

paratively rare occurrence of a stray individual being killed whilst swimming a river or being mired in a bog; but there are other cases, for which other explanations must be sought.

II. *Unrepresented Time*:—In the second place, I have had occasion to point out before that the *geological* record, or the series of the stratified deposits, is itself very imperfect; and this of necessity causes vast gaps in our palæontological knowledge. In this connection I may briefly review the evidence which we possess as to the immensity of the "unrepresented time" between some of our great formations; and I cannot do better than take the case of the Cretaceous and Eocene Rocks, though any other would do as well. In examining such a case, the evidence may be divided into two heads, the one palæontological, the other purely physical, and each may be considered separately.

The Chalk, as is well known, constitutes the highest member of the Cretaceous formation, and is the highest deposit known in Britain as appertaining to the great Secondary or Mesozoic Series. It is directly overlaid in various places by strata of Eocene age, which form the base of the great Tertiary or Kainozoic Series of rocks. The question, then, before us is this—What evidence have we as to the lapse of time represented merely by the dividing-line between the highest beds of the Chalk and the lowest beds of the Eocene?

Taking the palæontological evidence first, it is found that out of five hundred species of fossils known to occur in the Upper Cretaceous beds in England, only one *Brachiopod* and a few of the *Foraminifera* have hitherto been detected in the immediately overlying Eocene beds. These, on the contrary, are replete with fossils wholly distinct from the Cretaceous species. It may be said, therefore, that the entire and very extensive assemblage of animals which lived in the later Cretaceous seas of Britain had passed away and become extinct before a single grain of the Eocene Rocks had been deposited. Now, it is, of course, open to us to believe that the animals of the Chalk sea were suddenly extinguished by some natural agencies unknown to us, and that the animals of the Eocene sea had been as suddenly and in as obscure a manner introduced *en masse* into the same waters. This theory, however, calls upon the stage forces of which we know nothing, and is contradicted by the whole tenor of the operations which we see going on around us at