Analytical Chemistry:

The specific purpose of analytical chemistry is the resolution of a compound or mixture into its constituent parts or elements by methods which are qualitative when the nature only of these constituents is determined, or quantitative when their actual quantity or proportion is ascertained. The methods of chemical analysis may be classified as dry, consisting of the examination of the substance in the dry state, and wet, in which a solution of the substance is treated with other substances of known character termed reagents, to promote a chemical change or reaction whereby a new compound of distinctive properties is produced. In quantitative work the methods of analysis may be subdivided into (a) gravimetric, in which the constituent to be determined is either isolated as such, as in the case of electrolysis, or as a compound of definite chemical composition; (b) volumetric, in which the volume of a reagent solution of known strength required to produce a certain definite reaction is measured. Colorimetric and gasometric methods are, strictly speaking, branches of volumetric analysis, as indeed is gas analysis (see below) Microchemical methods, which, however, involve a special technique, have been developed both on the qualitative and quantitative sides.

Chamical Combination:

Law of Mass Action (see Chemical Action), that the amount of a compound formed by an element A with B or with C respectively, but also on the quantities of B and C which are present and in a state to interact with A. This law has been of great importance in theoretical chemistry as well as in manufacturing operations.

Dalton's Atomic Theory:

A "reciprocal" law governing the weights of acids and bases which wouldjust saturate each other. The several weights of different bases required to neutralize a constant but different weight of another acid. This law of neutrality, embodied later in the "Law of Reciprocal Proportions."

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

Dalton's Atomic Theory:

A "reciprocal" law governing the weights of acids and bases which would just saturate each other. The several weights of different bases required to neutralize a given acid were also the weights required to neutralize a constant but different weight of another acid. This law of neutrality, embodied later in the "Law of Reciprocal Proportions," received little recognition at the time; it was revived to give svpport to and be explained by the Atomic Theory.

Chemical Combination:

Law of Mass Action (see Chemical Action) that the amount of a compound formed by an element A with B and for C. respectively, but also on the quantities of B and C which are present and in a state to interact with A. This law has been of great importance in theoretical chemistry as well as in manufacturing operations.

Chemical Combination:

Law of Mass Action (see Chemical Action) that the amount of a compound formed by an element A with B or with C depends not only on the relative affinity of A for B and for C, respectively, but also on the quantities of B and C which are present and in a state to interact with A. This law has been of great importance in theortetical chemistry as well as in manufacturing operations.

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