

These soils are very different in the quantity of their constituents, but their productive capacity does not differ in the same ratio, which shows that beyond a certain point all constituents are valueless, at least for present purposes; and that a comparatively small proportion of valuable constituents will suffice to produce a large crop, provided they be in an *active*, (that is in a condition fit to be taken up by the plant, and not in a *dormant*,) that is, in a state so insoluble that the crop cannot use them. This is confirmation of what I stated on page 29, that the *form* in which substances existed in the soil was almost of as much consequence as their actual presence. There are indeed many conditions upon which the productive capacity of soils depends. Nothing happens unless as a consequence of many causes; that one cause and one alone produces the effects which we see daily occurring is an erroneous idea. Many causes always do exist to produce the effects which we daily see around us. This is true, whether in relation to the material universe or in relation to those acts which are emanations from the human mind, and which react upon it. Nothing occurs without a variety of causes—the separate influence of each cause must be understood before we can know the origin of the effect; their nature, the full force of each, how they cooperate, how they antagonize, are all so many problems essential to their full understanding, essential to the ability to reproduce, to change or modify their reproduction. In manures we have no specifics, no panacea, nothing that will always act well. In soils then we must look to all the causes which produce fertility, to the composition of the soil, as to its chemical constituents, to its physical conditions, as to the solubility of their several constituents, to its location, as effecting the quantity of water which may remain upon it, and to the influence which atmospheric phenomena, rain, sun, &c., may exert upon it.

#### DIFFERENT SOILS OF THE THIRD GUBERNATORIAL DISTRICT, WITH DIRECTIONS TO SUPPLY THEIR DEFICIENCIES.

I shall not attempt here to give a precise description of each and every variety of the soil which occurs in this country; were I to say that each particular variety had been examined with a sufficient degree of minuteness to show the best mode of its cultivation and improvement, I ought either to be deemed incompetent to my duties or ignorant of their proper mode of performance. In plain language, I should have been either a knave or a fool. I describe those which comprise a large part of the district, which can be well known and recognized from their description, and which extend continuously over large sections of country.

I am aware of a difficulty which presents itself in naming soils not before named, but as a definition is only a short description,