

broken in the line of their rise, and the same stratum may crop out in one place, and appear again, farther on, in the line of its rise, as represented Plate I. fig. 2. We must be particularly attentive to this circumstance, otherwise we may commit the most egregious errors in describing a country which we have travelled over, where there is no opportunity of seeing a section of the strata. Thus, in fig. 2., after passing over the beds 1, 2, 3, 4, and having no easy method of ascertaining the dip, we may, without great care, mistake the beds 4, 3, 2, 1, as different and lower beds in the series. Ebel and many flying geologists have made this mistake. In some instances we come suddenly to the termination of a whole series of strata, as in descending the Cotswold Hills into the Vale of Severn; the limestone called Roe-stone, of which they are principally composed, is not found on the other side of the valley, nor in any part of England to the north-west of it. Has this limestone ever extended farther westward? and if it has extended farther, by what cause has it been removed? These enquiries will be adverted to in a following chapter.

To return to our pasteboard planes, arranged as before described, with the edges rising from under each other in the conformable position. If we take another series of planes, and lay them flat over the outcropping edges of the conformable series, we shall then have the unconformable position represented, Plate I. fig. 3. Now, the strata that cover the lower stratified class in England occur in this position; and the following important inference may be drawn from it, namely, that the under stratified rocks had been formed, and their strata broken and raised up, at a period which must have preceded the formation of the upper series, by a considerable interval; for, the lower series were evidently solidified, and, afterwards, in many instances broken, and the fractured edges of the strata levelled, before the upper strata were deposited upon them.

The most common error which persons commencing the study of geology are liable to make, is in mistaking the apparent for the real inclination of the strata. Plate I. fig. 4. will render this more intelligible than any description. It represents a portion of a stratified mountain, of which the strata have a considerable dip to the east. If the escarpment or section be made in the line of bearing, C D, the strata will appear to range from north to south, without any rise or dip, and would be described by a young observer, as being horizontal. But if an opening or section be made, on the side parallel to the line of dip, as at C C, the true inclination will be seen. Any section, made in an oblique direction to the line of dip, will cause the inclination to appear less than the true one, and the line of dip will appear to vary from the true dip. The chances, therefore, are very great against the natural section made in a mountain presenting the true dip and inclination of the strata. Another error which a person who does not attend to the dip and direction of the strata may