portion of land and water, which may serve in a considerable degree to explain, why one situation should enjoy more heat than the other.

Mr. Lyell has advanced a theory respecting the former high temperature of northern latitudes, in which, by many local illustrations and ingenious arguments, he attempts to prove, that a great change in the relative position of the land and sea, would be sufficient to account for the excess of the former temperature, over that now enjoyed in northern regions. He states two extreme cases, which, could they ever occur, must produce an important change in the climate of Europe. Were the land between the tropics to be submerged under the ocean, and an equal portion of mountainous land to be raised in the polar circles, the cold of those regions would be much increased, and the heat between the tropics would be very greatly diminished; by the joint operation of these causes, the climate of the southern parts of Europe might become as cold as that of Siberia. On the contrary, were all the land in high latitudes to be submerged, and an equal quantity of land to be raised above the sea, near the equator, the mean temperature of a great part of Europe might be sufficiently increased, to support the vegetation of tropical climates. The theory of Mr. Lyell is entirely original, and throws much light on the causes which affect the climate of various countries in the same parallels of latitude; and could we grant that the change of land and sea had ever been so complete as what he has imagined, the conclusions deduced therefrom would be undeniable: but so many conditions are required to effect such extreme changes, that we must regard their occurrence as merely possible, and La Place, in his "*Essai Philosophique sur les Probabilités*," has shown, that between events which are merely possible, and those which the philosopher should regard as probable, there is an almost immeasurable interval. Nor can the theory of Mr. Lyell be well reconciled with the occurrence of the remains of such immense multitudes of tropical animals and plants, in countries bordering the arctic circle, because, to increase the temperature of Europe in a considerable degree, the theory would require all the land in high northern latitudes to be submerged; but this is precisely the very land on which the elephants flourished.

The cause which has effected a change in the temperature of the earth, must probably be sought for, either in the earth itself, or in some change in its orbit, or in the relative position of its axis. Did the severe laws which analysis and observation have established in astronomy, allow the geologist to admit a slow revolution of the globe, round two opposite points of the present equator, each part of the earth would in succession be brought between the tropics; and if we could suppose the axis of diurnal rotation, to preserve the same inclination to the ecliptic as at present, we should have all the conditions required, for explaining the former high temperature of polar regions. The spheroidal form of the globe appears, however, to