point I wish to urge is, how in those days the Newtonian formula was taken as the great model of a law of nature, and how the researches of Coulomb, Poisson, Ampère, and Weber stand in logical connection with the theory of gravitation. Let us see what Weber himself says on this subject:[1] "After the general laws of motion had fur-

chosen. This explains the fact, deplored by Weber's friends and admirers, that his name has dropt out of the list of terms now adopted throughout the civilised world. (See Wiedemann, 'Die Electricität,' Braunschweig, 1885, vol. iv. p. 906, &c.) Recently Prof. Lodge has suggested the introduction of the names of Weber and Gauss to denote some of the derived units in the electrical measurements. See Brit. Assoc. Report, 1895, p. 197 n.

[1] Weber's theoretical conception of the nature of electric action at a distance is mixed up with his exact measurements of electrical quantities, though these can be stated without making use of his theoretical conceptions. It is the nature of the absolute system of measurement that it establishes numerical relations based upon a small number of original units (space, time, and mass, or space and time alone, see note to p. 323 above) which are universally intelligible. Whatever, therefore, the theoretical views may be which led the investigation, in the end these are eliminated in the system of original (primary) and derived (secondary) units. But Weber's theory commands attention for its own sake as the furthest stage to which the gravitational view of phenomena, provisionally introduced by Newton, has been pushed. It has been extolled and condemned, according to the favour with which the purely mathematical treatment of phenomena has been received. In the school of Laplace this purely mathematical treatment quite obscured all other views which did not minister to it. Thus Laplace remained to the end an adherent of the emission or corpuscular theory of light, and opposed the ideas of Young and Fresnel, who developed the dynamical view. In order to make the cosmical view of nature useful for the explanation of molecular phenomena, two distinct and definite conceptions, contained in the gravitation formula, had to be modified and enlarged. The conception of matter, which in physical astronomy is limited to gravitational matter, had to be extended so as to bring into calculation what was then called imponderable matter, such as light, heat, and electricity. And the law of gravitation, which defines the purely attractive property of ponderable matter, had to be modified so as to embrace also the repulsive action observable in a certain class of phenomena. Coulomb had shown that ponderable matter charged with electricity followed the same formula for attraction and repulsion as gravitating bodies did: he simply adopted the two-fluid theory of electric matter. Poisson developed the mathematics of fluids, actuated by repelling forces depending on the inverse square of the distance. Oersted showed the action of electric currents on magnets; and Ampère showed that magnets can in their action be supplanted by electric currents. Laplace very early satisfied himself that