and as often revived, like that of Prout,[1] on the constitution of matter; the fanciful speculations of Zöllner, based upon the views of Wilhelm Weber,—all these scattered fragments or glimpses of knowledge promise at the end of the century to come together into a consistent theory of the nature of electricity as an atomically-constituted substance which is associated with particles of ponderable matter, or may even be the ultimate constituent of such matter itself. When a large mass of experimental facts and many lines of special reasoning gradually converge towards a common view, two things are indispensable in order to weld them into a consistent whole, viz., a new name or vocabulary and an hypothesis as to the elementary processes which will allow of a simple construction and subsequent mathematical calculation of the more complicated phenomena of actual experience. In the case before us, both

[1] See the concluding chapter of Prof. J. J. Thomson's 'Discharge of Electricity through Gases' (especially p. 197, &c.), where, after discussing Goldstein's "ether" theory and Crookes's "corpuscular" theory of the nature of the celebrated cathode rays, he, mainly on the strength of his own and Lenard's observations and calculations, inclines towards the latter theory, concluding that the carriers of the negative charges of electricity "are small compared with ordinary atoms or molecules, . . . this assumption being consistent with all we know about the behaviour of these rays." "It may," he continues, "appear at first sight a somewhat startling assumption in a state more subdivided than the ordinary atom; but a hypothesis which would involve somewhat similar assumptions —namely, that the so-called elements are compounds of some primordial element—has been put forward from time to time by various chemists. Thus Prout believed that the elements were all made up of the atoms of hydrogen, while Sir Norman Lockyer has advanced weighty arguments founded on spectroscopic considerations in favour of the composite nature of the so-called elements. With reference to Prout's hypothesis, if we are to explain the cathode rays as due to the motion of small bodies, these bodies must be very small compared with an atom of hydrogen, so that on this view the primordial element cannot be hydrogen." See also Sir W. Crookes's protyle theory referred to, vol. i. p. 402, note 2.