

that the level of the bed of the sea and the adjoining land was stationary or was undergoing slow upheaval.

How far some of the great violations of continuity which now exist in the chronological table of fossiliferous rocks, will hereafter be removed or lessened, must at present be mere matter of conjecture. The hiatus which exists in Great Britain between the fossils of the Lias and those of the Magnesian Limestone, is supplied in Germany by the rich fauna and flora of the Muschelkalk, Keuper, and Bunter Sandstein, which we know to be of a date precisely intermediate; those three formations being interposed in Germany between others which agree perfectly in their organic remains with our Lias and Magnesian Limestone. Until lately the fossils of the Coal-measures were separated from those of the antecedent Silurian group by a very abrupt and decided line of demarcation; but recent discoveries have brought to light in Devonshire, Belgium, the Eifel, and Westphalia, the remains of a fauna of an intervening period. This connecting link is furnished by the fossil shells, fish, and corals of the Devonian or Old Red Sandstone group, and some species of this newly intercalated fauna are found to be common to it and the subjacent Silurian rocks, while other species belong to it in common with the Coal-measures. Whether we shall ever succeed in like manner in diminishing greatly the hiatus which still separates the Cretaceous and Eocene periods in Europe cannot now be foreseen, but we must be prepared to expect, for reasons before stated, that some such chasms will for ever continue to occur in some parts of our sedimentary series.

*Consistency of the theory of gradual change, with the existence of great breaks in the series.*—To return to the general argument pursued in this chapter, it is assumed, for reasons above explained, that a slow change of species is in simultaneous operation everywhere throughout the habitable surface of sea and land; whereas the fossilization of plants and animals is confined to those areas where new strata are produced. These areas, as we have seen, are always shifting their position; so that the fossilizing process, by means of which the commemoration of the particular state of the organic world, at any given time, is affected, may be said to move about, visiting and revisiting different tracts in succession.

To make still more clear the supposed working of this machinery, I shall compare it to a somewhat analogous case that might be imagined to occur in the history of human affairs. Let the mortality of the population of a large country represent the successive extinction of species, and the births of new individuals the introduction of new species. While these fluctuations are gradually taking place every where, suppose commissioners to be appointed to visit each province of the country in succession, taking an exact account of the number, names, and individual peculiarities of all the inhabitants, and leaving in each district a register containing a record of this information. If, after the completion of one census, another is immediately made on the same plan, and then another, there will, at last, be a series of