Life Science Reader

for Mater Amabilis Level 1A, Year 1

1.

from PLANT LIFE IN FIELD AND GARDEN by Arabella Buckley

"The Shepherd's Purse"

It is seven o'clock on a lovely summer morning. Jump up and look out of the window. It is a shame to be in bed when the sun is shining so brightly, and the birds are singing, and the bees are flying from flower to flower.

Why are the bees at work so early? They want to gather the yellow pollen-dust from the flowers, and the dew helps them to wet it, so that they can roll it up in little balls. Then they pack these balls into a groove in their hind legs, and fly away to the hive. There they mix it with honey, and make it into bee-bread to feed the young bees.

See how busy that woodpecker is, under the elm tree. He is catching insects to carry home to his little ones, which have been hatched more than a week. Further away in the field is a thrush struggling with a big worm: I expect that he too is getting a breakfast for his family.

How busy they all are, and you in bed! If I were you I would get up and pull up some weeds in the garden. Then you will be of some use, and you can learn many interesting things, while you are at work.

Here is a weed, growing among the cabbages. Do you know its name? It is called "The Shepherd's Purse" (see picture, p. 10) because of its curious seed-pods. These grow on stalks up the stem of the plant, below the little white flowers. If you open one of them very carefully, you will find that there is a small bag on each side, which can be pulled away from the middle, when the pod is ripe, leaving the seeds hanging on a small division.

Shepherd's Purse

So the pod is a kind of purse, with two pockets, and we can pretend that the seeds are the shepherd's money.

Take hold of this plant, and I will tell you about its different parts. First look at the root. That always grows downwards into the ground. It has small rootlets growing

out of it. The root and the rootlets all have tender tips, and they drink in the food of the plant out of the ground.

You know that your father puts manure into the earth before he sows his seeds, or plants his fruit trees. Then the rain sinks into the earth and takes the juice out of the manure. This makes a rich drink for the roots to suck in, and so the plants grow strong.

Next look at the stem. You can tell where it begins, for a tuft of leaves grows close to the ground. A root never has any leaves on it, so where the leaves grow must be the stem. The place where the stem joins the root is often called the stock.

Look carefully at this tuft of leaves. You will see that they do not grow exactly one above the other. The leaves in the upper row always grow just between the leaves of the lower row. And as the stem grows upwards, and the leaves are farther apart, they still grow so that they are not exactly one above the other.

Why do you think they grow like this? Because they want to get as much sun as they can. If they grew exactly one above the other, the upper leaf would keep the sun away from the lower one. But now they get as much as there is to be had.

You see then that a plant has a root which grows downwards to take in water out of the ground, and stems to grow upwards and carry the leaves up into the sunlight. What the leaves do we will learn in the next lesson.

2.

from OUTDOOR SECRETS by Margaret P. Boyle

"The Century Plant's Wish"

Years before Apple-Tree had found her blossom, at the time when Robert's mother came as a bride to her new home, she brought with her, among other things, a tiny Century-Plant. All there was of it were two or three stiff little leaves. But it was placed in a beautiful conservatory with the stately palms, the graceful ferns, and all the rare and lovely plants that lived there.

As the years passed on, the leaves grew a little longer and a little broader, and one or two more were added, but that was all. So, even in that beautiful home, life for the Century-Plant was very dull. The years were just the same: all winter long she was shut up in the hot-house, and when the days and nights had grown warmer, showing that summer had really come, she was placed in some conspicuous place on the lawn. The only real change she ever knew was an occasional transplanting into a larger box.

So the Century-Plant began to murmur, and to wish, o, so many things! Why could she never be set in the ground like some of her winter companions, the brilliant Jacqueminot, or American Beauty Roses, the Lilies, the carnation Pinks, or even the sweet little Violet? She knew that when she was out of doors she had the same warm sunshine, and the same refreshing rain as these friends of hers had, but that did not satisfy her. She wanted to live in the earth and send her roots out into it, as plants were intended to do.

But she could have borne this trouble if only she might have had some flowers to show, or could once have been admired for her loveliness. The Rose Family, all the Pinks, the Heliotrope--in fact, many of the plants about her--would often get sweet

new gowns. And visitors to the conservatory would admire them, or sniff their fragrance, saying: Oh, how lovely!" or, "Isn't it perfectly beautiful?"

Even the Palms and the Ferns, though they never showed a blossom, were praised for their lovely greens.

But when visitors reached her corner they would say only: "Oh, this is a Century-Plant. Curious thing, isn't it? Has it ever bloomed?"

And always would come the same answer: "No, no yet."

It was hard always to be called "curious," like some strange wild animal.

The fair young bride who had brought the tiny plant to her home grew gray and wrinkled. One day she failed to visit the flowers; the gardener said she was ill, and Century-Plant saw her no more. Robert and the other children who had played about the Century-Plant on the lawn grew into men and women, and their little one toddled about the box that held the old plant, and still there were no flowers.

Even though Century-Plant had grown very tall by this time, she still had to keep on wishing that she had something to wear besides the same old green and while. For many years Mother NAture had promised her something else, and it had never come yet. So sometimes she almost gave up hope.

But there came a day, when, in answer to her wistful sigh, she was told: "Just be patient; you haven't much longer to wait."

And Century-Plant really began to think so herself. A day or two later a strange thing happened. The gardener was bending over her when he exclaimed: “Bless my stars, there’s a bud! I must go tell the ladies.”

Then Century-Plant knew that at last her wish was to be realized, and the thought of having a flower of her own made her glad and happy, notwithstanding her old age.

Gentle whispers went through the hot-house. The Violet sweetly breathed: “I am so glad Century-Plant is going to have some blossoms.”

And the Rose answered: “So am I.”

As for Century-Plant herself, she felt quite above her neighbors now, for the wonderful new flower stalk kept getting taller and taller until from its top she could look down even on the stately palms. And still she grew, until her tall head touched the roof. Now, after all these years, must she stop for lack of room? Century-Plant trembled through all her leaves at the thought; but the thoughtful gardener had provided for this, too, and the roof was lifted higher and higher until the stalk was thirty or forty feet in the air. Then Century-Plant was so full of pride that she hardly noticed the perfume Violet was sending up to her.

At last the curious flowers up at the top of the stalk opened and looked so strange that it seemed as though Century-Plant were wearing an imported bonnet. People came from far and near to gaze at her.

And thought they used to exclaim, it was much in the way they always had, and the remarks were generally: “How queer! Have you ever seen one before?”

And it seemed as though they still loved the sweet modest flowers best. Century-Plant never noticed that, but was very happy so long as her new bonnet kept fresh and bright. But one day the flowers fell one by one, and the stalk began to grow so limp that at last that, too, dropped. Then Century-Plant, herself, began to feel very ill. Nothing she ate or drank seemed to agree with her. She had gained her wish, but was more unhappy than ever. Probably she never had known hat when Century-Plant has bloomed it must die. Day after day she faded away until one morning the gardener pulled the old plant up by the roots and threw it out on a brush heap.

Century-Plant's corner is empty now, and a banana palm takes her place on the lawn, but whenever some impatient young thing wishes that Mother Nature would hurry her plans a little, some wise old resident of the conservatory is sure to say: "Remember the sad end of poor Century-Plant."

3.

from PLANT LIFE IN FIELD AND GARDEN by Arabella Buckley

"The Work Done by Leaves"

The leaves want a great deal of sunshine and air, for they are busy all day long, making food. Have you ever thought how wonderful it is that plants can make their own food? You do not make your food, and no animals make their own food. All you eat has once been either an animal or a plant. In a cake, for instance, the flour comes from grains of wheat, the currants from a little tree, the sugar from the sugar-cane, the spices come from trees, and the candied peel from fruits.

The other things you eat are meat, fish, birds, vegetables, and fruits, and all these have once been alive.

Plants do not feed like this. Their roots take in water out of the earth, and other substances, such as lime, soda, and potash, dissolved in it. The leaves take in gases out of the air. But earth, air, and water are not living food. You or I could not live on them. The plant can.

The pretty green leaves we love so much work very hard. When the sun shines upon them they can turn the water and gases into living food, and this food makes more leaves, flowers, and fruits which we eat.

See how useful plants are! If they did not make food, there could be nothing alive in the world. Insects feed on plants, and birds feed on insects. Sheep feed on grass, and we feed on sheep. Rabbits feed on plants, and foxes and weasels feed on rabbits. If there were no plants, there could be no insects, no birds, no animals, and no men alive.

But this is not the only useful work which plants do. You know that if many people are shut up in a room, they use up the fresh air, and breathe back bad air, which is not fit to use again. Now plants want this foul air. They take it in through their leaves, and use a gas which is in it to help them to grow. So they not only turn gases into food for us to eat, but in doing this they use the bad air we send out of our mouths, and give it back to us fresh and pure. This is why it is so healthy to live in the country, where there are so many plants.

You will find it very interesting to look at the leaves of plants, and notice their shapes, and how they are arranged on their stems so as to get light and air.

I think you must know the common Dead-nettle, which is so like a stinging-nettle but does not sting. It grows in the hedges, and has a pretty purple or white flower shaped like a hood. Its leaves are arranged in pairs all up the stem, and each pair stands exactly across the pair below it, so as to let in plenty of light.

a. Dead-nettle; b. Wood Sorrel

The glossy green leaves of the ivy on the wall lie out flat, and have long stalks, so that they can stand out well into the air.

The leaves of the Nasturtiums in our gardens are shaped like a round shield. The leaf-stalk grows from under the middle of the leaf and is very long. So the leaf looks up straight to the sky, and gets plenty of light and air.

The leaf of the Horse Chestnut tree is divided into leaflets, so that it looks as if it were made of five leaves, and each leaflet is spread out to the light.

The leaves of the little Wood Sorrel, which children love to bite because it tastes sour, have three round leaflets like the Shamrock, and these leaflets droop down at night, or on a wet day, but stand up wide open when the sun is shining.

And now let us go back to our shepherd's purse. We have not yet looked for the flowers; they grow on stalks which come out between the leaf-stalks and the stem. On these stalks there are some smaller leaves and a good many seed-pods.

Above the seed-pods at the top of the stalk are some white flowers growing close together. They are so small that you can scarcely see the parts. But you can make out that they have four outer green leaves and four white inner leaves. In the next lesson we will learn more about these.

Gather six plants with different shaped leaves and notice how they grow upon the stem.

4.
from TREES AND SHRUBS by Arabella Buckley
“Leaves—Their Shape and Position”

In the summer when the trees are in full leaf, and you have learnt to know them, you should bring in leafy twigs from each tree and note how the leaves grow on the stem, and what shapes they have.

We have already noticed that some trees, such as the horse-chestnut and the maple, have their leaves opposite to each other on the stem, two growing on each joint, while others, such as the elm and the beech for example, have their leaves alternate, one only growing from each joint. But there are many kinds of alternate leaves, and you will enjoy finding them out.

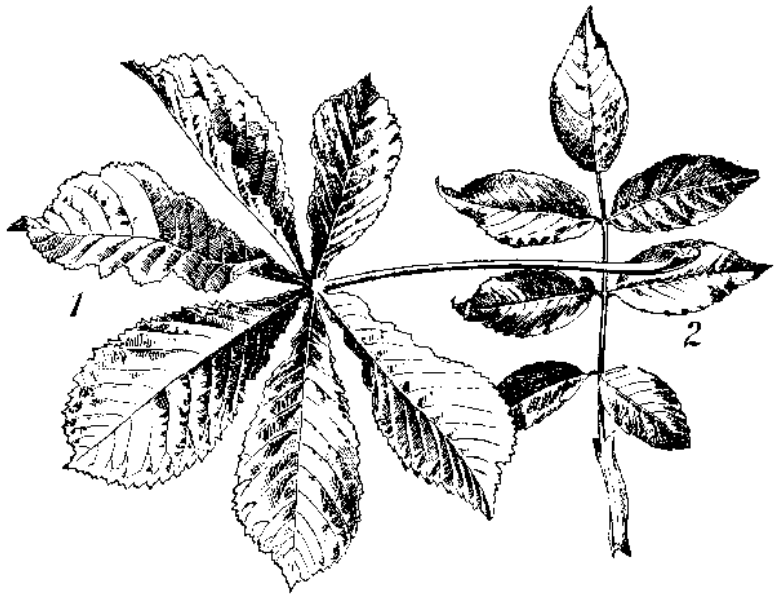
In the elm and the beech every other leaf comes exactly above the one below. Leaf 1 comes on one side of the stem, leaf 2 on the other side, leaf 3 exactly above leaf 1. But if you take a twig of the trembling poplar, or Aspen, it will be leaf 4 which comes above leaf 1. They have crept more slowly round the stem. Then take a twig of oak. You will find that you will have to count six leaves before you find one exactly over the first one. All these differences have their use, and when you are in the lanes, if you look at the trees, you will see how these arrangements bring the leaves into positions where they can best get light and air.

The next thing to look at is the shape of the leaves themselves. Botanists have a great many names to describe the shapes, the edges, the veins, and the divisions of leaves. I can only tell you of a few, so that you may keep your eyes open and notice others.

Leaves which are whole, so that you cannot pull off one piece without tearing it away from the rest, are called simple. The leaves of the elm, beech, sweet-chestnut, lime, oak, willow, sycamore, and many others are simple.

Leaves which are cut into separate leaflets, so that you can pull one off without touching the others, are called compound. The leaves of the horse-chestnut, ash, rose, rowan-tree, and elder are compound. You will remember that you know the divisions are leaflets and not leaves, because there is no growing tip at the end, and there are no buds in the angles. The leaflets grow out from the top of the leaf stalk (horse-chestnut), or from the narrow, green line, up the middle (rose), which is not a stalk, but the midrib of the leaf.

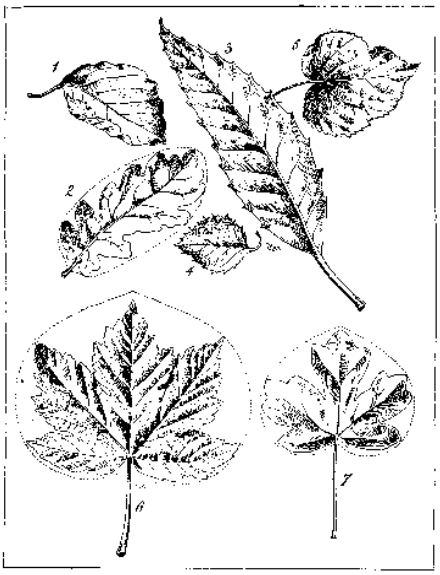
Now take all the simple leaves you have, and see what shapes they are. The best way to find out this is to lay a leaf on your slate and draw a line round it. This is very easy with a beech leaf, or the leaf of a sweet-chestnut. But when you take an oak leaf, you will want to know whether you are to run in and out of the divisions.



Compound Leaves

For the shape of a leaf you are not to do this. You are to begin at the leaf stalk and run round the outside points of the leaf all the way till you come back to the leaf stalk again. If you go round a maple leaf like this you will have a shape something like a kidney. A sycamore leaf will be more heart-shaped, longer, and ending in a blunt tip. An oak leaf will be oblong, longer than it is broad. The leaf of an elm or a beech you will find is shaped like an egg, and so is called oval, while the leaf of the sweet-chestnut is narrow and long. Lastly, if you take a lime leaf it will be heart-shaped, but uneven, one side of the leaf larger than the other. It is called oblique.

Now let us see how much the different leaves are cut. Some, like those of the lilac and ivy, are smooth at the edge. Others are wavy, and the holly has prickles at the end of its waves to protect it. But, if you look at holly leaves near the top of a tree where the cattle cannot reach, you will often find they do not take the trouble to grow prickles.



Shapes and Edges of Leaves

Other leaves have teeth round the edge. The leaf of the sweet-chestnut is toothed like a saw. So is a birch leaf, but if you look closely you will find it has two sets of teeth. The large teeth have their edges cut into small teeth. This leaf has a double-sawed edge. Some leaves again are very deeply cut into divisions or lobes. An oak leaf is cut, sometimes only in a wavy line, and sometimes into quite large divisions. A sycamore leaf has five large pointed divisions or lobes.

Get these two leaves and compare them. You will see that the veins which make the skeleton of the different shapes are not the same. In the sycamore leaf the large veins, or ribs, start from the top of the stalk, and spread out like five fingers, while the little veins start out from them. A leaf like this is called a palm-veined or palmate-veined leaf because the veins are like fingers on a hand. In the oak leaf, on the contrary, one long rib runs up the middle. The smaller ones start from it, like the featherlets of a bird's feather. So an oak leaf is said to be feather-veined or pinnate-veined, from pinna, a feather.

Now take the compound leaves of the horse-chestnut, ash, and rose. In the horse-chestnut the leaflets grow just like the veins of the sycamore. Seven fingers start from the top of the leaf stalk and spread out like fingers, so it is called a palmate leaf. But the ash and the rose have a rib up the middle and the separate leaflets are arranged feather-wise. So these leaves are called pinnate.

There are a great many leaves with shapes between these, and if you collect them and arrange them in an old copy book, you will soon get an idea of the meaning of their names.

Describe the leaves of the oak, horse-chestnut, and elm and their position on the stem. Arrange any simple leaves and compound leaves you can find in a copy book and describe them.

5.
from OUTDOOR SECRETS by Margaret P. Boyle
“How the Apple Blossom Came Back”

ONCE upon a time, not so very long ago, there stood in a large orchard a beautiful Apple-Tree. All through the long winter it had held out bare branches. The March sun whispered to it that spring had come. But the cold March winds were not a bit polite, and would say: "No, it hasn't."

At last, however, Apple-Tree began to feel so warm and comfortable that she thought the March sun was right, and began to think of getting a spring gown. The warm April rains helped her, and her buds opened and grew, first into tiny leaves and then into larger ones, until Apple-Tree was wearing a beautiful apple-green dress. All through April she wore it and was very happy. Then, as the trees about her put on bright colors, and she saw Peach-Tree in pink and Cherry-Tree and Pear-Tree in white, something seemed to tell her to try what she could do.

I am sure she could never have succeeded without help, but with the showers, the gentle winds, and the warm sun as dressmakers, Apple-Tree's green dress was soon covered with lovely pink and white flowers. And the air all around seemed as sweet as though she carried many handkerchiefs with different perfumes on each. Then Apple-Tree felt very glad and proud and was much pleased when every one who passed said: "Oh, see, how lovely!"

But only a week or two later a damp wind and cold rain came and beat down on her spring suit until it was quite spoiled. Then Apple-Tree was so sorry that she let her teardrops fall with the rain. Kind Mother Nature did not scold her at all, but only said: "Don't cry about the blossoms, dear; sometime you will see them again."

So all summer long Apple-Tree looked and waited, for she knew that Mother Nature always told the truth. Her arms grew full of apples, and sometimes they seemed too heavy to hold any longer. Whenever she was very tired, there would come the whisper: "Wait a little longer. Your time is coming—the time when you will find the blossoms."

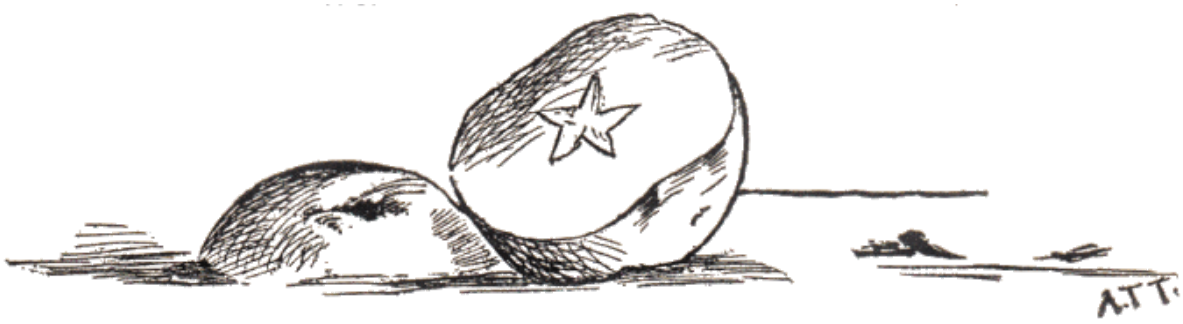
And at last, one sunny September day, one yellow apple after another slipped from her hold and lay on the grass beneath. While Apple-Tree was wondering what would happen, a lady and her little boy wandered through the orchard and stopped to pick and eat some apples.

"Robert," said the mother, "have you ever seen the blossom in an apple?"

"Oh, no, mother; please show it to me!"

Apple-Tree bent her tall head so that she might hear and see. Could it be that now she was to find the flowers she had lost in the spring?

The lady carefully cut an apple all around, half-way between the blossom end and the stem. And as she laid the halves before her little boy, she pointed to the blossom which showed plainly in both pieces of the apple. And Apple-Tree held the rest of her fruit tightly in her arms, sure that in each one was a blossom she had loved months before.



6.
from OUTDOOR SECRETS by Margaret P. Boyle
"The Horse Chestnut's Name"

There was a great commotion out on the lawn, and such a roaring among the trees that it seemed as though they were all trying to talk at once. The great Oak tossed its twisted branches with every fresh gust of wind. It was many years since that Oak had sprung from a tiny acorn, so it was quite the oldest inhabitant of the lawn. Perhaps it was for that reason that it was allowed to speak first and to tell its history. "We Oak-Trees are very old. More than one of us has had a place in history. In England beautiful homes are built among us. Our wood is carved for ornament, and for handsome pieces of furniture. Ships are built of us and go sailing across the deep sea. We stand firmly in our places year after year, and each season drop tiny acorns on the ground. The rains beat upon these, they sink down into the earth, the little seed baby that is hidden in each one pushes its head upward and its tiny rootlets down, grows with all its might year after year, and at last is a big tree like me."

Very near the Oak was a stately Pine, which waved its feathery branches, sighed through every limb, and now bent its tall head as though to speak. "There is much for a Pine to tell. The Pines, too, are very old. Hundreds and hundreds of years ago, in the days of King Solomon, fir-trees and cedar-trees, which are close relatives of the pines, were used for building. If oak-trees are used for making the ships, pines make the masts which hold the big sails. And if oak-trees help in house-building, the pines and cedars do their part, too. And while the oaken furniture is for the rich, the pine makes cheaper kinds that the poor may use. "Up in the cold Northland, the outside bark makes whole roofs of houses. The inner bark is twisted into ropes, or else it is pounded fine and made into bread. How do you think you would like pine-bread? It may do very well in countries where it is so cold that nothing else will grow, but I think most boys and girls would

like wheat-bread better. “But, really, we Pine-Trees are wonderful. For in Germany and Sweden the people soak the needles and then have them woven into blankets. But I rather think we are liked best by the little children when we are set up in the house on Christmas Day. “It takes the pine seed-babies a long time to grow. In the spring there comes a queer greenish sort of flower. Then—not in the next autumn as with other fruits, but in a year from that—these flowers change into cones. The cones hang fast until the next spring and then fall to the ground with their seeds. The seeds seem to have hard work to grow, so many get lost. But there are some which fall into the earth, and at last make a tall tree, just as I have done.” There were more than one Maple on the lawn, and they would not be kept waiting any longer. They told that they bore every spring thousands of seed pods. At the bottom of every one was a green seed something like a pea. These fell thick and fast on the ground and in a little while sent up so many small trees that the gardener could not let them all live, but had to pull up many a one.Like the Oak and the Pine, the Maple could tell of many a pretty bit of furniture which it could make. And there was one other claim which not another tree on that lawn could make—there was a special kind of Maple which gave out sap that formed luscious maple sugar. So they thought they, as well as the Pine-Trees, were the children’s friends. At that there came a sound from the Linden. It was a beautiful tree. Its branches had spread in every direction till it covered more space than the old Oak. “It seems to me the children should love me,” it said. “See what a fine shade I make for them to play in. Then the sweet flowers that come on my boughs every year are filled with honey, some of which I give up to every bee that comes. The bees store it away for themselves. But the children get some of it, and who ever yet heard of a boy or girl who did not like bread and honey? “Bordering an avenue in Berlin, a city of Germany, there is so beautiful a row of us that the avenue is called ‘Under the Lindens.’” But before the Linden could tell any more about itself and its family, a Horse Chestnut, who had been very impatient for a long time, began: “Whatever the rest of you may tell, not one of you can tell how it

got its name. But I can show everyone who cares to look.“Two or three hundred years ago—in the sixteenth century, to be accurate—we were brought from Constantinople. There the people used to grind up our nuts for medicine, or for food for horses. So that, it is said, is the reason we were called Horse Chestnuts. “But some of us think we know a much better reason. If this gale that I feel coming will only help me, I shall be glad to show you what it is. If you will look, you may find, all along my slender twigs, ridges and marks. Take a penknife and cut around one of these ridges. You will then see that it is just the shape of a horse’s foot. Within is the dark spot like the frog in a real foot, and the little dots are the same in number as the nails in a horseshoe. Above is the bend like the knee of a horse, and to me that seems a good reason for being called a Horse Chestnut. “There is another way in which I differ from other trees. Over each of my buds I have a thick coat. This is stuck together with something so sticky that through all the hard storms not a bit of rain or snow can reach the tiny leaves and blossoms that are hidden away inside. The busy bee that you may have often heard of takes this sticky substance, too, and puts it in the cracks of his hives to keep them warm and tight.” Just then a great gust of wind, probably the gale that Horse Chestnut had felt coming, blew a small Horse Chestnut bough right across our path. We were so busy looking along the bark for the horse’s hoof—and finding it, too—that we never heard what the other trees had to tell.

7.

from OUTDOOR SECRETS by Margaret P. Boyle

"The Baby Plant's Bed Coverings"

It was a baby Fern last May, but it grew bravely on week after week, weaving its lovely gown of green, until it was quite grown up. Then it plainly tired of all green, for it began weaving brown spots on the back of each leaf. If you or I had asked q u e s t i o n s about these same brown spots, someone would have told us that they were to make new ferns another year. And if you had watched you might have seen, some day in the late summer, each of these seed pods break and scatter a brown powder around.

Then probably you would have asked another question and would have been told that the brown powder was pollen. And after that you would have asked no more, because you know that pollen is the powder which makes the seed babies grow another year.

So now the work of the large ferns was done, but how were the tiny ones to live all winter in the cold and ice?

Mother Nature is a wise old dame, and makes provision for many things. So she had thought of that, and early last May she had begun making her patchwork quilts.

If you had been a little girl in your grandmother's time, you would have known that it takes many stitches and much time to make a quilt. And Mother Nature was anxious that her quilts should be all ready for her seed babies before the cold weather came.

The blocks were green, but of every shape and size, and they looked very pretty as they hung on the trees to dry. You may think it strange, but each tree had a kind of

its own. On the maples they were shaped something like a hand with five points, like five out-stretched fingers. On the oak they were longer, and scalloped along the edge. The lindens' were nearly round, with a point at one end, and every tree was unlike its neighbor. Some day gather all the leaves you can, and try to tell just what kind of tree each one came from. Then you will understand better how many patterns Mother Nature must have for her quilts.

All through the long summer days and nights the quilt blocks hung there. Then when October came, Jack Frost came too, and painted all the leaves. In a wonderfully short time they were all sorts of beautiful reds and yellows.

The trees looked very lovely then. But the blocks for the quilts never seem to hang long after they are painted. And so, not many days after that, North Wind came along and pulled them all off the trees and dropped them on the ground.

But Mother Nature knew just which of the seed babies needed the most warmth, so she wanted more coverings in some places than others. She is so well supplied with helpers that she always has someone to do her bidding. So this time she called for her servant, East Wind, and he rolled and tumbled the leaves into piles, just where they were needed the most.

One less wise than Mother Nature would know that these leafy quilts would not stay that way long. Of course she knew it, and said: "Now I must have the rain to keep them in place."

So the rain came, and fell for a whole day on the leafy bed-quilt, until it lay quite flat over the baby ferns beneath. By this time, however, the blocks had lost their beautiful colors and were a dreary brown.

“Oh, dear me!” said the careful mother; “the nights are getting so cold now, I am afraid this is not near thick enough for them. Besides, there is nothing so nice for quilts as white. That is what I will try to get for a spread.”

Before the week was out she had called upon her servant North Wind for a heavy snow-white blanket.

“With pleasure,” said the North Wind. “But, dear Mother Nature, I have nothing to make it of. If you will get me some material you shall have a fine thick blanket.”

“Oh, there will be no trouble about that,” answered Mother Nature.

So she hurried away to Old Ocean, saying: “Please, I should like something for a blanket of snow.”

Old Ocean sighed and moaned as he always does and answered: “You are very welcome for stuff for your blanket if you can get it away. But you know I never deliver goods.”

That did not trouble Mother Nature a bit. Since she has the whole world at her service, it is quite easy to have done whatever she wants. “There is old Father Sun, who has helped me before,” she said; “I am sure he will be ready to oblige me now.”

And she was not mistaken; for when the Sun heard her wants he sent some of his strongest Sunbeams to her aid. They kissed and coaxed the drops of water until the drops changed to vapor and went up, up, up, into the sky. After a while the sunbeams had drawn up so many drops of water that there were enough to make a cloud, and that was so heavy that Mother Nature knew she could soon have her

beautiful blanket. So she called damp, chilly East Wind to help her. And they squeezed and pressed that rain cloud so hard that the vapor from Old Ocean became drops of water again, ready to fall on the ground.

“I want a blanket for my baby plants, instead of rain,” said Mother Nature. “So, Jack Frost, you must come to my aid this time.”

So before the raindrops had gone very far from the cloud, Jack Frost touched them with his icy fingers. And straightway there was such a change that you would have thought the fairies had been at work. Every raindrop was changed into a beautiful snow crystal. There were as many shapes as there had been among the leaves that had fallen from the trees. Mother Nature was much pleased. The crystals fell all day and all night, and when the morning came, not a single tiny plant was to be seen, because they were all so well covered with a thick blanket of snow.

And when the spring came again, the Fern babies and all the other plants were ready to lift their heads, just because Mother Nature’s bed coverings had kept them so warm all winter.

8.

from OUTDOOR SECRETS by Margaret P. Boyle

"The Sower"

"Wake up! wake up!" roared the March Wind.

The Pussy willows that had been lying asleep all winter stirred uneasily."Oh, it is so cold, I can't!" said one after another.

"Cold?" said the March Wind. "Don't you know there has been a new leaf turned on the calendar? The sun shines bright, and spring is here."

"Oh, but you sound so cold!" said one Pussy Willow.

"True, I may sound a little fierce, but I can't help it. It is my nature to. And with such warm fur overcoats to wear as you have I don't think you need to complain of the cold."

"Just let us sleep a little longer," pleaded the Pussy Willows. "Perhaps our fur coats are not done."

"Yes, they are all finished, and some of your family are out. Mother Nature had them done on time, though this is a very busy season with her.""Has any one else come?" asked the Pussy Willows. It was so much easier to talk when warmly covered up than to stick one's head out into the cold."Oh, yes," answered the March Wind; "but I have not the time to tell you about them. Come out and see for yourselves. I want to coax all the Catkins out to-day. I must melt the last snow-drifts away. I must blow the ice out of the river. Oh, I have so many things to do!"

So the March Wind rushed on.

The Pussy Willows said to one another: “Now we are so wide awake, perhaps we might just as well get up.”

So they stretched themselves and put their heads out of their winter covering, and they were no sooner out than each one was dressed in his gray fur coat.

“Isn’t this nice?” said one.

“Yes, and not the least bit cold,” said the others.

“Oh, look! there is a woodpecker over on that apple-tree, getting spiders’ eggs from under the bark for his dinner.”

“Yes, he doesn’t seem to see us, and see!—there is a robin.”

“To be sure! I am glad the robins are back. And just hear that ‘caw, caw.’ ”“Yes, I should know Mrs. Crow’s voice anywhere.”

“And do see the crocuses! I am glad we came, aren’t you?” asked Pussy number two, full of the spring-time gladness.

“Indeed I am. March Wind is really not half so bad as he sounds.”

As the days went by and all the Catkin folk came out, the Pussy Willows were still more glad. There were the Beeches, the Alders, and the Willows, each covered with the graceful hanging Catkins. They grew in the warm sunshine, listened to the birds singing of their plans for another summer, saw the buds

swelling on the other trees, and were sure, in plant-fashion, that it was a very good sort of world to be in.

“I want to stay here just as long as I can, don’t you?” said one Catkin to another.

“Yes, but none of us ever remain very long; perhaps, though, if we hang on with all our might we need never fall.”

“You need not talk that way,” said one, wiser than the rest. “March Wind will blow so hard some day that you will let go just from fright, and drop on the ground as Catkins always have done.”

“You’ll see that we shan’t,” said they in chorus.

“Oh, no they won’t!” echoed the Pussy Willows.

And they really all meant what they said. But one day March Wind came blustering and howling back. He was really making more noise than on the day when he wakened the Pussy Willows and tore such a great hole in their bedclothes that they had to get up and put on their fur coats.

“Oh, dear! what do you want?” said an Alder Catkin.

“What are you making such a noise about?” said the Beech.

“I am sorry you are not glad to see me, but that is always my fate. I have never yet known any one who loved a March wind. I really began well this year, and at first I was as gentle and lamb-like as could be. So you might forgive me if I roar like a lion to-day. March is going out to-night.”

“Good-bye, then,” said the Catkins great and small, Willow and Alder and Beech, trying to be polite, since for a whole year March Wind would be heard no more.

“Not quite so fast, my Catkin friends,” blustered March Wind. “I have one more thing to do for you before I go.

”“For us?” asked the Alder Catkin.“Yes, for as many of you as I can,” roared March Wind so that none could fail to hear.

“Thank you so much; you were very kind to our family once, but we really do not need any more help now,” said the Willow.

“Oh, yes, you do,” answered the March Wind. “The Pussy Willows thought they needed no help, but afterward they were glad I called them.”

“What is it you mean to do for us?” asked the Beech Catkin, who, more wise than the others, wanted to know what the help was before refusing it.

“I just came this way to help off as many of you as I could,” said the March Wind, more gently, as though he were saving his breath for a very strong gust by and by.

“To help us off?” said the Willow.

“We don’t want to be helped off,” shivered the Beech.

“We just agreed that we would hang on all summer, and until real cold weather comes,” said the Alder.

“That would be too late for you to do your work, Catkin folks. Don’t you know I am the sower for you, and you must let me help you off and scatter you all around so that there may be more Willows, and more Alders, and more Beeches in the years to come?”

Then the Catkins understood, and when the March Wind roared like a real lion, and blew his hardest, they loosened their stems, and let him blow them all where he would, so that they might be trees by and by.

9.

from OUTDOOR SECRETS by Margaret P. Boyle

"The Uninvited Guest"

The long, beautiful summer was nearly at an end. So some of the little people who live out of doors thought they would have a farewell party. It was not probable that they would ever meet again; for some of them life would end with this season. And most of the others would sleep through the long winter, and who knew what might happen during the six months' nap? They chose what they thought just the nicest place in the wide world for holding a party. As the day proved a beautiful one, everyone who had been invited came—which does not always happen when real folks have parties.

Among the guests were the Butterfly, in her satin gown of black and orange; the Cicada, prepared to help with the music; the Katydids, who really are not very pleasant visitors, because they contradict so much; the Beetles, fat, lazy and black, like most beetles; the Grasshoppers, who also are musicians, and had their wings in fine order; the Bees, who had gathered enough honey to last all winter; the Tree-Frog, and ever so many others.

They all had a merry time out on the meadow, and yet they were a little sad, too, for they knew that Jack Frost was coming soon, and that he would put an end to all their good times.

Just as they were the very jolliest, a strange thing happened. That was the arrival of a long, brown, wriggling Earth-Worm. Fortunately for the Earth-Worm, he has no eyes. So he could not see how cross all the little meadow people looked because he had come. I wonder if we should sometimes look cross just as they did, if no one had eyes to see us.

They did not invite him to stay, nor offer him any refreshments. Though, really, I think he would not have taken anything if it had been offered, for earth-worms do not care much for honey and the other things that this company were eating.

When they found that he did not notice their cross looks, they began to whisper to one another.

“Oh, dear!” said the Butterfly, “see that horrid, crawling Earth-Worm. I do dislike anything that crawls!”

“Yes,” chirped the Cicada. “And only fancy, he lives in the ground. How dreary that must be!”

“For my part I don’t see how anyone can stand it,” said the Beetle.

“Katy did,” broke in a shrill voice.

“Katy didn’t,” said another.

“Yes, and they actually live after they are cut in halves,” said the Tree-Frog. “I once knew an Earth-worm that met with such an accident, and then there were two of him, for the head part grew a tail, and the tail piece grew a head.”

They did not mean the Earth-Worm to hear their unkind remarks. But he did hear, and they were very much surprised when he began to speak: “I am sorry I came to your party if you didn’t want me, but I thought I’d like to come out once more before the cold weather gets here. And, really, you shouldn’t feel so bad

to see me crawling, for it is not so long ago that some of you used to crawl. Don't you remember, Miss Butterfly?"

The Butterfly thought with all her butterfly brain, and did recall a time, not so very long before, when she was a fat, crawling caterpillar. But she had a kind heart, if she was a little silly sometimes, so she said, "I'm sorry; I had forgotten all about my caterpillar days."

The Earth-Worm answered: "Very well, I'll forgive you. And as for living in the earth, I am quite contented there, for I have plenty to do. I really am not lonely, either, for I have a good many neighbors. One of you lived near me—or, rather, near my family—for seventeen years!"

At this, everybody looked at the Cicada, for there was an old story that everyone knew, about how it took the Cicada seventeen years to appear.

As for him, he was so ashamed that he wanted to change the subject at once, so he said: "Well, friend Earth-Worm, you said you were very busy. What do you do all the time?"

"Oh, I have to get the soil in good order—that is, make it fine and soft so the tiny rootlets of all the green growing things can spread through it and thus give you something to eat. Were it not for us, many of you might go hungry. For if they could not send forth their roots, the plants could not grow. There would be no tender green leaves for Mr. Beetle, and certainly no flowers, and then where would Busy Bee go for his honey?"

"How do you know all that?" asked a Grasshopper. "I thought—"

“Katy did,” interrupted some one.

“Katy didn’t,” said his sister.

At that they all laughed.

Then the Earth-Worm went on: “We Earth-Worms keep taking soil into our stomachs. We digest all of it that we can. In our stomachs is some kind of acid that acts on the rest of the soil and makes it fine and soft. After a while, we let this earth out of our stomachs and take in a fresh supply, until the soil all around us is so light and fine that the plants can grow fast and send out the tender green leaves many of you like to eat. But I must go now,” and the Earth-Worm began to wriggle away.

He couldn’t go far, however, for one after the other had something nice to say to him. They told him he seemed to do more good in the world than any of them. They thanked him for all his hard work, too, which had really been so much help to them, though they had not known it. And all their kind speeches made the Earth-Worm feel very happy.

This was not their farewell party, after all. Before they separated they decided to hold one the next day. And you may be quite sure that they did not forget Earth-Worm then. Indeed, he was the first one to have an invitation, even before Katy-Did.