

continually from the mountains toward the plains, and in the middle of these is sometimes evanescent. Near London, for example, and on the coast of England generally, strata, though not level, dip moderately (1° or 2°) toward the east; but on the line to North Wales the dip augments; on the border of the Principality it measures 5° , 10° , 15° , and in the range of the Berwyn mountains, 30° and 40° , or still higher angles.

The direction of mountain chains, and the position of mountain groups, being extremely diversified, the lines of strike and dip of the strata which depend upon them are also very various. Perhaps in the progress of the science some law of these directions may be established: in the progress of this essay we shall examine one such attempt by a distinguished foreign geologist. At present the most important things taught us by the phenomena of dipping strata are these:—1. The dip is related to the elevation of ground; and 2. The strata do not descend from one mountain chain below the surface of plain countries more than a very moderate depth (four to five miles) before they begin to rise again toward another axis of elevated ground.

The principal mountain chains and groups are thus seen to be the axes of declination of the stratified rocks; and it was not without reason that De Saussure explored with so much patience the giant elevations of Switzerland, Dr. Hutton and Werner studied the Scottish and Saxon chains, and Mitchell with a grand generalisation referred to the leading features of physical geography as a basis of laws of geological phenomena. The axes of mountain chains and groups being before shown to be generally occupied by unstratified rocks, we have arrived at the important inference, that the dip, or deviation of stratified rocks from the horizontal position, depends on the same axes or centres as the exhibition of unstratified rocks: the production of the latter is therefore in some way connected with the declination of the former.

If we suppose the unstratified rocks to have been