About a century after the publication of the 'Principia,' which, by propounding the gravitation formula, raised the ancient and indefinite notion of Attraction to the rank of a useful and rigorously defined expression, another favourite theory of the ancient philosophers [1] was similarly elevated to the rank of a leading and useful scientific idea.

2. Atomic theory.

Although no mathematical relation equal in value and definiteness to the gravitation formula marks the introduction of the Atomic theory in Chemistry, it nevertheless owes its success to similar qualities—*viz.*, to the fact that it led natural philosophers to make definite measurements, and put exact research in the place of vague reasoning.

The atomic theory, usually associated with the name of Dalton, is, however, not nearly as much the historic property of that great man as gravitation is that of Newton, for whereas the latter gave the fullest generalisation that can so far be safely made, the atomic

[1] Ancient philosophers have furnished us with three distinct abstractions which have survived, and which, put into definite mathematical language, have led exact research in physics and chemistry in modern times — the theory of Attraction and Repulsion, the Atomic Theory, and the Kinetic Theory, or the notion that everything is motion. Of these three theories the second was most developed in antiquity; Lucretius's great poem on the nature of things being really a treatise on the subject, in which the atomic view is placed in the centre, the two other ideas being likewise largely utilised. The historians of ancient philosophy trace these abstract or leading ideas back to the earlier Greek thinkers. Thus Heraclitus of Ephesus is credited with having first taught that everything is in motion. Empedocles of Agrigentum made use of the notions of Attraction and Repulsion, poetically represented as Love and Hatred, to explain the action of his elements; and Democritus of Abdera is universally considered to be the true founder of the atomistic theory, which was adopted and developed in the School of Epicurus, and very fully explained by the Roman poet. A very good analysis will be found in Lange's 'History of Materialism' (English translation by Thomas, 3 vols.), in which also the historical connection with modern thought, especially through Bacon, Gassendi, and Hobbes, is clearly brought out.