

This statement implies that even as late as the end of the third quarter of the century, foremost thinkers hesitated to attach a more than provisional importance to chemical symbolism and the various elaborations of the atomic theory, as chemical text-books then exhibited them. Similar merely provisional theories have existed in other branches of science. The theory of the two fluids in electricity did good service for a long time in enabling philosophers to define their ideas, to describe, calculate, and predict phenomena. In optics, the so-called corpuscular theory of light is still used with advantage as a convenient means of summarising the laws of reflexion and refraction; similarly, in treatises on the conduction of heat, the old caloric theory still holds a place alongside of the more modern dynamical views. It may be questioned whether the celebrated periodic law of Newlands, Lothar Meyer, and Mendeléeff, which has brought some order into the atomic and other numbers referring to the different elements, and has even made it possible to predict the existence of unknown elements with definite properties, stands really in a firmer position than the once well-known but now forgotten law of Bode,¹ according to

26.
The periodic
law.

l'instrument le plus parfait pour les conceptions élevées de la théorie et le guide le plus sûr pour les recherches expérimentales" (p. 241). And quite mournfully does Kopp report at the close of his historical survey of the development of chemistry ('*Entwicklung, &c.*, p. 829) how that science about 1860 again "turned into the course which it had tried so often, and had so often abandoned as hopeless, endeavouring to gain a knowledge how the elementary atoms are arranged in the smallest particles of their compounds."

¹ According to the relation, first observed by Christian Wolff and Daniel Titius, that the distances of the planets from the sun obey approximately the formula $0.4 + 0.3 \times 2^n$, where n for Venus, Earth, Mars, &c., assumes the values 0, 1, 2, &c., the planet corresponding to $n=3$ was missing. When, on the discovery of Uranus in 1781, it was found that this planet's distance also agrees approximately with the formula, Bode and von Zach drew attention to this fact, and suggested a systematic search for the missing