, 2, 3, 4, 6 and 7 of the first report, to which I beg leave to refer them.

Agricultural books and serials teem with descriptions of manures and records of the results of their practical applications on a large scale, or in the way of comparative experiments with various kinds. And how much have we learned from this which is called the *practical* mode of judging of the value of each kind of manure? It is my belief that any farmer who has ever taken the trouble of comparing a sufficient number of these tabulated results of the application of manures will be more perplexed than ever. In one set he will find that a certain kind of guano, or an artificial fertilizer, proved better by far than all others, and which, perhaps in the next table, he will observe has proved inferior to many of them. Numerous results have been exhibited to prove the superiority of super-phosphates for a single crop, and yet I have stated on page 35 of the present report cases in Britain, as well as in this country, in which *inexpensive* gypsum produced a much greater yield of crop than the *costly* super-phosphate. There are causes for all this which should be examined into.

If the necessary enactments and appropriation which I suggested to the appropriate committees, four years since, had been made, it is my belief that by this time we should have completed at least the field work of a minute geological survey of the entire State. This would have embraced such investigations of our various kinds of soil as would have given us material aid in increasing their productiveness, and would have enabled us to clear up at least some of the doubts alluded to above.

Such provision not having been made I was left to struggle on in the cause with little aid, and it is now left for me to make the work already done as useful to the State as is in my power.

I must refer to the first report for views in reference to the analysis of soils, with the remark that at that time some agricultural chemists still maintained the efficacy of that means of determining the requirements of an exhausted soil. At present, however, I believe this idea, so very attractive to chemists, is generally abandoned. A true knowledge of soils and their wants can be derived by the means which I have indicated, including an intimate knowledge of the constituents of plants. We require, however, a thorough investigation, including analysis of every material that may be useful in improving them.

In studying the soils of Maryland we may divide them into two classes. First—Those which remain on the rocks by the disintegration of which they were produced; these