raised from below, the position of the strata, the relations of physical geography, and the relations of the two classes of rocks would be at once explained. In order to see what foundation may exist for such a speculation, let us inquire into further details and other cases of the position of stratified and unstratified rocks.

Local Declinations and unusual Positions of Strata, &c.

It is not only in mountainous regions that the strata are found dipping at high angles; the same phenomena are repeated on a smaller scale, and for smaller distances, at many points situated in the midst of the great basins of strata far from the principal axes of declination.

The appearances presented at these points of disturbed stratification are extremely various, but they admit of a simple and useful classification. Nothing is more common, in many large districts, than a slight elevation of the plane of stratification along a certain straight line, so that the rocks decline from it on both sides, as *a*, diag. No. 8. This is called an *anticlinal axis*, and the elevated ridge a *saddle*. Its converse (*b*), the line to which the strata decline, is called a *synclinal axis*, and the whole depression a *trough*.

It not unfrequently happens, on a small scale, as in the Craven district of Yorkshire, in the Abberley hills, Clee hills, the shores of Berwickshire, &c., and still more frequently and remarkably on a great scale, among the Alps (Vale of Chamouni, Lauterbrun, &c.), that the strata near an anticlinal axis, instead of being formed in evenly declining planes, are twisted and contorted in several directions, as if exceeding violence had been repeatedly exerted in lateral as well as vertical directions (*c*). In many instances (as on the line of the Penine fault near Crossfell, near Kirby Lonsdale, and near Lancaster), the strata are reared on end, so as to be nearly or actually vertical (*d*); in other rarer examples (Malvern hills) they are totally overthrown, or, after having been raised to a vertical position, the upper parts have been