

*Third.* The atomic view, as developed in chemical formulæ, has unduly favoured and promoted the analytical tendency of research and thought, limiting synthesis to such compounds as can be artificially prepared, but neglecting that kind of synthesis by which compounds are formed in nature, and especially in living organisms.<sup>1</sup>

As representative of these three lines of argument, leading beyond or outside of the atomic view of nature, I mention the three names of Lord Kelvin in England, coupled with the kinetic—specially the vortex—theory of matter; of Professor Ostwald in Germany, coupled with the modern doctrines of chemical affinity; and of M. Berthelot in France, as especially identified with the development of modern synthetical methods in chemistry. In the next chapter I shall take up the line of thought embodied in the first of these developments—the kinetic view of nature. In order to understand the history of this view, we shall have to go back to opinions held

istry,' written in 1862 and reprinted in the subsequent editions and also in the English translation by Bedson and Williams (London, 1888), gives a very lucid summary of the historical developments. The publication of Meyer's book, by the controversies it produced, did a great deal to give "theoretical" or "physical" chemistry a distinct and independent position. Separate chairs and laboratories for physical chemistry have since been inaugurated, first at Leipsic and subsequently at other German universities. See Ostwald's article on "Physikalische Chemie," in Lexis, 'Die deutschen Universitäten,' vol.

ii. p. 50, &c. Professor Ostwald is also the editor, since 1857, of the first periodical devoted to physical chemistry. To his great work, entitled 'Allgemeine Chemie,' which, since its first appearance in 1884, has done so much for "general" as distinguished from "systematic" chemistry, and to his numerous suggestive addresses, I shall frequently have occasion to refer.

<sup>1</sup> See the works of M. Berthelot, quoted above, pp. 454, 455; also an address by Prof. Meldola before the chemical section of the British Association in 1895.