

a long continued drought. Several plants are known to be endowed with these wonderful powers of adaptation ; and this knowledge might, no doubt, be turned to advantage both in the garden and in the field, — particularly if the investigation were prosecuted with diligence, and with a view to useful practical results.

We may remark too, generally, that the useful valuable products of plants bear some proportion to the fertility of the soil which produced them ; and that those plants which afford, in whatever form, the greatest amount of nourishment and valuable products generally affect the most fertile soils. That all vegetables, generally speaking, prefer moderate fertility to approaching sterility ; altho' several of inferior value can be more successfully, and, of course profitably cultivated, than the more productive varieties, on inferior soils.

We may now go on to state generally that as silica prevails beyond a certain proportion soils proportionally sink in the scale of fertility,—that when either alumina and carbonate of lime prevail and increase in just proportions, soils ascend in that scale.—That these two ingredients form the principal part of the highly comminuted or unpalpable portion of the best soils, and that they resemble one another in their affinity for moisture, and adhering to and combining with various fertilizing substances. That lime operates chemically in reducing and pulverising soils. That besides, it increases their powers of attracting and retaining moisture and carbonic acid from the atmosphere, and acts chemically in forwarding decomposition. That alumina,—as we have just mentioned,—has a great affinity for moisture. That magnesia in excess, and indeed some salts of Iron have been considered inimical to vegetation, although plants exist when it is present in large quantity. That the fertility of soils is mainly dependent upon the proportions of decomposing and decomposable matter present, and their capacity for admitting the free action of atmospherical influences. That, deprived of moisture, or, if, by a fall of temperature to 32 and below it, the moisture be congealed, all soils are incapable of communicating nourishment to plants ; and that this important solvent or menstruum percolating through the soil, dissolving and holding in suspension the salts, gasses, extractive and other matter with which it comes in contact, furnishes to all plants the measure of the nourishment which they derive from the soil. We now come to consider the admixture of soils best adapted for the germination and growth of some of the useful plants, the objects of cultivation. But, before proceeding to this our special task, we may state abstractly of the three principal substances or components of soils :

That the degree of cohesiveness in soils depends on the quantity of finely divided matter they contain ; that their adhesiveness increases with great rapidity with a small additional proportion of alumina ; more particularly on a retentive subsoil ; tho' it is possible that this may be obviated, perhaps to a greater extent than is at present dreamt of, by means of thorough and effectual drainage. That in such a soil the interstices, or minute cells and passages enclosed within or pervading it, are filled with water, which necessarily excludes the atmospheric