

are living, and it must be the task of future historians to trace its course.

We may, however, say a word on the reception which the theory met with, in the forms which it assumed, anterior to the labors of Faraday. Even before the great discovery of Davy, Grotthuss, in 1805, had written upon the theory of electro-chemical decomposition; but he and, as we have seen, Davy, and afterwards other writers, as Riffault and Chompré, in 1807, referred the effects to the poles.<sup>44</sup> But the most important attempt to appropriate and employ the generalization which these discoveries suggested, was that of Berzelius; who adopted at once the view of the identity, or at least the universal connexion, of electrical relations with chemical affinity. He considered,<sup>45</sup> that in all chemical combinations the elements may be considered as electro-positive and electro-negative; and made this opposition the basis of his chemical doctrines; in which he was followed by a large body of the chemists of Germany. He held too that the heat and light, evolved during cases of powerful combination, are the consequence of the electric discharge which is at that moment taking place: a conjecture which Faraday at first spoke of with praise.<sup>46</sup> But at a later period he more sagely says,<sup>47</sup> that the flame which is produced in such cases exhibits but a small portion of the electric power which really acts. "These therefore may not, cannot, be taken as evidences of the nature of the action; but are merely incidental results, incomparably small in relation to the forces concerned, and supplying no information of the way in which the particles are active on each other, or in which their forces are finally arranged." And comparing the evidence which he himself had given of the principle on which Berzelius's speculations rested, with the speculations themselves, Faraday justly conceived, that he had transferred the doctrine from the domain of what he calls *doubtful knowledge*, to that of inductive certainty.

Now that we are arrived at the starting-place, from which this well-proved truth, the identity of electric and chemical forces, must make its future advances, it would be trifling to dwell longer on the details of the diffusion of that doubtful knowledge which preceded this more certain science. Our history of chemistry is, therefore, here at an end. I have, as far as I could, executed my task; which was, to mark all the

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<sup>44</sup> Faraday (*Researches*, Art. 481, 492). <sup>45</sup> *Ann. Chim.* lxxxvi. 146, for 1813.

<sup>46</sup> *Researches*, Art. 870.

<sup>47</sup> 960.