

ing is applied strictly to analogous phenomena ; but as soon as dynamical views prove insufficient where the specific properties and heterogeneous nature of matter come into play, it is to be feared that, by persisting in the pursuit of laws, we may find our course suddenly arrested by an impassable chasm. The principle of unity is lost sight of, and the guiding clew is rent asunder whenever any specific and peculiar kind of action manifests itself amid the active forces of nature. The law of equivalents and the numerical proportions of composition, so happily recognized by modern chemists, and proclaimed under the ancient form of atomic symbols, still remains isolated and independent of mathematical laws of motion and gravitation.

Those productions of nature which are objects of direct observation may be logically distributed in classes, orders, and families. This form of distribution undoubtedly sheds some light on descriptive natural history, but the study of organized bodies, considered in their linear connection, although it may impart a greater degree of unity and simplicity to the distribution of groups, can not rise to the height of a classification based on one sole principle of composition and internal organization. As different gradations are presented by the laws of nature according to the extent of the horizon, or the limits of the phenomena to be considered, so there are likewise differently graduated phases in the investigation of the external world. Empiricism originates in isolated views, which are subsequently grouped according to their analogy or dissimilarity. To direct observation succeeds, although long afterward, the wish to prosecute experiments ; that is to say, to evoke phenomena under different determined conditions. The rational experimentalist does not proceed at hazard, but acts under the guidance of hypotheses, founded on a half indistinct and more or less just intuition of the connection existing among natural objects or forces. That which has been conquered by observation or by means of experiments, leads, by analysis and induction, to the discovery of empirical laws. These are the phases in human intellect that have marked the different epochs in the life of nations, and by means of which that great mass of facts has been accumulated which constitutes at the present day the solid basis of the natural sciences.

Two forms of abstraction conjointly regulate our knowledge, namely, relations of *quantity*, comprising ideas of number and size, and relations of *quality*, embracing the consideration of the specific properties and the heterogeneous nature