BOOK XIII.

VOLTAIC ELECTRICITY.

CHAPTER VIII.

MAGNETO-ELECTRIC INDUCTION.

FARADAY'S discovery that, in combinations like those in which a voltaic current was known to produce motion, motion would produce a voltaic current, naturally excited great attention among the scientific men of Europe. The general nature of his discovery was communicated by letter[1] to M. Hachette at Paris, in December, 1831; and experiments having the like results were forthwith made by MM. Becquerel and Ampère at Paris, and MM. Nobili and Antinori at Florence.

It was natural also that in a case in which the relations of space which determine the results are so complicated, different philosophers should look at them in different ways. There had been, from the first discovery by Oersted of the effect of a voltaic current upon a magnet, two rival methods of regarding the facts. Electric and magnetic lines exert an effort to place themselves transverse to each other (see chapter iv. of this Book), and (as I have already said) two ways offered themselves of simplifying this general truth:—to suppose an electric current made up of transverse magnetic lines; or to suppose magnetic lines made up of transverse electric currents. On either of these assumptions, the result was expressed by saying that *like* currents or lines (electric or magnetic) tend to place themselves parallel; which is a law more generally intelligible than the law of transverse position. Faraday had adopted the former view; had taken the lines of magnetic force for the fundamental lines of his system, and defined the direction of the magneto-electric current of induction by the relation

[1] *Ann. de Chimie*, vol. xlviii. (1831), p. 402.