

ulous rings, the same connection with this contiguous Sun, as well as with all the remote suns that shine in the firmament, is still revealed through the phenomena of light and radiating heat. The difference in the degree of these actions must not lead the physicist, in his delineation of nature, to forget the connection and the common empire of similar forces in the universe. A small fraction of telluric heat is derived from the regions of universal space in which our planetary system is moving, whose temperature (which, according to Fourier, is almost equal to our mean icy polar heat) is the result of the combined radiation of all the stars. The causes that more powerfully excite the light of the Sun in the atmosphere and in the upper strata of our air, that give rise to heat-engendering electric and magnetic currents, and awaken and genially vivify the vital spark in organic structures on the earth's surface, must be reserved for the subject of our future consideration.

As we purpose for the present to confine ourselves exclusively within the telluric sphere of nature, it will be expedient to cast a preliminary glance over the relations in space of solids and fluids, the form of the Earth, its mean density, and the partial distribution of this density in the interior of our planet, its temperature and its electro-magnetic tension. From the consideration of these relations in space, and of the forces inherent in matter, we shall pass to the reaction of the interior on the exterior of our globe; and to the special consideration of a universally distributed natural power—subterranean heat; to the phenomena of earthquakes, exhibited in unequally expanded circles of commotion, which are not referable to the action of dynamic laws alone; to the springing forth of hot wells; and, lastly, to the more powerful actions of volcanic processes. The crust of the Earth, which may scarcely have been perceptibly elevated by the sudden and repeated, or almost uninterrupted shocks by which it has been moved from below, undergoes, nevertheless, great changes in the course of centuries in the relations of the elevation of solid portions, when compared with the surface of the liquid parts, and even in the form of the bottom of the sea. In this manner simultaneous temporary or permanent fissures are opened, by which the interior of the Earth is brought in contact with the external atmosphere. Molten masses, rising from an unknown depth, flow in narrow streams along the declivity of mountains, rushing impetuously onward, or moving slowly and gently, until the fiery source is quenched in the midst of exhalations, and the lava becomes incrustated, as it were, by