

such a prodigious interval of time, trace the precise origin, and state with the utmost exactness, the genera and species of plants, of which there are now no identical representatives existing on the face of the earth.

Let us pause for a moment, and consider the general characters which belonged to our planet during the Carboniferous period. Heat—though not necessarily excessive heat—and extreme humidity were then the attributes of its atmosphere. The modern allies of the species which formed its vegetation are now only found under the burning latitudes of the tropics; and the enormous dimensions in which we find them in the fossil state prove, on the other hand, that the atmosphere was saturated with moisture. Dr. Livingstone tells us that continual rains, added to intense heat, are the climatic characteristic of Equatorial Africa, where the vigorous and tufted vegetation flourishes which is so delightful to the eye.

It is a remarkable circumstance that conditions of equable and warm climate, combined with humidity, do not seem to have been limited to any one part of the globe, but the temperature of the whole globe seems to have been nearly the same in very different latitudes. From the Equatorial regions up to Melville Island, in the Arctic Ocean, where in our days eternal frost prevails—from Spitzbergen to the centre of Africa, the carboniferous flora is identically the same. When nearly the same plants are found in Greenland and Guinea; when the same species, now extinct, are met with of equal development at the equator as at the pole, we cannot but admit that at this epoch the temperature of the globe was nearly alike everywhere. What we now call *climate* was unknown in these geological times. There seems to have been then only one climate over the whole globe. It was at a subsequent period, that is, in later Tertiary times, that the cold began to make itself felt at the terrestrial poles. Whence, then, proceeded this general superficial warmth, which we now regard with so much surprise? It was a consequence of the greater or nearer influence of the interior heat of the globe. The earth was still so hot in itself, that the heat which reached it from the sun may have been inappreciable.

Another hypothesis, which has been advanced with much less certainty than the preceding, relates to the chemical composition of the air during the Carboniferous period. Seeing the enormous mass of vegetation which then covered the globe, and extended from one pole to the other; considering, also, the great proportion of carbon and hydrogen which exists in the bituminous matter of coal, it has been thought, and not without reason, that the atmosphere of the period