mean temperature *in all latitudes*, that scarcely any of the pre-existing races of animals would survive; and, unless it pleased the Author of Nature that the planet should be uninhabited, new species would then be substituted in the room of the extinct. We ought not, therefore, to infer that equal periods of time are always attended by an equal amount of change in organic life, since a great fluctuation in the mean temperature of the earth, the most influential cause which can be conceived in exterminating whole races of animals and plants, must, in different epochs, require unequal portions of time for its completion.

Map showing the extent of surface in Europe which has at one period or another been covered by the sea since the commencement of the deposition of the older or Eocene Tertiary strata.

THIS map will enable the reader to perceive at a glance the great extent of change in the physical geography of Europe, which can be proved to have taken place since some of the older tertiary strata began to be deposited. The proofs of submergence, during some part or other of this period, in all the districts distinguished by ruled lines, are of a most unequivocal character; for the area thus described is now covered by deposits containing the fossil remains of animals which could only have lived in salt water. The most ancient part of the period referred to cannot be deemed very remote, considered geologically; because the deposits of the Paris and London basins, and many other districts belonging to the older tertiary epoch, are newer than the greater part of the sedimentary rocks (those commonly called secondary and primary fossiliferous or paleozoic) of which the crust of the globe is composed. The species, moreover, of marine testacea, of which the remains are found in these older tertiary formations, are not entirely distinct from such as now live. Yet, notwithstanding the comparatively recent epoch to which this retrospect is carried, the variations in the distribution of land and sea depicted on the map form only a part of those which must have taken place during the period under consideration. Some approximation has merely been made to an estimate of the amount of *sea converted into land* in parts of Europe best known to geologists; but we cannot determine how much land has become sea during the same period; and there may have been repeated interchanges of land and water in the same places, changes of which no account is taken in the map, and respecting the amount of which little accurate information can ever be obtained.

I have extended the sea in some instances beyond the limits of the land now covered by tertiary formations, and marine drift, because other geological data have been obtained for inferring the submergence of these tracts after the deposition of the Eocene strata had begun. Thus, for example, there are good reasons for concluding that part of the chalk of England (the North and South Downs, for example, together with the intervening secondary tracts) continued