

table soil lie beneath strata of other matters ; and where they occur in this position, the overlying strata are either of volcanic or of alluvial origin. Of the former case, a very remarkable example occurs in the Isle of Bourbon, in which large tracts covered with vegetables and even trees, have been laid waste and overwhelmed by streams of lava ; and large rivers in their overflowings occasionally leave deposits of various characters, over the productive soil containing remains of formerly existing plants.

Productive soil, as well in regard to its *situation* as to its *constitution*, depends upon the nature and condition of the rocks which form the solid mass of the earth. It is always of secondary formation, compared with the rock on which it rests, its principal parts usually originating from the decomposition of this rock. While the forms of the surface of the solid mass of the earth, have much influence upon the action of the atmosphere, they also in some degree modify that of climate. From these circumstances it would appear that the solid substrata of productive soil exert an influence in various ways upon vegetables ; whence it follows that, in order to obtain a more intimate knowledge of the conditions which operate upon their existence, it is necessary to call in geology to our assistance.

Although the scientific study of agriculture has made great progress in our times, the relations which exist between the constitution of the solid crust of the earth, and the formation and nature of vegetable soil, present a wide field for investigation. Geologists have hitherto too much neglected the examination of the productive covering of the earth, and those who have treated scien-