

the present day. It is preferable, therefore, to believe that no such violent processes of destruction and re-peopling took place, but that the great and marked break in the life of the two periods indicates an enormous lapse of time. The Cretaceous animals, in consequence of the elevation of the British area at the close of the Cretaceous period, must have mostly migrated, some doubtless perishing, and others probably becoming modified in the process. When the British area became once more submerged beneath the sea and became again a fitting home for marine life, an immigration into it would set in from neighboring seas. By this time, however, the Cretaceous animals must have mainly died out or must have been greatly altered in characters; and the new immigrants would be forms characteristic of the Lower Eocene. How long the processes here described may have taken, it is utterly impossible to say, even approximately. Judging, however, from what we can observe at the present day, the palæontological break between the Chalk and the Eocene indicates a perfectly incalculable lapse of time; for all species change slowly, marine species especially so, and we have here the disappearance of a whole and entire fauna, and its replacement by another wholly distinct.

In the second place, to come to the physical evidence, the Eocene strata are seen to rest upon a denuded and eroded surface of Chalk, and to fill up "pipes" and winding hollows which descend far below its general surface. Not only so, but the base of the Eocene Rocks is commonly composed of a bed of rolled and rounded flints, derived from the Chalk, and affording unquestionable proof that the Chalk had been subjected to great denudation before the Eocene beds were deposited upon its surface. In short, the Eocene strata rest "unconformably" upon the Chalk; and this, as is well known, indicates the following sequence of phenomena:—Firstly, the beds of Chalk were deposited in a horizontal position at the bottom of the sea. Secondly, at some wholly indefinite time after its deposition, after it had become more or less consolidated, the Chalk must have been raised by a gradual process of elevation above the level of the sea, during which it must inevitably have suffered vast denudation. Thirdly, after another wholly indefinite interval, the Chalk was again submerged beneath the sea, in which process it would be subjected to still further denudation, and an approximately level surface would be formed upon it. Fourthly, strata of Eocene age were deposited