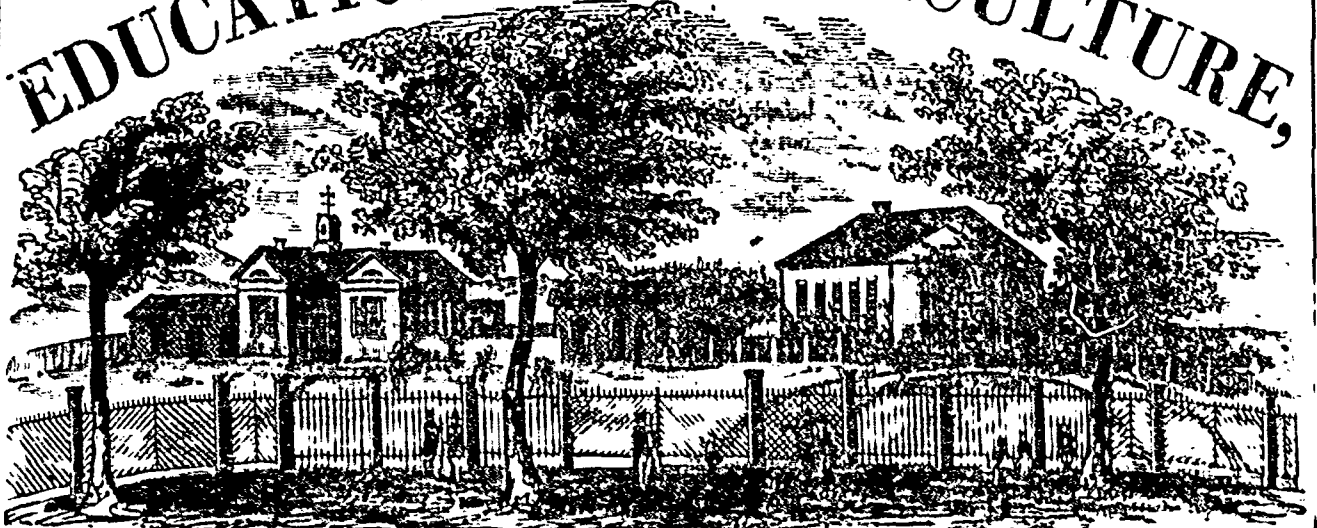


THE JOURNAL OF EDUCATION AND AGRICULTURE,



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FOR THE PROVINCE OF NOVA SCOTIA.

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EDUCATIONAL.

I.—THEORY OF EDUCATION.

PHYSICAL EDUCATION—MUSCULAR SYSTEM OF ORGANS—PHYSICAL EXERCISES, IN-AND-OUT-DOOR:

We have, discussed in order, the nutritive, the supporting and the cutaneous systems of organs, and, under each of these heads, respectively, we have considered at length the whole matter of the ventilation and temperature of school-rooms, the providing of the same with suitable and properly graded furniture, and the benefit arising from the order, the neatness and tidiness of the scholars. We proceed now to the consideration of a class of organs of greater importance, perhaps, than any we have yet brought under the notice of our readers, involving as it does, in no small measure, the relationship subsisting between the body and the mind,—the exercise of the muscular system deeply affecting the nervous, and that, the brain—the seat of thought. We crave the special attention of our readers whilst we lay before them a brief outline of the physiology of the muscles of the human body, and the various modes of exercising the same, not, only for the pur-

pose of securing their development and strength, but a larger amount of intellectual labour.

The muscles—of which there are upwards of 400 in the human body—zoologically speaking, are composed of fibres and blood, pervaded by nervous matter, and separated from one another by finely attenuated membranes. They are made up of three parts,—the two ends, called the origin and insertion,—consisting of sinews or tendon, and the middle or fleshy part. They are divided into two classes, the voluntary and the involuntary. By the latter, are meant those muscles that act independently of the will, such as those of digestion, circulation and respiration. By the former, are understood those muscles that perform their functions by an act of the will.—That part of the mind, called the will, operates upon the brain, the brain, upon a class of nerves, named *efferens*: and these nerves supply the stimulus by which the class of muscles designed for a particular act or movement is brought into play.

And how, it may be asked, do these muscles perform their functions? By the law of contractility, or that law by which the muscles are shortened by the swelling out of the middle or fleshy part; and, by this means, the bone is moved and action is effected.

These muscles grow and strengthen by exercise or use, by the diligent observance of the law of their being,—activity and repose, contraction and relaxation, by the regular and constant discharge of their appropriate functions. This is ex-