

the formation of the coal-strata, we shall find such an hypothesis sufficiently in accordance with their general phænomena.

It seems probable that the coal-strata were originally much more nearly horizontal than at present, and that they owe their present contorted disposition to subsequent convulsions. In the last book of this work we shall have to consider evidence nearly demonstrative of this.

It may be objected that, if the coal had really been deposited in æstuaries, we ought to find fuci and algæ among its vegetables; but their absence is only a circumstance common to this and every other formation, though the great majority of them are undoubtedly of sub-marine origin, and many that are clearly such, as for instance the Stonesfield slate, contain other vegetable remains.

(*d*) *Range and extent.* This article is necessarily deferred, from the arrangement adopted in the present book, to the chapters which treat of the local distribution and phænomena of the coal-fields.

(*e*) *Elevation.* The particulars referable to this head will likewise be found incorporated in the following chapters; but it may be stated generally, that the coal-measures often form hills exceeding one thousand feet in height, but generally inferior to those formed by the subjacent grit, &c.

(*f*) *Thickness.* The greatest ascertained thickness is probably that of the Northumberland series, exceeding 180 fathoms, but this circumstance varies so greatly that no general remark can be made.

(*g*) *Inclination.* The strata are generally inclined, and frequently at a very high angle, being entirely unconformable to those more horizontal beds which we have hitherto described, and which overlie them; they frequently also exhibit contortions as rapid and singular as those which have been so often described and figured in the transition slate rocks: appearances of this kind are displayed in a manner particularly striking on the coasts of Bridesbay Pembrokeshire, near Littlehaven. It may be observed that where the associated solid masses of limestone and sandstone are elevated in high angles, but still disposed in nearly regular planes, the more tender argillaceous beds are generally twisted, and as it were crumpled together. The Mendip hills and adjacent collieries in Somersetshire afford an excellent illustration of this fact, which strongly suggests the idea of a mechanical force which has elevated the more solid rocks en masse; while the more yielding materials, giving way to its lateral pressure, have become irregularly contorted. These phænomena cannot be attributed to any internal power like crystallisation; for they appear to be common to all rocks,