THE CHARM OF NATURE STUDY.[1]

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NATURE study as a subject is one which should be approached with great reverence, for in dealing with birds, animals, flowers and all other forms of natural life, we are perhaps, nearer to the Creator than in any other branch of science; for the natural world is the expression of God's personality in a form that is within the reach of all of us to comprehend in some measure. And is not the natural world one of the greatest proofs that there is a God?

The secret of having reverence in all branches of Nature Study, lies in reverence for Life in any shape or form. In speaking of this reverence for Life, Miss Mason says, "Reverence for Life as a wonderful and awful gift which a ruthless child may destroy but never can restore, is a lesson of first importance to the child."

> "Let knowledge grow from more to more.
> But more of reverence in us dwell."

Years hence when children are old enough to understand that science itself is in a sense sacred, and demands some sacrifice, all the common information they have been gathering until then, and the habits of observation they have acquired, will form an excellent ground work for a scientific education. In the meantime let them consider the lilies of the field and fowls of the air.

The strange part is that although we are surrounded by Nature in some form at all times—though more so in the country than in the town—we see and know nothing unless we ourselves make the effort. This inertia on the part of so many people is the reason of so much ignorance of the Natural World. Nature herself is retiring and unobtrusive, but not secretive. There is nothing she hides from those who really want to learn and want to see. She is the greatest of all teachers, for once our senses are on the alert, she draws us on, revealing treasure after treasure, and broadening and deepening our experience.

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If we who are old enough to understand and appreciate this fact, know the joy and interest it brings, how much more ought we not to pass it on to the children from the very beginning, that they may miss nothing of the wonder of it all?

Leigh Hunt says, "Suppose flowers themselves were new. Suppose they had just come into the world, a sweet reward for some new goodness. Imagine what we should feel when we saw the first lateral stem bearing off from the main one, and putting forth a leaf. How we should watch the leaf gradually unfolding its little graceful hand; then another; then the main stalk rising and producing more; then one of them giving indications of the astonishing novelty—a bud! Then this mysterious bud, unfolding like the leaf, amazing us, almost alarming us with delight, as if we knew not what enchantment were to ensue, till at length, in all its fairy beauty and odorous voluptuousness, and mysterious elaboration of living sculpture, shines forth the flower." The birds and flowers, insects and toadstools are not new; but the children are, and it is the fault of their elders if every treasure of Nature they discover, is not a mystery of beauty to be watched from day to day with unspeakable awe and delight.

There is no kind of knowledge to be had in these early years so valuable to children as that which they get for themselves, of the world they live in. Let them at once get into touch with Nature, and a habit is formed which will be a source of delight through life. We are all meant to be naturalists, each in his own degree, and it is inexcusable to live in a world so full of marvels of plant and animal life and to care for none of these things.

Let us consider for a moment what unequalled training the child naturalist is getting for any study or calling—the powers of attention and concentration, of discrimination and patient pursuit, and growing parallel with his growth, what will they not fit him for? Besides life is so full of interest for him, that he has no time for the faults of temper which generally have their source in lack of occupation for body or mind.

The sense of Beauty comes from early contact with Nature. "The æsthetic sense of the beautiful," says Dr. Carpenter, "of the sublime, of the harmonious, seems in its most elementary form to connect itself immediately with the perceptions which arise out of the contact of our minds with external Nature"; while he quotes Dr. Morell, who says still more forcibly that

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"All those who have shewn a remarkable appreciation of form and beauty, date their first impressions from a period lying far behind the existence of definite ideas or verbal instruction." There is no end to the store of common information, got in such a way that it will never be forgotten, with which an intelligent child may furnish himself before he begins his school career.

A child should be made familiar with natural objects, that is the observant child should be put in the way of things worth observation, and the unobservant child encouraged to notice and be on the look out for things. Generally speaking, this is not difficult, because every natural object is a member of a series. Take up any natural object—it does not matter what—and you are studying one of a group, a member of a series; and whatever knowledge you get about it is so much towards the science which includes all of its kind. Break off an elder twig in spring; you notice a ring of wood round a centre of pith, and there at a glance you have a distinguishing character of a great division of the vegetable world. You pick up a pebble. Its edges are round and smooth. It is water-worn and weather-worn and that little pebble brings you face to face with disintegration, the force to which, more than any other, we owe the aspects of the world we call picturesque—glen, ravine, valley and hill. It is not necessary to tell the child anything about dicotyledonous plants or disintegration, only that he should observe the pith within the twig and the rounded edges of the pebble. By and by he will learn the bearing of the facts with which he is already familiar—a very different matter from learning the reason why of facts which hitherto have never come under his notice. The power to classify, discriminate, and distinguish between things that differ is amongst the highest faculties of human intellect, and no opportunity to cultivate it should be allowed to pass. For this reason children should be encouraged to make such rough classifications as they can with their slight knowledge of both plant and animal forms of life. A classification taken from books, that the child does not make out for himself, cultivates no power but that of verbal memory. And this brings us to Nature Note Books, and the important part they play as a safe means of self-expression.

The keeping of a Nature Note Book gives each child a lifelong hobby. The books are never stereotyped and are absolutely voluntary, giving free rein to individual tastes.

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The different sections of the book will appeal to the individual and give adequate openings for the literary, the scientific, the poetic and the artistic child. While the practical child who loves organising, will enjoy planning out lists of the different things that are to be kept in the book.

The part of the parent or teacher, in the actual teaching of Nature Study to children is a very difficult one. The position is more that of a guide rather than of an actual teacher, for she must be so careful not to impose her personality on that of the child. This is important in all branches of teaching, but especially in Nature Study, because I am convinced that each child, once brought into contact with Nature, adopts his or her individual method of study. An enthusiastic teacher bursting with new ideas and suggestions, unless she is very careful, will break or interrupt this train of study with perhaps fatal results. Let us, who have the responsibility of teaching this subject to children, take Nature as our pattern, and be just a guide to the children, only giving help where really necessary, sinking our own ideas and suggestions till such a time as the child is ready for them, but never obscuring our own enthusiasm. So much depends on our own attitude to the things of life, and especially in this subject. It is our personal attitude towards the wonders of Nature that in both theory and practice will be of more value to the child than many words.

The practical side of Nature Study is mostly covered by the keeping of a Nature Note Book, which is a constant source of interest and self-instruction to the child. Special time is allowed for Nature Books on the time tables of all forms in the P.U.S.; but this is only a foundation, as one might say, for a child can, and is encouraged to paint or write notes in her book at any time. This set time is a good opportunity for the teacher to keep her eye on the books as a whole, to prevent the continuance of any serious mistakes, to provide Latin or English names that the children have been unable to find for themselves, and to give practical hints about paintings, notes, or general arrangement. But here again emphasis must be laid upon the importance of hints and suggestions only being given with the greatest care and discretion so that the child may keep her book in her own way as far as possible.

Clean water, and rag or blotting paper, good colours and brushes and a white background for all specimens, are all small things in themselves, yet if they received the attention

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they deserve, paintings in Nature Books would improve tremendously. Often a keen naturalist with a really good specimen is hampered by a flabby brush or poor paints, and is disappointed in the result of his work—a result which with attention to these details, could be turned from failure into success. All paintings should be done in brush work with the greatest possible accuracy and painted to size. If for any reason the painting is enlarged or not drawn to size, the fact should be noted. The name of the specimen and date of its finding should be clearly written underneath or near by. When painting flowers or any delicately coloured specimen, the children should be encouraged to keep their colours clean, to watch the specimen carefully first and then apply the colours freshly and with purpose, then leave them to dry and not rub them about or try to touch them up. How to obtain bright colours and shining or dull effects will soon come with experience. No backgrounds should be painted behind the subject. This will be found unnecessary even for white flowers if they are put upon a sheet of white paper while they are being painted. This gives the specimen its true tones values, and even a pure white

flower will be found to have bluish or grey shades in it, so that it may quite well be painted on the white paper of a Nature Book.

For notes, a margin should be kept on one side of the paper for dates or the names of the months. A flower and bird list should always be kept, and also any other lists which interest the individual—fungi, birds' nests, insects, animals, fossils, etc. These lists work best kept in columns, with the name, number and date of finding all on one line, and the next underneath and so on. Latin names, and names of families are a great help in classification and Latin names for flowers are invaluable, especially in cases where a single flower has a different name in practically every county.

It is a great pity to limit Nature Books to any one subject. Three or four I have come across lately have contained paintings that were almost entirely either flowers or twigs. The more varied the paintings and notes are, the more interesting and instructive the Note Book will be. Spore prints of fungi are very interesting to take and not at all difficult to do. Very often the arrangement and colour of the spores is a help in identifying the fungus. To take the prints it is best to spread a patch of gum arabic about the size of the cap of the fungus,
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on the paper, cut off the stalk very short and lay the cap, gills downward, on the wet glue, and leave it till the gum has dried. Then carefully remove the cap and see that the actual print is dry before shutting the book. A sheet of tissue paper over the page helps to keep the print from being rubbed.

Other interesting things for a Nature Book are diagrams of animal and bird tracks. These are more noticeable in winter either in snow or where there is plenty of mud. It is very interesting to take plaster casts of animal tracks, and a good way to get to know them, because the hardened lump of plaster is the negative as it were, and from it one can make any number of prints similar to the track already taken until the children become familiar with the tracks in any position. Then diagrams of any thing that the child has worked out for herself are always interesting—diagrams of clouds, the phases of the moon, the heavens at night or different constellations, diagrams to shew any special geological feature in her particular neighbourhood, or glacial remains, and diagrams of bird's flight. These last are not always very satisfactory, because it is difficult to represent direction, plane, lateral movements, and speed of the bird's flight in one and the same diagram. For example compare the flights of a wood pigeon that gets up and flies straight across a field to a tree, and a snipe that gets up with a rush, jerks to one side, rises, falls off to the other side and jerks again upwards and outwards. But in trying to make these diagrams the child will learn to watch a bird's flight attentively, noting when it flaps its wings and when it glides and the relation of one to the other, and so learn to tell birds by their flight.

It is instructive and interesting to watch the different stages in any growing things and at certain intervals to paint or write notes on them—things such as tadpoles, caterpillars, certain flowers or buds, mosses and young birds, especially in the last where there is a marked change in the plumage—for example, gulls and terns. Comparisons and contrasts in the characteristics of different families in flowers, animals or birds make an absorbing study. The chief value of diagrams and comparisons lie in the fact that the child must do them entirely herself, independently of books or outside help and when done they are the result of her own

observations and deductions, and this together with accurate notes and paintings should exercise her mental powers in this field and yet give her plenty of scope for exploration. [p 190]

Notes, perhaps, present even a larger field for study than paintings, but they must always be the result of personal observation and knowledge. It is very helpful sometimes to read up facts about a certain subject before a special expedition, in order to have a guide as to what to look for, or to know what may be expected. Then personal observations may be written up afterwards. This is far more instructive than reading up the subject afterwards and trying to fit personal observation to known facts, or what one feels one ought to have seen.

Children should be encouraged to make notes about the same plants or birds for several consecutive years. Each year will bring some new thing to their notice and a fuller knowledge of the ways and habits of their subject. It is a tremendous encouragement to find that one has discovered some peculiar little habit of a plant or bird purely by frequent and careful watching and not by reading about it in some book.

And lastly a word with regard to the use of poetry in Nature books either quite separately or lines inserted among notes. Poetry or quotations from literature are a great help in notes and perhaps sum up the diarist's ideas in a few lines of poetry where her own expression would take a page, but it requires care to see that the application of the poem is accurate and suitable.

Those who have kept, and still keep a Nature Note Book will already be familiar with most of the things I have said about the subject, but perhaps there are some to whom the joys of keeping a Nature Note Book—a life-long companion—are yet unknown, and who may be able to find a little help towards beginning one in these few notes.

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