fixed multiple proportions. In a table of the valencies or saturating capacities of elements and compounds, the element hydrogen forms the unit and point of reference, as it does in the scale of the atomic or combining weights, and very remarkable relations and analogies have been established between the periodic law of Mendeléeff and the valency of the different elements. Nevertheless it must be remarked that the valency of an element or compound does not, according to our present knowledge, show such absolute fixity as the equivalents or combining weights do, or as the angles of crystallisation of chemically pure substances do.[1]

The introduction of the conception of valency has had an enormous influence on the development of the science of chemistry, and this in a twofold direction. Its practical use was demonstrated by Kekulé, when he placed the idea of the tetravalency, or fourfold saturating capacity, of carbon in the front of his treatise of organic chemistry,[2] and by so doing gave a great impetus to organic research. One of the first symbols used to denote

[1] Not only are many of the elements, such as oxygen and phosphorus, classed differently by different chemists according as their valency or saturating capacity is put at a higher or lower multiple, but compounds which are universally considered to be saturated compounds, such as neutral salts and water, form chemical combinations according to their combining numbers, which are quite definite and stable: such are the hydrated crystallised salts and the double salts. These compounds are called "molecular compounds." Various explanations have been attempted, but the fact remains that "no characteristic distinction has been found, either in physical or chemical behaviour, between the ordinary compounds and the molecular compounds; and therefore, strictly speaking, from the phenomena exhibited, at present no other conclusion can be drawn except that chemical compounds do undoubtedly exist which cannot be included in the structure scheme which is based on the doctrine of a constant valency" (see Nernst, 'Theoretical Chemistry,' transl. by Palmer, London, 1895, p. 246).

[2] A. Kekulé (1829-1896), 'Lehrbuch der organischen Chemie,' 1st ed., Erlangen, 1859, and later.