

logical rôle of habit, education, training and exercise, by means of which we learn to execute more or less automatically a large number of most complicated muscular movements, forming the basis of our animal life and of professional skill.

"The mental or psycho-motor element obviously plays an important part in the production of these co-ordinate movements. It implies idea or representation of the object aimed at by certain muscular contractions, effort of will required for their execution, and consciousness of the movement executed.

"It is self-evident, without entering into an elaborate discussion of this subject, that the same exercises which serve for the physiological education, so to speak, of our motor functions, may also be utilized for the therapeutical re-education in cases of motor disturbances, supervening in the course of various nervous diseases. This re-education is greatly facilitated by the functional substitution, in case of necessity, of various centres and cells of the nervous system for others."—(*Medical Press and Circular.*)

In Frenkel's system of "cerebral gymnastics" an attempt is made to resolve the ataxic movements into their component parts by substituting therefor simple rhythmic voluntary actions. The affected muscles are subjected to graduated systematic exercises, involving movements of increasing complexity, so soon as the simpler ones are properly performed. In this way, by a process of compensation, new nervous tracts are trained to carry the impulses and so to assume the functions of the diseased portions. Thus, in locomotor ataxia such exercises as walking in a straight line, circumduction of the foot in a circle, picking objects from the floor, designing geometrical figures, or other exercises with especial apparatus, suited to the particular case, are adopted. In order that satisfactory results may be expected, it is necessary that the sub-cortical and spinal paths of transmission be intact, so that in such diseases as myelitis, disseminate sclerosis, spastic paraplegia, and other similar conditions where these tracts are involved, not only is no improvement brought about, but the author cautions that harm may follow from the treatment. In properly selected cases the results obtained by Frenkel as well as others who have tried his methods, if we may credit reported cases, have been very encouraging, in many instances practically overcoming the motor disturbances and in others producing considerable relief. When we consider how unsatisfactory all lines of treatment heretofore proposed in these diseases have been, Frenkel's system, founded as it apparently is on a rational basis, is worthy of careful trial at the hands of the profession.