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EDITORIAL.

What is Nature Study?

Sir Wm. C. Macdonald's munificent gift of \$125,000 for the establishment of a school for the training of public-school teachers in nature-study and domestic science, at Guelph, Ont., has already been discussed in its general bearings in recent issues of the "Farmer's Advocate." We have drawn public attention to several important considerations arising in connection with the relation of the proposed institution to the present academic and normal training of our teachers. The domestic-science aspect of the subject is tolerably clear in the public mind, but "nature-study" is as yet but seen as through a glass darkly. We are pleased to see "The Nature-study Idea" presented at some length recently in *Country Life in America* (under the editorship of Prof. L. H. Bailey, of Cornell University). He points out that there is a rapidly-growing feeling that people must live closer to nature, and we must, perforce, begin with the child. Hence the effort to teach nature-love by nature-study. Attention is called to two or three fundamental misconceptions of what nature-study is or should be.

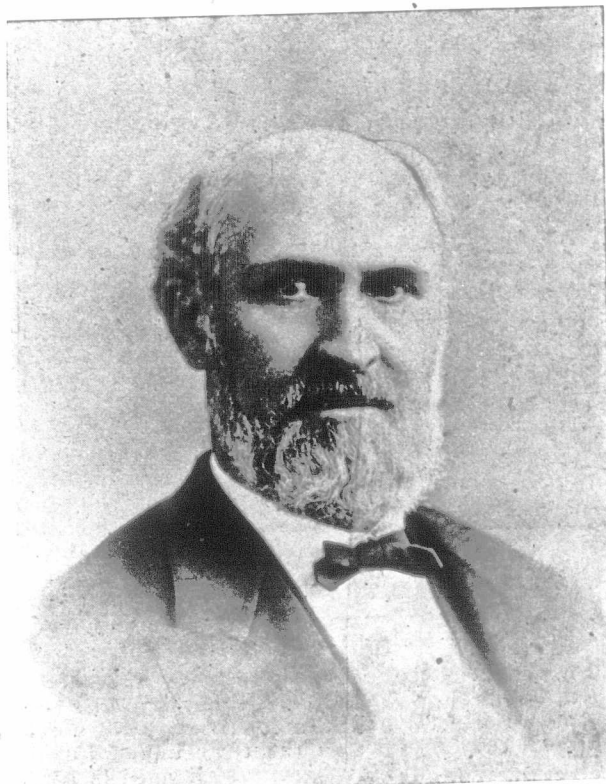
Fundamentally, says this writer, nature-study is seeing what one looks at and drawing proper conclusions from what one sees; and thereby the learner comes into personal relation and sympathy with the object. It is not the teaching of science, not the systematic pursuit of a logical body of principles. Its object is to broaden the child's horizon, not primarily to teach him how to widen the boundaries of human knowledge. It is not the teaching of botany or entomology or geology, but of plants, insects and fields. Many persons who are teaching under the name of nature-study are merely teaching and interpreting elementary science.

Again, nature-study is studying things and the reason of things, not about things. It is not reading from books. Nature-readers may be of the greatest use, if they are made incidental and secondary features of the instruction. The child should first see the thing. It should then think about the thing. Having a concrete impression, it may now go to the book to widen its knowledge and sympathies.

Yet again, nature-study is not the teaching of facts for the sake of the facts. We must begin with the fact, to be sure, but the lesson is not the fact, but the significance of the fact. It is not necessary that the fact have direct practical value to the daily life; for the object is the effort to train the mind and the sympathies. It is a common notion that when the subject matter is insects, the child should be taught the life-histories of injurious insects and how to destroy the pests. Now, nature-study may be equally valuable whether the subject is the codling moth or the ant; but to confine the child's attention to insects which are injurious to man is to give him a distorted and untrue view of nature. Children should be interested more in seeing things live than in killing them. Yet we would not directly emphasize the injunction, "Thou shalt not kill." Nature-study is not recommended for the explicit teaching of morals. We prefer to have the child become so much interested in living things that it has no desire to kill. It is true that we must fight insects, but this is a matter of later practice, not of education. It should be an application of knowledge, not a means of acquiring it.

We Should Cultivate Feeling.—We have a right to a poetic interpretation of nature. The child comes to know nature through its imagination and feeling and sympathy. Notice the intent and sympathetic face as the child watches the ant carrying its grains of sand, and pictures to itself the home and the bed and the kitchen and the sisters and the school which compose the little ant's life. What is the brook saying as it rolls over the pebbles? Why is the wind so sorrowful as it moans on the house-corners in the dull November days? There are elves whispering in the trees, and there are chariots of fire rolling on the long, low clouds at twilight. Wherever it may look, the young mind is impressed with the mystery of the unknown. The child looks out to nature with great eyes of wonder.

Two factors determine the proper subjects for nature-study: First, the subject must be that in which the teacher or parent is interested and of which he has knowledge; second, the subject must be one that is common and that can be easily



SIR WILLIAM C. MACDONALD.

seen and appreciated by the child, and that is nearest and dearest to his life. The tendency is to go too far afield for the subject-matter. If the subject-matter is of such kind that the child can collect the objects, the results will be the better. With children, begin with naked-eye objects. As the child matures and becomes interested, the simple microscope may be introduced now and then. Children of twelve years and more may carry a pocket lens; but the best place to use this lens is in the field. The best nature-study observation is that which is done out of doors, but some of it can be made from material brought into the home or the school-room. The subject should be vital.

It is a sound pedagogical principle that the child should not be taught those things which are necessarily foreign to the sphere of its life and experiences. It should not have mere dilutions of science. Usually the young child cannot understand the subject of cross-pollination of flowers,

It should not be forced to learn the names of the parts of the flower. Such technical subjects are likely to be beyond the child's realm. They are exotic things to the beginner. They are translations of the knowledge of grown-up investigators. Pollen and stamens are not near and dear to the child.

There are three factors in the teaching of nature-study: (1) the fact, (2) the reason for the fact, (3) the interrogation left in the mind of the learner. It is impossible to find a natural-history object from which these three factors cannot be drawn. For example, a twig or branch may be at hand on a February day. Let the teacher or parent ask the child what it sees. The reply will discover the first factor in the teaching—the fact. However, not every fact is significant to the teacher or to the particular child. It remains for the teacher to pick out the fact or answer that is most significant. The questioner should know what is significant, and he should keep the point clearly before him. A child says that the twig is long; that it is brown; that it is crooked; that it is from an apple tree; that it has several unlike branchlets or parts. Now, this last reply may appeal to the teacher as the most significant fact. Stop the questioning and open the second epoch in the instruction—the reason why no two parts are alike. As before, from the responses the significant reason may be developed: It is because no two parts have lived under exactly the same conditions. One had more room or more sunlight, and it grew larger. The third epoch follows naturally: Are there any two objects in nature exactly alike? Let the child think about it.

It is a common mistake to attempt to teach too much at every exercise, and the parent or teacher is also appalled at the amount of information which he must have. Suppose that one teaches two hundred and fifty days in the year. Start out with the determination to drop into the child's mind two hundred and fifty suggestions about nature. One suggestion is sufficient for a day. Five minutes a day of nature-study may be preferable to an hour, but make it quick and sharp. Let it be designed to develop the observation and reasoning powers, and not to give mere information. Spirit counts for more than knowledge.

What may be the results of nature-study teaching? Its legitimate result is education—the development of mental power, the opening of the eyes and the mind, the civilizing of the individual. As with all education, its central purpose is to make the individual happy; for happiness is pleasant thinking. The happiness of the ignorant man is largely the thoughts born of physical pleasures; that of the educated man is the thoughts born of intellectual pleasures. One way to lessen evil-doing is to interest the coming generation in dandelions.

Nature-study not only educates, but it educates nature-ward; and nature is ever our companion, whether we will or no. Even though we are determined to shut ourselves in an office, nature sends her messengers. The light, the dark, the moon, the cloud, the rain, the wind, the falling leaf, the fly, the bird,—they are all ours. Nature-love tends towards naturalness, and towards simplicity of living. It tends countryward. If one is to be happy, he must be in sympathy with common things. Few of us can travel. We must know the things at home. No person should depend wholly on another person for his happiness.