

*Diluvial and Alluvial.*—Considerable portions of the surface of the ground are, in many countries, covered with thick beds of gravel, sand, or clay, and fragments of rock and loose stones, more or less rounded by attrition. In some situations, these have evidently been transported from a vast distance, for frequently no rock similar to the fragments occurs within a hundred miles or more of the place where they are deposited. They indicate the action of torrents and inundations, which have swept over the face of our present continents. The French have given to these depositions the name of *terreins de transport*, a name which defines them precisely, and involves no theory; for it comprises, both, deposits formed, suddenly, by mighty irruptions of the ocean, and alluvial deposits, formed by the gradual deposition of sediment at the mouths of rivers or in lakes.

The classes of rocks above enumerated have their appropriate mineral productions, and, with the exception of rocks of the first and fifth classes, their appropriate organic remains; and it would be as useless to search for regular beds of common coal in the primary rocks, as it would be to search for metallic veins, or statuary marble, in the tertiary strata.

It has been before stated, that we cannot be absolutely certain that rocks of the same class and of a similar kind in distant countries were formed at the same time. This is more especially the case with rocks that contain no organic remains, such as granite, porphyry, and volcanic rocks, as it is only from their relative position that we can obtain evidence respecting their geological antiquity. Those rocks which generally serve as the foundation for the other classes are inferred to be the most ancient. Strata in the same class, that contain similar species of organic remains, are admitted to belong to the same geological epoch, and to have been deposited under the same condition of the globe; yet admitting that certain distant strata were of coeval formation, it may be proved, that portions of the same series of strata have emerged from the ocean at different intervals of time, and that certain parts of the present continents have become dry land at very distant and remote epochs. The period when rocks or strata were first deposited has no necessary connection with the period of their elevation, as will be afterwards more fully stated.

I shall proceed to elucidate the situation of the different classes of rocks in England, by a reference to the outline map, Plate 6.

The waving line *A A A*, extending from the south-west of Dorsetshire to the county of Durham, forms a striking geological division of England: all the land on the east of this line is composed of the upper secondary and tertiary strata, in which neither metallic veins nor regular beds of mineral coal are found. The tertiary strata lie over the upper secondary, within the parts bounded by the letters *o o o o*. On part of the eastern coast of Yorkshire and Lincolnshire, there is a submarine forest about seventeen feet under the present highwater