

***WORTHINGTON
HOOKER***



***THE CHILD'S
BOOK OF NATURE***

Worthington Hooker

The Child's Book of Nature

Three parts in one

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Table of Contents

CHAPTER I. OUR LOVE FOR FLOWERS.

CHAPTER II. MORE ABOUT OUR LOVE FOR FLOWERS.

CHAPTER III. HOW FLOWERS ARE MADE.

CHAPTER IV. THE COLORS OF FLOWERS.

CHAPTER V. THE PERFUME OF FLOWERS.

CHAPTER VI. THE SHAPES OF FLOWERS.

CHAPTER VII. HABITS OF FLOWERS.

CHAPTER VIII. MORE ABOUT THE HABITS OF FLOWERS.

CHAPTER IX. WHAT LIVE ON FLOWERS.

CHAPTER X. MORE ABOUT WHAT LIVE ON FLOWERS.

CHAPTER XI. WHAT THE BIBLE SAYS ABOUT FLOWERS.

CHAPTER XII. FRUITS.

CHAPTER XIII. MORE ABOUT FRUITS.

CHAPTER XIV. WHAT SEEDS ARE FOR.

CHAPTER XV. LIFE IN THE SEED.

CHAPTER XVI. HOW SEEDS ARE SCATTERED.

CHAPTER XVII. LEAVES.

CHAPTER XVIII. MORE ABOUT LEAVES.

CHAPTER XIX. THE SAP IN LEAVES.

CHAPTER XX. THE USES OF LEAVES.

CHAPTER XXI. LEAVES IN THE AUTUMN.

CHAPTER XXII. LEAF-BUDS.

CHAPTER XXIII. THE COVERINGS OF THE BUDS.

CHAPTER XXIV. WHAT ROOTS ARE FOR.

CHAPTER XXV. MORE ABOUT ROOTS.

CHAPTER XXVI. STALKS AND TRUNKS.

CHAPTER XXVII. THE BARK OF TREES AND SHRUBS.

CHAPTER XXVIII. THE WOOD IN TREES AND SHRUBS.
CHAPTER XXIX. WHAT IS MADE FROM SAP.
CHAPTER XXX. MORE ABOUT WHAT IS MADE FROM SAP.
CHAPTER XXXI. CIRCULATION OF THE SAP.
CHAPTER XXXII. THE SLEEP AND THE DEATH OF PLANTS.
CHAPTER XXXIII. CONCLUSION.
THE CHILD'S BOOK OF NATURE.
PART II.—ANIMALS.
PREFACE.
CONTENTS.
CHAPTER I. WHAT IS MADE FROM THE BLOOD.
CHAPTER II. MORE ABOUT WHAT IS MADE FROM THE BLOOD.
CHAPTER III. HOW THE BLOOD IS MADE.
CHAPTER IV. MOTHER EARTH.
CHAPTER V. THE STOMACH AND THE TEETH.
CHAPTER VI. MORE ABOUT THE TEETH.
CHAPTER VII. THE CIRCULATION OF THE BLOOD.
CHAPTER VIII. BREATHING.
CHAPTER IX. BRAIN AND NERVES.
CHAPTER X. HOW THE MIND GETS KNOWLEDGE.
CHAPTER XI. SEEING.
CHAPTER XII. HOW THE EYE IS GUARDED.
CHAPTER XIII. HEARING.
CHAPTER XIV. THE SMELL, THE TASTE, AND THE TOUCH.
CHAPTER XV. THE BONES.
CHAPTER XVI. MORE ABOUT THE BONES.
CHAPTER XVII. THE MUSCLES.
CHAPTER XVIII. MORE ABOUT THE MUSCLES.
CHAPTER XIX. THE BRAIN AND NERVES IN ANIMALS.

CHAPTER XX. THE VARIETY OF MACHINERY IN ANIMALS.
CHAPTER XXI. THE HAND.
CHAPTER XXII. WHAT ANIMALS USE FOR HANDS.
CHAPTER XXIII. THE TOOLS OF ANIMALS.
CHAPTER XXIV. MORE ABOUT THE TOOLS OF ANIMALS.
CHAPTER XXV. INSTRUMENTS OF DEFENSE AND ATTACK.
CHAPTER XXVI. WINGS.
CHAPTER XXVII. COVERINGS OF ANIMALS.
CHAPTER XXVIII. BEAUTY OF THE COVERINGS OF ANIMALS.
CHAPTER XXIX. HOW MAN IS SUPERIOR TO ANIMALS.
CHAPTER XXX. THE THINKING OF ANIMALS.
CHAPTER XXXI. MORE ABOUT THE THINKING OF ANIMALS.
CHAPTER XXXII. WHAT SLEEP IS FOR.
THE CHILD'S BOOK OF NATURE.
PART III.—AIR, WATER, HEAT, LIGHT, &c.
PREFACE.
CONTENTS.
CHAPTER I. AIR.
CHAPTER II. AIR IN MOTION.
CHAPTER III. FLYING AND SWIMMING.
CHAPTER IV. THE PRESSURE OF THE AIR.
CHAPTER V. PUMPS.
CHAPTER VI. THE BAROMETER.
CHAPTER VII. THE AIR-PUMP.
CHAPTER VIII. GASES.
CHAPTER IX. POWDER.
CHAPTER X. POP-GUNS.
CHAPTER XI. BALLOONS AND BUBBLES.
CHAPTER XII. MORE ABOUT BALLOONS.

CHAPTER XIII. HEATED AIR.

CHAPTER XIV. CHIMNEYS.

CHAPTER XV. USES OF WATER.

CHAPTER XVI. WATER ALWAYS TRYING TO BE LEVEL.

CHAPTER XVII. THE PRESSURE OF WATER.

CHAPTER XVIII. ATTRACTION IN SOLIDS AND FLUIDS.

CHAPTER XIX. WATER IN THE AIR.

CHAPTER XX. CLOUDS.

CHAPTER XXI. SNOW, FROST, AND ICE.

CHAPTER XXII. HEAT AND COLD.

CHAPTER XXIII. THE DIFFUSION OF HEAT.

CHAPTER XXIV. WHAT HEAT DOES.

CHAPTER XXV. STEAM.

CHAPTER XXVI. LIGHT.

CHAPTER XXVII. COLOR.

CHAPTER XXVIII. MORE ABOUT COLOR.

CHAPTER XXIX. ELECTRICITY.

CHAPTER XXX. MORE ABOUT ELECTRICITY.

CHAPTER XXXI. MAGNETISM.

CHAPTER XXXII. GRAVITATION.

CHAPTER XXXIII. THE MOTION OF THE EARTH.

CHAPTER XXXIV. FRICTION.

CHAPTER XXXV. CONCLUSION.

CHAPTER I.

OUR LOVE FOR FLOWERS.

[Table of Contents](#)

Flowers in the garden.

Every body likes flowers. We like them wherever we see them. How pleasant they are to our eyes as we see them in the garden! How their various colors please us as we look along the borders! Some are red, some are white, some are blue, and some are yellow. All these different colors, mingled with the fresh green leaves, make a feast for our eyes.

And then we love to look at each flower by itself. Some flowers we like better than we do others. A pretty little flower that smells sweet, we like better than we do a large one that has no perfume. The peony is very beautiful, but we do not love it as we do the little pink with its delightful fragrance.

The garden of Eden.

It was a garden in which Adam and Eve were placed. While they were innocent and pure God surrounded them with beautiful things, because he loved them so much. Before they sinned they lived among the flowers and trees of the garden of Eden. It was more beautiful than any garden that has been seen since that time. It was so beautiful that God would not let Adam and Eve stay in it after they had sinned.

Flowers in the fields.

As we roam about the fields and the woods, it is pleasant to see here and there a flower. We should hardly enjoy our walk if we did not see them. They are like familiar friends that we love to meet. We see them come every year after the winter is gone, and we like to bid them welcome. A little girl, finding a wild violet early in the spring, exclaimed, "How glad I am to see you again! It is a long time since I have seen you, and you look as pretty as ever!" The delight expressed by this little girl is felt by every body that loves flowers, as they come one after another in the spring. How much we should miss them if they did not come every year!

The early flowers of spring.

The earliest flowers that we see in the spring are the most precious to us. They are very welcome, coming so soon after the cold winter is gone. They are the first children of spring. They are few. We find them only here and there. But we know that there will be many more flowers as the warm summer comes on; and we rejoice to greet the first of the host of beautiful things that are to delight our eyes in the field and in the garden.

These early flowers that we love so much are very little flowers. Look at the sweet little flowers of the trailing arbutus as they peep out from among its rough leaves. It seems as if they scarcely dared to show themselves, for fear that old winter had hardly gone. The violets too, are small, and just lift their heads from the ground. So, too, the delicate anemones, that are moved by the least breath of air, are very small.

Keeping flowers in the winter.

We are so fond of flowers that we like to have them where we can look at them in the winter. We are not willing to wait till spring comes. So we keep them in our warm rooms on

stands at the windows. Those who can afford it sometimes have green-houses, in order that they may keep a great variety of plants, and have flowers all the time.

The little girl's frozen flower.

People sometimes become very much attached to a few plants that they keep in their windows. Their opening flowers seem to smile upon them, and this is very pleasant to them in the midst of the dreariness of winter. It makes a little summer for them in-doors. And if the plants happen to get frozen some very cold night, it makes them feel really quite sad. A little girl became very much attached to a plant given to her by her mother. She watered it every day, and watched the buds on it as they opened into flowers. It was one of her pets. But one night it froze, and the little girl wept over her loss. She felt as if she had lost a sweet and ever-smiling friend. A kind neighbor gave her another plant of the same kind; but it was a long time before she could feel that it was just as good as the one that she had lost.

The prisoner.

The flower in the prison.

There is a beautiful story in French of a prisoner who became exceedingly attached to a flower. He was put in prison by Napoleon because he was supposed to be an enemy of the government. One day as Charney (for that was his name) was walking in the yard adjoining his cell, he saw a plant pushing up from between the stones. How it came there he could not tell. Perhaps some one carelessly dropped the seed. Or perhaps the seed was blown over the wall by the wind. He knew not what plant it was, but he felt a great interest in it. Shut in within those walls away from all his friends, not permitted to interest himself with either

reading or writing, he was glad to have this little living thing to watch over and love. Every day when he walked in the court he spent much time in looking at it. He soon saw some buds. He watched them as they grew larger and larger, and longed to see them open. And when the flowers at length came out he was filled with joy. They were very beautiful. They had three colors in them—white, purple, and rose color; and there was a delicate silvery fringe all round the edge. Their fragrance, too, was delicious. Charney examined them more than any he had ever seen before; and never did flowers look so beautiful to him as these.

How Charney watched and guarded it.

Charney guarded his plant with great care from all harm. He made a frame-work out of such things as he could get, so that it should not be broken down by some careless foot or by the wind. One day there was a hail-storm; and to keep his tender plant from the pelting of the hail, he stood bending over it as long as the storm lasted.

The plant was something more than a pleasure and a comfort to the prisoner. It taught him some things that he had never learned before, though he was a very wise man. When he went into the prison he was an atheist. He did not believe there was a God; and among his scribblings on the prison wall he had written, "All things come by chance." But as he watched his loved flower, its opening beauties told him that there is a God. He felt that none but God could make that flower. And he said that the flower had taught him more than he had ever learned from the wise men of the earth.

How the prisoner was set free.

The cherished and guarded plant proved of great service to the prisoner. It was the means of his being set free. I will

tell you how this was. There was another prisoner, an Italian, whose daughter came to visit him. She was much interested by the tender care which Charney took of his plant. At one time it seemed as if it were going to die, and Charney felt very sad. He wished that he could take up the stones around it, but he could not without permission. The Italian girl managed to see the Empress Josephine, and to tell her about it; and permission was given to Charney to do with his plant as he desired. The stones were taken up, and the earth was loosened, and the flower was soon as bright as ever again.

The Empress Josephine's love of flowers.

Charney takes his plant home.

Now Josephine thought much of flowers. It is said that she admired the purple of her cactuses more than the Imperial purple of her robe, and that the perfume of her magnolias was pleasanter to her than the flattery of her attendants. She, too, had a cherished flower—the sweet jasmine, that she had brought from the home of her youth, a far-off island of the West Indies. This had been planted and reared by her own hand; and though its simple beauty would scarcely have excited the attention of a stranger, it was dearer to her than all the rare and brilliant flowers that filled her hot-houses. She thought a good deal, therefore, of the prisoner that took such care of his one flower. She inquired about him, and after a little time persuaded the Emperor to give him his freedom. And when Charney left the prison he took the plant with him to his home; for he could not bear to part with this sweet companion that had cheered him in his lonely prison life, taught him such lessons of wisdom, and was at last the means of setting him free.

Nothing comes by chance.

Some, perhaps, would say that the seed of this flower got into that prison-yard, and took root in the earth between the stones by *chance*, and that this was all very *lucky* for the prisoner. But this is not so. Nothing comes by chance. God sent that seed there, and made it lodge in the right place to have it grow. He sent it to do great things for the poor prisoner. Little did Charney think, when he saw that tiny plant first pushing up from between the stones, that by it God would free him from prison, and, what was better, deliver him from his infidelity.

Questions.—What is said of our love for flowers? Do we like some flowers better than others? What is said of the garden of Eden? How do we feel about the wild flowers of spring? Why do we like the earliest best? Are these large or small? Mention some of them. Why do people keep flowers in the winter in their rooms and in green-houses? Tell about the little girl and her plant. What is the story of the French prisoner and his plant?

CHAPTER II. MORE ABOUT OUR LOVE FOR FLOWERS.

[Table of Contents](#)

Bouquets.

It is from our love of flowers that a bouquet is always a pretty present to a friend. The kind teacher is much gratified when a scholar, with a bright, cheerful "Good morning," gives her a bouquet. Though the flowers may be simple and common, the present is a very pleasant one. It is saying to your teacher, I love the beautiful things that God has made, and I know that you love them. It is saying more than this. It is telling your teacher that you love her. It is because you love her that you give her the sweet flowers that you love so much. And she will feel that though the flowers will fade, your love to her will ever be fresh.

Flowers in the sick chamber.

How grateful are flowers in the chamber of sickness! It would weary the sick one to see all her kind friends. But they can send her presents to let her know that they think of her. And what tokens of remembrance are more welcome than flowers?

Flowers as ornaments.

Flowers are much used as ornaments, even among savages. They are more beautiful than any ornaments that man can make. What is more elegant than handsome hair dressed with flowers?

As natural flowers droop so easily, we make artificial ones for ornaments. Sometimes they are made so well that they look like fresh flowers just picked from the garden.

Flowers in dress and furniture.

We like flowers so much that we copy them in the figures in dress and furniture. Gems and ornaments of gold and silver are arranged in flower-shapes. Figures of flowers are seen in the patterns on dresses more often than any other figures. The calico-printer gets his prettiest figures from the flowers that he sees in the field and garden. The richest carpets are those in which the figures are flowers. We often see in the carpet under our feet a great variety of flowers of the most beautiful colors. We seem to tread on beds crowded full of roses and various kinds of flowers; and we have no fear of crushing them as when we tread on real flowers. Flowers, too, are stamped on the papers on our walls. You often see representations of flowers woven in table-cloths and napkins. You see the figures of flowers worked beautifully on articles of silver. You see them too on vases in which we put real flowers. Flowers are often carved in furniture, and even the stove-maker has them on his stoves, whether they are made for the parlor or the kitchen. Thus it is that we have flowers about us whenever we can. And where we can not have flowers, we have representations of them.

Why God has given us beautiful things.

I said in the first chapter that every body likes flowers. Perhaps I ought to say that *almost* every body likes them. A man may be so wicked and so like a brute that he can see no beauty in flowers. A man may love to hoard up money, so much, that he will not care about any thing beautiful. Some men can not see any use in flowers. They think that

potatoes, and turnips, and beets, ought to grow where their daughters have their flower-garden. They forget that God has given us beautiful things for the purpose of having us enjoy them. God has a use for every thing that he has made, and this is the use of flowers. And he likes to see us love the beautiful things that he has given us, and make a proper use of them.

Love of children for flowers.

Children always love flowers. The baby puts out its little hands to them before it can hold any thing, and shows that it is pleased by its smiles and funny noises. And the child that can run about and talk, is delighted as it runs up and down the garden, and says "Pretty, pretty!" to every flower.

Flowers in the school-room.

There ought always to be flowers in the school-room. The place where the happy child goes to learn should be made very cheerful. Pleasant things will make it so, and flowers are certainly very pleasant things. And then, they are very easily obtained. Scholars can bring them, and they can be put into vases where all can see them. Pictures would make a school-room look very pleasant, but they are too costly. Flowers are cheap, since they commonly cost only the trouble of gathering and bringing them to school.

Questions.—What is said about giving a bouquet to your teacher? Why are presents of flowers so pleasant to a sick person? What is said of flowers as ornaments? What of artificial flowers? Tell how we copy flowers in dress and in furniture. Are there some who do not like flowers? For what did God make flowers? How do very little children show that they like them? What is said about having flowers in the school-room?

CHAPTER III. HOW FLOWERS ARE MADE.

[Table of Contents](#)

If you love flowers you will like to know all that you can about them. It is just as it is when you love a person. You want to know all that you can about the friends that you love so well. And if you love flowers, you will like to know what I have to tell you about them.

What is growing?

You go out into the garden, and you see among all the flowers there a large red rose. Look at it, and see how many red leaves it has all folded together. How did that rose come there? That is plain enough, you will say—it *grew* there. And most grown people as well as children think that this is all that is to be said about it. But what is *growing*? Do you know *how* a rose grows? I will tell you something about this.



That rose was once a very little bud, such as you see here. Then it did not look any thing like a rose. It was a little green thing with nothing red in it. You would not suppose that it ever could turn into a rose, if you had not seen buds turn into roses before.

Rose-buds.

The little rose-bud becomes larger and larger every day. Soon it begins to open, as is represented here, and you see the red leaves of the flower all folded together. It spreads out these leaves after a little time, and now you see the full-blown rose.



Here is a representation of a rose in full bloom. How much larger it is than the little bud from which it came, and how different it is from it! A great many leaves it spreads out in its bosom. Sometimes the difference is greater than what you see here. Some kinds of roses are very large indeed, but their buds at the first are very small.

This rose was *made*. We commonly say that it grew, without thinking what growing is. It was made from something. There was something that came to the bud to make it into a rose. What was it that came to the bud? How did it come there? I will tell you.

Roses are made out of sap.

The rose was made from a juice, or *sap*, as we call it. This sap kept coming to the bud all the time that it was growing larger, and then all the time that it was changing into a rose. We do not know *how* this sap can be made into such a beautiful red flower. This we can not understand. The wisest man in the world can not tell us how it is done. But God, who made all the flowers and every thing else, understands it.

How the sap comes to the bud.

Sap-pipes and water-pipes.

But you will ask how the sap comes to the bud. You see that slender stem that holds the rose. There are little fine pipes in that stem, and the sap comes through these pipes. All the time that the bud is turning into a rose, the sap comes to it through these pipes in the stem, just as water comes through pipes to our houses. These pipes in the stem are very small, and there are a great many of them. They are so small that you can not see them, but they are large enough to let the sap run along through them.

If the sap should stop coming through these pipes to the bud, it could not become a rose. If you pick a bud, you know that it stops growing, and never becomes a rose. This is because no more sap can come to it through the pipes of the stem. It is just as no water can come into a house if the water-pipe be cut off outside.

The sap from which the rose is made we should suppose would be like the rose. But it is not. It is not red, as you see breaking the stem. It does not taste at all like the leaves of the rose.

Rose-buds are rose-factories.

It does not seem very wonderful that the little green bud should be made from the sap in the stem. But it does seem very strange that the bright-red leaves of the rose should be made from it. Suppose some one should take some stems, and bruise them, so as to get the sap out of them. Could he make a rose from this sap? Oh no. This can be done only in the bud. That is the rose-factory. The sap must go there to be made into a rose.

Questions.—Why do you want to know about flowers? Do most people think it plain how a rose-

bud becomes a rose? How is the rose different from the bud? Is the rose made? What is it made from? How does the sap get to the bud? If you pick a bud, why does it not become a rose? Is the sap in the stem like the rose? Can any one make a rose from the sap?

CHAPTER IV. THE COLORS OF FLOWERS.

[Table of Contents](#)

I have told you about red roses. But all roses, you know, are not red. There are white and yellow roses. And some roses are a very light red, while others are a dark red. Now, how are all these different colors made?

How flowers are dyed.

If you ask a dyer how he gives cloths different colors, he will tell you that he dips them into different dyes. He has a dye in one place that gives a red color, and one in another place that gives a yellow color; and so for all the different colors. The roses are not colored in this way; they are not dipped into dyes. But the colors must come from something. From what do you think they come?

The colors made from the sap.

We do not know exactly how these colors are made. The sap seems to be the same in the stems of all the different roses. It is not yellow in the stem of the yellow rose, and red in the stem of the red rose. The stems of all the roses are green, and the buds at first are green. But in some way all the different colors are made from something. And as there is nothing there but the sap that comes in the stems, the colors must be made from this. Air and light have something to do with making the colors, but they are made from the sap.

I have told you only about roses. But there are many, very many other flowers with every variety of color. They are all

made from the sap that comes to the buds through the stems. This is true of the flowers on the trees as well as of those that you see on stalks and bushes.

The sap is different in the different trees and plants. But in none of them can you find sap that is like the flowers that are made from it.

In some flowers you see different colors beautifully mixed together. These different colors are made from the same sap. In the garden-violet you see a purple and a yellow color. In the iris you see a purple, a yellow, and a blue. These three colors are very unlike, and yet they are made from the same sap that comes up the stem. In the China pinks you see a great variety of colors alongside of each other.

Mixing and shading off of colors in flowers.

Sometimes the colors shade off into each other beautifully. You see this in the pink. Sometimes one color is put right upon another in streaks or in spots. You see stripes of color in tulips. In the tiger lily there are dark spots of a very different color from that reddish-brown upon which they are put.

How it is that out of the same sap one color is made in one part of a flower, and another color in another part, we do not know. Sometimes two entirely different colors are side by side. In one kind of poppy the leaves of the flower are white except on the very end, and there they are red. They look as if all their edges had been dipped in a red dye. Now how it is that the sap should make the flower white every where except on the tips of its leaves, and there make it red, we do not know.

Neither can we tell how one color is made to shade off or run into another color. This is often so nicely done, that you

can not tell where one color begins and another ends. You see this in the apple-blossom. The reddish color runs off into a pure white, but there is no place where you can say the white begins.

Change of color in some flowers.

The colors of flowers change some as they open. A flower is not exactly of the same color when it is partly opened as it is when its leaves are all spread out to the light. There is a vine called the cobeia that has a singular change in the color of its flowers. When they first open they are a pale green. They are of this color when they are fully opened. But after a while they have a rich purple color. It is like the change of color that you see in some fruits. An orange, you know, is at first green; but when it is ripe, it is a bright yellow orange.

I might go on to tell you much more about the colors of flowers. But you can look for yourselves in the garden and in the field, and see how differently the colors are arranged in one flower and in another.

Questions.—Are roses of different colors? How does a dyer give different colors to cloth? Do we know how the colors of flowers are made? What are they made from? What is said of the great variety of colors in flowers? Mention some flowers in which different colors are alongside of each other. Is it strange that they are made from the same sap? What is said of one kind of poppy? What is said of the shading off of colors? Tell about the flower of the cobeia.

CHAPTER V. THE PERFUME OF FLOWERS.

[Table of Contents](#)

There is another thing in the flower besides the color that is made from the sap. It is its perfume. How delightful this is in the rose! And how long it lasts! But you can smell none of it in the sap from which the rose is made. There is commonly very little odor in the stem through which the sap comes to a flower, and it is not at all like that which you smell in the flower itself.

Some flowers perfume-factories.

The perfume is not in the stem; but that from which the perfume is made is there. Something is done to the sap as it comes to the flower to make it give out the perfume. Every fragrant flower is a *perfume-factory*.

Some flowers have no odor, while others smell very strong. The lilac and the syringa, you know, have a strong smell. They are quite pleasant in the open air; but when they are in a closed room they are disagreeable, because their odor is so strong.

Some have no fragrance.

There is no fragrance in many of our most beautiful flowers. This is true of the cactus in all its varieties. When you look at a large cactus blossom, so splendid in its colors, it seems to you that it must smell sweet. But if you put it to your nose, as a child is apt to do, you find that it has no smell. Then there are the elegant japonicas, of various colors, that have no fragrance. The showy red peonies in the

garden look to a child so much like large red roses, that it seems to him as if they ought to have a pleasant smell. But they have none. Perhaps you have seen in the autumn some very bright scarlet flowers standing on a stalk in damp places. It is the cardinal flower. Some call it eye-bright. This elegant flower has no fragrance. And there is none in the fringed gentian, another beautiful wild flower of autumn. It seems enough for such flowers that they are so beautiful.

Some both beautiful and fragrant.

But there are some flowers that have both great beauty and delicious fragrance. This is true of most kinds of roses. Whenever any one gives you a rose, you put it up to your nose at once. You expect that it will smell sweet, of course; and you feel disappointed if it does not. The cape jessamine is one of the most beautiful of flowers, and, at the same time, it has a delightful fragrance. The pure clear white flower appears very beautiful among the glossy green leaves. In a southern climate it is one of the most splendid of flowers.

Variety in the fragrance of flowers.

Most flowers have some odor. And the odors of the different flowers are all different from each other. If you were blindfolded, and a pink, a rose, an apple blossom, a pond lily, an orange blossom, and a clover-head, were put up to your nose, one after the other, you would know each of them by its smell. And so of other flowers. What a variety there is in the fragrance that the flowers in the garden and the field send forth into the air! What a multitude of different perfume-factories has our kind heavenly Father provided just to gratify us!

Clover-field.

Sometimes a great many of these factories of one kind are together, and then the air is filled with the perfume they make. You will at once think of a clover-field. How sweet the fragrance as the wind blows over the field and brings it to you! All this perfume comes from millions of little factories. For each clover-head is a perfume-factory, as you may know if you pick one and smell it.

Grape-vine.

The fragrance from the flowers of the grape-vine is very delicious. It is of this that Solomon speaks when he says, "The vines with the tender grape give a good smell." When the grape-vines are in bloom the air is filled with their fragrance; and yet the flowers are so small, and so near the color of the stem and the leaves, that you would not notice them, unless you looked particularly for them.

Unpleasant odor of some plants.

There are some flowers that have an unpleasant odor. Sometimes this is because they are poisonous, the odor making us avoid them, and thus saving us from danger. But in many cases we can not see any such reason for the unpleasant odor. Why it is that such a splendid flower as the crown imperial should smell so disagreeable we do not understand. One thing, however, is true: the bad-smelling plants are few, while God has given us a multitude of those that smell sweet.

Questions.—What else in the flower, besides color, is made from the sap? Is the perfume in the stem? Where is it made? Mention some flowers that have a strong smell. Mention some that are very handsome, and yet have no fragrance. Mention some that have both fragrance and beauty. What is said about the different odors of

flowers? How does this show the goodness of God to us? Tell about the clover-field. What is said of the flowers of the grape-vine? What is said of flowers with a bad odor?

CHAPTER VI. THE SHAPES OF FLOWERS.

[Table of Contents](#)

Flowers shaped like stars.

Flowers are of all kinds of shapes. The shape of the flower often gives it its name. Some are shaped like stars, and are called asters, the word in Latin for stars. There are many kinds of these asters that grow wild in the autumn. Some of them are blue, some purple, and some white. And then there are the China-asters that you see in the garden.

There is a beautiful wild flower called, from its shape, ladies' tresses. And so, too, we have ladies' ear-drops, and the lady's slipper.

Butterfly-shaped flowers.



Some flowers are shaped like butterflies. This is the shape of the pea-blossom which you see here. A very beautiful flower it is, though people seldom think much about it. They think only of the peas which they are to gather by-and-by. There is one curious thing about the color of the pea-blossom. Sometimes, you know, it is white, and sometimes it is a purplish red. Now when it is red, you can see red spots all the way down the stalk, at the joints where the branches go off from it. It is as if the sap as it went up to color the blossom, left some of its red dye in these spots on the way.