

productive; or, where rocks of a different nature alternate with masses of pure limestone, having a greater capability than it of contributing to the formation of productive soil. When water, containing carbonic acid, passes through limestone rocks, it dissolves portions of it, and deposits them in other places, by which the decomposition of the limestone and the formation of loose earth may be in some measure accelerated.

To the third class belong *chalk* and *gypsum*; which, in so far as regards their decomposition by chemical means, are of a similar nature with compact limestone; but possessing a much slighter cohesion of parts, are more liable to be broken down by mechanical means. Water also dissolves gypsum, and thus assists in its disintegration. The soil arising from these rocks resembles that produced by compact limestone, which explains the want of fertility, observable in certain gypseous tracts of the North of Germany, and in the chalk districts of France. The fertility which we see in certain places where chalk is the fundamental rock, as in the Isle of Wight, Island of Rugen, &c. is to be attributed as well to argillaceous and marly strata alternating with the chalk, as to the greater humidity of the atmosphere, by which the dryness and heat of the soil are diminished.

In the fourth class we place certain rocks, composed of different minerals, but compact in appearance, which, although they resist mechanical disintegration, are yet subject to chemical action, and are, by means of it, converted into a loose, compound productive soil. Of this kind are *basalt*, and some other rocks very nearly allied to it.

To the fifth class we refer those rocks which have