changing, by the agency of rivers, currents, earthquakes, volcanoes, and other causes; and that the variation between the proportions and situations of land and water is sufficient to account for any higher temperature of the earth at some former period than it has now.

But whatever theory may be adopted to account for the higher temperature of our earth at the time of the deposition of the coal measures, there can be no doubt that the plants grew in a warm climate, whether in our northern latitudes or in spots where they are still found. To supply the beds of coal which we find in our own country seems to have required the luxuriant vegetation of an equatorial climate, and we can scarcely imagine them to have resulted from the scanty resources of such forests as might exist in the present temperature of England. But if the reader can imagine the state of the vast forests of Brazil, almost too thickly intwined to admit of human research, or the luxuriant and extended woods on the banks of the Missouri, and if he can form an estimate of the immense quantity of vegetable matter which is there produced all the year round, and year after year, for ages, he may approach in fancy the physical condition of that country in which the vegetables of the coal measures grew; for such was the climate that nurtured, and such were the forests that produced, the plants which were designed by the Creator to become the source of comfort to his unborn creatures. And we cannot avoid remarking, that here we see a most interesting display of the kindness which designed, and the superintendence that fulfilled, the intention to make the world a suitable residence for man.

So closely are the unstratified rocks associated with the beds of the coal measures, that they have been considered almost an essential part of the formation. Although we can only consider them as occasional or frequent intruders, yet it cannot be denied that the coal measures have been greatly disturbed by their interference, and that their present condition is mainly owing to them. Immense walls or dikes of trap often intersect the coal measures, having been thrust upward in many instances a considerable time after the deposition of the stratified rocks. The Cleveland Dike is an instance in point, for it pierces through four formations that were deposited after the coal measures. These dikes, which are fissures filled with unstratified rocks, have acted