

wire of a voltaic circuit, acts upon a magnetic needle ; and thus recalled into activity that endeavor to connect magnetism with electricity, which, though apparently on many accounts so hopeful, had hitherto been attended with no success. Oersted found that the needle has a tendency to place itself *at right angles* to the wire ;—a kind of action altogether different from any which had been suspected.

This observation was of vast importance ; and the analysis of its conditions and consequences employed the best philosophers in Europe immediately on its promulgation. It is impossible, without great injustice, to refuse great merit to Oersted as the author of the discovery. We have already said that men appear generally inclined to believe remarkable discoveries to be accidental, and the discovery of Oersted has been spoken of as a casual insulated experiment.<sup>1</sup> Yet Oersted had been looking for such an *accident* probably more carefully and perseveringly than any other person in Europe. In 1807, he had published<sup>2</sup> a work, in which he professed that his purpose was “to ascertain whether electricity, in its most latent state, had any effect on the magnet.” And he, as I know from his own declaration, considered his discovery as the natural sequel and confirmation of his early researches ; as, indeed, it fell in readily and immediately with speculations on these subjects then very prevalent in Germany. It was an accident like that by which a man guesses a riddle on which his mind has long been employed.

Besides the confirmation of Oersted’s observations by many experimenters, great additions were made to his facts : of these, one of the most important was due to Ampère. Since the earth is in fact magnetic, the voltaic wire ought to be affected by terrestrial magnetism alone, and ought to tend to assume a position depending on the position of the compass-needle. At first, the attempts to produce this effect failed, but soon, with a more delicate apparatus, the result was found to agree with the anticipation.

It is impossible here to dwell on any of the subsequent researches, except so far as they are essential to our great object, the progress towards a general theory of the subject. I proceed, therefore, immediately to the attempts made towards this object.

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<sup>1</sup> See *Schelling ueber Faraday’s Entdeckung*, p. 27.

<sup>2</sup> Ampère, p. 69.