

NATURE STUDY

Why It Should Be Taught in Schools.

FOUNDATION IS LAID

BY NATURE STUDY FOR OTHER STUDIES.

Lack of Time is Urged Against It by Some Teachers—It Will, However, Pay the Teacher to Teach It, for Pupils Will Grasp Things More Easily.

By Mrs. E. E. Beville, Hartington.

Shall nature study have a place on the programme of studies in our public schools?

At first sight this question may seem irrelevant, but when it is found that many teachers either fail to teach it at all or teach it in such a haphazard and half-hearted way that they fall short of the great aim of this most interesting and fascinating subject, the question may seem one of vital importance.

What is our answer to the question? The educational department—that much-abused and long-suffering body of philosophers—answer "Yes," otherwise they would never have placed it on the curriculum some years ago; and with this decision every whole-souled, nature-loving teacher must concur. It has been said in the past, and not without reason, that nature has been expelled from the school-room. Even at the present time it is surprising the erroneous conceptions held by a great many intelligent people, as to the total absence of anything resembling the study of nature in our public schools.

It was my privilege to be present, last winter, at a meeting of the Farmers' Institute, which was addressed in the evening by a delegate sent by the department of agriculture. This gentleman spoke at some length on birds, their habits, nature of food, etc., and showed the great benefit to the agriculturist these feathered friends of ours prove to be. In the course of his remarks he deplored the fact that in our public schools almost all the time was given to reading, writing and arithmetic. He said, "It is given to the state or observation of the natural objects surrounding the child." Now, knowing that the subject of "Birds" was particularly dwelt on in our schools, in fact having shortly before taken up the different classes of birds, their beauty, their uses, etc., with my own pupils, and having found as usual that these several lessons were amongst the most interesting of the whole year, and not only this, but having read with the pupils Burrows' "interesting work, 'Birds and Bees,' which as you all know has been prescribed by the inspectors for our supplementary reading, I was rather dumfounded at this unwarranted statement. Being handicapped, however, to a certain extent, as no ladies were speaking at the meeting, and it would have seemed presumption on the part of an insignificant country school man to gain a dignitary sent out by this august body, I was "I am obliged to thank it," as the Scotch say. Of course it is needless to add that this gentleman did not belong to the county of Frontenac. No doubt in the past, this state of things may have existed, but with the coming of the twentieth century a new era has dawned. The child is no longer a machine, into which we cram a heterogeneous mass of so-called educational ingredients, turn a crank and presto! we have a learned product not easily defined, but a living, breathing atom of humanity, able to think, observe and discover for himself.

Let us, therefore, look at a few of the reasons for teaching nature study in our schools. First, it is that study which appeals most directly to the nature of the child. The objects surrounding him attract first the eye of the infant. Notice how his eye follows every bright or showy object. How soon he reaches forth his hand to seize it. How often have we seen the eager baby, with nerve tingling with desire, grasp at the dancing sunbeam, slanting across the floor—alas, only to find that it eludes his grasp, and that his hand closes on emptiness—a foreboding shadow by the way, of his later experiences in life, when he shall learn by sad experience that the bright and alluring fancies which he pursues with such eagerness, turn when he grasps for them to nothingness, and are as "The apples on the Dead Sea shore, all ashes to the taste."

Thus the child up to the age of five years searches, inquires, questions, eager to find out all he can about everything he meets growing rapidly both mentally and physically. Happy the child, and happy the teacher of such a child, when he arrives at school age, if the eager little enquirer possesses a kind and judicious parent, not content with attending to his physical well-being merely, but realizes the infinite importance of these early years, and who knows that the habits of investigation, of thinking, of talking, of acting, formed at this period, may affect his whole after life. School age arrives—unfortunately fixed at the tender age of five—two or three years sooner than any child should be shut up in a school-room for five or six hours each day, but so it is, and the parents are anxious that their boy start to school and "get along" as they express it.

The little fellow, fresh from his contract with the things of nature, is touch with everything about him, his pet animals, the birds, the flowers, arrives at the seat of learning, bringing with him a breath of the clover, the dandelions, the buttercups, among which he has spent his days, and scattering the brightness of sweet news and innocence on the weary spirits of the almost discouraged teacher (for teachers do grow weary and discouraged occasionally). He is bubbling over with interest in everything new to him, and his hands, reaching out for information and love, shall we go on to say, to express the

agerness and the longing to shut out the beautiful world of nature which he has so loved, and fasten him down to a dreary routine of grind, grind, grind, on things which at that age have very little interest or meaning for him. By all means, No! Let us bring a little nature into the school-room, and let it serve to introduce the elementary work in those other studies, which he finds to be later on, both interesting and important.

This from the child's standpoint. But there is another all-important reason. It lends to the correlation of the studies. Nature study lays the foundation for other studies. It is the nucleus of physiology, geography, botany, zoology, physics and chemistry, and includes language work, composition and drawing. What a study in the lower grades will be found to differentiate into the various other studies in the higher grades. And how much easier for the child to master scientific subjects, when he enters high school, if in the elementary grades he has learned something of plants and animals, of light, heat, electricity, etc.

"But," some one says, "this is all very well as a theory, but there are difficulties." Certainly, and there usually are in anything worth the undertaking. Let us examine them. Strange as it may seem, one of the first difficulties may be with the parents. Some parents, who if they have ever attended school at all, have been taught only the three "R's," the learned gentleman mentioned before, referred to, seem to consider it a mere waste of time, and the filling of the pupil's mind with an egrotious mass of nonsense. This feeling on the part of the parents must be overcome, and it sometimes necessitates considerable tact on the part of the teacher. The co-operation of the parents with the teacher is greatly to be desired and must be secured if possible, otherwise the interest of the child is apt to flag. They must be brought around in some way, and with parents and children, both interested everything will go smoothly. After all, parents worthy the name will naturally be interested in what interests their child.

Another difficulty urged by some teachers is lack of time. I wonder what would be thought if we said we had "no time" to teach one of the other subjects—any, geography. One excuse is just as reasonable as the other, as one subject is just as important as the other. But the fact is, we gain time by teaching it. As we said before it forms the foundation for other studies, and the mind of the child will more quickly grasp and more readily retain the ideas presented in the other studies by having his intellectual faculties aroused, or his interest developed by the study of the natural objects surrounding him. What time shall we devote to the teaching of this subject? A short lesson in first part of the week, with the various classes, and on Friday afternoon a longer period, say three-quarters of an hour or thereabouts. I have chosen Friday afternoon, the same afternoon which I have chosen for music and for the same reason. By this time both teacher and pupils if they have labored faithfully all week, have begun to feel just a little tired, as it were, and the subjects which are the most interesting and which call for less strenuous mental effort are, therefore, the most suitable. Dullness and listlessness immediately vanish, everyone is active, everyone interested, and every child examined in five minutes will be sufficient. This may occur in any subject even in that to some pupils most uninteresting one, arithmetic. On page forty-six in the new public school arithmetic you will find this question: "How many toes have nineteen cats?" Now there is your opportunity. Cats and dogs are among our subjects for nature study. Can your pupils answer it correctly? By the way, how many of the teachers here are quite positive of the number? The children are instructed to examine Pusey and bring the correct answer. Again, in a dictation lesson there occurs a sentence on toads. We, therefore, have a short talk on toads, their habits, their uses, the good they do, reasons why they should not be destroyed and so on. Or the word, "Bees," comes up. For a few moments, attention is drawn to these busy little creatures, the most interesting of all the insect species. The children learn something of the cell-making, the gathering of the sweet nectar, the carrying of the pollen from flower to flower. You all know the beautiful words of Jean Ingelo:

Oh, velvet bee, you're a dusty fellow. You've powdered your legs with gold. Who has not had trouble in the literature class with these words? How the pupil clings to the idea that "gold" means the yellow metal, nothing more. After the short talk with this class I repeated the lines (though it was not a literature lesson) and asked "Who can explain?" Immediately every hand went up. The pupils' minds were now central on the "hollen." The word "gold" was now of secondary importance.

A bird flies in at the open window and falls fluttering to the floor or window. It must be caught, and liberated. Here is a chance to examine the form, the plumage, the bright eyes, the tiny feet—and a chance which some pupils may not have again. Every home does not possess a tame canary, and even those who have may be benefited by contrasting this wild bird with their tame pet.

Does this tend to disturb the concentration of thought on the subject under study at the time? I have not found it so. On the contrary I have found that the pupils return to it with renewed vigor, all the fresher for the moment's relaxation. Of course, in these discussions, as in all other relations with his pupils, the teacher must exercise wisdom and tact. What are the essentials for the

study? Some have said, "We must have a text-book." If by this they mean a text-book for the pupil we say emphatically, "No." Nature study is essentially an observation study. Place a text-book in the hands of the pupil and his interest dies out at once. Nature study becomes a mere routine.

But should not the teacher have some aid in the preparation of the work? Of course, every teacher has the great work of nature spread before him, a never-failing and ever-varying supply. But some may not find this sufficient. There are numerous works dealing more or less with the subject. The following have been found useful: First, there is the Canadian Teacher. This, although of much aid, will scarcely be found to cover the whole course. Next comes a work by Kearney, "How to Teach the Nature Study Course," and also "Stories in Agriculture," by the staff of the Ontario Agricultural College, Guelph. When purchasing books for our public school library, I procured "Birds of Ontario," by McIlwraith, a very excellent work, giving a concise account of every kind of bird known to be found in Ontario, with a description of their nest and eggs. It is liberally illustrated and beautifully bound, and should have a place in every school library. We also bought "The Fairyland of Flowers," by Pratt, a sort of illustrated botany, simple and untechnical, an invaluable assistance in the study of the Flora. Then the government, through the kindness of our inspectors, has presented each school with the book called "Farm Weeds." Some have said this book is worth \$10. To the teacher of nature study it is worth more. Then there is Burroughs' "Birds and Bees," already mentioned. These are only a few of the many works which will prove of advantage. Many very useful articles are given in our newspapers. In the Montreal Star of September 21st an excellent article was given on the "Value of Birds to the Farmer." This might prove the foundation of some very useful lessons. So rich for books.

Regarding the material for examination the teacher need not trouble very much about that. Let him once get the pupils interested in the work, and they will keep him abundantly supplied with specimens. They will vie with each other in their collection of plants, insects, minerals, shells, rare bits of curiosities of all kinds, which they will present with smiling pride and faces beaming with interest. Let the teacher beware of rejecting any of these, no matter how insignificant. Take it in the same spirit in which it is offered, and let the small giver believe that his specimen is of vital importance in the collection. A microscope or lens is of course necessary. One should be in the hands of the teacher at least.

"How is it to be taught? Objectively, of course, where at all possible. Have specimens of the article under discussion before the eyes of the pupils. Have them examine it for themselves. This is the one great point in favor of nature study. The pupil is the active agent. He investigates, examines and discovers for himself. "But," says some one, "what if the subject belongs to the animal kingdom?" If it is an animal that can be brought into the school room have it there by all means. When taking up the dog and cat we had the animals present. We even adopted a tramp cat which wandered along and fed and cared for it. It was received as a natural adjunct to the school room and was not in the least a disturbing element.

The Canadian Teacher some time ago gave an article on that time-honored ballad, "Mary's Little Lamb," to the effect that if this incident occurred in these days the teacher would not have "put him out," but would have seized the opportunity and had a nature study lesson on him. When the lesson was on the horse and cow I did not think it advisable to bring these quadrupeds to school, but every child examined them at home and brought the results of his investigations to school. And simple as the habits of these animals seem to be yet there are a few points which even persons who have seen them every day may not have noticed. For instance, one animal when getting up from a recumbent position raises the front legs first, the other raises the hind legs first. Which of the two does the former and which the latter? When cropping grass one crops the grass inward, the other outward. Which is which? Has each animal the same kind and same number of teeth? Has a sheep teth in both upper and lower jaw? How many are perfectly sure of the answers?

A good way to deal with some of the lessons is by contrasting two objects. Thus the animals mentioned—cats and dogs—horses and cattle—would be better dealt with in that way. Our lesson on Fungi was studied partly by contrast, especially with mushrooms and toadstools—see wholesome and nutritious, the other baneful and poisonous. Some weeks ago a tragedy was reported in Wag-

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town. Some persons were poisoned by eating toadstools in place of mushrooms. Another argument for nature study. Were persons taught to distinguish between the species such tragedies need not occur.

On starting the study of corn, I learned that a farmer in the vicinity had specimens of sugar corn and broom corn. I spoke to the boy belonging to the home, who brought samples of these. We had thus a good opportunity of observing the points of similarity, and also the differences between these and the common field and garden varieties, of which the pupils brought specimens. The subjects for study vary according to the season. The leaves just now, present the best selection. Compare the leaves of the different trees, their shape, color, etc. Then there are the caterpillars. They may be procured and allowed to form into cocoons. Some may be preserved in the transition state until next spring. Also some hibernating butterflies and moths will be useful. Compare the noxious and useful, and show that what is a weed in certain places may be a useful plant in others. Have the pupils make a collection of all the different kinds of seeds which he can find. In winter there are the snow-flakes, the ice formations, and the delightful prospect of snow and again a day when our old earth is transformed into a veritable fairyland. Every branch on every tree is covered with a dress of snowy feathered flakes of beauty. The winter birds may now be studied, also the domestic animals.

Then in the spring the whole world of nature comes to life, the buds and flowers waking from their winter sleep, the birds and the insects out of school, but if the training during the rest of the year has been careful and efficient this will be most fruitful time for the pupil. He will gain for himself a wonderful amount of self-knowledge, and will return to school not only invigorated in body but with his mind filled with many useful facts.

These are only a few suggestions. Hundreds of others might be introduced. Every teacher has an individuality of his own and in this subject there is a wide scope. One thing which should be in every school room is a collection of living, growing plants. These not only beautifully a dull room but are of inestimable value for the other lessons they impart. Let the pupils assist in the care of these and have them observe the growth of bud and blossom.

These not only beautifully persuaded to place a cabinet in the school room it will save the chairman and disappointment of returning after the spring house-cleaning has been in operation and finding that your beloved collection of specimens has entirely disappeared. Now come the drawing and composition. After the subject had been dealt with in the nature study lessons have the pupils make drawings of it. It also forms the theme for their next composition. This not only helps to impress it on their memories but is also a lesson in art and in composition or language work.

Education has failed in its object if it has not made man happier and if it does not enable him to bestow happiness on others. How can he do this if he goes through life with eyes, ears and heart closed to the beauties, the sweetness, the loveliness of this earth, formed for his abode by an all-gracious and loving Father?

It forms in the child a habit of observation, which will tend to make him a useful man. It creates in him a love of the beautiful, and not only that, but it creates a love for animals, which will increase more and more till he fully realize the words, "He loveth best what loveth most. All things both great and small. For the dear God Who made them loves them one and all."

Not only does it develop the child physically and mentally, but is of infinite importance in his spiritual growth. The world of nature begins to glow with meaning, and he begins to realize that he has been placed in this world for a purpose—that there is a higher, a better, a nobler part to seek. Pupils trained to see the beauties of God's earth, will soon learn that a heart impure or sinful will not consider this a great plan of the universe, will feel the pathos in the words of Bishop Heber: "Where every prospect pleases And only man is vile."

The Great Teacher set us an example in His teaching for He drew His lessons from the beautiful world around Him—the sparrows, the grain of mustard seed, the lilies of the field. How rare these words, birds and bees and butterflies, tell of God's love: It scintillates in the stars; it radiates from the sunbeams, it glistens in the dewdrops, it ripples and sparkles in the eddying currents of the brooks and rivers. Leaf and bud and blossom repeat the story until all nature mingles in one grand panegyric of thanksgiving, the beginning and the ending of which is, "God is love!"

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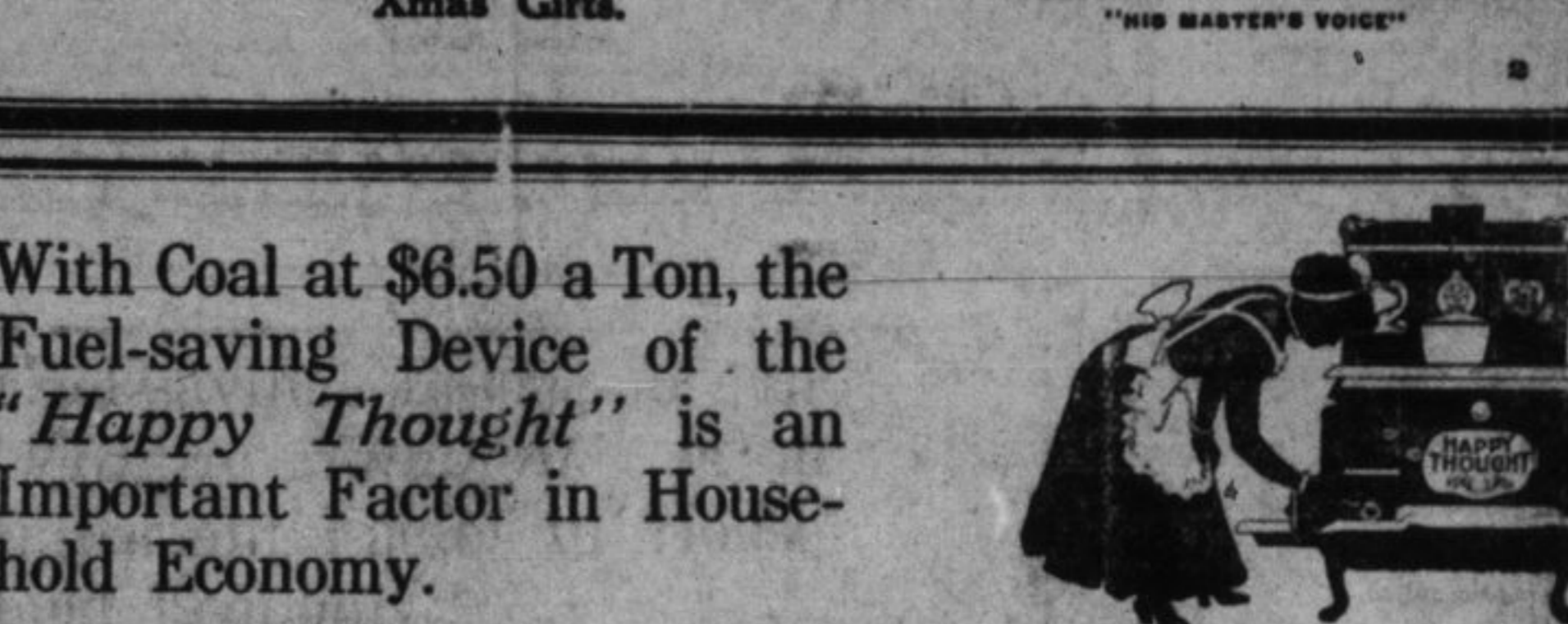
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