and you will introduce the most secure foundation for generalization which you can secure. You will have shown that the blackbone of the fish is the same as that which supports our frame: that the bones which form the ill-shaped and elongated head are the same which form our skull and brain, and that the fin which is attached is only an elongated arm. It is only in reference to special adaptation that the differences are introduced. I have entered into details, to show you that such objects exhibited and compared, will suggest ideas, and will lead to the training of the mind in a much more effective manner than by any study of mere text-books of general propositions and sentences. And yet I consider that of the utmost importance.

Let me not be understood, as if I thought that the study of writers was not of importance It is only in developing all our faculties for making man what he may be, it is only in giving to his mind that noble development of his faculties, that we urge this subject. If we cultivate the imagination and the memory,—and thus cultivation of the senses is neglected,—the ability of observing is neglected, and all those abilities which man may acquire by the culture of his senses, by the art of observing, are left untrained. The great element of education is left out of our system—that which appeals to the senses; that which appeals to the power of observing; that which requires activity of manipulation; and while only the imaginative faculties and the memories are cultivated, the other faculties are left starving. In our age, while the study of natural history is so manifestly necessary to the work of men, add that means to the culture of our schools; and to do it as soon as possible, educate the teachers who will be capable of imparting information; and that can be done easily by following the wise method which has been adopted in every branc

When physical geography was introduced into our schools, how was it done? One man went about from school to school, and gave instruction in that one branch, and his pupils are now teachers. Send us a few scholars who have aptitude for that study, in our principal schools in which we teach natural history; and in the teachers' institutes, and in the schools themselves, let them show what can be taught, and very soon the spirit will be caught and will spread; and in a few years we may have our system of education embodying that important branch of study, and I verily believe it to be one of the most important additions which can be made to our system of education.

Accuracy in Teaching.

The child regards things as the same which appear so to his eye. He calls arsenic flour, because it looks like flour—it is white. The oak and the maple, are to him both trees, and for aught he perceives, trees of the same kind.

It is no small part of education to discriminate between objects which resemble each other. The child, as he roams the field, is to be early taught the precise difference between the rose and the lily, the pear and the peach, the robin and the bluebird. It is not enough for one to know, that the rose and the lily are flowers:—he must also know what kind of a flower is each.

It is often much more important to perceive the differences than the resemblances of objects. Arsenic looks like flour; but how different their properties! This habit, early formed in the child, of carefully noting the differences between things resembling each other, should find full exercice in the schoolroom. The exact difference between the figure and the 0, should be shown, before the pupil has advanced beyond the "Rule of Three." The difference between the multiplier and the multiplicand, should be so explained that the pupil can not, without gross carelessness, commit the blunder of multiplying books by cents and horses by dollars.

In division, the difference between finding how many *times* two books can be counted from eight books, and taking one half of eight books, should be made as clear as sunlight to the pupil. The precise difference between a common and a decimal fraction, should not fail to be noted—the former being the genus, and the latter the species. And what a bewildering maze is the subject of fractions, if presented in a mass, and not drawn out in a simple order, and the exact difference between multipiying, dividing, etc., clearly explained.

But we have the most painful reminiscences of Grammar. How long did our teachers try to beat into our brain, that "hat" is a "noun, because it is a name;" and "to be" a verb, because it implies "action, state, or being." We knew we lived in Massachusetts, and that several other States belonged to the Union; but that "to be," or any other verb, had anything to do with them, we did not and could not see, and doubtless were accounted dull. Now we apprehend the difficulty was, that the exact difference between the noun and the pronoun, the verb and the adverb, was not clearly pointed out and dwelt upon, until we perceived their differences and their resemblances.

Children study geography for years without knowing that the length of a degree of longitude at latitude 60°, is half that at the equator,—if indeed they learn there is any difference between the length of a degree at the equator and at the poles. And how many pupils know whether the Blue Ridge is east or west of the Alleghanies, or whether the Alleghanies are older or younger than the Rocky Mountains?

If, in writing, we had been taught the precise difference between the forms of the letters *a* and *d*, *l* and *y*, we think our chirography would now be, if not more elegant, at least more regular and readable.

In the higher *mathematics*, algebra, geometry, trigonometry, and conic sections, there is the same need of accurate discrimination. The confusion of the student in radical quantities, arises mainly from not carefully noting the differences between similar terms. How simple and beautiful becomes the ascending scale of propositions in Euclid, if each is mastered by itself, and its affiliated relations to others clearly seen. But how often have we seen the proof of the whole proposition utterly vitiated by leaving out one link of the chain of argument, or by failing to see the precise difference between the proposition in hand and that upon which it depends. Every link must be supplied, or the chain is but a rope of sand. How soon sines and cosines, tangents and cotangents become familiar terms to the student who strives to perceive clearly their exact significance and their various relations!

By the same simple forms he measures the distance across the neighboring lake, calculates the height of the mountains in the moon, the diameter of Jupiter, and the distance from the earth of stars in Orion's belt. The circle and the ellipse, the parabola and the hyperbola, the ordinate and the abscissa, come to be terms as clearly defined, to the student of close discrimination and exact thought, as the letters of the alphabet.

Comparison and precision are equally needed in the study of Latin and Greek. The careless student perceives no difference between *vir* and *homo*, *mens* and *animus*, *amo* and *diligo*; but the accurate scholar has a distinct and sharply defined notion of each, and hence of their precise difference. How upon the dry bones of a dead language comes the flesh, vital in every part, when the histories of words are traced from their roots, their various expansions, contractions, and changes of meaning noted, their relations to other words ascertained, and their equivalents in another language found.

Studying a dead language thus, it becomes alive with interest, and greater precision of thought and accuracy of speech are daily gained.

Teachers cannot insist too much upon definite thought, upon precise knowledge. The pupil must be required to repeat, must be drilled, until it is certain that he has the exact thought—and the only sure evidence to the teacher that he has this thought, is the precise utterance of it by the pupil.

This is the drill, the mental gymnastics, which is to give precision and power of thought. As the thousand trained soldiers will put the untrained ten thousand to flight; so the mind trained by this exact discipline, even if its native strength is not greatly increased, can *wield* its resources with a tenfold power. The rough ore of the mind becomes the polished steel of the Damascus blade, with ready temper and keen edge.

We fear there is still a lack of accurate teaching in our schools. The tendency and the temptation are very strong to let an answer or a statement pass uncorrected, if it is *nearly* correct. It is trying in the extreme for a teacher to demand of a pupil the statement of a principle for the tenth time, if accuracy is not before attained. But it must be done. It is not the office of the teacher to impart or to seek to develop *uncertain* thought,—enough vague ideas are gathered from the various walks of life,—but it is his duty to train the pupil to habits of exact thinking and accurate speaking.

But as there are exceptions to nearly all rules, the practical teacher will make some exceptions to his demand for perfect accuracy. There are a few pupils who, partly, perhaps, from constitutional inaptitude, and partly from defective early training, can be but comparatively accurate. Even if set forms are driven into their minds for the tenth time, it is more than probable that they will utterly break down at the eleventh trial. Few ideas in their minds are even so clearly defined as to admit of definite expression. They belong to the class who "know, but cannot tell." Such pupils