

became brackish, or alternately salt and fresh, so that fresh-water and marine shells were mingled in the blue argillaceous sediment at the bottom. Thirdly, the shoaling continued until the river water prevailed, and was no longer habitable by marine testacea, but fitted only for the abode of fluviatile species and aquatic insects. Fourthly, a peaty swamp or morass was formed, into which trees and terrestrial animals, as deer, were occasionally drifted by land floods. Lastly, the soil, being only subject to periodical inundations from the river, became a verdant plain, through which the narrow Ouse now winds its way to the British Channel. It is in alluvial deposits of this kind *that the remains of man first appear*: human skeletons, and the rude instruments of a half-civilized race, are found associated with the bones of animals which still inhabit this country, and in some instances intermixed with the osseous remains of a few species that appear to have been extirpated by man.

Such are the results which a review of the geological phenomena of the south-east of England offers to our consideration. We have evidence of great physical mutations of the surface of the earth—of vast changes in the temperature of the climate; and we perceive that these revolutions were accompanied by a corresponding alteration in the forms of organic life: these are general conclusions, which cannot be disputed, although the laws that governed these co-existing phenomena may be concealed from our view. It is, however, obvious, that the great changes which have taken place in the relative proportion of the land and water, must have materially influenced the temperature of the climate, and consequently the geographical distribution of animals and vegetables. Mr. Lyell has treated this question in a very luminous and admirable manner, and has shown that there is every reason to conclude that since the commencement of the tertiary period, the dry land in the northern hemisphere has been increasing; not only because it is now greatly in excess beyond the average proportion which land generally bears to water on our planet, but because a comparison of the secondary and tertiary strata affords indications throughout the space occupied by Europe, of a transition from the condition of an ocean, interspersed with islands, to that of a large continent: and to this increase of the land in the northern hemisphere we may probably attribute, in a great measure, that gradual diminution of temperature which the organic remains of the different periods denote. “The climate was hottest when the northern hemisphere was for the most part occupied by the ocean; and the refrigeration did not become considerable until a very large proportion of that ocean was converted into land and replaced in some parts by high mountain chains: nor did the cold reach its maximum until these chains attained their greatest elevation, and the land its utmost extension.”

The changes that have taken place in the forms of the animal and vegetable kingdoms, are not less striking than those which we have above described in the inorganic world. The animals and plants of the more ancient strata, are not only such as could not now exist in the latitudes which they formerly inhabited, but almost all the species, and very many of the genera, are no longer to be found in any part of the known globe. In the newer deposits, on the contrary,