

figuration of these vallies * in those circumstances which adapt them for the channels which drain the countries they traverse, and convey their waters to their final receptacle, and at the same time their principal source, the ocean. In almost all of them† we shall see numerous branches ramifying over extensive tracts as if to collect in the most efficient manner the aqueous supplies, and at length inosculating into a principal trunk opening into some æstuary ; and we shall trace a regular and continuous slope from the extremity of the branches to the mouth of the trunk, calculated to urge the descent of the waters through the whole system.

Now this configuration is exactly that which would necessarily be produced by the action of waters scooping out channels for their passage in draining themselves off from the face of a country. We may daily see the same operation repeated in miniature by the drainage of the retiring tide on muddy shores, especially in confined æstuaries where the fall is considerable and rapid.

That such has been in fact the agency which has in every instance greatly modified, and in many entirely produced, the inequalities which now mark the earth's surface, giving rise to all its beautiful variety of hill and valley, phænomena of the most decisive character, constituting a body of evidence as nearly approximating to demonstration as the nature of the case can admit, leave no reasonable ground to doubt. Of these we shall proceed to give a brief exposition, reserving for the body of the work their fuller consideration, and their illustration by a copious induction of examples from every part and every formation of the island.

We must begin, however, by remarking that many of the theories advanced on this subject appear defective in two points. First, because, ascribing every thing in the formation of vallies to the agency of running waters, they entirely overlook the effect which must have been produced by the violent convulsions which appear in so many instances to have broken and elevated the strata, and must in so doing have necessarily formed a surface diversified by many and great inequalities ; we should therefore perhaps take a more just as well as more com-

* There are some excellent remarks on this subject in one of those earlier memoirs which anticipated the regular and full developement of geological science, *Packe's Memoir for a Map of East Kent*, published 1737: it is needless to refer to the later materials accumulated in *Playfair's* illustrations.

† The only exceptions are, first, the vallies which terminate in inland lakes unconnected with the ocean, and secondly, with regard to the regular and uniform slope of the districts in which chains of lakes abound; these will be hereafter considered.