

reflexion and refraction and other properties are concerned. Luminous waves are now considered by many physicists to be merely electro-magnetic waves of short wave length and great frequency, such as the organ of vision is capable of perceiving in the form of light. The electric and magnetic medium is identical with the luminiferous ether, postulated by Young and Fresnel, and rays of light are merely an electric and magnetic disturbance propagated as a periodic or wave motion.

These discoveries and theories have gone a long way to destroy the older astronomical view of natural phenomena, which explained many effects by the action at a distance of particles of ponderable or imponderable matter. The firm conviction has taken hold of the modern scientific intellect or imagination that space is a *plenum* filled with a continuous medium, and that the undoubted atomic nature of ponderable matter may be owing merely to a specific and unmodifiable form of motion with such properties as Lord Kelvin has shown to belong to vortex filaments. The difficulty still remains how to explain the phenomenon of gravitation as well as the increased amount of inertia or mass which belongs to all ponderable matter as compared with that material substance which we call ether.

54.
Destructive
effect of
the new
theories on
the astro-
nomical
view.

The reason why Maxwell abandoned his earlier schemes, in which he tried to construct a mechanical model of the electro-magnetic field, is not quite clear.¹ The idea has, however, been taken up by others, and elaborate descriptions have been attempted, by which the

¹ A suggestion regarding this is given by Dr J. Larmor in 'Ether and Matter,' p. 28.