

many chemists previous to Dalton had to be interpreted as referring not only to such quantities as the balance could determine, but to the very smallest immeasurable particles of which chemical substances consist. For this purpose Dalton adopted what was known as the atomic view of matter. The conception of matter as made up of independent particles, which for our means and methods prove not only indestructible but likewise indivisible, was revived as the ancient theory of attraction had been. Combined with the Newtonian view that weight is a universal property of all matter, it made the two fundamental rules of chemical action intelligible: the two facts—*first*, that the total weight of substances remains always the same, be they combined in ever so many different ways; and *secondly*, that all substances, be they in large or in small quantities, combine with each other, or separate from each other, in definite and fixed proportions. This view could not be consistently maintained, except it was referred to the smallest particles into which matter is practically divisible: the figures expressing the combining numbers were viewed by Dalton as representing the relative weights of the actual atoms or elements of matter. That the ultimate particles of matter have definite weights is the reason why substances combine in fixed proportions, and why the combining weight of the compound is the sum of the combining weights of the constituents.

As the gravitation formula had given rise to a surprising activity in physical astronomy, to a long series of exact measurements, and to theoretical deductions of a purely mathematical kind, so the atomic theory of Dalton