

grounds, that the carboniferous atmosphere differed from that of the present world in this way, or in the presence of more carbonic acid—a substance now existing in the very minute proportion of one thousandth of the whole—a quantity adapted to the present requirements of vegetable and animal life, but probably not to those of the coal period.

Thus, if we inquire as to any analogous distribution of plants in the modern world, we find this only in the warmer insular climates of the southern hemisphere, where ferns, lycopods, and pines appear under forms somewhat akin to those of the Carboniferous, but mixed with other types, some of which are modern, others allied to those of the next succeeding geological ages of the Mesozoic and Tertiary; and under these periods it will be more convenient to make comparisons.

The readers of recent English popular works on geology will have observed the statement reiterated that a large proportion of the material of the great beds of bituminous coal is composed of the spore-cases of lycopodiaceous plants—a statement quite contrary to that resulting from my microscopical examinations of the coal of more than eighty coal-beds in Nova Scotia and Cape Breton, as stated in “Acadian Geology” (page 463), and more fully in my memoir of 1858 on the “Structures in Coal,”* and that of 1866, on the “Conditions of Accumulation of Coal.”† The reason of this mistake is, that an eminent English naturalist, happening to find in certain specimens of English coal a great quantity of remains of spores and spore-cases, though even in his specimens they constitute only a small portion of the mass, and being apparently unacquainted with what others had done in this field, wrote a popular article for the “Contemporary Review,” in which he extended an isolated and

* “Journal of the Geological Society,” vol. xv. † Ibid., vol. xxii.