

of existence.<sup>1</sup> This view was considerably strengthened by the popular interpretation of the teaching of modern astronomy, which laid great stress on the periodicity of the planetary movements, and the stability and inherent readjustment of the solar system. Also the insight gained by the first application of chemical knowledge to

<sup>1</sup> The idea of recurrent, periodic repetition seems opposed to the modern idea of progress and development as taught by Leibniz and Herder abroad, by Spencer in this country; still it seems almost impossible in a purely mechanical system to avoid introducing the conception of an ultimate recurrence, so long as one deals with finite space, time, or number, however great they may be. The only escape seems to be in assuming an infinite process or an immaterial principle which is not subject to mathematical treatment, the latter being inherently one of repetition. It is interesting to note how Herbert Spencer at the end of 'First Principles' relapses into the cyclical conception: "Thus we are led to the conclusion that the entire process of things, as displayed in the aggregate of the visible universe, is analogous to the entire process of things as displayed in the smallest aggregates. Motion as well as matter being fixed in quantity, it would seem that the change in the distribution of matter which motion effects, coming to a limit in whichever direction it is carried, the indestructible motion thereupon necessitates a reverse distribution. Apparently, the universally coexistent forces of attraction and repulsion, which necessitate rhythm in all minor changes throughout the universe, also necessitate rhythm in the totality of changes—alternate eras of evolution and dissolution. And

thus there is suggested the conception of a past during which there have been successive evolutions analogous to that which is now going on; and a future during which successive other such evolutions may go on—ever the same in principle but never the same in concrete result" ('First Principles,' 1st ed., p. 536). The other great system of modern philosophy which aims at a reconciliation of the mechanical and spiritual aspects—the philosophy of Lotze—though it dwells less than Spencer's system on the genetic problem, gives a different view of cosmic development. "The series of cosmic periods cannot be a number of phases, in each of which the one purpose of the universe does in fact maintain itself: it must rather be a chain, each link of which is bound together with every other in the unity of one plan. The One can manifest itself in various forms only when such variety of forms is necessary for the expression of its meaning—in a definite order of succession only when this order corresponds to a craving for development in its nature. As we required that each section of the world's history should present a harmony of the elements firmly knit throughout, so we must now require that the successive order of these sections shall compose the unity of an onward advancing melody" ('Microcosmus,' Eng. transl. by Hamilton and Jones, Book IV. chap. 3).