

stratified and unstratified rocks. In the plains, and comparatively low portions of the earth, the rocks are almost universally stratified, — the strata being often very thin, even to inches, but sometimes many yards or fathoms in thickness. The superficial area, over which a particular stratified rock expands, is sometimes enormous, — chalk, for instance, has a range of many hundred miles in length, by 5, 10, 20, or more in width, in England and France, — but sometimes very limited, as the magnesian limestone of the north of England, which ranges from Shields to Nottingham.

In more elevated districts, and on the flanks of mountainous regions, the rocks are also seen to be distinctly stratified. By patient attention it will be found that, even in the very midst of chains and groups of mountains, the marks of stratification may often be perceived; but it almost always happens that the axis of such chains or groups is formed by unstratified rocks, and these sometimes appear in lower situations.

*Position of Rocks with respect to the Surface of the Earth. — Declination of Strata.*

Stratified rocks have usually a nearly constant thickness, or else vary in this respect by insensible and regular gradation; their surfaces, or the *planes of stratification*, are therefore in general sensibly parallel, and their position may be known with respect to the surface of the earth, by observing the bearing of a level line (or *strike*) in the plane of stratification, and the angular amount of the descending slope (*dip*) or ascending slope (*rise*). The result of very numerous trials proves that the strata are over large surfaces often nearly but seldom quite horizontal; they dip, in fact, below the horizon, pass under the surface, and are covered up by other strata which also mostly dip in the same direction. Thus the surface of the earth in regions where stratified rocks occur is formed partly on their edges; and a *section*