time by Franz Neumann and Wilhelm Weber; the later one was the theory of Maxwell based upon the totally different view which was maintained and gradually unfolded in the experimental researches of Faraday. The two former looked to the effects of the action of electricity at measurable distances, and has been called the telescopic view; the latter reduced these to the action which takes place in contiguous portions of matter or of space, and has been called the microscopic view. Helmholtz first of all, by an independent line of reasoning, brought the three mathematical formulæ in which these different views found expression under one common formula, of which each appears as a special case, and then proceeded by theory and experiment to decide which of the three possible special forms is to be adopted. As a theoretical test he applied the principle of the conservation of energy in a manner in which it had at that time hardly been used by Continental thinkers. His reasoning, which was largely discussed and criticised by eminent philosophers, gave to this principle the prominence and importance which it has ever since maintained in all Continental treatises. It meant the introduction of the physical view of natural phenomena.[1]

[1] In England the publication of Thomson and Tait's 'Natural Philosophy' formed, as stated above (p. 144), an epoch in the teaching of the physical sciences, notably through the prominence given to the principle of the conservation of energy. A similar epoch was created in Germany, not so much by Helmholtz's enunciation of the principle in 1847 as by the use he made of it, in one remarkable instance, in reviewing and criticising the existing and apparently conflicting theories. As Lavoisier introduced the chemical balance—based upon the conservation of matter—as a test for the correctness of chemical statements, so Helmholtz used the principle of the conservation of energy in two distinct forms, as a test of the validity of electrical