

## The Vibrations of Atoms.

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In the world of science, while one large class of learned and intellectual men are devoting their labor to the examination of bodies and systems of matter so vast and so remote that the mind is overwhelmed in efforts to conceive the sizes and the distances, another class are engaged in the study of the structure and habits of that innumerable multitude of organized beings which are individually so small as to be wholly invisible to the naked eye ; and a third class are directing their thoughts to the size, the weight, the form, and the movements of the still smaller ultimate atoms of matter, which cannot be seen even with the aid of the most powerful compound microscope.

Among the most zealous of the last named class is John Tyndal, Esq., F. R. S., Professor of Natural Philosophy, Royal Institution, (London). Tyndal espoused the theory that all space is filled with a subtle ether, and that light, heat, and the other imponderable forces are vibrations of this ether, each force being a vibration peculiar to itself. Where heat is produced by burning hydrogen, Tyndal says that the atom of hydrogen is drawn or propelled against the atom of oxygen with a velocity and force that produces a vibration, and that this vibration being imparted to the surrounding ether, affects our senses as heat. If the collision produces vibrations shorter and quicker, these are perceptible as light.

At a meeting of the Royal Institution of Great Britain, held on the 18th of March, H. R. H., the Prince of Wales, Vice-Patron, in the chair, Mr. Tyndal read a paper on molecular physics, from which we extract the following explanation of transparency :—