ings and direct our observations; and without them we cannot proceed a step on firm ground. They distinguish the philosopher from the empiric, and combine scattered observations into a body of useful and rational science. Even in the science of nature, as in that of numbers, the assumption of imaginary or erroneous laws, leads to the discovery of the truth. The history of astronomy is in itself a lesson to those who ignorantly undervalue the pursuit of general laws. Bewildered in spheres and vortices, it arose, as in a moment, complete, from the theory of gravitation.

"Hence the consideration of secondary causes, forms, not only a legitimate, but an essential part of geological science. That science, like all others, comprises the history of all the facts which it involves; and from these, it establishes certain general analogies. Ascending a step higher it declares the laws which have regulated, and will continue to regulate, all the phenomena of the globe; and thus finally establishes a legitimate theory of the earth."

"No trace of organic remains has been discovered in these micaceous, chloritic or argillaceous slates, nor even in the limestones associated with them. The adherents of the metamorphic hypothesis attempt to account for this by supposing that the fossils have been obliterated by the agencies which have effected the alteration. But even in the greywacke slates and sandstones, traces of life are rare; and it is only in the very newest strata of that series, that they become at all frequent, and then they belong to the inferior grades of animal organisms. That the air-breathers, recently described by Dr. Dawson, first make their appearance in the coal-measures, may be regarded as a proof of the absence of free oxygen from the atmosphere which existed during the deposition of the Lower Silurian rocks. Not until the carbonic acid was to a great extent removed from the atmosphere by the luxuriant vegetation of the coal period, and its place taken up by oxygen, was it possible for air-breathers to exist. The extraordinarily rich vegetation of that epoch was no doubt stimulated by the immense quantities of carbonic acid in the atmosphere, and the exceedingly warm climate which then prevailed over the whole surface of the earth. This warm climate, we are justified in supposing, was caused more by the radiation of heat from the interior of the earth, than by solar influence. So that it is possible to trace a connection between the phenomena of internal heat