

would increase, but the mean temperature of the globe would diminish.

There is nothing which, so far as we can perceive, determines necessarily, either the conducting or the radiating power of the earth to its present value. The measures of such powers, in different substances, differ very widely. If the earth were a globe of pure iron, it would conduct heat, probably, twenty times as well as it does; if its surface were polished iron, it would only radiate one-sixth as much as it does. Changes in the amount of the conduction and radiation far less than these, would, probably, subvert the whole *thermal* constitution of the earth, and make it uninhabitable by any of its present vegetable, or animal tenants.

One of the results of the laws of heat, as they exist in the globe, is, that, by their action, the thermal state tends to a limiting condition, which, once reached, remains constant and steady, as it now is. The oscillations or excursions from the mean condition, produced by any temporary cause, are rapidly suppressed; the deviations of seasons from their usual standard produce only a small and transient effect. The impression of an extremely hot day upon the ground melts almost immediately into the average internal heat. The effect of a hot summer, in like manner, is soon lost in its progress through the globe. If this were otherwise, if the inequalities and oscillations of heat went on, through the interior of the earth, retaining the same value, or becoming larger and larger, we might have the extreme heats or colds of one place making their appearance at another place after a long interval; like a conflagration which creeps along a street and bursts out at a point remote from its origin.

It appears, therefore, that both the present differences of climate, and the steadiness of the average at each place, depend upon the form of the present laws of heat, and on the arbitrary magnitudes which determine the rate of conduction and radiation. The