upon experimental research.[1] Chemistry had only just entered the list of the exact sciences, by the use of the balance, largely owing to Lavoisier and his followers.

[1] Although Faraday's 'Experimental Researches in Electricity' (1831-52) contain mostly what chemists would call "qualitative" investigations and only few exact "quantitative" measurements—forming in this respect a very remarkable contrast to Weber's 'Electrodynamische Maasbestimmungen' (1846-78)—it is important to remark that one of the methods for exact measurement of the electric current—*viz.*, by the chemical decomposition of compounds—was established by Faraday in 1833 and 1834. He showed that whenever decomposition took place the quantities decomposed were in proportion to the amount of electricity flowing through the circuit and in proportion to the chemical equivalents. Owing to the want of a clear definition of quantity and intensity of current, Berzelius opposed this view of Faraday's as illogical, confounding the quantity of substance decomposed with the force required to set it free. Clearer definitions and accumulated experience have confirmed Faraday's law, which is now looked upon as one of the best established general facts of chemical and electrical science. Somewhat earlier than Faraday, Georg Simon Ohm established (1827, 'Die galvanische Kette, mathematisch bearbeitet') the proportionality of the quantity of electricity passing through a circuit with the electromotive force in the same conductor, introduced the notion of electrical resistance, and showed how this varies as the length and inversely as the thickness of the same conductor, and is different in different conductors. The accuracy of Ohm's law, though elaborately tested by Fechner and confirmed by Pouillet, was frequently doubted; in France it met with tardy recognition, and in England some of the most important researches—such as those of Faraday—were carried on without reference to it. In the first edition of Whewell's History it is not mentioned. When the second edition was published (1847), Ohm had received the Copley Medal of the Royal Society (1841), and Wheatstone had besides in the year 1843 drawn attention to the clear definitions which Ohm had introduced. The opinion has been expressed that Ohm found his law by theoretical considerations based on analogy with the flow of heat in conductors, and that he subsequently proved it experimentally. The publication of Ohm's collected papers by Lommel ('Gesammelte Abhandlungen,' Leipzig, 1892), however, disproves this opinion; as his experimental measurements had during 1825 and 1826—not without some initial mistakes—led him to the well-known expression of the relations of the different quantities (see Lommel's Introduction, p. vii). Whereas in Germany it was a purely scientific interest—that, namely, of subjecting physical phenomena to mathematical calculation—which induced Ohm, Gauss, and Weber to devise instruments and methods for exact measurement, it was in England mainly the practical requirements of telegraphy which created the desire for clear definitions and exact methods. With these requirements in view Wheatstone invented his instruments and drew attention to the definitions of Ohm. See his Bakerian Lecture for