

19.
Faraday.

Faraday, instead of being backed by a wealthy Academy and ample assistance, had during all the years when his great discoveries were being made, to keep alive, with an income scarcely exceeding a hundred pounds a-year, an institution which but for him the memory even of such names as Rumford, Young, and Davy would not have sufficed to preserve from utter ruin and collapse.¹ The author of one of the most suggestive treatises in the application of mathematics to physical phenomena, George Green, published it in 1828 at Nottingham by private subscription. Seventeen years later, William Thomson (Lord Kelvin) tried in vain to procure a copy

20.
Green.

ideas than in comprehending those of others who, like Berzelius, Mitscherlich, Laplace, Liebig, and many later, contributed to the confirmation of the atomic theory. A good account of this is given in Henry's 'Life of Dalton' (1854) and in Kopp's 'Entwicklung der Chemie in der neueren Zeit' (München, 1873).

¹ Michael Faraday (1791-1867), though not a mathematician, introduced into the science of electricity those ideas which have since been developed into a mathematical theory approaching in completeness the mathematics of the undulatory theory of light. What the atomic theory has done for chemistry, Faraday's lines of force are now doing for electrical and magnetic phenomena. Dalton, though unacquainted with the higher mathematics of the French school, had essentially a mathematical or arithmetical mind. Faraday's peculiar ideas on the nature of electrical and magnetic action, though supported by an experimental knowledge many times surpassing in volume and accuracy that of Dalton, did not find much appreciation among his contem-

poraries. They were much more interested in his experimental researches than in his theories. In France and Italy Faraday's eminence was recognised early. Already in 1823 he was elected member of the Academies of Paris and Florence, almost before any society at home had received him. "The circumstances under which Faraday's work was done were those of penury. During a great part of the twenty-six years the Royal Institution was kept alive by the lectures which Faraday gave for it. 'We were living,' as he once said to the managers, 'on the parings of our own skin.' He noted even the expenditure of the farthings in research and apparatus. He had no grant from the Royal Society, and throughout almost the whole of his time the fixed income which the Institution could afford to give him was £100 a-year, to which the Fullerian professorship added nearly £100 more" (Bence Jones, 'Life and Letters of Faraday,' London, 1870, vol. ii. p. 344). See also Bence Jones, 'The Royal Institution,' p. 311.