

NATURE STUDY.¹

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In his latest report on our work, Rev. A. Thornley speaks of “a joyful appreciation” and “a sympathetic understanding of Nature” as the results of Nature Study. And Miss Mason says in *Ourselves*, p. 42: “What we call Nature is all beauty and delight, and the person who watches Nature closely and knows her well, like the poet Wordsworth, for example, has his Beauty Sense always active, always bringing him joy.”

This joy in knowledge is the principal object to set before us. “Our first thought with regard to Nature knowledge is that the child should have a living personal acquaintance with the things he sees. . . .” (*Parents and Children*, p. 231). “In . . . Nature Study we attach great importance to *recognition* believing that the power to recognize and name a plant or stone or constellation involves classification and includes a good deal of knowledge. To know a plant by its gesture and habitat, its time and its way of flowering and fruiting; a bird by its flight and song and its times of coming and going; to know when, year after year, you may come upon the redstart and the pied-flycatcher, means a good deal of interested observation, and of, at any rate, the material for science.” (*School Education*, p. 236.) And the method of study follows in the same passage: “The children keep a dated record of what they see in their Nature note-books which are . . . a source of pride and joy, and are freely illustrated by drawings (brushwork) of twig, flower, insect, etc.”

The value of the several parts of our Nature Note Books may be dwelt on in detail.

1. The use of painting. Form, colour, and gesture all go to make the likeness, and studious observation of the thing one is painting tends to fix it in the memory. It is often much easier to recognize an un-named flower from a painting than from a pressed specimen or from description.

2. The use of notes. They are to date the specimen painted, to describe where it was found, e.g., in wood or by water, exposed or sheltered; to add anything noticeable about the climate or season in which it was developed.

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3. The use of lists of flowers found and birds seen. They enable one to compare one year with another, e.g., the day the ryegrass flowered, or certain dragon flies emerged; to compare one county with another, for example, a mountainous with an agricultural region, or a limestone flora with that of a slate country; to compare one month with another, showing for instance, that the daffodil has a very short season and the chickweed blossoms month after month, or which flowers open in June, which in July, and so on. They distinguish the resident from the migratory birds, and show whether the latter return or leave at about the same date.

4. The use of Latin names in lists. They show the relation between species. English fails to tell us that stitchwort, chickweed and starwort all belong to one genus. As the Latin names are common to all European countries, they prepare us to understand a foreign Flora, or Jardin des Plantes. Unless we are familiar with them, we may miss the connection between insects and the plants they feed on which is often recorded in their names. It is true we have in English such names as the *privet* and *poplar* hawk moths, the *cabbage* white butterfly, and the *chalk-hill* blue. But the similarity between the scientific names of butterfly and flower is commoner

still. For example, the caterpillar of the small tortoiseshell, *Vanessa urticae*, feeds on the stinging-nettle, *Urtica dioica*. And that of the Cinnabar moth, *Hipocrita jacobæa*, feeds on ragwort, *Senecio Jacobæa*.

It is a good plan to make full records of life histories in the Nature note-books. Paint the bud, flower, leaf, fruit, seed and seedling of a tree, and compare the young shoot of one year's growth with a gnarled twig with crowded nodes. Paint the dragon-fly larva or empty case side by side with the emerging and the perfect insect; or a dockleaf riddled by the larvæ of the dock beetle bearing both the iridescent beetle and a patch of its yellow eggs. For birds, notes would be very interesting giving the dates of a nesting pair: e.g., song heard, first egg laid, sitting hen observed, parents carrying food, young learning to fly.

Comparisons are very interesting, e.g., a page of plants easily mistaken for one another, as scabious and sheep's bit, barren and wood strawberries, stitchwort and sandwort, the different species of cranesbill. Or contrast the same plant in different habitats: the tall milkworts from a grassy bank with the stunted ones from an open heath, the spreading pimpernel

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from a field with the tiny specimen from a sandbank. Or place the specially fine blossoms of a favourable season beside some ordinary ones, to show the genuine superiority of the former.

But we do not go for a Nature walk in order to "find something to paint." In the country, every walk becomes a nature walk for people who are in the habit of observing things. Telling a child that we are going for "a bird walk" or "a Nature walk" might rather be deplored, because we take whatever comes in our way and give it the attention and reverence it deserves. And as the "children should be encouraged to watch patiently and quietly until they learn something of the habits and histories," (*Home Education*, p. 57), of the living things all about them, it is the part of teachers to train themselves to observe in order to be ready to sustain the children's interest from day to day. For this purpose, the study of plants or insects in their natural surroundings is far better than making collections of dead specimens. To watch a bank of tall Umbelliferæ in the sunshine, and find out how many kinds of butterflies visit it, and whether they come for honey or to lay their eggs, gives a sense of the mystery of life in countless organisms which is absent from the most beautifully pressed flowers or the most perfectly mounted butterflies and moths.

This idea of the study of life quickens our interest and fills us with wonder, suggesting endless questions. What are my friends the trees doing in this mild winter? Where do birds go when it snows? Why are beetles only to be seen on a sunny day? Why were the trees so remarkably full of blossom in 1911? Were the little wall plants so scarce last summer, because of the long drought the year before? Why do the big black slugs all come out when it is going to rain, and what are they doing? Will the mosses found fruiting on rocks that are only uncovered where the river is very low, have time to ripen their spores before the water rises?

But I fancy these questions occur to us only when we have a large number of familiar acquaintances out of doors. And if we are to be qualified to compare and to judge, we must take some trouble to pursue our observations as far as may be, not resting content with vague recollections. This is where the note-book is so useful. For example, one should not note that certain alder-catkins last spring were the largest one had ever

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seen, without going on to reckon and record that the average length was 4 1/2 inches and that none longer than perhaps 3 inches had ever been seen before. A caterpillar found could possibly be named more easily if note were taken of the plant it was on. It is marvellous to see the beech buds unfolding, the soft twigs and limp green leaves that come out of them. But is not our wonder still greater if we stop occasionally to estimate the growth and find perhaps seven leaves, two or three flowers of each kind and twelve or fourteen inches of twig, all developed from one of those golden spindle-shaped buds? I would plead, too, for a more patient study of the sky. On four, or even two, consecutive clear moonlight nights, one can see the moon moving among the signs of the Zodiac, and can notice how far she "backs" across the sky in twenty-four hours. By comparing this distance with some well-known one, such as the length of the Great Bear's tail, some notion of relative distance in the sky is acquired. This movement of the moon recurring month after month is a phenomenon that should never be ignored. But to appreciate it, one must get to know the chief constellations by sight. The movements of the planet Mars in 1911 and 1912, recorded on a map every two or three nights, were a fascinating study. And Saturn is in a conspicuous position for observation now, though his movements are not so apparent as those of Mars.

To notice and wonder and assure ourselves of facts from our own observations is our chief necessity in the study of Nature. It does not much matter how long our questions remain unanswered, if the answers come to us at last at first hand; because the joy of discovery is greater than the mere satisfaction of knowing how to explain anything and everything. If we try to do that for our pupils, we shall only weary them. We must learn with them, and our attitude towards the marvels of the world we live in might well be that of the poet Tennyson, whose poems tell of his close observation of Nature. When found by a friend contemplating a little muddy pool by the hedgerow, overgrown with duckweed, Tennyson, "turned a face, dim with rapt and serious contemplation upon him, saying in a deep tone, 'What an imagination God Almighty has!' This exclamation was drawn from him by the sight of the little pool, with its myriad and dainty forms of infusorial life and beauty, all fresh from the mind of God."

¹ A lecture given to Students of the House of Education, Ambleside.

Nature studies are still my favorite way to study and teach science. Studying science in this way has so many benefits. Here are 5 reasons children should study nature. Why Nature Studies? 1. Nature study teaches children to appreciate nature and the world around them. Have you ever seen a young child stop everything, squat down, and stare in wide-eyed wonder at a caterpillar on the sidewalk? They are captivated and in love with what they see. Nature study normally forms part of the school curriculum, and teachers are well accustomed to encourage a humane attitude to animal life. Hansard archive. Nature study is part of the recommended syllabus for primary schools, and science is normally taught in secondary schools. Hansard archive. A study in Nature Microbiology shows researchers can rapidly and reliably identify the microbes present in a preterm baby's stool sample that may cause life-threatening conditions such as sepsis or necrotising enterocolitis. Nature Microbiology. nature.com. Rapid MinION profiling of preterm microbiota and antimicrobial-resistant pathogens. Nature Microbiology. Nature Microbiology. Nature. 11 hrs