

place it among the known causes of change which in this chapter we are considering. The bare conviction that a creation of species has taken place, whether once or many times, so long as it is unconnected with our organical sciences, is a tenet of Natural Theology rather than of Physical Philosophy.

[2nd Ed.] [Mr. Lyell has explained his theory¹³ by supposing man to people a great desert, introducing into it living plants and animals; and he has traced, in a very interesting manner, the results of such a hypothesis on the distribution of vegetable and animal species. But he supposes the agents who do this, before they import species into particular localities, to study attentively the climate and other physical conditions of each spot, and to use various precautions. It is on account of the notion of design thus introduced that I have, above, described this opinion as rather a tenet of Natural Theology than of Physical Philosophy.

Mr. Edward Forbes has published some highly interesting speculations on the distribution of existing species of animals and plants. It appears that the manner in which animal and vegetable forms are now diffused requires us to assume centres from which the diffusion took place by no means limited by the present divisions of continents and islands. The changes of land and water which have thus occurred since the existing species were placed on the earth must have been very extensive, and perhaps reach into the glacial period of which I have spoken above.¹⁴

According to Mr. Forbes's views, for which he has offered a great body of very striking and converging reasons, the present vegetable and animal population of the British Isles is to be accounted for by the following series of events. The marine deposits of the *meiocene* formation were elevated into a great Atlantic continent, yet separate from what is now America, and having its western shore where now the great semi-circular belt of gulf-weed ranges from the 15th to the 45th parallel of latitude. This continent then became stocked with life, and of its vegetable population, the flora of the west of Ireland, which has many points in common with the flora of Spain and the At-

¹³ B. III. c. viii. p. 166.

¹⁴ See, in *Memoirs of the Geological Survey of Great Britain*, vol. i. p. 336, Professor Forbes's Memoir "On the Connection between the Distribution of the existing Fauna and Flora of the British Isles, and the Geological Changes which have affected their area, especially during the epoch of the Northern Drift."