

southwest of England, round which the Trias and Lias were deposited. Denudation has stripped off a portion of the overlying red marls. If the rest of the section to the left of the dotted line (*d d*) were removed, there would remain a continuous mass of conglomerate, which, in default of other evidence to the contrary, would be regarded as one bed laid down upon the sloping surface of limestone, instead of, what it really is, a series of shore gravels piled upon each other, and belonging to a consecutive series of deposits.

Mere difference of lithological character, even within a limited geographical space, does not necessarily mean diversity of age. At the present day, coarse shingle may be formed along the beach, at the same time that the finest mud is being laid down on the same sea-bottom further from land. The existing differences of character between the deposits of the shore and of the opener sea would no doubt continue to be maintained, with slight geographical displacements, even if the whole area were undergoing subsidence, so that a thick group of littoral deposits might gather in one tract, and of deeper-water accumulations in another.

Among the formations of former geological periods, the same conditions of deposition appear sometimes to have continued for enormous periods. The thick Carboniferous Limestone of western Europe evidently accumulated during a slow subsidence, when the same conditions of clear water with abundant growth of crinoids, corals, etc., continued for a period vast enough to admit of the gradual growth of thousands of feet of calcareous matter. Traced northward into Scotland, this massive limestone is gradually replaced by sandstones, shales, ironstones, and coal-seams. These strata prove that the deeper and clearer water of Belgium, central England, and Ireland passed northward into muddy flats and sandy shoals, which at one time were overspread with coal-growths, and at another, owing to more rapid subsidence, were depressed beneath the clearer sea which brought with it the corals, crinoids, mollusks, etc., whose remains are now to be seen in intercalations of crinoidal limestone.