

a physical education, it ought also to respond to . . . the harmonious development of the body and useful application.

The writer then refers to the difficulties in carrying out public scientific training, especially in crowded cities, for want of out door space, and continues: Let us, nevertheless, use all our efforts to multiply the public places and shelters for the sole purpose of furnishing children and individuals of every class and every age with places designed for exercise in the open air.

The essential factor of physical education is voluntary motion. From the hygienic point of view it is important to have a sufficient amount of exercise to stimulate the combustion in the interior of the organism, and to facilitate the elimination of the wastes of incomplete combustion, which develop into real poisons. From the point of view of harmonious development, not the amount alone of exercise is to be considered, but the form or nature of the movement also; not the quantity, but the quality, too, of the movement is of importance.

Absolute muscular force, measured by the dynamometer, soon reaches its maximum, and if we limit ourselves to this gross measure, we shall have but a false idea of physical perfectionment. It is not, in fact, in the absolute measure of muscular force that a great modification is to be found, but in the aptitude for producing a large sum of work with moderate fatigue

and an economical expenditure of force. This refinement is produced in the nervous centres; through attention sustained by the will, through the frequent repetition of well-defined muscular acts, we are able to reach the point of suppressing useless contractions in the desired movement, and bringing into play only a portion of the muscles which were at first contracted in a mass.

Everybody walks, runs, and jumps: but they are few who have a passable gait unless there are trained to it. In short, we learn to walk, run, and jump, as we learn all the rest. We cannot well learn alone: and it is one of the essential objects of education to perfect the normal gait as well as all the movements in general.

There should be instituted in education a special technical teaching in which the mechanism of the movements and their physiology shall be studied with all the development which it permits. . . . We can also by this means introduce ameliorations into manual trades by seeking for a more perfect adaptation of tools to the human organization, and in general the best utilization of muscular force wherever it is called into exercise. This branch is, with hygiene, one of the most useful applications of biological science and touches at many points upon the amelioration of the condition of the laboring classes,

OBSTACLES TO SANITARY PROGRESS—"VOTING" MONEY.

ON first view there appears to be two chief obstacles to sanitary progress: one comprised in a want of knowledge—ignorance—respecting the laws of health, or ways of preventing disease and, especially, of the value or good results of practising these laws, or carrying out preventive measures; the other, want of money, means or ability, to make sanitary improvements when the value of such are known but perhaps objected to or put off as too costly &c. Thousands do not know, for they never have been taught or told, that most diseases may be

easily prevented, nor how to prevent them. They do not know the value of good drainage, pure air and water, well cooked food, and prompt isolation of the sick. Hence they care not to vote for spending money for procuring any of these essentials. On the other hand, the educated or wealthy citizen, or perhaps the poorer artisan or laborer, votes against a by-law to provide money for sewage because it will increase his taxes to the extent of a dollar or two or more, knowing the danger of delay, yet preferring to risk the possibility of being required to pay ten or a