

one, though specially looking out for them in many regions, and I believe that they have been only assumed by persons who have not realised the meaning of denudations on a large scale, and therefore are apt to consider hills and valleys as the result, mainly, of disturbance and dislocation. From repeated examination, I feel indeed assured, that the Swiss and other valleys generally, and the lake-valleys in particular, do not lie in gaping rents, fissures, or in synclinal curves; and, indeed, after half a life spent in mapping rocks, I believe that there is no *necessary* connection between fractures and the formation of valleys, excepting that in certain cases *a line of close fracture was also a line of weakness*, on which the watery agents that promote denudation were more easily able to work, especially, if on each side of the fault the rocks happen to be of different degrees of hardness.

It might, however, be said that these lakes lie in *areas of special depression*, made by the sinking of the land underneath each lake. So difficult indeed did it seem to Playfair, the great illustrator of Hutton, to account for the origin of the rock-basin in which the Lake of Geneva lies, that he was forced to propound the hypothesis that beds of salt had been dissolved underneath its bottom, which therefore sunk, and so formed a hollow for the reception of its waters. Lakes are, however, so numerous in the Alps, North Wales, Cumberland, and the Highlands of Scotland, where they occur by the hundred, and in part of North America by the thousand, that I feel sure the theory of a particular depression for each lake, will not hold in these or in any other northern or southern region that has been acted on by glacier-ice on a great scale. In that part of North America which lies well east of the Rocky Moun-