elaboration as admits on the one side the Maxwellian definitions of the propagation of electro-magnetic waves, and on the other the definition of electrons as permanent but movable states of twist or strain, which form the atoms of electricity, and possibly, in their aggregate, ponderable matter itself. The history of thought is mainly interested in this latest and most comprehensive "theory of the electric and luminiferous medium," because it is almost entirely based upon that great advance in physical theory which we owe to Helmholtz and Lord Kelvin, "the discovery of the types of permanent motion, which could combine and interact with each other without losing their individuality, though each of them pervaded the whole field." This has rendered possible an entirely new mode of treatment,[1] and at least made thinkable the reconciliation of the two apparently contradictory notions of modern physics, the continuity and uniformity of the all-pervading ether and the discontinuity of the embedded particles of matter and electricity. The history of thought also takes further note that these latest and yet unfinished theories revert, after the interval of thirty

originally presented itself . . . in the course of an inquiry into the competence of the æther devised by MacCullagh to serve for electrical purposes as well as optical ones" ('Æther and Matter,' p. vi.) "No attempt was made to ascertain whether MacCullagh's *plenum* could, in addition to its vibratory functions, take up such a state of permanent strain as would represent the electrostatic actions between charged conductors, or such state of motion as would represent the electro-dynamic action between currents. The first hint on this side of the matter was Fitzgerald's passing remark in 1880 ('Phil. Trans.,' "On the Electro-magnetic Theory of Light"), that MacCullagh's optical equations 'are identical with those of the electro-dynamical theory of optics developed by Maxwell'" (p. 78).

[1] See Larmor's Address to the British Association at Bradford ('Report,' p. 624).