

mechanically on the soil, and renders the clay or sand with which it is intermixed, better suited to the proper expansion of the roots, and more disposed to modify the power of retaining or absorbing the requisite degree of heat and moisture, which particular vegetables may demand.

Where earths are properly intermixed, instances are known of land producing a succession of good crops for many years, without fallowing or manure. On the summit of Breedon Hill, in Leicestershire, I have seen a luxuriant crop of barley growing on land, that had borne a succession of twenty preceding crops without manuring. This is more deserving notice, being in an exposed and elevated situation, and upon the very hill of magnesian limestone, which has been so frequently referred to by chemical writers, as peculiarly unfavourable to vegetation. The limestone of this hill contains above 20 per cent. of magnesia.*

The temperature requisite for the growth of plants is influenced by the power of different soils to absorb and retain heat from the solar rays, which depends much on their moisture and tenacity. "It is a well known fact, that the vegetation of perennial grasses in the spring, is at least a fortnight sooner, on limestone and sandy soils, if not extremely barren, than on clayey or even in deep rich soils: it is equally true, but perhaps not so well known, that the difference is more than reversed in the autumn."—*Observations on Mildew, by J. Egremont, Esq.* This effect Mr. E. ascribes, with much probability, to the rich or clayey soils absorbing heat slowly, and parting with it again, more reluctantly than the calcareous soils, owing to the greater quantity of moisture in the clay, which is an imperfect conductor of heat.

Calcareous soils might frequently be much improved by a mixture of clay, sand, or gravel, which, in many situations, is practicable with little expense, and would well reward the labour of the experimental agriculturist.

Calcareous Tufa.—Beside the new land formed by alluvial depositions, beds of calcareous tufa are sometimes formed in valleys, and at the bottom of lakes, by a process which bears some analogy to chemical formations. Springs that issue from limestone strata, and therefore contain carbonic acid, often hold particles of carbonate of lime chemically dissolved in the water; but, on exposure to air and light, the carbonic acid, having but a slight affinity for the particles of limestone, evaporates, and leaves them to precipitate and form calcareous incrustations: these, in a course of years, form thick beds, and are, sometimes, sufficiently hard to be used for building-stone.

* The magnesian lime acts, more powerfully, in destroying undecomposed vegetable matter than common lime, and its effects on land are more durable: hence it is in reality of greater value in agriculture, as a much smaller quantity will answer the same purpose.