

which have been given of chemical relations, namely, the views of the electro-chemists.

But before we do this, we must look back upon a law which obtains in the combination of elements, and which we have hitherto not stated; although it appears, more than any other, to reveal to us the intimate constitution of bodies, and to offer a basis for future generalizations. I speak of the *Atomic Theory*, as it is usually termed; or, as we might rather call it, the Doctrine of Definite, Reciprocal, and Multiple Proportions.

CHAPTER VIII.

THEORY OF DEFINITE, RECIPROCAL, AND MULTIPLE PROPORTIONS.

Sect. 1.—Prelude to the Atomic Theory, and its Publication by Dalton.

THE general laws of chemical combination announced by Mr. Dalton are truths of the highest importance in the science, and are now nowhere contested; but the view of matter as constituted of *atoms*, which he has employed in conveying those laws, and in expressing his opinion of their cause, is neither so important nor so certain. In the place which I here assign to his discovery, as one of the great events of the history of chemistry, I speak only of the *law of phenomena*, the rules which govern the quantities in which elements combine.

This law may be considered as consisting of three parts, according to the above description of it;—that elements combine in *definite* proportions;—that these determining proportions operate *reciprocally*;—and that when, between the same elements, several combining proportions occur, they are related as *multiples*.

That elements combine in certain definite proportions of quantity, and in no other, was implied, as soon as it was supposed that chemical compounds had any definite properties. Those who first attempted to establish regular formulæ¹ for the constitution of salts, minerals, and

¹ Thomson, *Hist. Chem.* vol. ii. p. 279.