

the astronomical view of phenomena had been established and strengthened mainly by a development of the Newtonian philosophy. They belonged to another school, which approached that great field of research from the purely experimental side,—mainly, so far as Davy was concerned, from the side of chemistry, which, dealing with the qualitative, not merely the quantitative, properties of matter, was at that period almost entirely thrown

(Maxwell's Introduction to the 'Researches,' p. xlix *sqq.*) Cavendish's electrical work seems to have remained unnoticed abroad. Cuvier, who fully appreciates him as a pioneer in modern chemistry, does not refer to his electrical researches, and in Continental works his name is hardly mentioned in connection with electrical science. He, however, clearly belongs to the same lineage as Davy and Faraday, whose breadth of experimental observation somewhat prevented them from fully assimilating the results of Coulomb and his school, which moved in narrower but more precise lines. If Cavendish was unknown abroad as an electrician, Coulomb was little known in England. Whewell, who did more than any other to make known the researches of the mathematical school (see his article in the 'Encyclopædia Metropolitana,' 1826, and his British Association Report, 1835), could state in the first edition of his 'History of the Inductive Sciences' (1837) that "the reception of the Coulombian theory has hitherto not been so general as might have been reasonably expected from its very beautiful accordance with the facts which it contemplates" (3rd ed., vol. iii. p. 28). He then refers to the experiments of Snow Harris. These experiments, as well as those of

Faraday, carried on about the same time, dealt largely with the properties of dielectrics and of what we now call the electric field, a subject almost entirely neglected by the mathematical school of that period. It was not till 1845 that William Thomson (Lord Kelvin) cleared up the whole subject in a memoir, "On the Mathematical theory of Electricity in Equilibrium" (see 'Reprint of Papers,' &c., p. 15). He there refers to the fact that "many have believed Coulomb's theory to be overturned by the investigations" of Snow Harris and Faraday, and he therefore proposes to show that "all the experiments which they have made having direct reference to the distribution of electricity in equilibrium are in full accordance with the laws of Coulomb, and must therefore be considered as confirming the theory" (p. 18). He thus brought together the two independent lines of research and thought, the mathematical and the experimental, represented by the school of Gauss and Weber abroad, and by Faraday in England, and suggested those further researches of which Maxwell's 'Treatise on Electricity and Magnetism' is the great exponent. See the preface to this work, p. xi, &c., 1873; also Maxwell's 'Scientific Papers,' vol. ii. pp. 258, 302, 304.