

The Æsthetic class has always regarded drawing as an aid in lifting the mind above the lower forms of enjoyment to those of a more rational character. It enables one to appreciate and enjoy with keener delight the beauty of the wild old forest, the cliff and mountain, hill and dale, lakelet and river, the stars set in the arch of heaven, cloud and rainbow. "It opens new fields of enjoyment, new powers of comprehension, and a broader basis for a correct understanding and a sound judgment of whatever belongs to human experience."

With these general remarks let us enter more into details. Let us consider the influence of drawing upon our ordinary school work. We believe that teachers themselves, from the fact, no doubt, that their attention has not been called to it, are not fully impressed with the value of drawing in our elementary educational course. They do not seem to understand that it is intimately connected with all other studies, and instead of robbing them of precious time, it is sharpening and toning up the faculties for the more ready acquirement of other knowledge.

Reading is the key to the storehouse of knowledge in these days of libraries, and must be taught in our schools. Since all who would enter the temple of learning must possess this key, anything that will hasten the process of teaching reading should be respectfully considered. Drawing does assist in this process. How? In reading we are obliged to name words, which are definite forms, at sight. We recognize words by their general forms or shapes, and not by remembering that each one is composed of certain letters. Drawing trains the eye to distinguish forms quickly. Therefore it has a direct influence in teaching children to read.

We must teach spelling as well as reading, so long, at least, as the present orthography remains in use. Good spelling depends on a good memory of forms. "All printers read proof, spell, correct typographical errors, etc., not by language, or by remembering," by the ear "whether a word ends in *tion* or *sion*, or is spelled with *z*, *s*, or *c*, etc., but by the appearances of words—by the eye instead of by rote—by form, not language." "It strikes his eye as correct or incorrect, not his ear." Memory drawing educates and strengthens the power to recall forms and thus bears directly upon the teaching of spelling.

Writing is one of the most important of elementary subjects. Drawing is the elder sister of writing, and they mutually aid each other. The same quick eye and the same skilful hand are necessary in both.

Geography is not only a useful study but a refining one also. Not many of us can travel over the face of the fair earth, to observe for ourselves the shapes of continents, islands, seas, and gulfs. We must study maps. But experience teaches that *gazing* at maps only is not the quickest method of fixing the forms of countries in the memory. Neither is it best to commit to memory long and tedious word descriptions of capes, mountains, and courses of rivers. Next to travelling from place to place and observing the situations of cities, islands, lakes, and the courses of rivers, the best thing is to draw maps and locate these places on them. The child that can sketch the course of a river or coast line, does not need to load down its memory with a tedious description to be forgotten when it leaves school. Hence, the best teachers teach geography by means of drawing.

Drawing assists in the study of arithmetic. In the elementary stages of drawing many exercises are given in the division of lines and surfaces into a certain number of parts. Such drawing lessons make excellent object lessons. It is not only useful as a means of illustration to the eye, but it cultivates the power of attention or

concentration, which is indispensable in the study of arithmetic. The power of concentration implies that of abstraction. The person who can abstract his mind from surrounding objects and concentrate it upon a complex problem, and hold it there until all the different steps are reasoned out, succeeds in solving such problem. The person who can only hold his attention while considering half the steps fails to solve such problem. The power of abstraction is the chief mathematical faculty, and probably no school exercise has ever been invented better calculated to lead the mind away from the concrete to the abstract, than that of inventive drawing, dictation drawing, and designing.

Geometry is the science of *form*. The first step in learning geometry is to notice the forms of things about us. Drawing forces us to notice form and renders the eye quick to notice differences of form. "The second step in learning geometry is to become able to imagine perfect forms without seeing them drawn." Beginners in this study, without a training in drawing, generally find difficulty in realizing that the lines they see on a flat surface represent anything but lines. They fail frequently to see that a form or volume is represented. Dictation drawing directly cultivates this power of "*seeing in space*," so necessary to the young geometrician.

The Latin, the Greek, and other languages, in which the meaning and relation of words often depend on minute differences in termination or inflection, are much more readily learned by those who have had the eye and attention cultivated by a systematic course in drawing.

Drawing is the handmaid to all the natural sciences. Botany, physiology, geology, natural history, etc., cannot be pursued in the best way without drawing. The drawing of the leaves, stems, fruits, and flowers of plants, the different parts of animals and the human body, serve to fix their forms in the mind better than it is possible to do it in any other way. The observation necessary to draw a form serves to impress that form in the mind and imagination, while the attempt to represent it by lines and shadows corrects errors of observation. A description of things in words gives the appearance of knowledge. An investigation of the real things yields real knowledge. Drawing forces us to this investigation. To draw a thing we must know. To know we must examine minutely.

The close connection which we have attempted to show exists between drawing and all school studies, may tempt some to say that *any* study helps all others. This, to a certain extent, is true. But, we believe that no other subject than drawing, except language, is so intimately associated with all legitimate school work. Drawing is a language, a universal language, read and understood by all mankind of whatever nationality or tongue. And because drawing can be used to express our thoughts, it is destined to revolutionize our methods of teaching. Instead of requiring pupils to recite in some particular language, we shall more and more demand answers in this general language.

More generally, let us consider the influence of drawing on several faculties of the mind. Attention, or the power of fixing the mind on some particular subject and holding it there, is necessary for success in the pursuit of all knowledge, or for success in any department of life. When drawing is properly taught the power of attention is directly cultivated. It is constantly making demands for close and continued observation. It requires accurate comparisons between different object and the different parts of the same object. The repeated and agreeable exercise of this faculty becomes a fixed habit of the mind, in time, and is