

SEASIDE AND WAYSIDE

BOOK TWO



AN OCEAN GARDEN

SEASIDE AND WAYSIDE

BOOK TWO

by

Julia McNair Wright

So he wandered away and away
With Nature, that dear old nurse,
Who sang to him, night and day,
The songs of the universe.

— LONGFELLOW, *Birthday Poem for Agassiz*

YESTERDAY'S CLASSICS

ITHACA, NEW YORK

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ISBN: 978-1-63334-085-5

Yesterday's Classics, LLC
PO Box 339
Ithaca, NY 14851

PREFACE

To the Boys and Girls:—

In this book we shall wander together a little farther, by the seaside and by the wayside. Sometimes we shall walk on the breezy hills; sometimes in the low, marshy places, where ferns and rushes grow.

Sometimes we shall stroll along the wayside path, where the wild-flowers and grasses are woven into a wreath.

Sometimes we shall go to the hard, white sand, where the ocean waves roll to our feet, and bring us shells and curious treasure from the sea. Again, we shall go down to the still ponds, where lilies float on the water and dragon-flies swim in the air.

Wherever we go, let us keep our eyes open and our minds awake to the lessons of Nature. Then we shall be able to learn what beauty and wisdom lie hid, even in such humble things as flies and worms. We shall find much to delight us in beetles; and be as happy as kings while we search out the secrets of airy hunters and marvellous little fishes.

J. M. N. W.

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LESSON I

A LOOK AT AN ANT

You have been told¹ that an insect is a living creature with a body made in rings, and divided into three parts. Most insects have six legs, four wings, and two feelers.

There is a great Order of insects which we shall call the hook-wing family.

The wasp, the bee, the saw-fly, and ant belong to this family. They are the chief of all the insects. They can do many strange and curious things.



The Wasp

You will know insects of this great family by their wings. The front wings are larger than the back ones. They fold back over them when at rest.

In flight the upper wings hook fast to the lower.²

¹ *Seaside and Wayside, Book One.*

² *See Seaside and Wayside, Book One, page 37.*

If you look carefully at some kinds of insects, you will soon think I have told you what is not quite true. Why will you think that? You will say to me, “The fly has two wings, and not four.” “The ant has no wings at all.”



The Bee

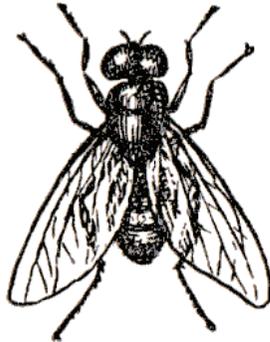
Ah, but wait until you study about ants and flies, and see what you will think then.

The mouth of all the hook-wing insects has two jaws for cutting or for carrying things. The mouth is nearly as wide as the head.

Above the mouth are two knobs. These knobs are two big eyes, one on each side of the head. Between the two big eyes they have some little ones, on the top of the head.

You see insects are as well supplied with eyes as crabs are with legs.

The back part of the body of many insects is made fast to the middle part by a small joint, or thread. That is because these insects need to bend, or even double up, in some of their work.



The Fly

A LOOK AT AN ANT

The Hook-wing Order is divided into two great kinds.

The insects of one kind carry a little saw. The others carry a sword. The sword is a sting. The saw is to cut up leaves and wood to make nice soft nests or houses for the eggs. The sword is to fight with, or to kill things for food. Among the saw-carriers is the fine, long fly, called a saw-fly. Bees, ants, wasps, and others carry the sting.

Get one of these insects, and you will see all the parts of which I have told you. Let us first take an ant to look at.

The head of an ant seems very large for its body, and the eyes seem very large for the head. They look as if they would be heavy for the little ant to carry.



The Ant

On the under part of the body which is next the head are set the six legs. These legs and the feet have joints.

On the upper side of this same second part of the body are set the wings. There are four wings, two large and two small ones. The upper pair are larger than the lower ones.

The third or back part of an ant's body is made

of six rings. On the tip or pointed end of this hind part is the sting.

Now I hear you cry out, "O, my ant has no wings!" Well, let me tell you a secret. The wings of your ant have been cut off, or unhooked, as you shall hear by and by.

There are many families of ants. Each has its own name and its own ways. All ants are very wise in their actions. I shall tell you many strange things about them. Ants have always been called "the wise insects." Would you not like to learn about their homes, their children, and their way of life?

Before you study the ants in any book, I wish you would go out into your garden or into the fields. Find an ant-hill, and sit or lie by it for an hour or so. Take some sugar or bits of cake to feed the ants. Find out for yourselves all that you can about them. Facts that you learn in this way will be worth very much to you. Be careful and do not disturb the hill or alarm the ants.

LESSON II

THE LIFE OF AN ANT

IN ant-hills we find drone ants, queen ants, and worker ants. The drone ants have no sting and

THE LIFE OF AN ANT

do no work. Their bodies are longer and more slim than those of queens. The drone ants have wings.

The queen ants also have wings. They have stings, and their bodies are round and dark.

The workers are smaller than queens and drones. They are also darker, and have no wings and no stings. Workers are of two sizes, large and small. They are the builders, nurses, soldiers, and servants of the others.

In an ant-hill there may be many queens at one time. Often the ant-queens work. They are both mothers and queens. They will also act as soldiers. The queen ant is not like the queen bee, who will allow no other queen to live near her. I think mother ant a better term than queen ant.



A House in a Hill

The word “queen” may make you think that this ant rules the rest. That is not so. Ants have no leader and no ruler. Each ant seems to act as it pleases.

The chief work of the queen ant is to lay eggs. In a short time, out of each egg comes a lively, hungry, little baby ant. It is called a larva. A larva is like a small white worm.

This little being needs to be washed, fed, kept warm and dry, and taken into the air and sun. It must be cared for, very much as the baby in your home is cared for.

The workers, who act as nurses, are very kind to the young larvæ³. How do they wash these little things? They lick them all over, as the cat licks the kitten. They use such care that they keep them nearly as white as snow.

The nurses feed the baby ants four or five times each day. The nurses prepare the food in their crops, to make it soft and fit for the little ants.

The nurses stroke and smooth the larva baby. It seems as if they patted and petted it. When the weather is cold, they keep the larvæ in-doors. When it is warm and dry, they hurry to carry them

³When we mean only one we say *larva*; when we mean more than one we say *larvæ*.

THE LIFE OF AN ANT

up to the top of the hill. They place them there to bask in the sun. If any rain comes, or the hill is broken, the nurses run to carry the babies to a safe place.

When the larva is full grown, it spins around itself a little fine net, which wraps it all up. When people see these white bundles in the ant-hills, they call them "ant-eggs." They are not eggs. They are pupa-cases. In them the baby ants are getting ready to come out, with legs and wings, as full-grown ants.

The pupa-cases are of several sizes. The largest ones are for queens and drones. The next size holds large workers; the smallest cases hold the smallest workers.

There are often in the hills very wee ants called dwarf ants. When you study more about ants in other books, you can learn about the dwarfs.

After the ants have been in the little cases some time, they are ready to come out. The nurse ants help them to get free.

Many hundreds come out of the cases. They crowd the old home so full that they can scarcely find room to move about.

Then they see the light shine in at the little gates on the top of the hill. They feel the warmth of the sun. They crawl out.

They push upon each other. The hill is not wide and high enough for so many uncles and cousins and sisters and brothers. They act like great crowds in the streets at a big parade, each one struggles for his own place.

Young ants, like young people, wish to set up for themselves in new homes. They spread their fine wings. Off they fly! Since there is not room in the old hill they will build a new one.

They swarm as the bees do. As they rise high from the earth, they drift off on the wind. Very many of them tire out and die, or are blown into the water, and are drowned. A few live and settle on places fit for a new ant-hill.

It is the mother or queen ant who chooses the new home. When she has found the right place, what do you think she does? She takes off her wings, as she does not care to fly any more.

The ant does not tear off her wings. She unhooks them, and lets them fall away, and does not seem to miss them.

LESSON III

THE ANT'S HOME

ANTS live in nests, made in the earth. We call them ant-hills, from the shape of the part that is above ground. It is the queen ant who begins to build the ant-hill.



The New Home

Like the mother wasp, the ant works on her nest until enough ants grow up to do all the work. After that, like the queen bee, she does no work. The work ants will not allow her to go from home.⁴

⁴For Lessons on Bees and Wasps, see *Seaside and Wayside Book One*.

When the ant finds a place for her home, how does she take off her wings? They would be in her way while she worked. She presses the edge of a wing upon the ground and so pushes it up and loosens the hook, just as you unhook a dress. Then she begins to dig. She acts at first much as your dog does when he digs after a chipmunk or a rabbit.

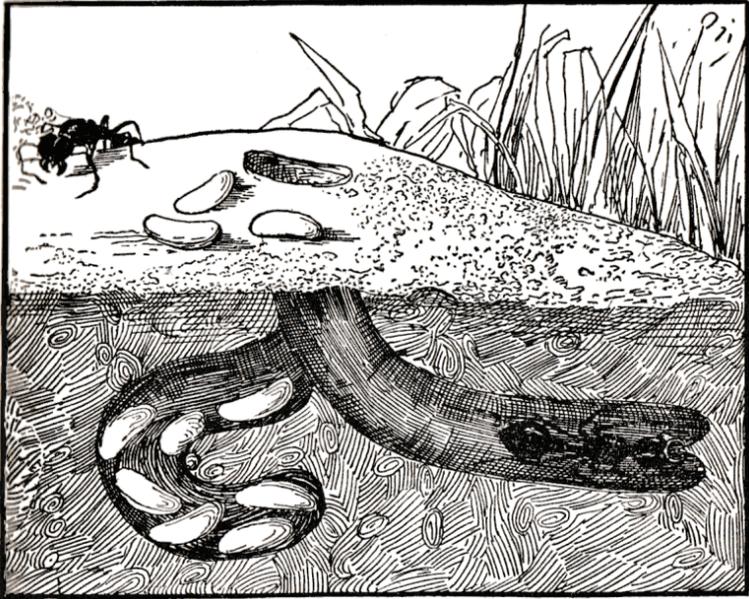


Sappers and Miners

The ant lays her big head close to the ground. With her fore-feet she digs up the soil, and tosses it back between her hind legs. She digs as her cousin, Mrs. Wasp, digs.

THE ANT'S HOME

She keeps waving her little feelers, as if to find out the kind of soil. Soon she has a hole deep enough to cover her body. It is too deep for her to throw out the dirt with her feet. Now she uses her feet, and her jaws, also, to dig with.



Sappers and Miners

Where the soil is sandy, she takes it out, grain by grain. At first, she must back out of her hole. Soon her hall-way is so wide that she can turn about after she has backed a few steps.

Ants are very kind to each other in their work. If they push or tread on each other in their haste, they never fight about it.

The ants know how to work and how to rest. After a little hard work they stop, clean their bodies, take some food, and sleep.

As the making of the hall goes on, the ants bite off with their jaws bits of dirt, and roll them up with their feet. They soon use the hind part of the body to press and push the earth into a firm ball. These balls are carried out and laid by the door. By degrees the balls form the “ant-hill.”

When the hall is two or three inches long, they make a room. Then they make more halls and more rooms. The rooms are for eggs, for larvæ, for pupæ,⁵ and for food.

People who have studied much about ants have had them build nests in glass jars. Thus they have been able to see how they work.

To make a room, the ants often have to stand on their hind legs, and bite the earth off, as they reach up their heads. Sometimes the ant lies on its side, to clean off or smooth the side wall. They have been seen at work, lying on their backs, as men do in mines.

The jaws of the ant have tiny teeth. In old work ants the teeth are often quite worn off. The feet

⁵*Pupa* is used when we speak of one, *pupæ* when we mean more than one.

THE ANTS AT HOME

and jaws of the ant are well made for digging. The feet have small hairs. By the aid of these the ants can run up a piece of glass, or hang on a wall, as you would say, "upside down."

An ant-hill is made of very many little halls and rooms. Some open into each other; some do not. The rooms are bedrooms, nurseries, pantries, and dining rooms. Many of the rooms are shaped like a horseshoe. Some are round.

The ants press and knead the floors and walls to make them hard and smooth. Sometimes they line them with a sticky soil, like paste, to keep the earth from falling in.

Some ants seem to make a kind of glue, or varnish, with which they line their walls.

LESSON IV

THE ANTS AT HOME

WE have taken a look at the ants and have seen how the hill is made. Let us now see how the ants live in their hill-home.

When we go to visit them, we shall find ants running all about the hill and in the halls. These are the work ants. Some seem to stand on the hill to watch lest any danger may come near.

When the drone ants and the queens are young, the work ants let them go out and fly. When they go out, the drones do not often come back. They get lost or die.

The young queens come back, except those who go off to make new hills. But when the young queen settles down in life, to her work of laying eggs, the workers do not let her leave the hill any more.

How do they keep her in? If she has not taken off her pretty wings, they take them off and throw them away! If she tries to walk off, a worker picks her up in its jaws and carries her back.

The ants are kind to their queen. They feed her and pet her, and she becomes very lazy. She does not even care to lay her eggs in a nice clean place.

The idle queen drops her eggs anywhere. The kind worker ants pick them up, and take them to a soft bedroom.

When there are too many young queens in one hill, they do not have a war, as the bees do. The workers settle the trouble, by taking off the wings of some of the young queens, and turning them into work ants. This is done before the queens begin to lay eggs.

THE ANTS AT HOME

New-born ants and queens, who do not go out into the sunshine, are of a light color. The other ants are dark.

In cold, wet weather the ants stay at home. If a rain comes up when they are out, they hurry back. Early in the day, and late in the afternoon, they all seem to be very busy. In the hot hours of the day they stay in the hill and rest.

In very hot lands the ants stir about all winter. Such ants lay up stores of food. You shall hear of them by and by. In cooler lands, during winter, the ants are asleep, or, as we say, are torpid.

The young swarms usually go out in autumn. I have seen very large swarms in the spring.

Ants like sugar and honey best of all food. They get honey from flowers, and in other ways of which I will soon tell you. Some like seeds which have a sweet taste. For this reason they eat some kinds of grass-seeds, oats, apple-seeds, and such things.

Ants take their food by licking it. Their little rough tongues wear away bits of the seed; they also suck up the oil and juice. They seem to press the food with their jaws.

It has been found out that they know how to

moisten their food and make it soft. If you give them dry sugar or cake, they turn it into a kind of paste or honey. Then it is easier to suck or drink it up.

If you put a nest of ants with plenty of earth into a large glass jar, and put some food near by for the ants to eat, they may settle down in the jar, to make a home. If you cover the outside of the jar with thick, dark paper, the ants may build close to the glass. Then, when you take off the paper, you will be able to see the halls and storerooms.

You might put such a jar in a safe place out of doors. Then you would be able to study the ants, as they roam around near by, or do their work inside the jar.

LESSON V

THE ANTS ON A TRIP

THE round hole in the ant-hill is called the gate. The ants can close it with a bit of stone. Often there are two, three, or even more, gates for one ant-hill. Once I saw a hill with six large gates.

Now I will tell you of a very odd ant-hill. It was made by big black ants, in a little valley between two hills of sand.

THE ANTS ON A TRIP

Into this valley had blown a very large sheet of thick paper. It had been around a ham and was very greasy. It had lain on the ground, crumpled up, in sun, and snow, and rain, for a year.

By that time it was hard and stiff, and weeds had grown up about it. One day, as I was going by, I saw ants running in and out of the folds of the paper. I took a stick and turned the top fold open like a lid.

It was full of ants and of white pupa-cases. The ants, I think, liked the folds of the paper for halls, and the larger wrinkles for rooms. They had found out how to have a house without much work in making it.

When I opened this paper-hill, they ran in swarms to pick up the white bundles. Poor things! They did not know where to go for safety. So I laid the lid of their house back in its place, and soon they were quiet again.

Now I will tell you how ants move from one house to another. One day I saw by my garden path a line of ants moving all one way. They were black ants.

They went two by two, or one and two, close to each other. Every one had in its jaws a white bundle. I found that they all came from an ant-hill.

They came up out of the gate very fast, one by one, each with its bundle.

About two or three inches from this line of ants I saw another line. This line went *to* the hill, not *from* it. They went in good order.



On the March

They had no bundles when they went into the hill; when they came out, each had a bundle, and joined the other line of ants.

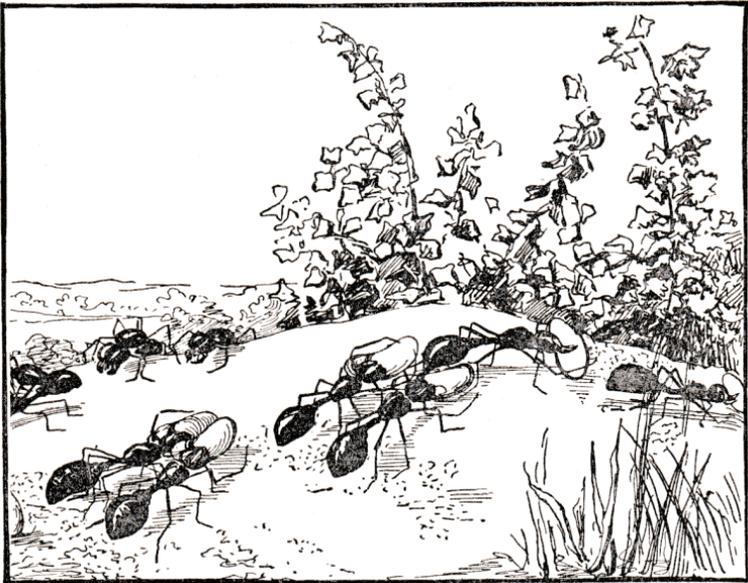
I went along with the stream of ants that had the white bundles. I found that they went to a new hill, about thirty feet from the old hill.

There they laid down their bundles, and went

THE ANTS ON A TRIP

back to the old hill to bring more. The bundles lay heaped in a ring all about the gate of the new city.

Out of this gate ran other ants in haste. They caught up the bundles, one by one, and carried them in. In about half an hour they were nearly



On the March

all taken in, and the ants brought no more. The moving was over.

With a long blade of grass, I gently took up a little bundle. I hid it behind a stone, some six inches off. I took three bundles and hid them, lifting them with the tip of the grass-blade.

When all the bundles left at the hill were

carried in, the ants went down the gates. But in a minute out came three or four ants. They ran about wildly and searched the ground.

They went in circles and looked over the ground with much care. The circles grew wider. At last one came up behind the stone and found the bundles.

The ant picked up one bundle and ran. Then this ant met the other ants, and, I think, told them the news. For at once the other ants ran up to the stone, and each took up a bundle.

Then they all ran into the hill. Can ants count? That looked as if they knew how many bundles they had. It also looked as if they knew that two ants must go for two bundles.

A man who took bundles from a march in this way thinks that the ants smell the hidden bundles. He says they will not search for them if you hide them in the earth.

LESSON VI

THE FARMER ANTS

YOU have heard of the spider which makes a den in the ground. You know that it puts a

THE FARMER ANTS

trap-door on its den, and plants ferns on the door to hide it.⁶

The spider turns gardener in this way, and all his plants grow well. There is an ant that has a farm, or garden.

This ant lives in warm lands. In this country they are found in Texas, Florida, and in one or two other warm States.

These farmer ants raise grain to eat. The grain is a kind of grass with a large seed. It is called by some “ant-rice.”

There is also a large ant which is fond of the seeds of the sunflower. It is said that the ants plant the sunflowers in a ring around their hill.

The ants have not been *seen* to carry the



The Little Farmer

⁶See *Seaside and Wayside, Book One*, p. 85.

seed and plant it. So we may not be *quite* sure that they do so. Perhaps they build where they see young sunflower plants growing.



An Ant's Grain Field

It is possible that the ant plants seeds of some kinds. You see there are yet in the world many things left for you to find out. It will be well for you to keep your eyes open.

The farmer ants do not live in a small hill that you could cover with your hand. Their hill, or disk, is sometimes flat, and sometimes high. It is often as large as a large room. It is in the shape of a circle.

In this circle all weeds and all kinds of grasses are cut down, except the one kind which the ants like. The earth of the disk is kept clean and smooth. Only the seeds of the ant-rice are left to grow.

When the ant-rice is ripe, the ants pick up the seeds as they fall, and take them into the hill to their storerooms.

THE FARMER ANTS

It is most likely that as the ants let this ant-rice, and nothing else, grow on their hills, it sows itself by its fallen seed.

Still the ants are real farmers, as they keep their land clean, tend and gather the crop, store it up, and eat it.

When the ant-rice is ripe, and the seeds have fallen, the ants cut down the old stems, and take them away. The disk is then clean for the next crop.

The ants will go a long way from their hill to find seeds to bring home. They like to go where horses have fed, for there they find scattered oats. In some lands they carry off much grain from the fields.

An ant in Florida climbs the stalk of the millet and cuts off the seeds. When ants take seeds to their hill, they husk and clean them. They throw bad seeds away.

The ants watch the seeds, and after rains carry them out to dry in the sun. This is because if left wet, they would sprout and grow.

Some ants also cut the seed, so that it will not sprout.

The ants eat the seeds that they gather. They also feed their young with them.

One ant in Florida rolls up into little balls the dust, or pollen,⁷ of pine cones, and stores that up to eat.

An ant in New Jersey cuts in pieces the little new pine trees, just as they get above the ground, and carries them to its nest.

Did you ever see the ant which likes sunflower seeds to eat? It is a large ant, and when it has climbed to the disk of the sunflower, it pulls out one of the ripe seeds and carries it away.

When people keep a nest of ants in order to watch their ways, they feed them with sugar, oats, apple-seeds, and wheat.

How does the ant eat the hard grain? Its tongue is like a file, or something like that of the little shell-fish of which I told you.⁸ The ant can rasp, file, and press the grain, so it can get at and lick up the oil and juice.

⁷ See *Seaside and Wayside, Book Three*.

⁸ See *Seaside and Wayside, Book One*, page 106.