



It is impossible to conceive a more striking picture of derangement, apparently resulting from the operation of violent convulsions, than is here presented; and however we may doubt whether the details of the section are perfectly ascertained, it is impossible that such a representation could have been formed, did not the greatest disturbance actually exist.\*

§ 10. The appearances exhibited by the numerous vallies which furrow the earth's surface, and certain allied phænomena presently to be stated, will properly form some of the concluding objects of enquiry to the geological observer, as being connected with the most recent of those causes which have modified that surface, previously to its passing into the state in which we now behold it, and becoming subject to the order of causes which still prevails.

The first thing that will strike him will be the regular con-

\* It seems impossible to deny that, if the only change which took place during the formation of the strata, were a regular and gradual subsidence of the level of the ocean, the phænomena ought to be exactly in accordance with the above Wernerian exposition; but if we suppose that, during their formation, the continents were elevated by mechanical forces acting in a series of great convulsions, we shall perhaps obtain a nearer approximation to agreement with the actual phænomena, as deduced from observation. If these convulsions resulted from volcanic agency, we have before seen that there is every reason to believe this cause to have acted with most violence in the earliest periods; and this will sufficiently account for the greater derangement of the older rocks. In many instances, as might be anticipated, in countries least raised above the level of the sea, the subsequent formations seem, from their nearly horizontal position and regular conformity to each other, to have experienced only a gradual and gentle action of the elevating forces, and here and here only we may expect to find and do find an accordance with the Wernerian view; but in the more lofty and mountainous countries, where we should conclude (if we suppose these chains to have been raised by convulsions of the nature described) that those convulsions must have raged with violence during much longer periods, we shall accordingly find that the derangements do actually extend through a far more extensive range of geological formations; and observe comparatively recent strata exhibiting the same phænomena, of high inclination, contortion, and irregularity.