phenomena of tension and pressure (magnetic action) as also of motion of its parts (electro-magnetic action). Now in a medium which is so constituted—*i.e.*, which possesses elastic mobility of its parts—we know that by a whirling or vortex motion phenomena of pressure and tension can be produced in certain parts, and the questions accordingly presented themselves to Maxwell, How by such tension and pressure in certain parts of the medium can magnetic phenomena be represented? and How can the vortices communicate motion to, or receive motion from, the interlying movable particles of the medium? He succeeded in working out a very complete model of such a medium, representing by its mechanical motions both magnetic and electro-magnetic phenomena. Especially was he successful in visualising Faraday's lines or tubes of force, and endowing them with mechanically measurable forces. Maxwell admits that "his conception . . . may appear somewhat awkward. I do not," he says, "bring it forward as a mode of connection existing in nature. . . . It is, however, a mode of connection which is mechanically conceivable and easily investigated; . . . so that I venture to say that any one who understands the provisional and temporary character of this hypothesis will find himself rather helped than hindered by it in his search after the true interpretation of the phenomena."[1]

[1] 'Collected Papers,' vol. i. p. 486. At the end of his paper on physical lines of force, Maxwell touches on the philosophical question, "how much evidence the explanation of phenomena lends to the credibility of a theory, or how far we ought to regard a coincidence in the mathematical expression of two sets of phenomena as an indication that these phenomena are of the same kind. We know that partial coincidences of this kind have been discovered; and the fact that they