inconceivable rapidity to our organs of vision. The splendour of the firmament at night is due to this vibration. If this ether has a boundary, masses of ponderable matter may exist beyond it, but they could emit no light. Dark suns may burn there, metals may be heated to fusion in invisible furnaces, planets may be molten amid intense darkness; for the loss of heat being simply the abstraction of molecular motion by the ether, where this medium is absent no cooling could take place.

This, however, does not concern us; as far as our knowledge of space extends, we are to conceive of it as the holder of this luminiferous ether, through which the fixed stars are interspersed at enormous distances apart. Associated with our planet we have a group of dark planetary masses revolving at various distances around it, each rotating on its axis; and, connected with them, their moons. Was space furnished at once, by the fiat of Omnipotence, with these burning orbs? The man of science should give no answer to this question: but he has better materials to guide him than anybody else, and can clearly show that the present state of things *may* be derivative. He can perhaps assign reasons which render it probable that it *is derivative*. The law of gravitation enunciated by Newton is, that every particle of matter in the universe attracts every other particle with a force which diminishes as the square of the distance increases. Under this law a stone falls to the ground, and heat is produced by the shock; meteors plunge into the atmosphere and become incandescent; showers of such doubtless fall incessantly upon the sun, and were it stopped in its orbit, the earth would rush towards the sun, developing heat in the collision (according to the calculations of MM. Joule, Mayer, Helmholtz, and Thomson), equal to the combustion of five thousand worlds of solid coal. In the attraction of gravity, therefore, acting upon this luminous matter, we have a source of heat more powerful than could be derived from any terrestrial combustion.

To the above conception of space we must add that of its being in a continual state of tremor. The sources of vibration are the ponderable masses of the universe. Our own planet is an aggregate of solids, liquids, and gases. On closer examination, these are found to be composed of still more elementary parts: the water of our rivers is formed by the union, in definite proportions, of two gases, oxygen and hydrogen. So, likewise, our chalk hills are formed by a combination of carbon, oxygen, and calcium; elements which in definite proportions form chalk. The flint found within that chalk is compounded of oxygen and silicon, and our ordinary clay is for the most