processes going on in the neighbourhood of electrically charged bodies, of electric currents, of magnets and diamagnets, can be visualised.[1] For didactic purposes such elaborate models may prove to be of great value, though as a true mechanical basis of a physical theory of natural processes they have to be received with caution. None of those physicists who have expended their ingenuity in devising these contrivances seem to attach more than a symbolic or ideal value to them: they have, however, the desired effect of producing on the mind of the learner, of the practical inventor, or of a popular audience a strong conviction that all physical phenomena can be described as processes of motion, and that the ultimate solution of the problem of natural philosophy is to be found in a kinetic or mechanical view of phenomena. Physics and chemistry are, according to this

[1] Such illustrations may be found in Dr Oliver Lodge's 'Modern Views of Electricity,' a book which has had a large circulation and has helped to diffuse correct and practically useful ideas on electric and magnetic problems and phenomena. There is a danger of such mechanical illustrations becoming too rigid and of their being taken too literally; still, for the purposes of practical application and handling it is indispensable to possess some mechanical mode of representation and construction by which actual problems can be readily solved. The success of Dr Lodge's attempt both in this country and on the Continent, especially in Germany, proves sufficiently that it meets a much-felt want. See *inter alia* Prof. Rosenberger's five lectures, 'Die moderne Entwickelung der elektrischen Principien,' Leipzig, 1898, p. 133. A great authority abroad, Prof. Ludwig Boltzmann, has made use of a peculiar kind of mechanical motion, investigated by Helmholtz, to illustrate electrical phenomena. The characteristic of such motion — which is termed cyclic—is this, "that in the place of every particle which changes its position, an equal and equally moving particle enters, so that the condition of the system during the motion is nowise altered" ('Vorlesungen über Maxwell's Theorie,' Leipzig, 1891 and 1893, vol. i. p. 14). Cycles can be "coupled," &c. The general dynamical relations of such cyclic systems are investigated, and by introducing the necessary restrictions, based upon experimental facts, and suitable hypotheses—facts and hypotheses being clearly distinguished — the general equations of Maxwell are arrived at.