

he succeeded as president of the Society. These names are identified with some of the greatest work in experimental science. Some of them may be said to be identified with quite original theoretical ideas which have governed the development of great departments of research ever since. Dalton's atomic theory in chemistry, however, received a tardy recognition in England, and was firmly established only by foreign research, while Faraday's "lines of force" remained a mystery to electricians,¹ till William Thomson and Clerk Maxwell made them the groundwork of our most recent conceptions. It is well to note that neither Young, nor Davy, nor Faraday, nor Dalton, nor Joule belonged to the circle of Cambridge men, and that probably none of them received any inspiration from that official school of English mathematics.² In the early years of the century that

¹ See Helmholtz on Faraday's ideas in 'Vorträge und Reden,' vol. ii. p. 277. "Since the mathematical interpretation of Faraday's theorems has been given by Clerk Maxwell in methodically elaborated scientific formulæ, we see, indeed, how much definiteness of conception and accurate thought were contained in Faraday's words, which seemed to his contemporaries so indefinite and obscure. And it is indeed remarkable in the highest degree to observe how, by a kind of intuition, without using a single formula, he found out a number of comprehensive theorems, which can only be strictly proved by the highest powers of mathematical analysis. I would not depreciate Faraday's contemporaries because they did not recognise this; I know how often I found myself despairingly staring at his descriptions of lines of force, their number

and tension, or looking for the meaning of sentences in which the galvanic current is defined as an axis of force, and similar things. A single remarkable discovery can indeed be brought about by a happy chance, . . . but it would be against all rules of probability that a numerous series of the most important discoveries, such as Faraday produced, could have had their origin in conceptions which did not really contain a correct, though perhaps deeply hidden, ground of truth."

² Young resided at Cambridge to take his medical degree on his return from Göttingen; but though his biographer has inserted a chapter on Cambridge in the 'Life of Young,' and though Young's first great discovery, that of the interferences of waves of sound and light, fell within that period, there is no evidence that his scientific studies were promoted by Cambridge influ-