

but in all probability society could not have been formed, and civilization would have been unknown.

Some of the difficulties which attend the investigator in an attempt to determine whether a rock be stratified have been noticed, but his difficulties will not vanish when he has convinced himself of its stratification; this is only the first step in the practical investigation of a district, and it is not improbable that he will take the apparent for the real stratification. There are two aspects, the front and the side view, in which a stratified bed may be examined. Take a number of boards, a foot long and three or four inches wide, and arrange them so as to represent strata emerging from beneath each other. If these be viewed in the direction of their shorter length, an accurate notion of their stratification will not be obtained, for the real stratification is in the direction of their length.

It will now be readily conceived that a beginner may easily be deceived by mistaking the apparent for the real inclination of the strata, and describe beds as perfectly flat which have a considerable dip. Suppose the beds to range north and south, it is possible that there may be no natural section in that direction by which the true inclination can be seen, and a section in any other direction will make the dip to appear less than it is.

The student must also be careful to examine the relative positions of the beds, for in this respect he may be easily led into error. One bed must not be supposed to be above another, because it is found at a greater height, or forming a hill, while the other occupies the valley. The relative height of two beds is no criterion in determining their relative position.

In examining a district composed of stratified rocks, the student may experience some difficulty from the intersection of valleys. Passing from one place to another he may meet with the same rock two or three times, and be led to imagine that it occurs two or three times in the series. In this manner the beginner is often greatly perplexed, not remembering the relative heights of the places in which he finds the frequently occurring bed.

This may be explained by the accompanying figure; for a traveller, walking over the district it represents, would come upon the same rock five different times; and as it is not so easy to see the relation which one rock bears to another