

41.
Mobility
of living
matter.

Another property of all living matter which has been seized upon to furnish a definition of life is its extreme mobility. It has been stated that the great difference between living and non-living matter is this—that the former is in a state of movable or dynamical equilibrium, whereas the latter tends always to a condition of rest or of statical equilibrium. This was especially urged by the late celebrated Du Bois-Reymond of Berlin, to whom we owe the greater part of our knowledge of the physical and chemical changes exhibited in the active nervous system. In comparison with this property of a dynamical equilibrium, explained by the analogy of a fountain of water or a vortex which change their substance whilst maintaining their form, other older distinctions which had been drawn between organised and unorganised bodies sank into insignificance.¹

or indirectly" (p. 824). Prof. Japp and Prof. Crum Brown of Edinburgh are of the opposite opinion, inasmuch as in the view of the former "the action of life, which has been excluded during the previous stages of the process, is introduced the moment the operator begins to pick out the two enantiomorphs," as was done by Jungfleisch.

¹ Among the older discussions of the best way of defining life which belong to the second third of the century, we have in Germany the various writings of Du Bois-Reymond ('Reden,' notably vol. ii. p. 25); in France those of Claude Bernard ('Phénomènes de la vie,' notably vol. i. p. 21, &c.); in England the 'Biology' of Mr Herbert Spencer. The two last-named authors examine with some care the definitions of earlier writers. All three should be read

and re-read by any one who desires to arrive at a clear understanding of the subject. Du Bois-Reymond's definition shows the preponderating influence of the ideas which governed the Berlin school of physiology, and which centred in Helmholtz's tract on the Conservation of Energy. Claude Bernard defines life by the words "La vie, c'est la création." Organisation and disorganisation are the two sides of this process, organisation and environment the two factors. The doctrine of evolution goes a step farther back, and attempts to analyse "organisation." The process of creation is to Mr Herbert Spencer a process of development. The word creation in the older sense ceases to have a meaning. Of more recent date are the discussions of the subject in the very interesting work of Carl Hauptmann, 'Die Metaphysik in der modernen Physio-