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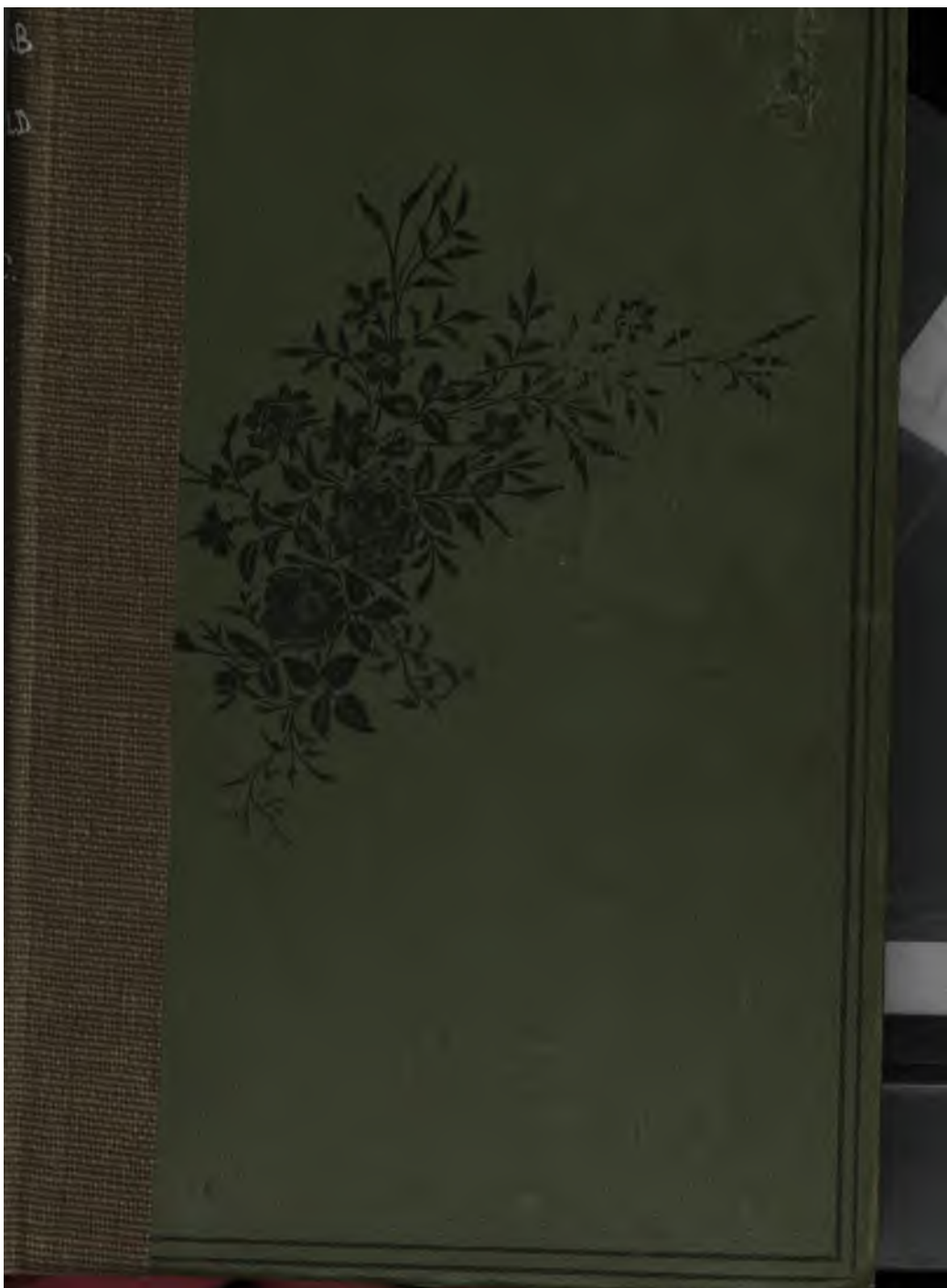
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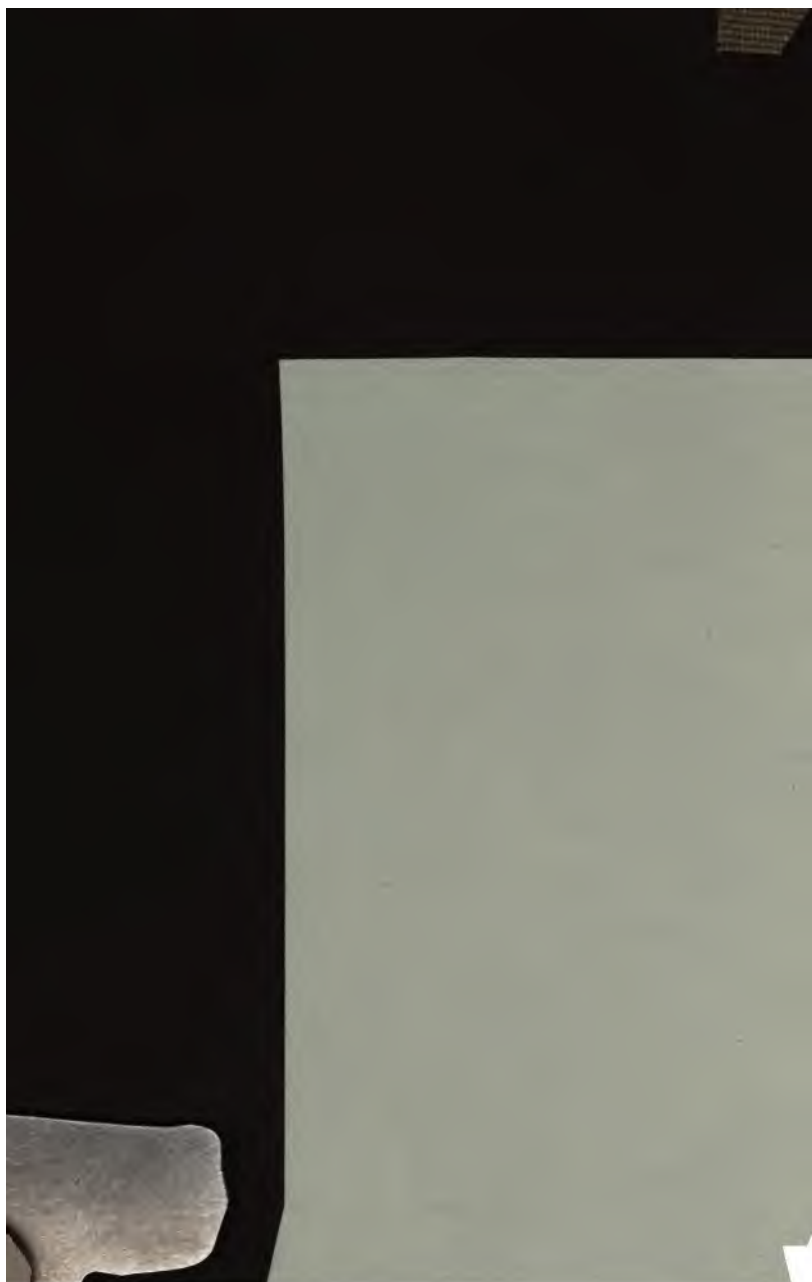
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Ellen S. A. Gordon.

June 1888

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June 1888





## THE HERB OF THE FIELD

"And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind : and God saw that it was good."—GENESIS I. 12.

" By His care the tender grass  
Springs where flock or herd shall pass ;  
He the ripper blade assigned  
For a treasure to mankind.  
So might earth her store impart ;  
The new wine cheer man's sinking heart ;  
So with oil his brow might brighten,  
Bread his sinking spirit lighten."—

PSALM clv. *Oxford Psalter.*

THE  
HERB OF THE FIELD

REPRINTED FROM "CHAPTERS ON FLOWERS"  
IN THE  
*MAGAZINE FOR THE YOUNG*

BY CHARLOTTE M. YONGE  
AUTHOR OF /  
THE HEIR OF REDCLYFFE, ETC.

*REVISED AND CORRECTED*

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## P R E F A C E

THESE Chapters must not be considered so much as a work on Botany, as an attempt to bring the wonders of the vegetable world under the notice of children, and lead them to take interest in the plants around them.

Of their irregularity the author is well aware. They were begun with a view to the flowers of each month; but the necessity of some plan caused each chapter to contain a sketch of a natural order, in which, however, she begs she may not be supposed to include the "last bells of summer," or the "Christmas evergreens."

After the twelfth chapter the Linnæan classes were gone through, in order to pick up such plants as had been omitted, and in arranging them for separate publication the same order has been preserved, as the earlier chapters are the easiest, and after going through them a child will be better able to understand the latter ones.

Long words have been avoided as much as possible, and something of system and science has been sacrificed to the desire to give no formidable appearance to the page. It is hoped that there is nothing contrary to scientific botany, and that such as pursue the study further will find their way smoothed and that they have nothing to unlearn.

We believe that the want has been long felt, of a book on plants sufficiently free from botanical terms, and with amusement enough to give young children a pleasure in the knowledge of flowers; and it is hoped that "The Herb of the Field" may be found in some way to supply this need. A few of the chapters read to a child, with the examination of the flowers therein described, would probably excite its interest in the rest.

It was with a view to village children that the chapters were at first written, in the hope of rousing them from the indifference to wild flowers that causes almost everything to be classed as a lily or a poppy. To teach them to value, and observe, and perceive the widespread beauties in the woods and fields around them, is opening a great source of happiness, and leading them to a pursuit of a refining and softening nature, one of the best of the subordinate means of cultivation.

And it is very easily done. To ask if they know

the name of a plant, to notice the pride of their Sunday nosegays, to reveal some of those marvels they have never perceived in the interior of a blossom, is a sure way to produce delighted smiles and animated looks ; and simple lessons on natural objects are certain to be enjoyed and remembered. Or when connected with the subject where all teaching begins and ends, there is surely no means better suited for showing to young minds at once the mercy and majesty of the Creator than the display of the exquisite loveliness and perfect contrivance of those minute plants, so common that they have hitherto passed them by without heed.

It is for such readers as these, who will never be likely to have time or means for the study of complete botanical works, but who nevertheless take delight in knowing intimately the dwellers in meadow, wood, or wayside, that the classification of English plants has been given at the end, hoping that they may be thus assisted in learning the names of the fair forms that refresh their eyes.

*7th May 1853.*

The lapse of thirty-four years has not changed the flower world, but it has rendered the old Linnæan system so obsolete that a book guided by it is no longer a foundation for future botanical studies. I

have therefore done my best to change the arrangement to that of the Natural System, which certainly does give a better general training in the wonders of the plant creation than the old one, though it is less convenient as a dictionary for ascertaining names.

*15th March 1887.*



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## CHAPTER I

### FEBRUARY FLOWERS

#### *The Snowdrop and Crocus*

EVERY one loves flowers, and well we may, for there is nothing on earth so beautiful or so pure as they. The choice rare flowers of hotter climates are some of the most delicious of the luxuries enjoyed by the rich ; the trim, bright garden bed is the delight of many who find little to cheer them elsewhere ; even in the close and smoky town a few plants are cherished like darlings, and the glorious multitudes that are spread in the woods and valleys form no small part of the pleasures of the country child.

We may well be thankful that our Maker has given us such plenty of these fairest among His works, showering them upon us in such profusion as to show how great must be the power and the kindness of Him who made every plant in the field before it grew, arraying them more richly than Solomon in all his glory. He is a kind father who provides for the pleasure and amusement of His children, as well as for their safety and comfort, and so those who delight in sweet flowers should return

especial thanks for the loving-kindness which has provided such joys for them.

Perhaps it may be some assistance in rendering our thanks for these, His beautiful works, to be led to examine a little into their structure, and the wonderful perfection of their parts, of which many who admire their brilliant colouring are very ignorant.

We will begin with a February flower, which all are glad to see, when it first pushes up its green case above the dark mould, and, gradually opening, shows its pure white drop of a bud, hanging on a tiny stem, and at last opening into the delicate bell, of "vernal green, and virgin white."

Well then, take a snowdrop, and if you can find it in your heart to do it, and if it can be spared out of the garden, pull it up by the root; for I want to tell you about it from beginning to end, from the top of the little green banner that waves above the white bell, down to the last fibre of the strings of the root.

It will be the best way to begin with the root. See, the little fibres are strings which suck up nourishment out of the ground. Above comes a round, hard thing, like a top upside down. This is called a bulb, and if you cut it in two you will find it to consist of a number of flakes, or coats, fitting closely one over the other. An onion has a bulb of the same kind, as you must have often seen. If you had cut open this bulb in the end of last autumn, and looked at it with a strong magnifying glass, you might have seen the whole tiny snowdrop-plant, leaves, stem, blossom, and all, lying tightly curled up safe within all the numerous outer coats, waiting for the first breath of spring to push its way out into the air.

The tall, sword-shaped leaves which all spread out from the bulb may be said to be the means by which it breathes, for they conduct the air into the numerous tiny air-cells of which the plant is full; and a plant, as you well know, can no more live without air, drink, and its own kind of food than you can. In the midst rises the one long green stem, with its moist, juicy inside, through which the air and sap are conducted to nourish the blossom. At the end is a sort of sheath, in which the blossom was safely packed up when first it budded forth, until, as spring came on, the bud swelled and swelled, till the sheath could hold it no longer, but opened at the side, and let the round bud drop out and hang down by its little slender footstalk.

Now comes what we call the flower, and here you must learn several hard names, if you wish to be able to understand what I am going to tell you about plants. The prettily coloured or white leaves of a flower are properly named petals. Of these in the snowdrop there are three. There are three larger ones outside, curved and perfectly white. These are sepals; and there are three lesser ones within, with a notch in the middle, and marked with green, which are the petals. That is, if you have taken a single snowdrop; if you have a double one I can go no further, for there the petals, which are of no real use except to protect the important parts of the flower within, are so multiplied that they have used up all the strength of the plant, and even consumed these really useful parts, so that, as everybody knows, a double flower never produces good fruit, but only rejoices in its own finery for a time. Not unlike some people that I could tell you of.

But we will suppose you have a good, quiet, modest

snowdrop, with its green and white robes in good order, and put to their proper use, of guarding and sheltering what is within them. Inside of the three green-marked petals you will find seven little threads, all perched upon a green cushion, called sometimes the germ and sometimes the receptacle. The middle one of these is straight, with a forked top, and is called the pistil, the six others are the stamens, and each of them is surmounted by a sort of long narrow case, called an anther, filled with a kind of dust, named pollen.

This pollen, as the anthers open, is shed upon the pistil, and, passing along it to the receptacle, there turns to seed ; the petals die away, and the receptacle swells, day by day, as you will see if you watch carefully, till at last it grows to a capsule, like a bag, or rather a purse. You may have seen purses divided into compartments for gold, silver, and copper, and the capsule of the snowdrop is divided something in the same manner into three cells, each of them full of round seeds, and every one of these seeds has a minute plant wrapped up inside of it.

Happy the children who live where snowdrops grow wild, and very proud of them they are, for it is not often that they are so found ; indeed, some people think that it is not an English flower at all, but has only made its escape, as we may say, from gardens. I know of a dell, in the garden of what was once a convent, which is full of these beautiful flowers, in such numbers that one might gather for half the day without making it look much less white.

But we must take our leave of the "Fair maids of February," and go on to their first cousin, the crocus, the long thready leaves of which, with the white stripe in the middle, shoot out in readiness for spring, before even the

Christmas holidays are over. In an early spring, crocuses are in blossom before the end of February, their dry withered sheath hanging down over the bulb, and their rich golden-yellow flowers seeming almost to reflect the brightness of the sunbeams, in their depth of rich glowing yellow. And how the bees delight in rolling deep within them ! seeking for the honey which is stored in the cup, or nectary,<sup>1</sup> as it is called, at the bottom of the petals. All crocuses have three petals and three sepals—but these are as bright as the petals—bulbs, long narrow leaves, and a sheath, but they differ from the snowdrop in having no stem, and only three stamens instead of six. The pistil, too, has a pretty branching crown, called a stigma, and the petals are all of the same size and shape.

The brilliant yellow spring crocus grows wild in Syria, and has only been cultivated in England for about two hundred years. It shows its love for the bright sun of its native land by only opening on sunshiny days, and closing up fast in frost and fog, though, like a sweet gentle temper, it is always ready to open again on the first encouragement.

Its brothers, in purple and in striped coats, are not quite so pretty to look at from a distance, though, when close to them, they are very elegant flowers ; the long, forked, orange-coloured stigma of the purple one shows off to great advantage with the colour of the petals. Some crocuses have yellow sepals and petals striped with brown. One of the prettiest of all has white petals, and sepals striped with purple.

The crocus root dies away every year after forming a new bulb, or sometimes two, close by its side, and thus the plant gradually changes its place till it comes quite

<sup>1</sup> So called from nectar, a sweet drink.

out of the border where it was first planted. The purple crocus is English, and grows in great quantities in the fields about Nottingham. It used to be a great joyous holiday to go out and pick these flowers, till the fields were built upon.

There are other sorts which blossom in the autumn, of which I will just mention the saffron crocus, which is grown in great quantities in Essex and Suffolk. The stigma, which is very large, is picked off by women and children, and laid out on linen cloths to dry in a heated room, after which it is put in paper bags and sold, to be used in many ways, one of which those who like saffron buns will soon recollect, as well as those who have to doctor their pet canary-birds in the moulting season.

Plants with bulbs have, then, as you should recollect, three petals and three sepals ; either six or three stamens, with anthers ; one pistil, consisting of a germ, style,<sup>1</sup> and stigma ; usually straight soft stems, without branches ; leaves either growing from the root or on the stem ; and sheaths in which the young blossom is enclosed.

<sup>1</sup> The style is the long part of the pistil, and is named from the shape of the iron styles, or pens, which were used in old times for writing on tablets of wax.



## CHAPTER II

### MARCH FLOWERS

#### *The Daffodil and Hazel*

Who can pass by the 1st of March without a word or two of the Lent Lily, the beautiful yellow daffodil? The Latin name of the daffodil is *Narcissus*, and there was an old heathen story that there was once a youth who was always admiring his own beauty, looking at his face reflected in clear pools and streams (for it was before looking-glasses were invented), till he was punished for his vanity by being changed into the flower which still hangs down its head, as he hung his over the water.

Certainly he has not left off wearing a very gay dress, though I never yet saw him near the water, but always in copses and woody banks. How pleasant it is to see those multitudes of yellow flowers scattered all over the ground. And how delightful to gather them, blossom after blossom, and still it does not seem as if the numbers were in the least thinned. And then, when the hands are as full as ever they can hold, to tie the stalks up in a hard solid bundle, cut them all to one length, and make a present of the noble golden nosegay, or put it into a cup of water, or perhaps send it to market, where it may

be bought by some town person, who does not often see a fresh flower.

I remember that my nurse did not always like my daffodil nosegays, because there were no leaves, and she said the flowers were too gaudy, but I did not think so ; the six outer petals and sepals are so soft and delicate, and the deep yellow bell inside is so bright and beautiful, and has such a curious kind of sparkle upon it, and then its edge is so beautifully quilled and scalloped. I used to turn the flower upside down, and fancy it a fairy's dress : the deep yellow bell her golden petticoat ; and the petals above, her pale gauze robe, deeply cut ; while her boddice was the green receptacle on which they grow.

The yellow petticoat is really the nectary or honey-cup ; garden narcissuses and jonquils, which blossom later, have the nectary likewise, only smaller, and there is also another sort which grows wild in some places, called sometimes the poetic narcissus, and sometimes butter-and-eggs. The petals of this are quite white, and the nectary yellow, trimmed with red, and a very pretty flower it is, though I can never like it quite as well as the old daffodil. Perhaps those do, however, who have known it all their lives as an old friend, and have put it into their first May garland.

Narcissuses and jonquils are often kept in glasses of water or flower-pots all the winter in the house ; their bulbs put down long fibres into the water and suck up juice enough for the support of the plant, so that it puts up its almond-shaped bud, spreads its long green leaves, and unfolds its yellow flower, so as to be the pleasure of all in the house. I have heard of a little sick boy in London, who lay on his bed close to the black smoky window, with no amusement but watching day after day how his

three jonquils grew and budded ; and when at last he died, he left them as his choicest treasure to a friend who had been kind to him.

Excepting the large nectary, the narcissus differs but little in structure from the snowdrop, as you will soon find by examining it. The brown sheath hangs withered behind the flower, the pistil and the six stamens rise like a fluted pillar in the middle of the nectary, the germ is round, and when ripe, becomes a capsule filled with seeds, and the leaves are long and narrow, growing directly from the root.

So we will leave the daffodil and its relations, and look a little farther in the copse. What are these long, soft-looking tassels, hanging out of these dry sticks ?

Oh, those are not flowers, those are pussy cats, says one child ; they are cats' tails, says another ; and I for my own part should call them catkins, though that is not a much wiser name, since catkin can mean nothing but little cat.

And pray what is the bush they grow upon ? Ten to one that few of you can tell me, unless, perhaps, you happen to remember that somewhere hereabouts, last autumn, you picked a capital bunch of nuts, and have a guess that it must have been off this very bush. And so it was ; and this is a hazel nut bush ! But where do the nuts come from, and what have the pussy's tails to do there, since I never yet heard that cats were apt to hang up their tails to dry on hazel bushes ? Nor do I think that these things are very much like them.

Ah ! now you look very wise, you have a guess. Why should not pussy's tails turn to nuts, as well as apple blossom to apples ? Let us see, then, what the catkin is really made of.

It is formed of a great number of little scales one over the other, some pale green, some buff, and some a little shaded with red, and within each of these scales there are some yellow things, eight of them, which yellow things are fast covering your fingers with dust. That dust is pollen, and those eight are anthers then, stamens only that they have no legs, properly called filaments, and the scales are petals, so that each catkin is in reality a string of tiny flowers.

After all they are but half flowers, for if you remember it is the pistil, and not the stamens, of the snowdrop that turns to seed, and these anthers have no seed in them. Perhaps the pistil is in another part of the catkin. No, peep into scale after scale, and still there are nothing but anthers, so that we must look a little further to find the young nut.

See here, a little lower on the branch, here is a hard brown bud, much like those that turn to leaves, except that it has a cluster of pretty crimson threads at the top, a sort of red feather in its cap. Here lives the nut, here are the pistil-bearing flowers, for the hazel keeps its stamens and pistils in different blossoms.

Let the neatest hand and most delicate fingers pull off one by one the brown scales in which the bud has been guarded all the winter. Inside there is first a quantity of soft hair to keep it warm, and in the midst are several very small green cups, each containing a tiny germ, on which grow two crimson threads, the stigma of the pistil. If you can manage to look it at through a magnifying glass you will understand it much better, and see that the little germ is very nearly of the shape of a nut.

The pussy's tails will shake off their dust, some of it will be carried by the bees to serve as flour for their

bee-bread, some will float away on the wind, and some will be caught by the crimson crest of this nest of little nuts. Then the catkins will wither and fall off, but the little nuts will swell and enlarge as the year advances.

The crimson stigmas will turn purple and shrivel up, the scales will open, the cups will grow longer and more leafy, and the germs harden into outer shells, in which there grow at length the white sweet kernels. Each of these kernels is, as you remember, apt to break into two equal parts when the nut is cracked, and there is apt to be a stringy, scaly piece between them. This string is the young stem of the infant hazel, and if the nut was in the ground and allowed to grow, the two halves of the kernel would produce two cotyledons or seed-leaves, which would be pushed above ground by the young stem.

I daresay you think that those two white, pleasant tasting half-kernels may be put to a different use before ever they have time to make seed-leaves, or cotyledons. What fun it is to pull them down from the tree, bunch after bunch, one, two, three, ay, sometimes half a dozen in a cluster ! crack, crunch ! Oh, I hope you have good teeth !

Something else has good teeth if you have not ; the pretty little squirrel, with his bushy tail, likes to lay up a store of nuts for his winter hoard, sitting up holding them in his paws, and nibbling away the shell. So does the wood-mouse, who makes his nest in the moss under the tree. But how can the nuthatch contrive, that pretty bird with the gray back and black streak over the eye ; he is as fond of nuts as the mouse or the squirrel, but he has no paws to hold them, so how can he get at the kernel, through that hard shell ?

The nuthatch chooses a chink between two stones, or in the bark of a tree, where he can firmly fix the nut, like a piece of wood in a carpenter's vice, and there he hammers it, tap, tap, with his strong beak, till he has broken out a hole large enough for him to extract the kernel.

Between the children, the squirrels, mice, and nut-hatches, to say nothing of the little round white maggots, which all like nuts, it would seem as if there might be few left to grow into fresh hazel bushes, and perhaps it is for this reason that the bush throws up shoots from the root, which grow up into stems in time.

And how many things the branches are useful for ! What would green peas and scarlet runners do without them ? Others, again, are split in half and made into hoops, to be put round casks. A very pretty winter sight is the hoop shaving : the copsewood all cut down ; the great piles of white chips ; the tall heap of hoops, placed regularly one over the other, so as to look like a barrel already ; the long white bundles of rods for crates set up on ends, leaning against each other ; and the little hut made of sticks and covered with chips, with sometimes a fire, with the smoke curling up between the great old trees that still are left standing though all the brushwood is down.

Then, too, the hazel sticks make withes for binding, and are woven into hurdles for sheep ; yes, and the first Christian flock in England were enclosed within hazel walls. It was of wattled hurdles that the first Church was made that was raised at Glastonbury, and it was long before our forefathers were able to form these holy build-ings of more solid materials.

There are no hazel leaves to look at now, they are

all folded up in the little hard brown buds, and will not come out till May. Then, perhaps, you may remember to observe the serrated or saw-like edge of the leaf, and the numbers of little branches at the back, like a network, to serve as channels for the sap.

## CHAPTER III

### APRIL FLOWERS

#### *Anemone and Ranunculus*

AN April nosegay ! It is much easier to gather one than a March nosegay ; indeed there are so many flowers now, that I can only choose out a few to talk about, as it would take too long to dwell upon them all.

The Easter flower is commonly called the Pasque flower, from the word Paschal. It is very pretty, deep purple with yellow stamens ; but it is not very common. I will go on to another flower of the same genus, the wood-anemone.

Anemone means windflower, and this I believe is the English name often given to this very pretty ornament of our woods. It is rather difficult to get at the root of the wood-anemone, as it is deep in the earth, and creeping, putting down clusters of fibres into the ground, and shooting up stems at short distances apart. Each stem has a sort of joint about half-way up, whence spring three leaf stalks ; each stalk bears three leaves, and these leaves are again notched deeply into three divisions, and altogether they spread out most gracefully below the slender stem which bears the modest blossom, bending down its



head and folding its wings in wet weather or at night, and opening them again to rejoice in the delicious spring sunshine.

The five petals are usually of a delicate pearly white ; but sometimes, especially later in the season, they have a tinge of lilac, and I have now and then seen one quite purple. Within are quite a crowd of stamens with yellow anthers, too many to count, and in the middle what you might suppose to be a single great pistil, without style or stigma, but in reality it is a multitude of very small ones joined together, which will all become separate seeds in the course of the summer. How delicate the flower is ! it is in vain to try to gather it for a nosegay, for it is sure to droop its pretty head and fade before it can be brought home, and we must be content to leave the flowers in their bed of fresh green moss, and brown, crackling, last year's leaves at the foot of the tree, stud-ding over the coppice like so many white stars.

I think that the wood-anemone may put us in mind of some quiet, shy, modest girl, who makes all sunny and happy round her in her own safe, shaded home ; while, perhaps, she has gayer and brighter sisters or cousins who can do their work as well in less sheltered scenes, and wear their company-robcs as modestly as she her humble dress.

The anemone has such sisters—pretty Miss Hepatica Anemone, in her blue or pink robe, with her large, handsome, three-cleft, dark-green parasol, is one of them ; but she is not less quiet and retiring than her woodland sister, for she, too, hangs down her head, and hides under her leaves at night ; and, somehow, she always prospers more in a cottage garden than in grander places, perhaps remembering that her native home is on the Swiss mountains, where she peeps up almost through the snow.

There is one of the family, however, who is quite at home in any garden, however grand—Mr. Poppy Anemone, her large handsome brother, with his multitude of black stamens, and great black lump of pistils, the styles of which grow so thick together that they seem like hair. He has an endless variety of beautiful dresses : sometimes he appears in rich scarlet, sometimes in crimson or purple, and sometimes in quite a ladylike robe of white, trimmed with purple or pink. He is a great friend of the gardeners, who think they can get him to do anything to please them, and persuade him to alter his shape, wear all manner of flounces and furbelows, and disguise himself in such strange fashion that his best friends would hardly know him again. Sometimes, indeed, he wastes all his substance in thus doubling the folds of his robes, but if not, after about a fortnight, he takes off all his beautiful red or purple garments, and rolls himself up in his plain working dress, very like a gray duffle cloak. By and by the gray coat seems to come unravelled, just as if you were to undo a knitted glove, and it will prove to be formed of a multitude of little yellow seeds, each with its own white wing of cotton, with which, if left to itself, it would fly away to seek a home ; but the gardeners are on the watch for them and catch them, that they may take good care of their feeding and education, so that they may grow up as fine, or finer, gentlemen than their father.

I have read a description, in a book of travels in the Holy Land, of the country near the sea of Galilee. The ground, early in the spring, is covered with a thick, close carpet of crimson anemones, above which are a number of half-withered stems of grass. Sometimes, through a narrow opening in the mountains, there comes a sudden gust

of wind, waving aside for a moment all the grass in the line of its course, and showing the crimson flowers beneath, so that it seems like a mysterious river of blood, suddenly appearing for one instant, and as quickly passing away. There is, too, the handsome branched Japan anemone, white or purple, blossoming through the autumn.

Several other flowers are in blossom now, belonging to the same many-stamened race as the anemone. First there is the ranunculus tribe, and you will wonder to hear that these are no other than your old golden friends, the buttercups, kingcups, or crowfoot, whichever you may usually call them. There they are with their five glossy yellow petals, their numerous stamens, and their lump of little, round, horn-shaped pistils. They have also five small green leaves growing under the petals, and this part of the flower is called the calyx or cup. There are many different kinds—the creeping crowfoot, which is such an enemy to the farmer, in grass fields, for though it used to be a saying that buttercups made the butter yellow, this is quite a mistake, for you may see that cattle always leave the stems when they have eaten the grass all round; and the truth is, that all plants of the ranunculus tribe, that is, with many stamens growing out of the receptacle, are poisonous. Then there is the corn-crowfoot, with its very curious-toothed and jagged seed-vessels; and the white water-crowfoot, which has large, three-cleft leaves to float on the top of the water, and serve to bear it up there, and also thick clusters of fibrous, mossy leaves to keep under water and suck up moisture with. It varies remarkably in size, for in a deep, running stream or large pond it is a handsome flower, while in a little puddle or gutter it is so very small that the first time I met with it I could scarcely believe it to be

the same flower. We must not forget the earliest of all buttercups, sometimes called pilewort, and sometimes small celandine, the structure of which is different from the others, in order to suit its early blossoming. It has ten instead of five petals, and three divisions in the calyx, and the reason of this difference is believed to be that it may be better able to close over and protect its stamens and pistils in case of early frost. I have a great kindness for the pilewort—for its sunny, golden face, coming to greet us so early, and the pretty brown shading outside; nor are its shining, heart-shaped leaves without much beauty.

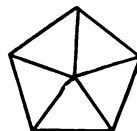
Garden ranunculuses are many; Bachelors' Buttons, also called Fair-Maids-of-France, are a double sort. The French call them *Esperances*, or hope, and when St. Louis was a captive among the Mahometans in Egypt, and could write no letter to console his wife, he sent her a root of this flower. Its name told her to hope on through her hard trial. The great scarlet globe ranunculus has its proper home in Syria. Another April flower of the same class, and very like a great crowfoot, is the marsh marigold; indeed, the only differences between it and the ranunculi are, that it has no calyx, and its sepals are more separated. It has its name from having been used to dress the churches on the feast of the Annunciation of the Blessed Virgin Mary, from whose old English title of Our Lady many other flowers take their names.

## CHAPTER IV

### MAY FLOWERS

#### *Primroses and Violets*

Do you know what a pentagon is ? Probably not, so here is one to show you. It is a mathematical figure, with five sides and five angles all exactly equal, and all at the same distance from the centre, and very troublesome it is to draw one. But what has it to do with flowers ? It relates to them thus—that it shows the beautiful regularity and design which is perceptible through all the works of the great Creator.



Take a primrose, and compare it with the pentagon. Five gathered into one, or one divided into five ; that, as you will soon perceive, is what may be called the principle upon which these, and many other of our prettiest flowers, are formed.

First, the primrose has a calyx all in one, a deep, close, hairy, green cup, with five divisions, and five points. This encloses a corolla,<sup>1</sup> also all in one, consisting of a

<sup>1</sup> Corolla, another name for the petals or coloured part of the flower.

single petal, which might be compared to a funnel, as it has a long narrow pipe or throat, fitting into the calyx below, and above spreading out into the five divisions which, at first sight, one would almost take for separate petals. What an exquisite colour they are, such as can only be called primrose colour, for it is so delicate that it is like no other yellow; and what a beautiful little mark of deeper yellow there is at the lower part of each, so as to make another little pentagon round the throat, corresponding with the cleft in the middle of each division of the corolla. How wonderful it is that it should be so perfectly regular, without being stiff or formal.

The end of the throat serves as a nectary; there is a sweet drop of juice at the bottom, as the little tiny black flies that creep in well know, and so do the sparrows, though I am not sure whether it is for the sake of the flies or of the honey that they are so apt to pick off the heads of the primroses, and leave the path strewn with them.

The more important parts of the flower are within the throat. The five stamens, which have very short filaments, raise their anthers like a crown just within, and in the midst is the pistil, with a round green germ, a tall slender style, and a stigma just like a pin's head.

The stalks are of a very pretty pale pink colour, and covered with down; the leaves all grow directly from the root, without leaf stalks. They have one principal large rib, like a backbone, down the middle, and a number of branches spreading on each side; and these again are connected with each other by lesser veins, which give the leaf a very curious crumpled appearance. Nothing is prettier than a fresh, bright bunch of primroses, the graceful bending stems appearing to repose upon the green

leaves ; and no plant chooses prettier places for growing ; on the side of a mossy bank, or niched into the rugged roots of some old tree. There sits the sweet pale primrose, seeming almost to smile out of its quiet retreat, and giving forth a delicious mild fragrance that seems just suitable to its soft, pure, delicate flower.

Prime rose means early rose, and in other languages its name has the same meaning. The French call it the *prime vère*, first of the spring, and its Latin name is *Primula*, which also means the first.

*Primula* is, in fact, the family name of the primrose and its numerous relations, the first English one of which is the oxlip. The oxlip's Latin name is *Primula Elatior*, one which I think suits it very well, as it seems like a conceited elated primrose, which had managed to perch itself up upon a second set of stalks, and had thereby grown hard and formal, without the delicate bending grace of the primrose ; and it is curious to see how like, yet how much less pretty it is, than its quiet retiring sister. Indeed, botanists are not quite agreed whether the oxlip is really an aspiring variety of the primrose or a distinct species ; that is to say, sort of flower.

The cowslip, which has a second set of stems by nature, is a much more modest flower ; it muffles up its throat closely in its long large calyx, and hangs down its head so as to form one of the bells, which, according to a pretty German fancy, serve to ring in the spring.

“ In the cowslip's bell I lie,”

says the fairy's song, and no fairy could look for a better lined palace, or a more sweetly perfumed one. The corolla is like soft yellow velvet, and in each division there is a beautiful red spot, as if to set off the rest.

The stamens and pistil scarcely vary from those of the primrose.

Cowslips can hardly be thought of without many a sunny remembrance of the broad green meadows where they may be gathered by handfuls, and the borders of coppices, where having a richer soil, they grow so much larger. Oh, the pleasure of finding a noble, great cowslip plant, with four or five stems, and perhaps one of them with as many as seventeen bells ! Then there is sure to be an object in gathering cowslips. Perhaps it is for a garland, perhaps for cowslip tea, though I suspect the chief niceness in that is, that it is an excuse for having the pleasure of making a mess, perhaps for cowslip wine, or, perhaps, best of all, for a cowslip ball.

Oh, the deliciously sweet, soft thing ! Let southern children keep their citrons, while we can have our cowslip balls, as large, as yellow, as fragrant, much softer, and giving far more pleasure, both in making and the using. What can compare with the delights of a cowslip ball ? And yet it may be a trial of temper too, as perhaps you may have found, when some little one may have nipped off her stalks too short, or, worse still, let go the string, so as to make all the cowslips fall down. If you do not keep your temper in such a case, even a cowslip ball may bring a painful remembrance with it, but I will hope better things of you, that so your balls may have as sweet an odour in remembrance as during their short life.

Neither primroses, cowslips, nor oxlips will grow in all the counties of England ; and there is a fourth rare sort, of a purple colour, called the bird's-eye Primula, which only grows in the north.

Now we mention purple primroses, the common regular primrose may be made to turn to an unwholesome-looking



pale purple, by being planted in richer soil ; the seeds of these empurpled primroses will grow up of a deeper, richer colour, sometimes purple, sometimes bright red, preserving the little yellow pentagon round the throat. Again, they may be doubled, and there are very pretty lilac double primroses, white ones too, and others which look as if they were cut out of crimson velvet, with little yellow spots.

The cowslip will turn scarlet on being cultivated ; and by giving the pollen of the coloured primroses to the pistil of the cowslip, other varieties have been produced. That odd flower, like an oxlip with a frill on, is one ; and another is that curious dweller in cottage gardens, called Jack-in-a-box, his box being no other than his calyx, very much enlarged, but a few traces of its origin still remaining in the green marks on the edges.

The polyanthus is another variety of the cowslip, and that to which most attention has been paid. Polyanthus fanciers have shows of them, and are very particular that the dark spots on the corolla should be quite regular, and that there should not be what they call a pin-eye ; that is, that the pin-like head of the pistil should not appear above the throat. Other people may be quite contented with the bright yellow and brown polyanthus, or spring flower, as it is called, without caring for these fancied beauties.

There are many foreign sorts of *Primula*. They grow in great beauty on the Alps, on the borders of the snow ; and many sorts have been brought to England. Auriculas, which name means bears' ears, have very curious powdery centres, and are of numerous colours—green, yellow, or purple.

The last to be mentioned is one which town children

are likely to know, though they may never have seen a real English primrose, namely, the pretty purple Chinese primrose, which is grown in pots, and often to be seen at windows, turning its graceful flowers towards the light. It is exactly like the wild primrose in shape, though the colour varies from deep lilac to pure white, and the leaves are of very different shape. These early spring flowers almost all have leaves springing from the root, instead of the stem, perhaps that they may grow up in shorter time.

Here, too, is comfrey, with its prickly leaves, and bells of all shades from purple to white. Ah, and how could we pass by the little bright blue turquoise of a flower, that seems to call out "forget-me-not"! Do you know the story of its name? How a lady begged her lover to gather it for her, and while reaching it, he fell into the water, and was drowned, calling out as the flower floated near her, "Forget me not!"

Its proper learned name is mouse-ear-scorpion grass, because of its pricking, clinging leaves and stems, and this is, too, the name of the smaller sort in the lanes and woods, forget-me-not being only the appellation of the large river kind.

When Henry of Lancaster, afterwards King Henry IV., was sent into exile, he gave his friends in England the forget-me-not flower, formed of jewels, and with the two letters SS, which stand for the French words *Se Souvenir*, meaning "remember," so that this plant must have had its name long ago.

This has been a long chapter, but I should be showing no due honour to the sweet violet and the painted heart's-ease if I passed them over. They are sisters, though you would scarcely have guessed it; the name of both is *Viola*, and they may be reckoned as pentagon flowers, since they

have five calyx leaves, five petals, and five stamens. The two upper petals stand upright, the two next are rather smaller, and opposite to each other, the lower one has in front a large full lip, and behind, a curious sort of heel or spur which is fastened to the calyx, holds the ends of the other petals, and serves as the nectary, where resides the honey which causes the sweet smell.

The stamens all meet in a point around the little round-headed pistil, and they are beautifully protected by the crests which grow on the inner side of the two middle petals. These crests are larger and more remarkable in the dog-violet than in any other species, and, indeed, I think the poor dog-violet is rather unjustly despised. Look at its gray flowers, with their black streaks and bright eyes, perched in their beds of moss, and so abundant and so varying in tint that if you were to gather only one of each variety as you passed through but one coppice you would soon have a very handsome nosegay.

Every one knows and cares for the sweet violet, blue, white, and of a certain odd red variety, and the only doubt is whether people think the blue or the white the sweetest. They are of the same species, only the colour varies according to the soil in which they grow, the white liking clay, and the blue, real violet colour preferring chalk, so that I have sometimes been able to tell which way the school-girls have been walking, by the nosegays they have brought me. It is very curious that the coloured flowers of the sweet and dog-violet have no seed, but later in the year they have small green blossoms, which alone bear seed.

Next comes the larger, handsomer *Viola*, though, after all, the wild heart's-ease of the south of England is not

much larger than the dog-violet, when you find its pale cream-coloured flower in the long grass of a fallow field. Even then it has some little dark streaks near the centre, and now and then a purplish stain on its two upper petals, and in the north it grows much larger, of a much more purple tint, and far more like our garden flower.

Both those wild varieties have long narrow leaves, with curiously cut and carved wings growing on each side of them, and their seed-vessel is a pretty little box divided into three.

The garden heart's-ease is produced partly from these, and partly from one which grows wild on the Altai mountains, in Asia. The one I hold in my hand is quite a common sort, with no fine name, but only listen to its description. The upper petals, large and rounded, are of a splendid deep velvety purple, the lower pair are exactly alike, the ground pale cream-colour, the outer part marked with a large purple spot, the inner part with a still darker cluster of purple dashes, spreading out on either side. The lowest petal is likewise cream-colour, but with a large yellow mark in the centre, bordered with purple lines, and immediately below it another purple spot. Can anything be more elaborately marked?

What empress in all her splendour ever found purple to compare with the richness of a heart's-ease? The sort which gardeners call the Black Prince is very large, and entirely of the deepest purple, except a little yellow near the eye, and a glorious flower it is. There are others all yellow, and some with a narrow blue line all round the edge, but for the most part they are of purple and yellow mixed, and sometimes put us in mind of a cat's face, the eyes, whiskers, and ears being all clearly marked; some-

times, too, of a man with a purple cap on his head and a beard on his chin.

It is probably to the very smiling face of this purple-capped gentleman that the flower owes its name of heart's-ease. Village children generally call it love-anidles, which unmeaning word they have made out of its old English name of love in idleness. It is also called pansy, from the French *pensee*, a thought, and sometimes by the very funny name of "three faces under one hood."

## CHAPTER V

### JUNE FLOWERS

#### *The Apple and the Rose*

JUNE is come, and the rugged, crooked thorns, which all the winter looked like worn, bent, hoary old men, are now come out like fair young maidens, in robes of green and veils of white ; and as then the old gentlemen reminded us of summer by wearing here and there a bunch of green mistletoe, so now the young ladies remind us of winter by wearing their white like snow upon the branches. Very like snow indeed, as you will find if you go and stand under the tree, for the wind brings down whole showers of the petals on the grass below.

What is the inside of the flower like ? The structure may be seen enlarged in the apple blossom or the wild rose, and it will be easier to understand if we look at them. Here is a wild crab, that will not be too crabbed to spare us a branch of pink and white flowers. What a multitude of yellow stamens ! But I thought you said, when you told us about the buttercup, that all the many-stamened flowers, which you called by a hard name beginning with *poly*, were poisonous, and how can that be if the apple is one of them ?

Well, you are right. I did say that all the polyandria or many-stamened class were poisonous, but look here. Gather a buttercup from under your feet, or look in the next field for a scarlet poppy; I daresay there are more there than the farmer wishes, in spite of their gay red coats.


Now pull off the calyx of the crowfoot. It does not make much difference to the flower, and none at all to the stamens. As to the poppy, it only used its calyx for a nightcap, when it was in bud, and ungratefully split it in two, and threw it away, as soon as it opened to daylight. You may see some in the act of performing this operation, the calyx already parted from the stem, and the scarlet petals crumpled up within it.

But how shall we pull off the calyx of the rose or apple blossom? It will not come without pulling the whole flower to pieces; nay, it even seems a part of this great solid green lump on which the whole is perched.

This is the difference, knowing which, you could tell what plants might safely be eaten if you were cast on a desert island, with no monkey to taste for you. All the plants which have stamens growing out of the calyx are harmless, all those which can spare their calyx without injury to the stamens are hurtful.

Besides, how different the seed-vessel is. The poppy's great pistil is like an urn, and when the seed is ripe, the upper part rises up on little supports all round, so as to let out the seed, and the cover is beautifully ornamented.

But what is the seed-vessel of the apple tree? Who can tell? Yet in autumn you have a great liking for that same seed-vessel, which now you cannot even recollect. Must I describe it? The seeds are ten in number, in pairs, within five cells formed of two valves, all enclosed within



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ous, they are not very wholesome. Indeed, out of the seeds of all this tribe may be extracted the deadly poison called prussic acid—not that there is enough in any of them to do us the least harm—and it is this very small quantity that gives the pleasant flavour to peach kernels, laurel leaves, almonds, and even hazel nuts.

Now we have had our own fruit trees, we must not forget the birds' fruit trees, the store provided for those which gather not into barns. Yes, our heavenly Father feedeth them, for these white May blossoms, which delight our eyes in the spring, will by and by be scarlet haws for their food, and the white blossom of the black thorn, which came with the cold wind of spring, is turning already to a purple sloe, or wild plum.

Haws put us in mind of hips, and with them we come back to the wild rose, below the flower of which you may already see the beginning of what botany books are pleased to call the pitcher-shaped fruit, though I can see very little of such shape in it. At present it verifies the proverb, "little pitchers have long ears" (I hope you have not in the sense the proverb means), for it has five most beautiful, long, graceful, fringed leaflets, which form the especial grace and beauty both of the rose and bud. There is a peculiarity about these leaflets which is prettily expressed in this riddle :—

"Of us five brothers at the same time born,  
Two, from our birthday, ever beards have worn;  
On other two, none ever have appeared,  
While the fifth brother wears but half a beard."

This is a fine puzzle for most people, but if you cannot make it out with a rose calyx before your eyes I think you must be rather dull.

Admire the five pretty cleft petals of the flower, and see how their tints vary, some so snowy white, some so deep and delicate a pink ; and is there anywhere to be seen anything more graceful and lovely than those long bending wreaths, covered with the elegant leaves, each consisting of five serrated leaflets, two pair opposite, and one at the point ? And the deep pink buds in their bowers, and the more fully opened blossoms, and even the bunch of stamens which has lost its petals and doubled back its leaflets, how pretty they all are, and how well they ornament the hedge !

It may be that you can find the sweet brier or eglantine growing wild, with its pink flowers and delicious leaves, and even some of the dog roses have slightly fragrant leaves. There are no less than twenty-two sorts of roses growing wild in this island of ours, the difference between them being principally marked by the form of the fruit, of the leaf, and of the thorns. Scottish roses are more deeply coloured than English ones, and more briery.

Here Scottish roses bring us into the garden, and where shall we stop now ? See the flame-coloured Austrian brier spread itself over the house and show its beauteous blossoms, yellow outside and orange within. See the sweet little Banksia climb still higher, and fling its luxuriant wreaths even round the very chimneys ; see the dark red China cluster round the cottage window, almost a sure token that content and cleanliness are within.

Yes, roses must be pardoned for being double, since their office is to be fragrant and beautiful ; and while their relations have improved their fruit for our taste, they have improved their blossom for two of our other senses, till the rose is owned as the queen of flowers.

The honest old round cabbage rose, solid, and with a depth of healthy sweetness which invites you to plunge your nose far into the deep pink cup; the moss rose, with the calyx crusted over with thick mossy hairs, so as to form those surpassingly lovely buds; the snowy Provence rose; the dark velvety damask—these are the oldest and the best loved, though there are multitudes of new choice ones grown in costly gardens.

The Provence rose was first grown by King René, Count of Provence, and father of our queen, Margaret of Anjou, so that it seems as if our red-rose queen ought to have changed colours with her enemies of the white-rose party. The red and white striped York-and-Lancaster rose always puts us in mind of the ending of those bloody wars by the marriage of Henry VII. and the Princess Elizabeth.

Henry VIII. used as his badge the York-and-Lancaster rose, which, whenever we see it carved in the buildings of his time, always looks as square and broad-faced as the king himself. The white rose, long after, was worn by the Scottish Jacobites, as a token of the hereditary right of the Stuarts.

The damask rose is properly the rose of Damascus, the most famous place in the world for roses, where the perfume called "attar of roses" is made. At Shiraz, in Persia, this scent is also distilled, and there you may literally sleep on a bed of roses, whole rooms being filled with the delicious petals. China is full of roses, and it is the amusement of the Chinese gardeners to dwarf their growth, so as to make them, flowers, leaves, stem and all, so small that you would call them doll's flowers, and think them fit to put into a baby house.

The pink China rose, though not so pretty as its sisters,

blows so early and so late that it is valuable. It is remarkable that all the northern roses have their styles well protected with down, while all the southern ones are bare to suit their warmer climates.

The beautiful fragrant and fruit-bearing tribe of plants of which I have been speaking are those however which chiefly remind us of the curse of Adam, since they are also the thorn-bearers. "No rose without a thorn," has often been remembered by those who have scratched their fingers, or who have found pain where they expected pleasure. But as joy often comes out of grief, and happiness out of well-endured punishment, so even the chief of thorns, the bramble, the most despised of plants, has fruit to yield us, the juicy dewberry and shining blackberry. And very handsome is a bramble bush in autumn adorned with its fruit, the ripe so polished a black, the unripe so bright a red. Who does not like blackberry picking?

In the case of the bramble blossom, if you venture to gather it you will find the numerous cluster of germs within the corolla. Each germ afterwards becomes a single seed enclosed in dark purple fleshy pulp, and all sit together on the receptacle which rises up in the middle of them, like a finger under a thimble or a head in a cap.

The raspberry is a brother of the blackberry, and is very like it, only the petals are hardly visible, and the fruit is more juicy and larger. In America, when a piece of ground is cleared by burning, the first thing that comes up after the fire is always a crop of wild raspberries of delicious flavour.

What is here called the American raspberry is not, however, very good to eat, and is only grown in shrubberies for the sake of its large pink flowers and handsome leaves,

which are much more agreeable than those of the bramble, or raspberry bush, which have the hooked thorns all along their main stem.

Last of all, we must give a word to the humble strawberry blossom, with its white petals and yellow stamens. It likewise has many germs, which become the little seeds on the outside of the fruit, the fruit itself being in reality the enlarged receptacle which has taken them up, off their feet, as it were, and raised them on high. The calyx, and sometimes even a stray petal, may be found below.

Hunting for wood strawberries is pleasant work, and so is the stringing them all in a row on a long piece of grass, where they look like red and white beads, the more unripe the better, as they are not quite so soft. And eating them is very pleasant too on a hot summer's day.

## CHAPTER VI

### JULY FLOWERS

#### *Butterfly Flowers*

Go into the kitchen garden, and look at the rows of peas, and tell me what you see there.

I see a number of pea plants climbing on their sticks ; there are peas upon them, some not quite filled out, and some eaten by the birds, and there are some white flowers still.

And what do you think those white flowers are most like ? I see something in the air looking very much as if one of them had taken wing and flown away. Ah ! it is a white butterfly ! Well, peas-blossom and all its company are called Papilionaceous flowers, from *Papilio*, which in Latin means butterfly ; but I am not sure that I would not rather call them boat flowers, as you will see when we come to look into them.

These white peas-blossoms are rather too useful to be gathered, so perhaps we had better go to the flower-garden, for their gayer, though less valuable sister, the sweet-pea, a Sicilian lady, who has only come to live in England within the last two hundred years.

She has but a weak, feeble, climbing stem, which

must lay hold of something ; and to give it more breadth, so that it may be firmer, it has a sort of long leaf growing on to it at each side, which is called a wing. It also has the power of putting out tendrils, or feelers, which twist about spirally, that is to say, like a corkscrew, till they find something to lay hold of, and then bind themselves on to it fast and firmly. Sometimes two tendrils make a mistake, and get hold of each other, and then they coil about and get marvellously twisted.

The leaves are in pairs at the joints of the stem, the blossoms, for the most part, grow singly on very slender footstalks, and there is good reason for the slenderness of these stalks, as you will presently see.

Each bears a calyx of one leaf, ending in five points, and if we strip off this calyx carefully, we shall see that it contains five petals, each with a little foot to fasten it to the receptacle.

The first of these petals is this handsome, deep crimson one, which looks as if it had been folded in the middle. And if you look at the bud, you will see that it was really, for this petal is doubled over the others like a curtain, before the blossom opens. Its name is the standard, because it stands up above the rest and shows its colours so boldly ; but it might also be called the sail, for it answers the purpose of one ; the wind blows it round, so that it always keeps its back to the bad weather, and serves as a shield to the delicate parts within.

Two long, narrow, purple petals project in front of the standard, and bend towards each other, so as nearly to meet ; these are the wings, folding together so as to guard the innermost part. Within them is the little boat itself, which is called the keel, and is greenish white. Is



it not beautifully shaped, the sharp ridge along the bottom, with the little beak at the end for the prow ? It is just such a boat as one might fancy the king of the fairies floating along in by moonlight, with his crimson-velvet standard serving at once for his flag and his sail.

And perhaps the queen of the fairies might sail by his side, in the pearly nautilus-like keel of the painted lady-pea, with the pink standard unfurled to the wind. However, while we are fancying all this, we are forgetting to see how our little boat is really manned, and how rich a freight it bears.

Open it gently and look into its narrow little hold. Ah ! here is a fine store of gold-dust bursting out upon our fingers ; it is a rich burthen indeed that these ten merry men bear who are gathered so close round their taller, fatter captain, with the one feather in his cap.

Very closely are the ten filaments gathered, so closely indeed that they are even united, so as to form a regular sheath round the long thick germ of the pistil. Nine of them are actually grown into one piece, but the tenth is, as you may see, in a somewhat advanced blossom, separate from the rest, so as to form a kind of seam, and the use of this is, that when the germ has received the golden pollen and begins to swell, this stamen may part from the rest, and open the sheath, so that the pistil may have full room to expand.

Could a more perfect contrivance be imagined, and are not the wonders of the peas-blossom greater than almost any others of which we have yet heard ? The germ is, as you see, long and flat, and it is already nearly of the same shape as the pod of a pea ; and as to its contents, you know them probably quite as well as I do.

All the papilionaceous flowers have legumes or pods for

fruit, and we have many valuable friends among them. Scarlet runners, or French beans, are the nearest at hand, with their beautiful red flowers, which are so bright that they would surely be grown for show even if they were of no use. The ripe seeds of the scarlet runner are beautiful things, shining black, mottled with purple ; and I have sometimes seen a little child made very happy with a long string of them threaded. They are beautiful too when grown to their full size, but not yet ripe, when they are of a rich purple crimson within their green shell.

The fragrant bean blossom has been long since over, but I daresay you can recollect its striped standard, and the fine black spots upon each of its wings ; and its broad sturdy fruit is just now in perfection for eating with its companion, bacon. Next year you must go and watch the bees gathering honey from the bean flowers. So well folded within the wings and standard is the keel that the bee cannot get in by the front, but is obliged to pierce a little hole through all the different folds with its long trunk before it can reach the juice. Sometimes you may find every flower on a bean plant thus pierced by the clever little gatherers of honey.

The broad bean is so large that it gives a very good opportunity for seeing the commencement of the growth of plants. You know it has a thick skin over it, which when you pull it off splits into two halves, only held together by a little green and white hard thing, which we call the eye.

When sown, the white part of the eye becomes the root, the green part the stem, and afterwards the rest of the plant, while the two large fleshy halves of the bean itself appear above ground as cotyledons or seed leaves,

and gather nourishment till the young plant is able to put out its own leaves, when they fall off and die.

The earlier papilionaceous flowers are very beautiful—there is the graceful, drooping laburnum in the shrubbery, of so pure and delicate a yellow, the pretty brown pencilled mark on the standard ; but it does not exceed in beauty the two wild yellow butterfly flowers. The broom, raising its graceful spires of yellow blossoms on its dark green stems, seems to drink in the sunshine of May, and reflect it back again in cheerfulness. It grows in great quantities, and to an immense size, all over the desolate moors of Brittany and Anjou, and it must have been while hunting there that Geoffrey, the father of our Henry II., used to gather it and wear it in his cap, so that its French name of Genet became part of the surname of our bold English kings. It is said that they desired that their name of Plantagenet, taken from so humble a plant, might put them in mind not to exalt themselves too highly.

And we need not despise the useful household lessons which are connected with this bright-faced plant and its plain old English name ; for the good housewife and her broom may do her duty, and be quite as valuable in her way as the Plantagenet king who took his name from the same bush ; and if the once green boughs do their office in keeping the house cheerful and pure and fresh, they well deserve to be honoured by being worn in the helmet of the crowned prince whose office it is to protect the safety and the purity of that humble home.

Our other yellow butterfly flower is the prickly gorse or furze, which wears its sweet smelling golden mantle in the spring, in such splendour that many a wild heath becomes for a time a field of the cloth of gold which would

have put King Harry the Eighth's to shame, even though his courtiers wore their whole year's income on their backs. England may be proud of its gorse, for it grows in such beauty nowhere else ; and, indeed, it is said that when Linnæus, the Swede, and the greatest naturalist that ever lived, first came to England and saw a common covered with furze in full blossom, he was so overcome that he fell down on his knees in a rapture at the sight.

The small dwarf furze is still in blossom, and will continue till the frost ; and there are, besides, all the beautiful tribe of vetches and vetchlings, the tiny crimson heath pea, the purple vetchling making bowers in the hedge, the yellow vetchling on the chalky bank, and the tiny little gray tare.

The lupins, with their many-fingered spreading leaves and tall spikes of blossom, ornament the garden, and greenhouses generally contain the little dark lotus, said to be the only black flower in existence ; but we have a much prettier lotus of our own—the birds' foot trefoil—so called from its seed pods spreading out from one centre like the claws of a bird. Pretty little dwarf thing ! it grows on sunny banks, and raises its red buds and clusters of yellow flowers in the midst of soft green moss, fragrant purple thyme, and striped eye-bright, and is one of the brightest stitches in that unequalled embroidery of the cushions of banks, on which it is so pleasant to sit in the bright days of the latter end of summer. It is sometimes called Lady's fingers, in honour of the Blessed Virgin. A large lotus grows in the Levant, and it was an old fancy that the Lotus-Eater forgot all care and was no longer subject to sorrow or death. So the lotus stood for immortality, and old painters sometimes put it into pictures of scenes after the Resurrection.

The last to be mentioned among these flowers is the clover, or trefoil, in all its many kinds. Its heads, whether of the large purple, the white, the little yellow, or the rich crimson, all consist of a multitude of small papilionaceous flowers. How gay and beautiful they are ! how bright a clover field looks in the sun, and how especially handsome is a great field of the new-fashioned scarlet clover, which people have not yet left off calling by the Latin name of *Trifolium Incarnatum*. It is curious to find in an old gardening book of fifty years ago that this scarlet clover had then been twice introduced as a garden flower, but had been lost again, whereas now it is to be seen everywhere, and in a few years will, no doubt, be wild in our hedges. This, I have no doubt, was the case with the lucerne, which was brought here from the place of that name in Switzerland, as well as with the bright red saint-foin, the name of which consists of two French words, signifying "holy hay."

The strawberry-headed trefoil has numerous short pods, that form a globe, and cause its name. The hare's-foot trefoil has very long calyx teeth that stand out beyond the pods in an oblong cluster, rather like the foot of a hare. But the subterraneous trefoil is the strangest of all, for after the blossom is over it buries its pods while they form the seed—in fact it sows itself.

Trefoil means three leaves, and you may easily see why it is so called. There is a beautiful story which explains why the shamrock or trefoil is so honoured by the Irish, and its leaves worn by them on St. Patrick's Day.

St. Patrick was a bishop, who lived about the year 450, and who preached the Gospel in Ireland. It is said that he found that the great difficulty in converting the Irish was, that they would not believe, because they could

not understand the great mystery of the Doctrine of the Holy Trinity in Unity. At last he gathered a shamrock or trefoil leaf from the ground, and, holding it up to them, asked if they could explain to him how this could be but one leaf, and yet be three separate leaves, and if they could not understand that, and yet knew it to be true, how should they refuse to believe what was so much greater, because their minds could not reach so far as to understand it.

This argument convinced the Irish, and the threefold leaf has ever since been highly valued by them ; and we often see it employed as an emblem in architecture. The limbs of crosses are often made to end in trefoils ; church windows are sometimes in the same form, and it is a shape frequently chosen for carved foliage.

So we see how in every plant God has set lessons of His Name and Nature for those who will look for them. I have read of a poor man in Brittany who was told by a wicked infidel revolutionary soldier, "We will throw down your churches ; you shall have nothing to remind you of your superstition," which was what these unhappy men called the Christian religion. "You cannot take away the stars," answered the Breton, meaning that while he had them he must still be for ever reminded of Him who made the stars.

And so even with the smallest herb that grows ; not only has their Maker created them so perfect and so lovely that we can hardly help recollecting how great, how kind, and how wise He is every time we look at them, but He has also set upon them His seal, so that we may trace out in them emblems of His Nature as revealed to us, which come to us as sweet lessons and helps, and might serve to support our faith, even if our other aids were far away.

These butterfly flowers are properly the pea tribe.

## CHAPTER VII

### AUGUST FLOWERS

#### *The Last Bells of Summer*

THE bright flush of summer is fast fading away, and though the heat is not gone, yet all the first gay bloom is past, and the time is come which is compared to middle life, when man's first hopes and early promises are fading, but when they should have begun to bring forth fruit, fruit which may not always ripen here, but will assuredly do so hereafter in the soil of which we are inheritors.

But if the spring buds, the early delights, and perhaps the friends, of youth and childhood have passed away, yet neither the year nor the life of man are left to be lonely and cheerless. Many a new bright young friend, many a quiet pleasure unknown before, many a happy and peaceful duty arise ere yet the earlier ones are gone, and early autumn has her garland of sweet flowers, the bells which brighten the last hours of summer, and, as the Germans say, ring its knell.

Yes, the bells are ringing summer's knell everywhere. The real bell flowers, the Campanulas,<sup>1</sup> began a month ago to unfold their delicate blue bells. Wherever we go

<sup>1</sup> Campanula, a little bell.

we meet them, all five-stamened, pentagonal, drooping flowers, of a peculiarly delicate texture. They have one pistil with a graceful three-cleft branched stigma, and a very hairy style. The little hairs are useful to brush the pollen out of the anthers, as the style passes through them in lengthening, and thus this fertilising dust finds its way to the stigma. The seed-vessel is a curious five-cleft purse, which splits open in the middle of each division instead of at the sides.

Peals of these *Campanula* bells are nodding on their tall stalks everywhere, the Canterbury bells in the garden, the nettle-leaved bell flower in the hedges of the south, and the tall pale blue giant bell flower in the north; the moor rings its ivy-leaved bells, so small and close to the ground; the chalk pit has its rich, dark blue clustered bell flower; and the stubble, in some fortunate places, is ornamented with a *Campanula* so beautiful that it has the name of Venus's looking-glass, since even the fabled goddess of beauty herself could not see anything so pretty as this in her own mirror; but surely if we could but hear them, the sweetest and softest tones of all must be rung out by the single bells of the dear little delicate harebell, nodding on its slim tender stalk, looking so frail that we should fancy no care could be too great to rear such an elegant thing. Yet it will bloom on through all the autumn, in the coldest and most exposed situations, brightening the waste with its modest beauty, and never leaving us till the first frost has come to nip it. So fond are the Scots of this pretty flower that decks their bleak mountains and moors, that it seems to them, wherever they see it, a symbol of home, and it has the name of "the bluebells of Scotland."

Other bells are ringing round it on the common, espe-



cially the heather bells, which I could fancy would make a sharp, quick, tinkling sound, just fit for a fairy's dinner bell ; indeed, what with their stiff hard leaves and dry chaffy corolla, you may almost ring them yourself.

The heaths have eight stamens, with purple anthers in two divisions opening like the prongs of a fork, and one pistil, the germ of which contains multitudinous little winged seeds, so small that they are not easily seen.

You will be surprised to hear that this small scrambling plant is a very good geographer, and has a particular dislike to Asia, though one would have thought it might be like the Russian empire, and not be particular whether it was all in one quarter of the world ; but no, the heath is a steady European, and though it grows in quantities all over the western side of the Ural Mountains, not one piece ever spreads to the eastern side, or is found in any part of the whole Asiatic continent. There are plenty of African and American heaths, however, and very beautiful they are, with splendid large red, yellow, or white bells, and dark thready stamens. However, Britain may be well contented with her own three sorts of heather, or more properly five sorts, but one of them is only wild in Cornwall, and the other in Ireland—why, I cannot tell.

The three are : the large cross-leaved heath, with all its pale blush-coloured bells in one cluster ; the purple heath, branching for ever, and scrambling all over the common ; and the ling, spiring up in such graceful branching forms, sometimes tall slender spikes, sometimes round garlands, sometimes little lilac trees—all so indescribably lovely that it is difficult to leave off gathering when once you begin.

These tiny heaths make more show in the world than much larger and handsomer flowers, putting us in mind

that the whole Church, and the whole nation, take their colour more from the multitude of the lowly and humble members than from the great and noted. It is the purple heath that gives the rich tint to the distant landscape, giving mountains and moors far away a fine glowing hue, through the blue haze of distance. And they are very valuable for the common uses of life, as well as beautiful to look on. A bed of fresh heather is said to be most delicious from its elastic springiness ; the dry woody stalks are bound up in bundles for burning, and a heath broom is a very useful article.

African heaths from the Cape of Good Hope are known by the name of *Epacris*, are very handsome, with long yellow or white bells tipped with scarlet, and when they are kept in hot-houses they blossom at their own season of summer, which is our winter.

## CHAPTER VIII

### SEPTEMBER FLOWERS

#### *Compound Flowers*

You have learnt by this time that there can be no perfect flower without stamens and pistils, and that no double flowers are ever found growing wild excepting now and then by what people are pleased to call a freak of nature.

However, here is a puzzle for you : no one can doubt that dandelions and thistles are wild, since no one ever takes the trouble to grow them ; and thistle down and dandelion clocks will not allow us to doubt that they both produce as much seed as, and more too, than any one wants or wishes. Moreover, where are the stamens and pistils of a daisy ?

I think you must be in a difficulty ; and now I will surprise you still more by telling you that the daisy and dandelion have in reality more stamens and pistils than any flower with which you have yet been made acquainted.

If you have a large kitchen garden, and if the gardener ever lets his artichokes run to seed, you will there have the best opportunity of seeing the structure of flowers of

this class, since the parts are so large as to be easily examined without a magnifying glass. I have a great admiration for an artichoke flower, with its crown of blue petals and pale lilac styles, of such an exquisite light bright colour; it rises up so nobly in the autumnal garden, and if gathered and brought into the house often puzzles people who would never think of seeing such a handsome thing come out of a kitchen garden.

If you can get an artichoke blossom look at it closely, and pull it to pieces as well as its very strong, hard calyx will allow you, and you will find that it is, in fact, one great head, consisting of a multitude of small flowers closely packed together on the same receptacle, within the same calyx. Each floret, or little flower, consists, you see, of one petal deeply cut. Within is one pistil, very long and slender; the five stamens are much shorter and smaller, and their anthers are united round the style just as in the violet and heartsease.

All these heads of small florets are called together Compound Flowers; and there are a great many different species, many of which come into blossom late in the year, and are now ornamenting our gardens and fields.

The calyx of most of these is composed of small leaves laid one over the other like tiles, or scales imbricated, as this is properly called. You may see this in the artichoke, though here each scale is very large, thick, and fleshy at the place where it is set into the receptacle. So you see it is the bud of the artichoke blossom which is sent up to table; the arti, as a little boy I knew used to call the eatable part, is the receptacle, and the choke consists of the young florets.

The Jerusalem artichoke is also a compound flower, though it is not related to the common artichoke, except-

ing that its root has a taste supposed to resemble that of its namesake. In both its names this vegetable seems to have made a great blunder, for it has really nothing to do with Jerusalem, and the word is only a corruption of the Italian *girar sole*, turn to the sun, it being really a species of sunflower.

Both sunflowers and Jerusalem artichokes were first found in Peru, where they were held in high esteem by the natives, who considered them as sacred to the sun, and wore their blossoms in their hair at all their great festivals.

In sunflowers much of the structure of compound flowers may easily be seen, as the florets are all of a large size ; all those in the centre, or, as it is sometimes called, the disk, perfect and regular flowers, with five united stamens and one pistil, but the large yellow ones on the outside, which at first sight might have been taken as the petals, have in fact one petal, grown to a great size, and no stamens at all. These are called the strap-shaped florets, and serve the same purpose as the corolla in simple flowers, namely, to protect the more perfect and regular ones which produce the seed.

Each seed of the sunflower kind is of a dark brown or gray, all firmly set within the calyx ; and in the case of that glorious old-fashioned flower, the large sunflower, the great circular receptacle puts me in mind of a round shield. Turkeys and poultry greatly like the oily seeds of the large sunflower, and the whole plant is very handsome, standing up high in the garden of some cottage or farmhouse, with its great broad golden blossoms as bright with their yellow rays as if they wished to grow into the likeness of the sun at which they are always looking.

For solid as is the stalk of this flower, it always turns towards the sun through his whole course. At sunrise

the blossoms are each one of them turned to the east, by noonday their bright faces are steadfastly turned to the south, the parting rays of the western sun still play upon the broad disk of the constant sunflower, and ere the morning light has dawned it has set its face to watch for the eastern glow. It is one of the brightest, clearest lessons written in God's great book of nature; for is it not thus that the Christian, through the morning, noon-day, and eventide of his life, earnestly looks up to the Sun of Righteousness in heaven, till he is transformed in His likeness, and when at length night comes upon him, is he not laid down to sleep, with his face towards the east, watching for the dawning of the brightest day?

The daisy, the bright day's eye, is a little sunflower in its own humble, quiet way, and when the sun is out of sight it folds its pink-and-white strap-shaped florets over its yellow eye, bends its head, and sleeps amid the dewy grass. All its perfect florets are not in blossom together; those at the edge come out first, and the centre ones not till the strap-shaped outer florets are often much the worse for wear. When you make a daisy chain you thrust the needle and thread through the receptacle, or disk, and the centre florets. How very grand this sounds! You think, and so do I, that it is much pleasanter to make a capital long daisy chain than to talk about it in such fine words. Daisy chains are country children's strings of pearls, the pearls of the meadow, as we may call them, for the very same word, *Margarita*, signifies at once a daisy and a pearl; and if any little Margarets read this chapter perhaps they will remember to have been sometimes called pearls, or sometimes daisies.

St. Margaret of Cortona is always drawn with a daisy in her hand, or growing near her, and in honour of her

a daisy was the device of Margaret, St. Louis's queen, as well as of our own bold, high-spirited Queen Margaret of Anjou, who does not seem to have had a right to anything so meek and lowly. There is a beautiful book of hers in the British Museum, given to her by the great Lord Talbot, with the first page ornamented with a rich border of daisies. A double daisy is one in which the strap-shaped florets have been multiplied till they exclude the perfect ones in the disk ; they are often very pretty when they are of bright crimson or snowy white ; and where is the child that is not proud of that funny thing, a hen-and-chicken daisy, in the border of a little garden bed !

The next flowers of which daisies remind us are the great bold-looking ox-eye daisies of the spring, with their clear white and bright yellow. They are sometimes called Moon Daisies, but they are not real daisies, but with their yellow brother, the corn-ox-eye, are chrysanthemums, of the same genus as the red, white, and yellow double flowers which linger on in the garden till the first frost. The corn-ox-eye sometimes makes a whole field golden, but as it is an annual we cannot reckon on finding it another year in the same place. The Chinese play fine tricks with their chrysanthemums, clipping and training them to grow in the shape of horses, deer, and sometimes even Pagodas. In England a show of these flowers is beautiful.

Nor must we quite pass September without a kindly remembrance of the sober Michaelmas-daisy, with its gray border and smiling eye, coming to stay with us through the autumn as long as ever the frost will allow it. This is an Aster or Star. There is a little sea aster very like it, and its near relations are the China and German asters that are so handsome in the autumn.

And there too, are the noble flowers called dahlias, which were first brought, small and single, from Mexico, where they were called *cocozochitl*, and truly they have improved their name as much as their beauty since their arrival in England. Single dahlias are fine handsome flowers; the double ones are certainly very fine, dark velvety puce, rich crimson and scarlet, white and lilac, regularly and exquisitely marked, and each floret quilled and folded with perfect regularity. They are some of the flowers on which gardeners most pride themselves.

But we must come back to our own hedges and ditches, where we find the strong-scented camomile flower, so useful in medicine, the lilac flea-bane, the tall golden-rod, all autumn flowers; moreover, the rude rough rag-weed, yellow, bold, and staring, and with its jagged leaves usually devoured by swarms of yellow and black caterpillars, their yellow parts of exactly the same hue as the flowers.

All these are of the same description as the daisy and sunflower, with a disk of perfect flowers and a ray of strap-shaped florets. Such also is the groundsel, though it has no ray, the very troublesome groundsel, regarded with kindness by none save the little gardeners who want a weed to pull up, or by those who have a caged canary to rejoice with twisting it into the bars of its cage. That inveterate groundsel, which will come up everywhere, is the strongest of all emblems of the ill weeds that have grown apace in the soil of our heart ever since that, as well as the ground, was made a soil to be cultivated with care and severe toil before it will bring forth aught but what is worthless. The American groundsel is a pretty purple flower with a ray, and is much grown in gardens.

There is another odd-looking flower belonging to this



order ; the small brown cud-weed with the white cottony leaves, which grows in the stubble fields in the autumn. This cud-weed has, however, some very pretty brothers ; the everlasting flowers, the calyx of which, consisting of a number of small, stiff, chaffy leaves, is not liable to fade, but both the yellow and white kinds can be kept for a long time in some dry place as a winter nosegay. I have some on my mantelpiece which were given me by a little schoolgirl more than two years ago. Sometimes we see them in wreaths in gardeners' shops, dyed of different colours, in red and blue. There is a large fine red sort too, and a large yellow one, the last of which we often see in gardens. These amaranths, or everlasting flowers, though stiff and not very graceful in themselves, are considered as the emblems of the never-fading flowers beyond the grave ; and in France and Germany it is the custom to lay garlands of them on the coffin, and often to hang fresh wreaths of them upon the graves of those who have passed into the other world. A woolly white one that grows on the Swiss mountains is called *Edelweiss*, or Noble White. Maidens like it as a gift from their lovers. A white everlasting which grows at the Cape of Good Hope is used in church decorations here. I have heard a lady say she has seen the great apes at the Cape playing at ball on the hills with these curious round blossoms.

Next we come to such flowers as, like the real artichoke, are composed entirely of equal and perfect florets. First of these is the thistle, the cursed thistle, as one sort is called, the plant which, together with the bramble, grows everywhere to remind man of his doom. And yet the thistle is a noble and beautiful flower, with its purple florets, its calyx of firm solid scales lapping over one another, and each ending in such a long, sharp, piercing

dagger, besides the numerous lesser spines which bristle up at every point like an army of spears around the soft rich purple cushion within. Every leaf too has its own spines, every joint of the stalk is well guarded, and it well deserves the motto which the Scots have given at once to it and to their kingdom—"No one can provoke me with impunity."

The thistle, with its purple cap and coronet of spines, has long been the national emblem of Scotland; the reason why is not known, though it seems to me that long ago I read a story of a Dane at the head of an invading army, who stealing in secret, barefooted, to attack the Scottish camp in the night, suddenly trod upon a thistle, and by his cry of pain put the Scots on their guard, so that the attempt at surprising them failed. But I have never been able to find the story again, and am sometimes inclined to believe I must have dreamt it. At any rate the gallant King James V. instituted the order of Knights of the Thistle, and this common wayside plant was the chosen device of the House of Stuart.

If you choose to venture your fingers in pulling a thistle to pieces, you will find the tiny purple florets with five stamens and one pistil each, and each little pistil has a long, narrow, silky white cotton wing fastened to its germ. As the flower fades these cotton wings grow larger; they fill the calyx till it seems as if it was a white silk thistle instead of a purple one, then they puff out into a handsome soft head, and at last they take flight, and these full-spread white wings go floating hither and thither on the autumn wind till at last they become fixed, and grow and multiply, alas! far too like bad habits, lightly caught and fast fixed, and too soon full of spines and thorns.

Luckily goldfinches eat a good many of these mischievous downy seeds, or I do not know what would become of us. I have seen the whole air so full of thistle-down as to look as if it was snowing, for the sluggard cannot allow the thistle to grow in his own field without damaging that of his neighbour. The great milk thistle, with the green leaves variegated with white, is the prettiest of all; there is also the dwarf stemless thistle, which looks beautiful on the chalk down, and its companion the brown one, equally small, and looking as if it was a dead flower.

The great hardworking dumbledores love to hum over the thistles and rest on the purple tuft, which makes a royal cushion for those black velvet and orange-coloured, burly, portly creatures.

If thistles are like bad habits so too are the burdocks, which stick so fast and hold so tight that it seems impossible to get rid of them, as each scale of the calyx has a little sharp pointed hook at the end. I remember once a little village boy in his play stuck his jacket over with these burs to look like the long rows of buttons on a page's jacket; I have always wondered how long he was in getting them out again.

Dandelions are of the same kind, with perfect florets and winged pistils, which make such beautiful globes that children so love to blow away and call clocks, fancying the number of puffs will give that of the hour. Or in our shops I have known them serve as mops. The curious milky juice which stains the fingers of those who make dandelion chains is of use in medicine, and the root is sometimes ground up and mixed with coffee for people in weak health. The chains, formed by joining the two ends of the hollow stem are very pretty things, and what pride to make them reach all round the garden! By the way,

the name of the flower does not mean a conceited lion, as might have been supposed, it is only a corruption of the French name *dent de lion*, a lion's tooth, from the jagged edge of the petals. The dandelion has many likenesses among the sowthistles and the pretty brimstone-coloured hawkweeds, one of which makes a still prettier round puffed head than the dandelion clock itself. Dandelion roots are very wholesome.

Though this chapter has been far too long, I must not leave off without giving one or two words to the last tribe of compound flowers, to which belong the lovely blue corn-flowers, and the hard sturdy knap-weed. These have their perfect florets in the middle, but their imperfect florets, instead of spreading out in rays, are really little flowers of exquisite form, only without the important parts.

The knap-weed is in full blossom now in all waste places; it has a beautiful imbricated calyx, fitting together with admirable closeness, like a suit of armour, each scale edged with a border of little brown hairs. It is a purple flower with a tough stem, very hard to gather. Sunwort is like a more delicate knap-weed, with leaves toothed like a saw. It grows in wet copses.

Last of all the deep blue corn-flower, with its pretty head among the wheat, and its diadem of imperfect flowers. In Germany the children of the villages sometimes wear wreaths of this beautiful flower as crowns round their flaxen heads, when all the people of the place go, according to the good old custom, to offer up their thanks in church for their safely gathered crops.

To conclude, there are three different classes of compound flowers; first, those which, like the dandelion,

have all their florets equal and perfect ; secondly, those which, like the daisy, have a ray of imperfect flowers and a disk of perfect ones ; thirdly, those which, like the knap-weed, have no ray, but a border of imperfect flowers.

## CHAPTER IX

### OCTOBER PLANTS

#### *Unseen Blossoms*

I WAS thinking what I could find to tell you about flowers, or rather about the vegetable world, in October, which to one half of the globe is the season of decay, and when the bright tints worn by the woods are only the beauty of decline, like the gay colouring of sunset. The trees do indeed wear "a sunshine of their own," but it is like the crown of glory on the head of the aged man.

I was thinking, I say, what could be said about the vegetable world in October, when I recollected a story told of one of the most learned men who ever lived. He was sitting one day upon an open common, when he laid down his hand upon a piece of turf and said that in that small space which he thus covered there grew so many wonders that their study would occupy the longest life of the greatest philosopher. So I do not think we need despair of finding something marvellous even though the time of primroses and violets has gone by.

Pray what do you consider to be the colour of a brick wall? Red, to be sure ; all red together. And a tiled

roof? Why, that is red too, only darker. Or a stone wall? That is gray, or reddish, or white, according to the colour of the stone. What can make you ask us such foolish questions? And the bricks are all alike, I suppose? Oh yes, exactly, not a bit of difference between them.

Well, there is a row of houses, all built at the same time, all with one door, and two windows downstairs, and three upstairs, all with slated roofs and chimneys, exactly the same. But do they all look just alike? Let us see. Here is one with neat white muslin blind and white curtain peeping out, and the door set open with a bar up against it, and a scrambling baby in a pink frock leaning out over, making its funny little noises at the people passing by. And the next? Here is a window with no comfortable curtains, but with great cracks, and dirty-looking bundles squeezed close up against it, as if the house was full of disorder, and at the open door you may see a child with tangled hair, and a frock of one washed-out colour, dragging a poor little baby ill-temperedly about. Or here is another very trim indeed, with bright scarlet geraniums making a blind to the downstairs windows, and wooden boxes of mignonette before the upper ones. The next looks blank and dull, and see, "To be let" is stuck up in the window. Here we have another, where the panes are very bright, and behind them there stand up oranges and curiously-cut pieces of parliament gingerbread; and in this one the upper window is open, but the curtains are drawn close, and there is a hush in the manner in which that young girl is lifting the latch of the door. There is sickness there, or perhaps it may be death. All that row of houses were alike when they were built, but are they alike now? How full of

living souls are they, and all with their own joys, their own griefs, their own sins and struggles, all unknown to us, though they are our brethren and members of the same Body, but all known perfectly and thoroughly to the Father of us all.

And if we know nothing of what is so like and so near to ourselves, how should we know anything of the hidden things of nature and of providence? They seem put there to show us how dim our eyes are, and remind us that a time may come when we shall see more clearly.

Now for the brick wall, the red wall, only it must not be a spick-and-span new wall, any more than the houses are quite new. The houses must get their inhabitants, and so must the bricks.

Well, look close at the bricks, and say whether they are all alike, or whether they are red. To begin. First, here is a cloudy sort of splotch of gray, shaded off into edges of silvery white, which looks quite pure and bright against the little dark brown bristles that rise in front of it; then comes another cloud, but this is yellow instead of white, and what a funny shape it is, something like China and Hindostan in the map, with two or three little yellow islands round it.

The brick, its neighbour, is gayer still, for the yellow is in broader streaks, and the white rises in curious little shields or crests. Besides, there is a crack in the brick, upon which there rises a small round tuft of exquisite dark soft green, like a cushion. And see here how the yellow, brown, and white are all blended in one pattern, like the veining of marble. No one can say that one brick is exactly like another when they come to look into them, any more than that there is no difference between houses.



This strange painting on bricks and stones is one of the least understood and most curious things in creation, for when I have told you that these gray and yellow clouds are lichens, you know nothing more than their name, and I have little more to tell you. Great microscopes, and minds which are microscopes in comparison with ours, have been set to work on these little things, and can only make out enough to be sure that there are still greater wonders yet to be discovered. They have not indeed leaves, stem, and blossom, like the larger vegetables, but it is not less true that they are living, growing, seed-producing plants.

As to seeing the seed, or even the parts that contain it, that is quite impossible without a very powerful magnifier. The parts containing it are very minute purses, usually ranged under the raised edge of the yellow crust, or under the white shield; each bag is full of little cells, and each cell is filled with seeds so small that not only the eye cannot see them, but the touch cannot discover them, and yet they have life within them, life which wants nothing but moisture to make it grow and lay the foundation for further and better developed life.

Floating about in the air, these imperceptible seeds settle on stone, on wood, on the bark of trees; wherever they can find a cranny, a cranny that is large enough for them, not what our eye or even our touch would call a cranny.

What they come to a good deal depends upon the substance upon which they grow, for the bounds between the different species have not been clearly made out. These gray-and-white ones are called liverworts; there are, besides, the gray crusty ones, which give the hoary

appearance to the bark of the old oak tree, and the long gray branching one that hangs down stiff and crackling from the boughs, a sort of winter foliage; its purses are in little globes at the end of each branch, and it is properly called lungwort. It is the liverwort and the lungwort that are so useful to the little birds in building their nests; the neat goldfinch and chaffinch work them in with moss and hair and gossamer cobwebs, like little felt-makers, and the clever long-tailed tit covers her dome-shaped nursery with them, so as to make it so like in colour to the gray branches around, that it may have a good chance of escaping the view of the thievish mouse and magpie, or still more thievish birds'-nesting boy.

In the midst of the heath grows a wiry, white-branched lichen, the same which in Lapland is called reindeer moss, and which those useful creatures dig out far beneath the snow. If you are very fortunate you may perhaps find the beautiful cup lichen, which raises among its crisp gray curling leaves a little cup like a fairy's wineglass, edged with crimson spots. Or there is an odd brownish gray one with branches and a marbled pattern, which the Canadians call *tripe de roche*, and which served Sir John Franklin and his companions for food in their great distress during their journey of discovery in North America.

I said the lichens prepared the way for other vegetation, and it is by their decay they become a sort of mould, into which mosses and all the mushroom tribe may insert their tiny roots. The brown bristles upon our bricks are the beginning of moss, and the green tuft is a collection of small plants of moss, each perfectly arranged, like the plants of larger organisation.

See, each little moss plant has a number of exquisite

thready green leaves spreading out round its taper thread of a stem, like the perfect model of a lily plant, but the stem, instead of ending in blossoms, has a sort of brown cap or purse at the summit, sometimes round, sometimes peaked, sometimes brown, and sometimes green. Under this cap is a purse with invisible seeds. The cap either splits at the side or falls off, and everywhere do these seeds grow in beds containing myriads of tiny perfect moss trees at the root of the oak or the beech, in the crannies between tile and tile, along the borders of neglected walks, on the sides of rocks, wherever they can find the modicum of nourishment which they need for their little spark of life.

Though mosses are so common, people have been content to call all the kinds moss, without finding English names for the different sorts; but perhaps you will think it as well to be able to tell one from the other, so I will mention one or two Latin names.

There is one graceful, soft, bright light green kind, like a fern leaf, twice pinnate, and its shape too elegant to describe, growing on banks and under the roots of trees, the moss we chiefly delight in, and can pull out in soft springy handfuls, for the making of moss-baskets, the packing of flowers, or the filling of *beaupots* with snowdrops and hepaticas reposing on the green bed. What a fresh smell comes with it! of pure earth, as we pull it out from the great green cushion where it grows, and where we could hardly make a hole, pull away as much as we will. I rather think this moss is that most in esteem for lining the cradle of the wren and hedge-sparrow, though they don't call it by the name I must give you for it—the proliferous *Hypnum*, proliferous, because it grows in such quantities. Its long threadlike

stalks wear a pointed nightcap, like that of the *Elaeagnus*, like it splitting at the side when it falls off. Another, which creeps in long scaly light green lines about the roots of trees is the meadow *Hypnum*, and its likeness growing on walls the silken *Hypnum*.

The *Bryum* moss is not creeping like the *Hypnum*, but rather in little separate plants, growing as close together as possible, as thick as they can stick.

I have just pulled a little tuft off a brick in the churchyard wall, so small I could hardly carry it home, and yet containing no less than eleven perfect plants, their brown stalks as slender as a fly's leg, supporting little green urns covered by long pointed caps nearly half off, and clusters of the smallest green leaves imaginable round the root. All this I have seen without a glass, and so may you any day. I believe this is the bearded *Bryum*, but I will not make sure. One of these morsels of plants grows in quantities all over the walls of Jerusalem, and some have thought it might be the plant meant when we hear Solomon speak of herbs from the hyssop that groweth out of the wall up to the cedar of Lebanon. The swan's-neck *Bryum* is dark green, growing in bogs: a dark moist plant it is, with more root than usual with mosses, bringing up quantities of wet mud with it, and generally where you see it looking smooth and cushiony is the most quaking place; the swan's-neck wants so little soil that it covers the loosest of all the mud, and if you set your foot on it a splash, and a leg painted with black peat, is sure to be the consequence. I fancy the green scaly moss of our woods is another *Bryum*, but I am not sure.

Club mosses also grow in bogs, they crawl about in long imbricated stems, that is, stems made of leaves fitting

one into the other, and have their capsules in large round brown heads at the end of the stems. They are called fox-tails, and always put me in mind of the fresh air of the mountains. These, like the swan's-neck, prepare the way for turning wet marsh into firm ground, for they begin to bind it and make it less watery, and in time fit to bear more useful plants. The unseen blossoms seem meant to prepare the way for others—the lichens.

The lichen is the last vestige of vegetable life, and also the first. Even in the arctic regions it contrives to grow upon the snow, and to cover it with a field of dazzling crimson, which has often amazed the northern traveller; it is the first upon the rock, the first to find out that man's hand is neglecting the constant rubbing and care that alone can keep off these most subtle and minute of created things. On the lichen feeds the moss; in the soft damp nests formed by decaying moss other seeds germinate; the chickweed, the tiny speedwell, the stone crop, insert their roots and find nourishment till nature, or rather nature's Master, has brought life out of death, beauty and vigour out of rottenness and decay.

Nay, perhaps to speak more truly, it is flesh alone that really corrupts; in the vegetable world, which partakes not equally of our doom of sin, decay is not so much real decay as a change of life. Before the last leaves have died away on the aged oak the rotten wood has become a whole garden of green flourishing plants, gathering round it, embracing it, and rendering its last years as lovely, though not perhaps as noble, as its prime.

## CHAPTER X

### NOVEMBER PLANTS

#### *Ferns*

WE must still keep to the flowerless plants, and there are many of them which are exceedingly beautiful and full of interest.

First of these are the ferns, pretty green waving plants, which seem to be all leaf and nothing else ; but these leaves, as they are commonly called, have not the same properties as those of the plants whose structure is visible, and botanists therefore named them fronds. Look under some high hedge or sheltered bank, and there you will find a profusion of long dark green shining leaves of a very firm leathery texture and with tough black stalks. This is the fern called hart's-tongue, and it is at this time in full blossom, if the brown seed-cases which it possesses may be called blossoms.

See here, on the under side of the leaf or frond, are a number of pale, brown, raised ridges, ranged with the utmost regularity along the veins of the frond, a long one and a short one alternately, and the brown colour contrasting very prettily with the green of the leaf. These brown ridges are cases ; after a time they swell and burst,

disclosing a number of very tiny, round grains, which perhaps you might think were the seeds, but no such thing, they are only the purses that the seeds are in ; and if we could look at them with such magnifying eyes as the dragon-fly wears we should see that they are shaped a good deal like an ancient helmet, and that they contain a multitude of seeds smaller and finer than dust. If you want a multiplication sum, you may find out how many seeds one hart's-tongue plant might bear in a year, reckoning each purse to contain fifty seeds, each ridge four thousand five hundred purses, each frond eighty ridges, and each root to produce twelve fronds ! I only wonder what becomes of all that do not grow, and why the world is not one wood of hart's-tongue.

So small are the seeds that gathering them is a proverb for what is impossible ; and, as we tell little children that if they can put salt on a bird's tail they can catch it, so it is another saying that by gathering fern seed you may make yourself invisible, both being what nobody has ever done.

The scaly hart's-tongue grows on old walls ; its fronds are small and short, thickly covered with brown scales at the back, and of a curious zigzag form. They shrivel up to nothing without moisture, but spread out, broad and polished, as soon as a shower has refreshed them.

The handsomest kind of English fern is the tall flowering fern which our Saxon ancestors named Osmond, after one of the titles of Thor, their god of thunder. Perhaps it raised its high, firm, royal-looking fronds round his rude stone altars out far away on the moorland wastes, for it is chiefly found growing on the damp, boggy, stony moors, which seem to act like sponges to catch the water of the clouds and disperse it in streams and rivers from among the hills.

Though it is called the flowering fern the brown, granular appearance which forms a spike at the top of the frond is not really the blossom, it is only formed by the edges of the leaflets being curled in over the almost invisible ridge of purses.

In the gnarled heads of old pollards, in crevices of stone walls, or on the sides of quarries, you may often see the polypody, its green frond deeply divided into leaflets, the centre of those on one side coming just opposite to the division of those on the other. Here the purses are collected together in little round golden dots ranged regularly along the back of the leaflets. I like the polypody, in spite of its ugly, half Greek, half English name, which means many feet; it is one of those cheerful, humble things that seems to have a kindness for what is venerable and excellent even in decay. It hangs round the aged hollow tree, and feathers up the broken arch of the ruined chapel, through autumn and winter, just as we should cheerfully, though soberly, hold fast to the old bulwarks of our faith and of our law, and do our best to adorn them by our adherence, though some may tell us that their bright summer day is gone and past and there are only winter storms to come.

Another fern which loves to deck the ruined wall, and which I first learnt to know among the old tombstones in the churchyard, is the black maiden-hair, a pretty little plant, its stalk jet black and tough as wire, the round leaflets arranged in pairs, with clusters of little black purses in round dots upon their backs. The roots, too, are very hard and black, and squeeze in perfectly flat between stones and bricks in the most determined way.

The black spleenwort and rue-leaved spleenwort are also often to be found with fronds of a very pretty



shape, and the blossoms spread over the back in elegant patterns.

Another kind, the sea spleenwort, grows in hollows of rocks refreshed by the sea breeze; but the most elegant of all the race of spleenwort is the queen of ferns, the exquisite lady-fern. Her frond is tall and slender, delicately green, and beautifully cut into little scalloped and pointed side wings with brown spots of fruit at the back. My Lady-Fern is too choice and elegant to be very common; her bower is usually the shady, rocky woodland glen, under old gnarled trees, and by the side of rushing streams, and so tender is she, that it is nearly impossible to gather and carry her home without her withering.

“ Where the copsewood is the greenest,  
Where the fountains glisten sheenest,  
Where the morning dew lies longest,  
There the lady-fern grows strongest.”

Worthy to be handmaids to this dainty lady are the far more common, though scarcely less graceful, shield-ferns, so called because they have a tiny brown shield which shuts over the assemblage of small helmets in their multitudinous little dots of blossom. In early spring we see them on the sides of dry banks or under hedges, pushing up their fronds, doubled in half, folded up tight, and covered with brown hair, looking like some rough caterpillar. As they grow on the fronds, with their lower part unfolded and the upper rolled up in a graceful spiral line, they put us in mind of a shepherd's crook, or still more of a bishop's pastoral staff. And when they unfold how beautiful they are! That long, gracefully swelling, bending, tapering, plummy form, like the feather in some royal cap of state, so fair in the outline of the whole, and still

lovelier when examined closely, little plumes parting out on each side of the stalk, and each of these bearing such beautifully cut little leaflets, so regular in their irregularity, each with one lobe pointed and another swelling, and a little sharp peak at the end of each. No one that has not tried can tell the pleasure there is in searching out the beauty of forms of one piece of shield-fern, and though all have this general character, yet they are so infinitely varied that you will hardly find three plants which have their leaflets exactly of the same shape. One is only inclined to ask, "How can things be so beautiful?" And look at the whole plant, with some fronds standing up straight, some bending over and showing the little brown specks of fructification, the shepherd's crooks unfolding themselves, and the rough caterpillars round the root, all spreading out on some sweet shady spring bank, and perhaps feathering over a bunch of primroses or of violets. Yes, honour to the shield-fern, in its quiet hedgerow nest, with the glowworm sheltering under its wavy bower, and the robin and linnet nestling in the long grass behind its screen; it is one of those beauteous things that most aid to make spring fair and lovely and yet are least regarded.

Honour too, to the brake or bracken in its woodland or moorland haunt, spreading its wings like branched fronds on their tall stems, the covert where the timid fawn lies watching for its mother, and where the gray rabbit sits with its broad ears and large eyes turned heedfully about to watch for the first token of danger. It is difficult to find the seed-bearing part of the brake, as it is not, as usual, in dots at the back of the frond, but the margin of the leaf is turned over like a hem, and the purses are packed safely away under this protecting edge.

Its Latin name means the eagle-fern, perhaps because it is like the outspread wing of an eagle, but it is also said to be because, cut the stalk in two where you will, you may always find a dark mark in the shape of a spread eagle, or as some say, of an oak tree.

It grows to a great height in damp woody places, but is short and small on open commons, and as it turns brown early in the year, before the heather and dwarf-furze are in blossom, its brown tints blend with their purple and yellow, and give a beautiful colouring to the sides of mountains. I remember once seeing one of the hills on the north coast of Somersetshire, early in August, in the full glow of the heath and furze blossom contrasting and mixing with the brown brake, and with a rainbow standing across it, so that the colours of the hill, seen through the rainbow tints, were indescribably beautiful, and like nothing I have ever seen except those many-coloured specimens of copper ore called by collectors peacock ores.

The bracken is the most useful of all the British ferns; it is used as litter for cattle, and as its ashes contain a good deal of potash, they are used in making glass. In the Forest of Deane these ashes are rolled up in balls with clay, and serve for home-made soap.

There is a very curious autumn fern called *blechnum*, or hard-fern, which has two sorts of fronds, one bearing blossom, the other, as far as we can see, useless. It grows in the same kind of places as the hart's-tongue; the barren leaves are broad and only moderately scalloped at the edges, the fertile ones, the very skeletons of leaves, almost all the green cut away, looking as if it had been eaten by caterpillars, tall, thin, starved, and curly, both together very much like the monsters that little boys

sometimes draw on their slates to represent Englishmen and Frenchmen, one all breadth and strength and solidity, the other tapered and cut away to nothing.

The adders-tongue has its fertile parts also on a separate leaf, which is long and narrow, but this grows in wet boggy places, and is not very common, so that I doubt whether you will be able to find it.

The rock-brake, or mountain parsley, is a very pretty kind, which grows on the gray stone walls, on the Cumberland and Westmoreland hills; the barren leaves are very elegantly cut, like parsley, and the fertile ones small and covered at the back with a pattern of pale brown.

The best place for seeing ferns is in rocky woods, near streams, for though they do grow in hedgerows and woods in more fertile places, it is by no means as well, or as luxuriantly. Their proper home is on the rugged side of some steep bank of rock, nodding over some clear, dashing mountain stream, which keeps them ever damp with its spray, hanging almost into the waterfall, and clinging to huge bare stones which the foot of man has never trod. High up the hart's-tongue stretches out its tall clusters of dark shining leaves, contrasting with the sober rock; on the bank the Osmond raises its high and royal head; the polypody and the little black maiden-hair creep about in the crevices of the ivy and moss-grown stones; while between them, and in their clefts and crannies, the lady-fern, and all her shield-bearing attendants, are feathering themselves up in the pride of their beauty, rejoicing in the pure fresh air and delicious shade. It is a strange and solemn thought that there is so much wondrous beauty in this world that man neither sees nor regards. It makes us wonder whether the angels see it

and marvel at our carelessness of the fair gifts which have been bestowed on us.

On the opposite side of the world ferns are more important than they are here, and in South America they are actual trees, hardly to be distinguished in the appearance of their foliage from palm trees themselves; but these wonderful tree ferns seem peculiar to that strange half of the world, where everything is contrary to what we see it here. The fern root was once the chief food of the natives of New Zealand.

Yet ferns and mosses, and those odd creeping things—club mosses, which we find in peaty bogs, have done wonders for us here, and things which we can by no means understand.

Peat, as those see for themselves who are used to a peat fire, who have helped to pile up the stacks to dry, and who think a wood or coal fire far less agreeable, consists of decayed moss and other vegetable matter, apparently matted and pressed together. So it is in the great Irish bogs, which the people love so well, that they say that the finest country looks lone and cold without a bit of a bog in it.

Far down this peat is black and hard, and it is believed by geologists that, from having been subjected to very hard pressure as well as to the action of fire, it has in the course of thousands of years become coal! There is a marvellous notion! but what makes it seem to be true, and what indeed probably put it into the heads of these searchers into the hidden things of the earth is, that it is not uncommon to find impressed upon the surface of a piece of coal the exact form of a fern leaf, or of a piece of some large moss like the print of a seal. I remember when I used to have a great desire to find one of these

fern leaf pieces, and being once caught in the coal-hole in the midst of a search ; but I never found one, and I would not recommend you to follow my example, as I believe the colliers always pick out these pieces and sell them as curiosities ; but if you ever meet with a collection of minerals you will probably see one of these curious impressions.

What makes it still more wonderful is that the ferns are not such as grow in England, but are of the large handsome kinds which are now only seen growing in tropical countries, so that it is thought this part of the globe must once have been much hotter than at present. Or rather, we may perceive how very little we know about the matter at all, and that every fresh thing we learn is but like a window opening to show an immense field far beyond, in every direction, which we can never explore thoroughly.

“Canst thou by searching find out God ?” Searching to the utmost will not enable us to find out the nearest of His works, and yet He, the Maker of all, has made us know more of Himself than all our searching can find out respecting one of the golden dots on a fern leaf.

## CHAPTER XI

### DECEMBER FLOWERS

#### *Christmas Evergreens*

DECEMBER is come, and Advent with it, warning us to look forward to Christmas, with all its mixture of solemn and joyful thoughts, of seriousness and mirth.

And as the animal world had its share in the joy of the first Christmas season, when the ox and the ass welcomed their Maker as their guest in their cavernd stable, when he first was despised and rejected of men, so the vegetable world of creation has had its invitation to join with Christians in the bright greetings of His coming year by year. "The glory of Lebanon shall come unto me, the fir tree, the pine tree, and the box together, to beautify the place of my sanctuary ; and I will make the place of my feet glorious."

Many a tree does its part in making the sanctuary glorious with carved work : the cedar in southern countries, and the oak in our own, have especially this honour, but this is with their solid wood, the beam and the timber. In the southern hemisphere, where of course the same Christmas as ours is kept, but where the 25th of December is a long, bright summer's day, like what St. John the

Baptist's is here, there are wreaths of gay flowers to dress the churches; and in flowery Mexico the whole space round the altar is a very wood of fragrant orange trees and roses.

We so prize and love our plant of sacred joy that its winter title is Christmas, and at all times it is known as holly, or holy, a little altered, just as holy-day has become changed into holiday. For its proper name is holm, and some people make the distinction of calling that holm which has no berries.

Who does not know the pleasure of setting out on Christmas Eve with knife and basket to bring home the bright prickly boughs, the choosing and picking, the jumping and climbing for the best pieces, with the thickest necklaces of coral beads wound round and round them? But mind one thing on this merry expedition, do not break and tear the trees, do as you would if their master was looking at you, for remember it is no way of doing God honour to take what is not lawfully permitted.

What pleasure in carrying it home! admiring at every step the thick clustered berries, and the dark glossy leaves, so pinched up and tapered off into their strong solid spines; what pleasure in showing it to mother, and in sticking it wherever it will go, over the fire-place, everywhere about the dresser, and especially in the window, to peep out, as it were, to say to every passer-by, "Christmas! Christmas is come!" Is it not a Christmas carol in itself?

Then there is the taking it to school, and hoping that the mistress has not had more brought to her already than will cover all the bonnet pegs. Where the bonnets are to go nobody knows or cares just at present, places for holly are all that is wanted. Then there is the sending



it into the next town, for some sister or cousin or aunt who cannot get any holly for herself and would hardly know Christmas without it. And perhaps some children who read this chapter may have a greater pleasure still ; perhaps they may have been chosen to help in the solemn work of beautifying the place of the sanctuary, of dressing the church with the beautiful green boughs. Highly honoured children, take care ; remember that this is work fit for angels, and that those who share in it should be as like angels as they may while still dwelling upon earth.

You too, who are not called on to take part in this work, remember that you in your own places may still be beautifying the sanctuary, growing up as the young plants, and bearing fruits of righteousness, fit for the holy trees which the Lord hath planted in His own garden to form His crown of rejoicing at the last day.

Those thorns and red berries have a very solemn meaning, for they are to remind us of our blessed Lord's crown of thorns, and of the thick, heavy drops of precious Blood that He shed for our sake, for had not those drops been poured out Christmas would have had no joy or mirth for us. They must remind us, too, as I said before, of the fruits which are required from us, of the suffering that comes before glory, and of the hedge of thorns and pricks which meets the sinful man. Noble tree, how many deep lessons, and how much of cheerfulness, has our Maker implanted in it !

One more lesson still, for you may observe in an old holly bush, growing in a good damp soil, never clipped, and not liable to be eaten by cattle, that the leaves, especially near the top, cease to arm themselves with prickles, and only have one sharp dart at the point. So if we have any sharpness or evil tempers in our youth,

we must, as we grow older and nearer heaven, smooth them gradually away,

“Till the smooth temper of our age should be  
Like the high leaves upon the holly tree.”

The holly tree blossoms about May, and has a small white flower in clusters round the little boughs, with four stamens and four pistils, very short and all joined together. These four pistils become four seeds, each with a separate cell, within the scarlet jacket of the berry. A young holly plant is very pretty when it first comes up, with a very small brown leaf on each side of the little stem, with all their little spears standing boldly out on all sides still too soft to prick at all.

Sometimes holly is found with yellow berries, and sometimes the leaves are variegated, with a white trimming all round the leaf. These are prettiest at the time of the midsummer shoot, when the young white leaves are quite pink. Or there is a variegated sort in shrubberies, with the whole surface of the leaf bristling with little spines like a sea-porcupine.

After all, none of these new fashions are equal to the noble old holly tree, rising up with the dark green leaves so proudly in the midst of the heathy wood, casting such a shade around, and affording such a shelter close to the trunk. Or a tall, clipped holly hedge, a very wall for closeness, far higher than garden wall ever was built, and giving one a notion of breadth, firmness, shelter, and resoluteness in defending its master's property.

The most famous holly hedge that ever existed was at Says Court, the house of Mr. Evelyn, a very excellent man, who lived in the time of Charles II., and who delighted in trees with all his heart. His hedge had a

great misfortune, for when the Emperor Peter the Great of Russia came to England to learn shipbuilding Mr. Evelyn was desired to lend him his house at Says Court, and Peter, who had not learnt in his own country to take much care of other people's property, not only put the house in great disorder and spoilt the furniture, but chose for his favourite amusement to be driven in a wheelbarrow through the midst of the famous holly hedge. I wonder why he could have chosen such a sport? Perhaps it was for the sake of mischief, or perhaps it put him in mind of storming a town, for I am sure it must have been almost as disagreeable. People will do things for play at which they would grumble finely if they were obliged to do them.

The holly tree has kept us a long time, and we must go on to its companion evergreens. I believe the reason evergreens do not lose their leaves in autumn is, that the sap does not cease to flow into the foot-stalks till the next summer, after the young leaves have budded forth, so that the stems are never left bare. You may observe, too, how thick and leathery is the texture of the holly leaf, so thick that the ribs are hardly visible, but seem covered with a double case, the dark green upper skin and the pale green lining. The ribs, though they appear so little, are very firm and strong, and survive all the rest of the leaf, as does the hard horny border which edges the leaf and forms the spines. You may see the form in the skeletons of last year's leaves under the holly tree.

Mistletoe, curious thing, is the next companion of holly. As to its name, that is a difficult question. Missel is said to mean to soil, and the plant to be so called because its berries soil the claws of the missel-thrushes; but then,

on the other hand, those learned in birds say that the thrush is so called because it soils its toes with the berries, and so I suppose the missel-toe and missel-thrushes must settle as they can which is the original owner of the name.

Mistletoe has come to a Christian use at last, though every one who has read a page of English history knows what a part it used to play in the old days of the Druids. I daresay you are tired of the old story of the Archdruid climbing up the oak tree with his golden knife, and the others catching the mistletoe in the white cloth below. The chief wonder is where they found it on an oak tree, for in all England in these days there is only one piece known to be so growing. Did they use it all up, or was it only its rarity that made it so precious?

In our days it grows on thorns and apple trees, serving them instead of their own leaves in winter, on poplars and limes, and on many other kinds of trees. It roots itself in their branches, and feeds on their sap instead of drawing its own from the earth. Plants growing in this manner are called parasites. It has a bushy stem, often forked, of the same pale, yellowish green, or greenish yellow, as the round hard leaves. The blossoms are of the same colour, and the stamens and pistils not only grow in different flowers, but on different plants; some plants having four stamens in each of their blossoms, and others two pistils in each of theirs. This explains why some pieces of mistletoe have no berries, since, as you know, stamens can never become seeds. The berries are white, about the size of a currant, and contain two seeds, in the midst of a quantity of very sticky pulp.

In some places the beautiful fruit of the skewerwood, or spindle tree, is used with the holly and mistletoe. It is

extremely pretty, consisting of five round, pink purses, all joined together in the middle, and with a cleft in the centre of each side, which opens and shows a seed enclosed in a brilliant dark orange, wrinkled skin, contrasting with the bright pink outside. Though pink and orange certainly would look frightful together in our bad imitated painting, yet in nature's own exquisite colouring nothing can be more lovely. The blossom is nothing like so pretty as the fruit, it is small and green, and belongs to the great order of pentagon flowers, as indeed might be guessed from the five-cleft form of its beautiful purses. The leaf is not evergreen, and has long ago departed; the wood is very hard, and is used for spindles and skewers.

Now for ivy, graceful ivy, with its dark green leaves of such multitudes of different forms. Only try to find two plants with their leaves alike. Some have three points, some again five, spreading out like fingers; some even seven, with perhaps a little excrescence on each side close to the stalk, as if it wanted to grow out into two more; some have obtuse angles, and a broad space of leaf; others have long pointed fingers cut away into peaks, flounced and furbelowed here and there. If the ivy plant is sick, or has got into poor ground, it does not wither and pine, not it, but it paints its face gayer than ever, and comes out in some new freak, either with bright red leaves and yellow veins or with yellow leaves and red veins; not a pining green and yellow melancholy, but all glowing and gay, as if resolved to put a good face on the matter and not own that it is uncomfortable. It is just in the same way that it tries to persuade the trees that they are leafy and green instead of being old and dry and dead. It is a pleasant thing to make a collection

of ivy leaves of different forms. A cheerful thing it is, winter and summer, all alike, catching the light on its dark glistening leaves, so that they glance like a stream of white sunshine all down the trunk of the tree.

In every shady place the ivy will grow; the beech tree is the only one which does not foster it. It creeps along the ground, stretching out long green feelers, with tender little leaves, till it finds a tree or a wall to fasten itself upon. Its fastenings are very curious; they are little, soft, short fibres, like a caterpillar's feet, or like a short, rough beard. They are not roots, for the ivy has its own root in the ground, and lives on its own resources, instead of sucking the sap of the tree, though perhaps they may imbibe the moisture of the rain and dew. As the ivy grows older the lower stems become actually wood, bark without and yellow solid wood within, sometimes growing so large that boxes, and even a small work-table, have been made of them. These large woody stems generally cease to have fibres, though I have seen one so thickly overgrown with them, close, rough, and brown, that it looked like some shaggy animal climbing up the tree. It is the creeping, clinging shoots that bear the curiously-lobed leaves which never have any blossoms. It is not till they have reached the top of the wall, or the large branches of the tree, and have established a good hold on them, that they begin to throw out branches, bending downwards, without beards, and with leaves heart-shaped, or round, instead of peaked and fingered, only resembling the lower ones in the dark colour, solid texture, and the numerous principal veins, all rising at once from the long footstalk.

At the end of these upper branches there form, towards the autumn, round heads of blossoms, each upon a little

green stalk with a tiny calyx of five black teeth, supporting five small green, spreading petals, within which grow five stamens, surrounding a round yellow germ, which bears a short style and no stigma.

As the blossom of the ivy does not come out till October the black berries are hardly ripe till after Christmas ; they hang on for a long time, and are the great storehouse of the birds in the spring, when all the autumn berries are gone.

This bushy, tangled, blossoming, round-leaved part of the ivy is indeed precious to the birds, for it is their winter dwelling-house as well as their granary. Hear what a chirping and scolding of sparrows proceeds from it, as if all the rogues were chattering at once, like a set of idle children ; and here they come, tumbling out, flapping their wings, rolling about in the air, screaming and chattering, far too angry to think where they are going till suddenly they find themselves falling, they put their wings to their right use, perch on some tree, cock up their tails, give a self-satisfied twitter, and there is an end of the quarrel.

How often the blackbird comes rushing out, in a terrible fright, giving a loud screaming twit, twit, twit, just as if for the sake, foolish fellow, of telling where his nest with the green muddy-looking eggs is to be found. What a notion of snugness, and dignified great eyes, perfectly at home, is conveyed by the saying, "An owl in an ivy bush !" And how many children are there who do not love the very brown back of that charming book which begins, "In a hole, which time had made, in a wall, covered with ivy, a pair of redbreasts had built their nest," and who look at every ivied wall as the home of Robin, Dicky, Flapsy, and Pecksy ?

Old ruins are the especial place for ivy, which hangs over the wall, trying to shroud and cheer its decay, stretching its delicate young shoots gracefully along the shafts and columns, as if to cover them with those exquisite mouldings and forms of nature which put to shame the best that man can accomplish.

Another of our pretty Christmas berries is the knee-holm or butcher's-broom, a low plant which grows on heaths. It has a dark green-branched stem, bearing a number of egg-shaped evergreen leaves, each terminating in a very sharp prickle. On these leaves are perched the very small green blossoms, stemless, and sitting on the leaves. Some plants have three-stamened flowers, others flowers with a single pistil, which by the winter becomes a large round berry, of a beautiful waxen-looking red, sitting in great dignity on its dark pointed leaf.



## CHAPTER XII

### JANUARY PLANTS

#### *Needle Trees*

HERE we come to our walls and ramparts ; I do not mean the wooden walls of old England, but the ramparts of the whole world, against a very sharp-cutting enemy, who wears a beautiful thick white sparkling coat, brings with him a quantity of sharp little spears and diamond weapons, and perhaps this very New Year's Day may be driving pins and needles into your fingers and toes, and pinching your nose till it is fast turning into a purple button, to say nothing of heaving carrots and turnips out of the ground with fairy levers, of splitting lumps of chalk into flakes, and of spreading a marble surface over the pond.

Ah, you know now that I mean the gentleman whom the ancients used to call boreas, or north wind, but whom we know by the less grand and more homely name of Jack Frost !

After all we hardly like to call Jack Frost an enemy when he comes so pleasantly to clear away the dark heavy mist, clean up the muddy roads, brighten everything, spread his beautiful tracery on the window-pane, and make such delightful slides on all the pools. Yes, he is a

pleasant visitor for well-clothed, healthy, active people ; but that is thanks to these ramparts, these guards which I spoke of, who let no more of his battalions come through them than is good for us, but stand boldly up to keep him out with a close phalanx of spear points as sharp as his own.

Between the rest of the world and Jack Frost's domains, whether in his own especial kingdom, the North Pole, or in his scattered fortresses, the mountain tops, where he has reigned alone since the beginning of the world, there stands a whole army of warriors, their tall, straight, lofty heads pointing up to the sky, their many arms bending round on all sides, and bearing more spears and spikes and daggers than ever the hundred-armed giant we hear of in old fables.

Countless are those tall, slender guards, in their garments of dark green and silver ; bold, honest, and true they are, scarce bending their heads to many a fierce wild attack and storm of their besieger, General Frost, and though not exactly "each stepping where his comrade stood," yet if one does crash and give way beneath some sudden blast or some lightning-bolt, holding him up and supporting him for years upon years on their strong faithful arms, even perhaps till his sons have grown old enough to take his place in the ranks.

They bear the whole weight of the tremendous avalanche of the Swiss mountain, and by their multitude and firmness stop it from descending upon the village and crushing house and inhabitant beneath it ; and they may well guard the house, for they themselves have a large share in its building. Nay, even though cut down and carried far from their native homes, they guard our thresholds and support our roofs still.

Has this been a long riddle, and have you not found out who these brave defenders are? Well, I will help you to their name. At their head there is the stately and highly-honoured cedar; the Himalayan sentinels, who wear scaly green armour, are called *Araucaria Imbricata*; the main body of warriors in America, Norway, and Switzerland are the pines; and where we see them in comparatively fewer numbers, where they are less needed, we call them firs. It is said that in Florence, where these shields from the cold blasts of the Apennines have been cut down, it has become so much colder that many tender plants have ceased to grow there.

We have very little idea, from such as we see here, whether singly or in plantations, of what the real grenadier guards are, the great pine forests of America and Norway, with their dark depths and solemn stillness; indeed, we are so far removed from the enemy's borders that Providence has not made one pine native to England, and there is only one British sort, namely, the Scottish fir.

However, we see enough of them in plantations to perceive how beautifully they are constructed for their object. Look at the silver fir, the commonest kind, a Norwegian species, and see its tall spring head, growing by straight shoots, one perpendicular, the others, perhaps three in number, spreading out in different directions, all slight, and with their dark needle-leaves following their direction, and keeping to them, close and snug, so as to afford no opportunity to the wind to get hold of them and tear them off.

If the fir was not evergreen it would not so keep back the forces of winter; if its leaves were broader, like those of the laurel, they would flutter in the wind and be torn

off; if its head was not so tapering so as to be yielding towards the top, it could never bear the force of the storm, but would break short off. Therefore each successive year, as it puts out the one upper shoot, it strengthens all those that grow beneath it, and each tier of branches also put out a star of shoots at their extremities, so that it is thicker and stronger in the lower part.

It is likely, too, that these lower branches will have a considerable weight of snow to bear, since they do not let it fall through them like the leafless boughs of deciduous shrubs. Therefore—but this you can only see in a very large fir tree, such as we do not often find here—they grow in a graceful bending form, sweeping down from the main stem, spreading out backs ridged like the roof of a house, and arched to give them strength to bear the snow, always tapering downwards so as to let it fall off gradually, and thereby avoiding being crushed under it. The wood, too, is extremely hard in these branches, as any carpenter or woodman will tell you, and yet such is the weight of these long sweeping bows that comparatively a slight blow on the upper part near the trunk will snap them off.

The fir tree, too, takes considerable care of its seeds, since they have to grow up in such inclement places. Its blossoms are maturing from the autumn in little round scaly buds, which old Evelyn calls “their winter lodge;” in summer these buds expand, the barren ones into a sort of catkin covered with very yellow pollen, the fertile into a little delicate soft fir-cone, consisting of a succession of scales, fitting beautifully one into the other, and wedged into the very bottom of these scales are two very small seeds, they can hardly be called pistils, as they have no style and scarcely any stigma. The scales only open themselves

for a little while, just to let in the pollen ; as soon as that is done they shut themselves close up again, like a box, over the little seeds, and there the cones hang on the under side of the branch in pairs, firm compact things, a fortification in themselves, each scale serving to guard not only its own charge of twin seeds, but those of all the rest, for one scale of a fir-cone cannot be pulled off without spoiling the appearance of the whole cone.

The Scottish fir, and some others, have scales which are actually little wedges of solid wood, which are not easy to pull apart till the seed is ripe, when they fall down and open of themselves. The Weymouth pine and silver fir have perhaps the nicest cones, long and narrow, with even brown scales, fitting one over another like armour, and ranged in a spiral winding line, not in rings, but each single scale growing a little higher than the last. They are the pleasantest to pick up, and look prettiest when burning, when the main part of the cone is black and every scale has a flame-coloured border, and then it goes off with a crack which makes you start, and the turpentine lights up into a clear flame. The leaves, like those of all evergreens, make a beautiful cracking and hopping, as every one knows who likes burning the Christmas holly on Candlemas Day ; I believe the reason is that there are little air-vessels between the two coats of the evergreen leaves, and the sound is made as the vessels burst and the air breaks out. How pleasant is the resinous smell of the burning fir branch ! and it is said that the smell of the fresh boughs in an American forest is delightful.

The silver fir is so called because the leaves are white on the under side. The Scottish fir is more branching than its northern brethren, it has very long leaves, more

like threads than needles, and growing two and two, spreading out like a pair of compasses.

And what shall we say of the uses of pines? Deal boards, pitch, rosin, turpentine; never mind all that, we don't want such great things in a chapter on flowers, and you learnt it long ago in your school reading books, or in *Harry and Lucy* you have read of the slide of Alpnach.

There is one river in Norway where the pine trees are thrown in at the source and left to find their own way to Bergen, with a direction to their owners on their trunk (like other travellers), and down they come with the stream, tumbling over waterfalls, whirling round rocks, scrambling and dashing along as best they can, till they are fairly caught at Bergen, and stowed in their master's timber yard. In some parts of America the floors are strewn with a carpet of young fresh pine shoots, as here in old times the floors were covered with fresh rushes.

The greatest and most noble of all the needle trees is the glorious Cedar of Lebanon, the tree which formed the beams of Solomon's Temple. It is not tall, but a very wide-spreading magnificent tree, even as we see it here, and in its native home no one can look at the broad old trunks, few and shattered as they are, without reverence for them as for something sacred. The wood does not decay, and is so closely grained that no insect harms it. In the very old times this cedar grove of Lebanon had very much larger trees. It seems that such trees will only grow on a sort of soil made by glaciers on a mountain side, and these large cedars thus grew. Some were hewn for the Temple, and floated in rafts to Joppa, to be taken to Jerusalem. Afterwards Sennacherib, the King of Nineveh,

boasted, as we know, that he would "cut down the choice fir trees thereof." He said so in his letter to Hezekiah ; and some writing has been found on the rocks of Lebanon boasting of what he had done. No trees since, at Lebanon, have equalled those he cut down, though still they grow on the hill.

And we may guess what those cedars were from the trees that grow in the same sort of soil in Western America, pine trees whose branches begin at such a height overhead that you seem looking to the sky. One hollow one, that lies dead on the ground, forms a tunnel through which a man can ride on horseback. A slice cut across the trunk of one forms the floor of a great ballroom. The bark of one was brought to England to be a wonder in the Crystal Palace at Sydenham. But when fire broke out near, it ran up the hollow like a chimney and brought destruction on all around. It is impossible not to be sorry that these huge trees of the West were not used like those of the East, for God's glory instead of man's curiosity, but there are several of the giants still standing in good health, and whoever sees them ought to feel that they make a mighty temple showing forth the beauty of His works.

The larch grows almost as far north as the fir, and like it bears cones and needles ; but it is, as far as I know, the only sort of needle tree which is deciduous, that is, which lets its leaves fall. Its leaves are far more tender than those of its companions, and have no double coat, so that they are not fit to stand the winter. If you wish to see anything beautiful, go in the spring and look at the young larch blossom, the exquisite little crimson catkin of scales, fit to be a tree in a fairy forest, and afterwards at the soft purple conelet before it grows to the hard,

green, knobby, scaly thing of autumn, or the brown one you may pick up now.

The cypress is another cone-bearer, not English, but used in Italy to shade and ornament churchyards with its dark spires.



## CHAPTER XIII

### RULE OF FIVE AND FOUR, AND RULE OF THREE

No, I am not going to set you a sum, but to tell you the two great rules by which you may understand more about plants. Every plant we have thought about has its blossoms, with parts going in fives and fours, or else in threes, except, of course, the ferns and mosses.

Primroses go by fives, pinks by twice fives, foxgloves by fours, heath by twice fours, speedwell by half fours. Again, crocuses go by threes, and daffodils by twice threes.

Now every plant that goes by fives and fours comes up at first out of the ground with two seed leaves or cotyledons, as you see mustard and cress or lupins do.

Every plant that follows the rule of three grows up in one round point, like a head of asparagus, or sometimes like a tusk or tooth. Don't you know how glad we are to see that little spike or tooth in the snowdrop clumps in the spring? and how fat and round the asparagus looks with its scaly top, so that the French call it a thumb?

There is another difference. The asparagus, as you know, when it is not eaten, grows taller but not stouter. None of this three-kind grow larger in girth, but only in

height. The lily has quite as thick a stem at the first as at the last. Even big palm trees are as large in girth when babies as at a hundred years old. They shoot up from the inside instead of the outside. So their proper name is Endogens, or Inside Growers.

But the plants that go by fours and fives grow stouter, adding to their thickness as they grow older. They are the Outside Growers, the Exogens. You know how they grow bigger and bigger. There is one thing more—one difference—that all outside growers have leaves with a rib down the back and a whole network of branches and veins; but Inside Growers all have long, straight, ribbon-like leaves, without ribs, running their whole length, as you may see in grass or lilies.

So there are three classes of plants—The Exogens, Outside Growers; Endogens, Inside Growers; and lastly, the Flowerless, such as ferns, mosses, and sea-weeds.

## CHAPTER XIV

### *SUB-CLASS I*

#### STAMENS ON THE RECEPTACLE

I TOLD you about the classes in the last chapter. Now I am going to tell you about the sub-classes and tribes.

Indeed I did tell you about the head tribe of all in the third chapter, when we were talking about April flowers—the *Ranunculus*, or Buttercup and *Anemone*. Now you know when the yellow petals of a buttercup come off, its bunch of stamens remains round its sepals. All this class are arranged in that way. They have many stamens, and five or ten petals. These petals are loosely fastened on, *under* the carpel, not upon it, and all plants of this tribe are more or less poisonous. Next follows a tribe called the *Magnolia*. The great evergreen leaves and large white flowers may be seen trained up against houses, solid heavy flowers with a very strong scent. They come from North America, and are very handsome. They have quantities of stamens and very curious pistils, and, as usual, the petals fall off very easily.

The next tribe, however, has very few stamens. Only four or six. It is the barberry. Perhaps you know its very sour oblong red berries, its sharp spikes of thorn, its

shining prick-edged leaves, and its blossoms, like clusters of little yellow roses, but probably you do not know how curious is the arrangement of its stamens. They are bent back towards the edge of the petals, which guard the anthers from rain, but they are thus so far from the germ that the pollen could never reach it. Touch the lower part of the filament with a pin. It is as if you had touched a spring: up jumps the filament, it bends over the germ, opens its anther, lets out its pollen, then goes quietly back to its proper position. Instead of a pin this is effected in general by the little foot or slender trunk of a bee seeking honey, and thus by a wonderful arrangement of providence the insect repays the flower for the honey by setting the machine to work by which the seed is produced. The wood is very yellow, and splits easily, and it is not often allowed to grow, as there is a notion that it hurts the grass around it.

Who knows the glory of the river and pool, the great white Water-Lily? It is our largest native flower, and magnificent to behold are the thick solid white petals and long firm anthers within them. By day it rises above the water, spreads at noon, closes with evening, and by night it draws its white cups to be refreshed and sheltered beneath the surface of the stream, where its large flat heart-shaped leaves are always floating, sustained as they are by corkscrew stems, that lengthen or contract according to the depth of the water, so that the leaf may always be upon the surface. The yellow water-lily is smaller and less common than the white one, and not quite so beautiful.

There is a very grand kind of yellow or red water-lily that grows in Egypt and India, and blossoms at the time of the inundations of their rivers. It is called the Lotus,

and was highly honoured by the old Egyptian idolators, as it still is by the Hindoos. The largest of lilies is the *Victoria Regia*, a great crimson South American flower, growing in the river of the Amazon, with the leaves so large and solid that a child can walk on them. A few are grown in England in houses so warm you could hardly bear them, and always in hot water ponds. These are the water-lily tribe.

Here follow the poppies, the only English scarlet flowers except the *pimpernel*. They show us the characteristics of the class very plainly, their calyx falling off when the flower unfolds, the multitudinous stamens with purple anthers, clustered round the foot of the great urn of a pistil, the stigma so beautifully ornamented with rays coming out from one centre, and lifting itself up upon little supports like the lid of the urn when the seed is ripe. Poppies are as poisonous as any of their tribe, and cause a heavy slumber, for which reason they are considered as emblems of sleep. Opium is a medicine prepared from a yellow poppy that grows in the east. It is very useful in lulling severe pain and producing sleep in bad illnesses ; but the Turks and Chinese are so foolish as to take it without being ill, because they like it to confuse their minds and send them into a sort of heavy trance or day-dream. I am afraid some people even in England do the same, in hopes of forgetting their troubles, but this is a very bad plan, as it stupifies their senses and hurts their health. Besides they ought to know that God sends troubles that they may do us good, not that we should try to forget them.

By the sea-side we may find horned poppies, which, instead of an urn, have long pods shaped like horns, and in the corn-fields, now and then, the bright little

red and purple pheasant eye, well named, for the colouring is very like that of the beautiful eye of the cock pheasant.

Next come the pretty yellow cistuses, or rock roses, that twist about on thymy banks, looking so cheerful and smiling, their five petals as frail as those of their handsome relative from Cyprus, the Gum-Cistus, so beautifully painted, each white petal shading into yellow, and dashed with deep purple so regularly as to form a pentagonal star when the flower opens in early morning before the fierce heat of the sun has faded it. I once told you of that pretty lawn, shut in with trees, giving such pleasant peeps of the arm of the sea beyond, where we used to watch the boats glide past with their sails white or red. There used to be a gum-cistus in the middle, and I shall never forget one sunny morning before breakfast, when I, a very little child, was standing there with my dear godfather, and showing him how all yesterday's cistuses were lying snowed down and faded on the grass, and he answered me that everything here faded and passed away, like the flowers and the boats, and we should pass away too. I thought it very strange and sad then, and would fain have forgotten it, but it always came back with the remembrance of the boats, or the sight of the cistus, and now I see that he did not mean it sadly.

Now for a very odd little plant you may know as a garden weed, with a weak stem, pretty cleft leaves, and a long narrow paly pink flower with a little dark tip. There is a smoky look about it that has caused it to be called Fumitory, because *fumus* is the Latin for smoke. If you look closely into it you will see that it has two little purse-like petals outside closing in two narrower tufted ones, and there are two, three, or four stamens

closing in the slender pistils. These are the marks of the curious Fumitory tribe. There are one or two other wild sorts, and a yellow one sometimes grown in old-fashioned gardens, but the handsomest is the Siberian Fumitory, called by gardeners *Dielytra Spectabilis*, a beautiful creature, with the middle petals of a kind of transparent white, and the purses of a most exquisite shape and rose pink. I always wish people would take to calling it the Pink Purse Plant.

Of Violets, whose tribe is the next, we spoke long ago in the May flowers, Chapter IV. So we will turn to the pretty milkwort tribe. On heaths and downs we delight to find the small milkwort, pink, blue, or white, with lovely little flowers, of which the pink is perhaps the prettiest, as it generally shows a large white tuft. It has sometimes eight stamens, sometimes more, like a crest in its helmet. There is a larger sort in America which is called by the pretty name of May-wings.

The next interesting tribe includes the white soapwort, and the agreeable family of sweet pinks and carnations.

Sweet William stands first of these, fine fellow that he is, either crimson velvet all over, or white with a pink eye, and living at home in Germany, but very happy in an English cottage garden, and making a grand show in the nosegays that you send to some sister or cousin in London. The cloves, carnations, and picotees, about which gardeners are so choice, all come from one common sort wild in the south of Europe. I don't like any so well as the old blood-red clove, and the plain white pink, they both smell so sweet; and yet, saying this seems rather hard on those pretty white ones trimmed with

deep purple, but the worst of them is that their calyx, not being meant for a double flower, is crammed so full of their petals that it is apt to split and look very untidy. The little annual Indian pink is very pretty, its two long curling styles always put me in mind of the trunk of some kind of insects. We have a few wild kinds, but none very common. The whole race have linear leaves, a cup-like undivided calyx, five petals, fastened down with a long claw, and spreading like a fan above, with a deep cleft in the middle of each, ten stamens and two styles.

The little insignificant sandworts that creep on the gravel, the pretty white stitchwort or starwort that blows on hedge-banks in early spring, the chickweed with which we feed birds in cages, and the whole family of *Silene* or catchfly, are all ten-stamened flowers, with three long curled styles almost like the horns of an insect, their five petals each cleft in the middle very prettily. To the catchflies belongs what some children call white-bottle, or bladder-campion, from its large swelling calyx. I used to call it white robin, and fancy it the white comrade of the red robin; but in this I was much mistaken, for red robin, or rose-campion, has five pistils with its ten stamens, and is a *lychnis*, as well as its odd wild-looking brother ragged robin, also called meadow *lychnis* or cuckoo-flower, because it shows its jagged pink petals and reddish stem just as cuckoos begin to sing.

Another with five styles is the beautiful corn-cockle, which raises its deep purple-veined petals and long slender calyx leaves in its tall gray downy stalks in the midst of our fields. I am afraid farmers call it a troublesome weed, and it is said that from its old name of *Lolly* the followers of Wickliffe were called *Lollards*. In the Book



of Job the cockle coming up instead of the barley is spoken of as a great misfortune. The yellow and white stonecrops also have five styles, starry flowers, with lumps rather than leaves ; so has the many-belled pennywort, so named from its round leaves.

## CHAPTER XV

### THE CRUCIFORM TRIBE

OUR next tribe contains a number of flowers all of the same shape, like a cross of four petals, and all have four long stamens and two short ones. The only difference is that one group of them has a long pod, and the other a kind of odd-shaped pouch or purse, in which to carry their precious seeds. These cross-shaped or cruciform flowers well deserve the mark set on them, for though in general they are not noted for their beauty they are some of our most valuable plants, and not one of the whole tribe is unwholesome.

It will be best to begin with the largest of the race, as the parts can be seen in them more distinctly. They are of the few that are cultivated for the sake of their blossoms, though they only become prized in gardens when their cross-shape has been destroyed by doubling the petals so that they will never produce seed. And here a thought comes into my head, that if a Christian seeks after the admiration of this world, he tries to win it by hiding his cross and making the most of such of his gifts as are indeed showy, but were meant to shelter and aid the good seed within, not to ruin and starve it.

These cross-shaped flowers are the wall-flower and the

stock. If you live in an old town, or near some gray ruin, you will be sure to see the yellow crosses of the wall-flower waving where perhaps St. George's red-cross pennon streamed in former times, or if you have a garden at all I think you cannot fail to have a single wall-flower in it. You see it has four petals spreading out in a very prettily shaped cross, much like that which the knights of St. John used to wear on their mantles. Pull out one of these petals, and you find that it is suddenly narrowed into a colourless strip, which fastens it to the bottom of the deep cup-shaped calyx, consisting of four leaflets. Within are six stamens, four long and two short, so unlike those of the sixth class that you could never take one of these cruciform flowers for one of the lily race ; and in the middle we find a pistil, a very long and narrow germ, very short style, and a little two-cleft stigma. These parts you will find in every one of the fifteenth class, cruciform corolla, four long and two short stamens, and a single pistil. In about half of them the germ becomes a silicle, not very unlike the pea-pod in shape, but always different in two respects, that whereas the seeds of the butterfly-flowers are fastened to the same side of the case all the way down, those of the cruciform plants are fixed by turns to each side ; and the reason of this is, that when the pod opens to shed its seed it splits only on one side, from top to bottom, while the silicle separates at the bottom, the side of the seed-vessel curls up with its own share of seeds, and the stigma at the top alone holds them together.

When taken down from its wall and grown in good soil the wall-flower becomes much larger, and spots of deep red (the colour of the calyx) spread on its petals. In time it is doubled and entirely red, and becomes a very handsome flower, under the name of bloody-warrior, the

glory of old English gardens, and the great ornament of May garlands. There are yellow and pink varieties, but none so noble-looking as the old-fashioned bloody-warrior, his head nodding with the weight of its numerous dark double blossoms.

No one can rival him but his cousin the stock, or July flower, as it is sometimes called, a grand sight in its full splendour of crimson or white double blossoms. There is a little wild English stock, but I believe the parent of all these handsome varieties came from Germany.

Of the cruciform plants in our gardens there is one race, however, far more important—nay, which give their name to gardens in Scotland, and which, according to their date, may claim precedence over the potato. They have yellow blossoms when they are allowed to flower at all, but this is not by any means what is required of them. Of one or two kinds we do indeed eat the young blossom buds, but for the most part we chiefly value the leaves and the roots.

This race is that properly known as colewort, in Scotland kail. One kind, which bears large leaves, veined with fleshy foot-stalks, was coax'd into doubling leaf over leaf in a large round solid leaf-bud, white within, and this, on its very short thick stumpy stem, in many a row in the garden, is called—need I tell you what? Another variety reddened its leaves to a beautiful deep crimson. Another learnt to form immense heads of little young blossom buds, pressed close together, and whitened by the shade of the embracing leaves; another shot out smaller heads of these same buds, more dispersed, less shaded, and therefore greener.

Pigs and ducks, white butterflies, and children, say what are the names of these varieties of the brassica, or

colewort. I daresay you little knew how closely related are your friends the cabbage, cauliflower, and broccoli, or what part it is of the last two that you eat. In Germany the cabbage is thought so entirely the chief herb that it is called kraut, the word for a vegetable, and there a preparation is made with it which would not be at all to our taste. It is kept in a tub till it becomes what we should consider fit for the pigs, but the Germans think it excellent, and feast on it under the name of sour-kraut. Another colewort has lately been brought from Germany under the name of kohl-rabbi, which swells its stem, a little way above ground, into a great purple excrescence, like a fruit, of which cattle in some places are said to be very fond ; but there is another, far better known, which makes the same sort of swelling under ground, hanging small fibrous roots down from it.

Do you know it? Grown in gardens it is very good food for ourselves, especially in broth, or with boiled meat ; it is not at all bad eaten raw, and it can also, upon occasion, be hollowed out into a lantern. In fields it is cultivated for the winter food of cows, and every one has seen a flock of sheep slowly progressing across a great field, shut in by their hurdles, till they have properly finished the allotted portion for the day and left nothing but a few hollow old shells, in which, however, the life is so strong that, uprooted as they lie, the first warmth and damp of spring will make them shoot out green leaves. Even piles which have been housed, far from soil and light, put forth young shoots in spring which some people think particularly good. The reason they sprout thus readily is the quantity of nourishment contained in that moist fleshy part of the stem which we call the turnip. They sometimes grow very large ; and I have heard of an

agricultural dinner in Norfolk where the pride of the farmers is to have small cattle and large turnips, at which a round of beef was served up enclosed within a huge turnip.

The radish comes next in order after the turnip, and most children who have had a little garden of their own have pleasant recollections of sowing the seed, thinning the pretty young plants, and ending by filling a plate with the beautiful crimson taper roots, so shining and polished in water, so ornamental when disposed in the rays of a circle, and so crisp and pungent to the taste.

I daresay the mustard grew next to the radish in those little beds, and perhaps you might have sown it so as to form your initials, so as to see them springing up in tender green on the brown earth. It will grow almost anywhere, even upon flannel or a cork floating in a soup-plate of water, where I think you would be amused to watch the stem and root burst forth from the seed. It will teach you the constant law, that every seed puts out a root downwards and a stem upwards. Turn it upside down as you may, stem will always be up, root always down. A different species of mustard is grown at Durham and Tewkesbury, whose seeds are made into that pungent compound which often brings tears into the eyes of those who sting themselves a little more than they intended. The mustard has a yellow cruciform flower.

Water-cresses, growing cool and sheltered in clear running streams, have a very small white blossom. I don't think country people care so much about them as dwellers in towns, to whom their fresh green dampness is a treat. It is pleasant to think how often a few pence may have been earned in time of sore need by some good little water-cress gatherer.

Almost all the cruciform plants have white or yellow blossoms, and very few have such as make any show. There is certainly the purple rocket in gardens; and, wild, we have that flower which we prize for showing its silver cross so early in spring, the cardamine, or lady's smock, or, as some call it, the cuckoo flower, because it is scattered so freely over the meadows just when the cuckoo sings.

Hedge-mustard, also called Jack-by-the-hedge, or Sauce-alone, is a tall plant, with flat heads of very small white flowers and large leaves, that leave a very unpleasant smell on the hands of those who touch it. It looks best late in autumn, when its thin, brown, transparent silicles stand high in the hedge, lighted up by the setting sun, as if nothing, however humble, that has done its work well was to be left without some glory.

Another division of cruciform flowers do not bear the long pod-like silicle, but have seed-vessels of various shapes, some of them very pretty, such as the little hearts of the tiny shepherd's-purse, which open on each side to let out their treasure. It has a very small white flower, and is now regarded in gardens as a troublesome weed, though it was once esteemed as good for medicine. Another of the same genus, the treacle-mustard, has a long spike of seed-vessels, rounded at the top, and turned upwards in a curious manner on their stems.

Two more deserve mention, the candytuft in our gardens, which comes from southern Europe, and the tall lilac honesty, sometimes called moonwort, from the circular form of its great flat seed-vessels—perfect shields, to guard the plant, I suppose, in rendering to earth its honest tribute of seed in return for summer moisture.

Most of this sober and estimable, though far from

brilliant, family are annual ; not one has wood or bark like a tree, and scarcely one genus will live out of temperate climates.

Here follows another tribe, called from mignonette, the very name of which means a little darling. It is very sweet, and its pale subdued tints serve to set off gayer flowers, just as a quiet-coloured dress looks well with a brighter ribbon ; and it is much loved by Londoners, who grow it in long green boxes outside their windows. Look at some pretty verses about it in *Moral Songs*. It has its seeds in very curiously-shaped vessels like little urns. There are two sorts of wild mignonette : one is like the garden kind, only larger and scentless, called by the name of woad, the plant with which the ancient Britons used to dye themselves. The other is yellower and in longer spikes, and is called Dyer's Rocket, yellow-weed.



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## CHAPTER XVI

### TEA AND COTTON

THE St. John's-wort tribe is so called because they blossom about St. John's Day, at Midsummer. The largest species is called Park leaves, and raises its handsome head above a long straight stem, clothed with leaves in regular alternate pairs, in almost every shrubbery; the next largest, named Tutsan, from the French word *Tout-sain*, all-heal, grows wild by the sides of woods, and has a blossom about the size of a primrose. The lesser kinds grow on every hedgerow, heath, and wood. All have brilliant yellow blossoms, divided into five petals, a larger swelling germ, crowned by three stigmas, and an infinite number of stamens, joined together at the bottom in little tufts or bunches, so that you cannot pull out one without the rest of the family. They hold together, as the old man in the fable taught his sons to do by the example of the faggot of sticks; and the hair-like filaments crowned with dots spread out their multitude like a glory round the flower. The fruit is a red berry of a conical shape, which you may often see in the tutsan, and which stains the fingers so red that the old English name of the plant was man's-blood. The leaves are very curious, as you will see if you hold them up to the light. They are full

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of very small dots, just like little holes, indeed one kind is actually called the perforated St. John's-wort ; but these are not really holes, only little vessels filled with oil, which gives out a strong smell if you rub the leaf.

This perforated St. John's-wort is a very pretty plant, much more slender and graceful than the square St. John's-wort known by its very hard square stem. The small upright kind is the especial beauty, growing on heaths, like a little golden star or spangle, on its slight crimson stem ; perhaps, if late in autumn, bearing a small red fruit. Nor is the creeping kind to be despised, as it twists and stretches over wet places, though not so deep in the bog as the next sort, the marsh St. John's-wort, which never opens its blossoms wide, and has rough leaves, so unlike the other kinds that it is not easy at first to tell that it belongs to the same genus, all the rest having their character so strongly marked.

Perhaps you have seen the handsome red or white waxy camellia flower grown in greenhouses. It gives name to the tribe to which belongs our most useful drink. Every one knows whence tea comes, so I will not stop to tell that. It is a shrubby plant, with a pale pink blossom, and is grown in great plantations. The young leaves, when they are first put out in spring, are gathered carefully, and no one is allowed to use these but the Emperor himself. The next crop the Chinese keep for themselves, and only sell us the coarser leaves, which they gather at the time of the grand stripping of the trees. Then not a leaf is left, and as some of the trees grow wild, out of reach on the mountains, the cunning Chinese have a way of getting at them which you would never have guessed at. There are plenty of monkeys in those hills, and the Chinese go out and pelt them with sticks

and stones, which so provokes them that they break off boughs of the tea trees to return the compliment to the men, who gladly pick up the prize and strip off the leaves.

The leaves are brought into the shrivelled, twisted state in which we have them by being laid on hot plates over a furnace. It has always been a question whether the green and black teas are really different sorts, or whether the green is coloured by being dried on copper plates, or by some colouring matter. I believe the truth is that there is a real green kind, but that it is rare, and they generally sell us the false, painted green tea.

For their own use they make the tea up into balls, or faggots of small twisted sticks, and instead of using a teapot they put one of these little parcels into a cup, and pour boiling water over it. The cups are often of beautiful porcelain, each in a filigree gold and silver case. They use no milk nor sugar with it, and a tray of these pretty little cups of strong tea is carried round to welcome every visitor.

As to the old tea leaves, they make them up in the shape of bricks, and sell them to the Tartars, and though this is poor stuff, it is the best the Tartars can get, and they are so fond of it as to be ready to take it in payment for anything they sell to the Chinese.

Then comes a tribe called the Mallow, which has all its stamens growing close round the pistil, joined in one. The largest of these that we often see is the tall holyoak, a grand-looking plant brought from China, and spiring up almost like a tree, with large leaves below, and handsome great, red, yellow, or white flowers on a long spike, or even of a very dark colour, which is sometimes called black. but only by way of a boast. I have

never been able to find out the reason of the name holy-oak ; I am inclined to believe it is two or three Chinese words run together. The tuft of anthers and stigmas are very handsome when the flower has not been doubled, and all grow out of a sort of rounded, yet flattish germ. When the flower is faded the tuft shrivels up, and the germ, packed up in the five calyx leaflets, swells into a shape a good deal like a large button, which some children call a cheese. If cut in two the parts are so regularly arranged as to be like a star.

Children like to eat the cheeses of our English mallow, which is nearly related to the holyoak, and the plant used to be much esteemed for use in medicine, mallow leaves being thought very healing. We have three wild sorts—the common, a lilac, striped darkly ; the musk mallow, a pretty pale pink, its leaves much divided ; and the dwarf, white, striped with lilac, much haunting dusty waysides. There is a handsome garden flower called the Malope, a very dark crimson, coming from the Mauritius ; a shrub called the Althea ; and a genus named Hibiscus, to which belongs a great favourite of mine, the African Hibiscus, called Black-eyed Susan, a primrose-coloured flower, with a very deep dark eye. The seeds of this genus do not grow into cheeses, but are round, and enclosed within a case. All the tribe love sunshine, and shut up their petals at night or in bad weather.

We must not leave this order till we have mentioned two plants that we have never seen, though none, except the wheat, are of such daily use to us. I daresay you scarcely have a garment on at this moment some part of which is not composed of the first of these. The cotton plant, I mean ; the plant which caused the first Phoenicians who sailed round the Cape to be taken for deceivers

when they reported that they had seen wool growing on trees as well as the sun in the north at noonday. We perceive in these days that this report of the voyage is the very proof that they had really gone where they professed.

The cotton plant is a shrub which naturally grows to be about eight or ten feet high ; but where it is grown for use it is kept down to the height of a currant bush. There are thirteen different kinds, one of which is a creeper and another a tree, but the most useful sort is the shrub. It bears a pretty yellow flower, with a dark eye, and this gives place to a pod, where the seeds are embedded in the soft white substance which we call cotton wool. You know it, I daresay, and keep your treasures in it, your tender shells, or little glass curiosities ; or you peep in at brooches lying on a bed of it ; or, possibly, if you ever scalded or burnt your finger, it has been packed up in it to keep out the air. This cotton wool has, however, been carefully cleaned, and all the seeds picked out ; I have seen some, as it came fresh from the pod, looking much rougher and less white. Perhaps, however, this acquired its dirt in the packing, for it comes to England in great canvas sacks, two or three yards long and more than a yard in width. A man gets into this great bag, which is kept open by being fastened to posts, and is supplied with cotton, which he treads down as hard as possible, trampling on it, and forcing it into every corner, till he rises gradually on it to the top, and light as cotton is, one bag holds three or four hundred pounds.

Cotton is grown in almost every hot country, in so many indeed that it is not worth while to count them up. It is manufactured in great quantities in England, and those children are happy who have only to do with



the wearing instead of the spinning and weaving. In former times poor children were dreadfully overworked, and though much has been done by law to prevent them from being kept in the cotton mills for too many hours a day, it must be a sad thing to live in the din of machinery, and in close narrow streets, instead of pleasant country homes. However, we know—

“ That Love’s a flower that will not die  
For lack of leafy screen ;  
And Christian hope may cheer the eye  
That ne’er saw vernal green.”

And there is nothing *really* to prevent a manufacturing child from being as good as a country child ought to be, though there are, I am afraid, many more temptations in its way.

It is only within the last fifty years that cotton has become so cheap and common ; and it is a very good thing in one way, since no one has any excuse now for not being clean, as they had when there was nothing but linen, which, though stronger and better, cannot be made *so* cheaply. Ask any elderly person to tell you the price that Sunday dresses used to be, and it will surprise you, though you will generally hear them say at the same time that those gowns would wear out half a dozen of such as we have now. And they were certainly much prettier and better printed, as old patch-work will testify. I could show you *such* roses, and *such* a choice pattern of strange indescribable things, as I have lain studying many an hour before it was time to get up ; besides the old inherited scraps that are still kept in a bag, where they were long ago stored, as too beautiful and precious to be cut or used.

India was the first place where cotton was much used for clothing, as the name of calico, from the town of Calicut, reminds us ; while muslin was named from Mosul, on the River Tigris. Though we make muslins here they are still not equal to those which are woven in India by men with a hand-loom ; and afterwards embroidered, likewise by men, who walk about with the delicate muslin rolled round their body, and often so begrimed that it is wonderful how it can ever be made clean again. The Indian princes wear turbans of muslin so fine, and of such a length, that it takes twenty years to make one ; and as to their wives, they expect their muslin robes to be of so fine a texture that the whole dress can be drawn through a ring.

Then Chocolate has a tribe of its own, and so has the beautiful Lime or Linden tree, with its curious flower, with a great bract, and the sweet nectar that makes them all alive with bees. Linden trees form beautiful avenues like cathedral aisles. The inside of their bark forms the bass used for tying up plants in the garden.

## CHAPTER XVII

### THE ORANGE TRIBE

THE citron, or orange family, is not even European by nature. Such of you as know anything will be surprised at this, for you hear of Lisbon oranges, and Seville oranges, and Malta oranges, and perhaps even of the orange groves of Spain and Italy. But though old books have told us pretty clearly all that the Greeks and Romans ate and drank, and we know how the Romans brought their corn from Sicily, and their wine from Falernæ, and even their oysters from Britain, we never hear anything about oranges. Now and then, indeed, there is some hint of golden apples. It was a golden apple, according to the fable, that was to be given to the fairest of the three goddesses. Golden Apples were said to grow in the gardens of the Hesperides, beyond Mount Atlas, and in the race between a youth and the swiftest maiden upon earth, she was turned from her course by the golden apples which he threw down before her. Who knows if some stray orange had not come in the sight of the Greeks to cause these stories? either brought by the Arabs from its native home in China, or by some bold Phœnician mariner from the Fortunate Isles in the Western Ocean, about which they had many strange stories, and which we call

the Canaries. Orange trees were growing there before the Portuguese visited them, and some of the best in the world grow there now, round the base of that great sugar loaf, the Peak of Teneriffe, which I should guess to be one of the most beautiful places in the world. The best oranges for eating that we get come from St. Michael's, a little island of the Azores, but there are many others imported from Spain and Portugal. The red-juiced blood oranges grow in Malta, and the delicious, fragrant little Mandarin orange is chiefly grown at Tangier. To all these places they were first brought in the fourteenth or fifteenth centuries from China, their original birthplace.

I suppose there is not an English child who does not know the taste of an orange, but very few know the appearance of an orange tree, for only a few are grown in hot-houses, and not many children can go to see them there. However, if you wish to see what sort of leaves it has, you need only sow the pips of the next orange you eat in a pot of earth, and keep it all the winter in the window of a room with a fire in it, and in time you will see it raise a shoot, with handsome, dark green, polished leaves, evergreen, and, like the St. John's-wort, full of little vessels of oil, where resides the delightful scent. I once raised three little orange trees from pips, and kept one of them some years till it was a foot high, then I gave it to a lady who had a greenhouse, and I don't know what became of it afterwards. Orange trees are very beautiful in the warm climates that suit them ; they grow higher than an apple tree, and spread out their rich dark green foliage, mixed with the white flower. The calyx is a little cup with five teeth ; the corolla is in five white petals, fleshy, full of vessels of fragrant oil, and sometimes dotted with green ; the stamens are not many, but grow

united into little bundles out of a ring round the base of the round swelling germ. The stigma is green, and the anthers bright yellow, and altogether the whole appearance of the flower, with its sweet odour, has something wonderfully delightful about it. In some places, where it grows commonly, a wreath of the natural flowers is worn over the bride's veil at her marriage.

As soon as the white blossoms fade the little cells of the germ begin to grow, and the whole germ, losing its stigma, becomes a round green ball, taking a whole year to come to perfection, and hanging on the tree long after it is ripe, so that it is the especial beauty of this exquisite tree to bear, all at once, the white flowers, with the green and the golden fruit, its promise and performance both visible together.

No wonder the orange is so long in growing, for there is a whole workshop within its case, and you can see for yourself the result of all the strange things that happen there. The rind, full of little bags of oil, loosens and separates itself, while a thick white coat grows up within it; the cells, containing the seeds, enlarge, and not only this, but there grow forward into them a number of very small bags or bottles, each filled with pulp, which as the fruit ripens becomes juice, first very sour then sweeter. What is the use, you will say, of this juice being parted in so many little bags? It is another proof of the wisdom of the Hand that made the orange, such that it may be carried long distances, and brought to be the refreshment of thirsty lips so many miles from the sun that ripens it. Why does the bee store its honey in such little cells? Do you know? Perhaps you will say it suits the bee to have storehouses no bigger than itself, and so it does: but do you know what happens when

honey is put away in large jars ? If the weather is warm it ferments and turns sour, but though the beehive is a very hot place the honey never ferments in its own little six-sided jars. So it is with the orange, its juice, if it was all together, would soon be spoilt by the heat, but in these separate bottles it is safely secured, a little in one and a little in the other, and kept good till we want it. The cells are the cloves of the orange into which our fingers can divide it, the bags are the fine net-work within them, much more easily discerned in a bad orange than a good one. The actual seeds every one knows ; but does it not show that oranges were made for our especial benefit that there should be so many without pips, so as to be of no use at all, excepting for food ? Another arrangement to fit the orange for travelling long distances is the oil in the little dots in the peel, which keeps it fresh, though separated from the tree, as well as the thick, strong, yellow coat, lined with white, so much less tender than the covering of apples, pears, plums, or such fruits as are eaten on the spot.

Thus you see how our Father's gracious Providence has made this delicious fruit such as can be spread over the whole earth, eaten in this country even more universally than our native fruits, and more refreshing perhaps than any other. Who that has ever been ill does not remember the pleasant, juicy, sharp sweetness, coming so refreshingly, or the delicious taste of the orange squeezed into water, the nicest of all drinks ? I am sure, if people would only think a little, they would see that the commonness and cheapness of the orange is a thing to be very thankful for, prepared as it is for our use and delight.

Delight, some of you will say, who like play better than

eating, and who enjoy the sight of the basket (so called), made of the orange, or its cloves divided into a flower, or its rind turned into a bowl. By the bye, I hope, if ever you are obliged to eat an orange without a plate, that you don't throw its rind where it may be an unpleasant sight, and perhaps the means of a bad fall.

Oranges come to England packed in large cases, which you sometimes see at fruiterers' shops, with laths bent over the top to protect them. The pale-coated, sour-juiced lemon, which gives so pleasant a flavour to puddings, grows in company with it on Mediterranean coasts; the lime, the smallest of the race, is wild in India, and its juice is most delicious. The shaddock is another Indian fruit; and there is another kind sometimes brought here, and very large and handsome, to which some thoughtless person has irreverently given the name of forbidden fruit. I hope if ever it comes in your way you will not make nonsense about its name as I have heard of some silly people doing. Of course it has nothing to do with the real fruit of the tree of knowledge, and there is no harm in eating it, but there is great harm in talking lightly of the sin for which every one of us is suffering.

The citron was brought to Europe from Assyria and Media, even before the orange. It is hardier, and I have seen one tree growing in the open air in a warm sunny place. It will ripen its fruit in hot-houses, and is often preserved; but the chief use of it is in its thick delicious rind, which affords such tit-bits in mince pies, plum-puddings, and those cakes, all white outside, all dark inside, which on twelfth-days, christening-days, and wedding-days, are said by the wise to be too rich to be eaten. And well for the foolish if they are only allowed that "enough" which is "as good as a feast." No, I don't

call them foolish if, of themselves, they only take enough, for to be temperate in all things is part of the highest wisdom. Happy the child who does not think the citron and the plums the best part of the feast—no, nor even the almond paste. I wonder whether you and I should agree as to what the best part of the festival is !



## CHAPTER XVIII

### THE CRANE'S-BILL TRIBE

THE next of these plants form the crane's-bill tribe. These follow the old rule of five: five leaflets to the calyx, five heart-shaped petals, five long and five short stamens, all closely joined round the five-furrowed germ, five slender united styles, and graceful stigmas. They are called crane's-bills from their seed-vessel, from which the styles project in one long, brown, dry point, like the beak of a bird, until, becoming quite ripe, they curl up and open the germ, whence the seed leaps out with a pop.

Their petals are most beautifully veined with little vessels, through which they breathe, that is, let the air pass. All corollas have these vessels, but they are more evident in the crane's-bills than in most others, because the texture is peculiarly delicate. The commonest of all these is Herb Robert, the pink crane's-bill, that grows in every hedge in autumn, putting out a pretty veined flower that sometimes is confused, under the general name of Robin, with the two lychnises of the tenth class, Ragged Robin and meadow campion, though a little observation will soon show the difference. Herb Robert is much more delicate than either, and has always a bright red stem, and leaves much cut and divided. The dove's-foot crane's-

bill, which creeps about in the dusty waysides, has a still more elaborately-divided leaf ; I would defy the cleverest cutter of lace paper to make anything so prettily-formed as its branching leaves. The flower is very small, and pale pink, and has a smell of Indian ink. The beautiful Pencilled Crane's-bill is larger ; it is white, and its veins are marked with delicate streaks of lilac, while its stigmas form a beautiful tuft ; but the handsomest of all is the great purple meadow crane's-bill, which is to be found in profusion in the northern and midland parts of England, though in the south, it will only grow in gardens.

The Latin name of the crane's-bill is *Geranium*, and this was at first given to certain beautiful large crane's-bills that were brought from the Cape, but afterwards botanists considered that the cottony wings of the seeds of the foreigners deserved to be made into another genus, which they called *Pelargonium*. However, the plants had become such household friends that homely people could not bring themselves to the new name, so to this day we commonly call them geraniums. I know nothing about their fine names, nor of the new sorts that gardeners are always raising from seed and sending to shows. They are very grand, no doubt, especially those that are sometimes exhibited at horticultural shows, as large as a currant bush, and covered with blossoms all round ; but what I like, and look upon as home friends and pets, are the precious old plants, that have stood for years and years in some window, prized perhaps for the sake of the giver, or the old home from which they have been brought, and it may be, watered and tended almost like children by some feeble old lady who has hardly strength to totter from one flower-pot to another, to pull off their fragrant leaves as soon as they have once shown a faded edge of yellow. Or perhaps

one geranium plant is the companion and friend of some hard-working girl, who keeps it in her town window to put her in mind of the green leaves and kind friends she left far away in the country. Those are the really choice *geraneys*, as the children call them, far choicer than the new varieties that are only cared for because they are *new* and scarce. Yet I will not say that it is not a very nice pleasure in gardening to sow the seeds, and watch whether they will come up some different kind, or the old original sort, to which nine out of ten will return, though chosen from very different plants.

The oldest kinds, from which all the rest have sprung, are, I believe, the nutmeg geranium, a very sweet-smelling one, the two upper petals red, and the lower white and streaked ; the oak-leaved, which has a very deeply-lobed leaf, and a white blossom, spotted with deep rich purple on the upper petals, though not nearly so large as that fine, white, purple-marked kind which I admire the most of all the new ones ; and, lastly, the dear old horse-shoe, or scarlet geranium. This every one knows for its dazzling head of brilliant blossoms, and that most delicious of all leaves, so soft, so downy, so elegantly shaped and cut, and so gracefully marked with the dark line. Even grand gardeners cannot do without it ; they train it to the top of their hot-houses, or pin it down in flower-beds, so as to make it form one sheet of scarlet almost too bright to look at.

The useful flax tribe has the same delicate veined petals, with five pistils, but only five stamens ; and whereas the crane's-bills are all red, this is blue, except that there is a very tiny white kind, and the beautiful garden New Zealand flax is blood-red.

Flax used to be much more used in former times than

now, when cotton can so easily be brought from hot countries.

Flax made the beautiful fine linen of Egypt. Who would have thought of burying the Egyptian dead, in the time of the Pharaohs, with delicate cambric handkerchiefs on their faces as fine as any lady now? The best and most lasting of that beautiful thing, lace, is made of thread from flax. Linen is so called from *Linum*, the Latin for flax. The thread is really the fine fibres of the stalks, very thin, but very tough, so that it lasts when all the green part has been soaked off in water.

Flax seeds are called linseed, and are so oily that they are made into cakes to feed cattle upon in the winter. And linseed meal is mixed with mustard to make plasters to put on people's chests when they have bad colds. That little dainty blue flower is by no means all for show. Its Latin name may well be *Linum Usitatissimum*—the most used.

Last of this cousinhood is the woodsorrel tribe. Still with delicate thin petals or veined petals. All the plants have a very sharp taste. Our English one is the lovely woodsorrel. Delicate little thing; do you not delight in finding its beds, full of those pale green trefoil leaves and exquisite white flowers streaked with purple? In Germany it is called the Hallelujah, and is thought the special flower of Trinity Sunday, because of its threefold leaves.

Holly properly comes here; but you must go back to the "Christmas Evergreens," in the eleventh chapter, for it, and for the spindle tree.

## CHAPTER XIX

### BALSAMS AND NASTURTIUMS

VERY odd-shaped flowers are coming next. Creatures with queer little tails, and strange habits as to their seeds.

First of these is the Balsam, once deemed so medicinal that the very name implies something healing, though now it is only an ornament for our gardens and hot-houses. You remember that the violet is a pentagon flower, and you will soon see that the form of the balsam is nearly similar, except that the petals are more irregular, and instead of the short blunt spur of the violet it has quite a long, sharply-pointed curly tail. There is one English sort, and a very funny fellow it is, with yellow long spurred flowers, and capsules so irritable that the moment they are touched their little valves fly open, as if by a spring, and curl themselves up, while the seeds pop out with a bounce, and scatter themselves in all directions. For this reason it is called in English the Touch-me-not, and in Latin the *Impatiens Noli-me-tangere*, which means the same thing. Though English, this hasty gentleman, or rather lady—for in some places it is called Jumping Betty—is not very frequent, and the only place where I ever saw it growing wild was on the side of a deep ravine, in which the streamlet winds along which forms the cascade, of Stock Gill Force at Ambleside. It is often,

however, grown in gardens, as well as its almost equally impatient Levantine cousin, the purple balsam, a tall handsome plant, with purple flowers and stems tinged with red, the leaves growing in pairs at the joints. The red and white balsam, grown in hotbeds and nursed in drawing-rooms, is, I believe, a Cochin Chinese, and there is a pink Sultana from Zanzibar.

Peru is apt to grow sun-coloured flowers, and thence comes what we foolishly call the Nasturtium, though it has two very good old English names, Indian cress and yellow lark's heels, besides a real Latin one, *Tropæolum*, or trophy, given because the leaves are like shields, and the flowers like golden helmets. It is a droll flower, with its yellow calyx growing out into a long spur behind, and the little fringes to its yellow or orange petals. These petals are very good when put into a salad, which is the reason, I suppose, of their being called Indian cress; and it is said that just before sunrise, especially in thundery weather, they give out flashes of light, as a black cat's back does on a frosty night. All I can tell you about the cause of this wonder is that it is the effect of electricity, and there we stop short, neither of us much the wiser. The prettiest sort of *tropæolum* is the little canary-bird flower, so called because it is just like a little yellow bird, the bud like a canary with its wings closed, the half-expanded flower like one flying, and the full-blown like a bold cock canary, wings and tail full-spread, darting out at an enemy; and there is a small three-coloured sort, black, yellow, and red, grown in hot-houses.

Rue, which used to be held as good for fevers, gives name to the next order. Also there is one for the *Quassia* tree, which furnishes very wholesome bitter but strengthening medicine.

## CHAPTER XX

### TREES

THE tribes that follow are chiefly trees. The first is the holly, of which we had plenty to say at Christmas.

Then comes the maple. The maple has eight stamens growing in a small green blossom. The fruit is very curious, two long lobes, commonly called keys, hanging down from a long stem, and each containing one seed. The maple changes the colour of its leaves early in autumn, and looks very gay in the hedges ; its leaves too are of a very pretty lobed form, especially those of that large handsome kind the sycamore. The sap too of one kind is very sweet, so sweet that in North America it is made into sugar ; I have seen a cake of brown coarse-looking maple sugar, such as each Canadian farmer makes for his own use, just as we make cheeses.

And another tribe is named by that noble tree the horse-chestnut. I cannot tell where the native country of the horse-chestnut may be ; some say it is among the mountains to the north of India, and I should guess that it must be a rather cold place, because the buds are so well protected from the winter's frost.

We see them even before Christmas, pointing up their hard, sticky, dark brown noses in readiness for the next

spring, and if you wish to see a pretty sight I will tell you what to do. Take one of these buds, and with a sharp knife and steady hand make what in learned language is called a longitudinal section of it, that is to say, cut it in two, lengthways, just as the meridians of longitude are marked on the globe. First you see there is an outer case of hard brown scales, covered with gum to keep all safe and firm; there are at least as many as seventeen to one bud, lapping one over the other, so that Jack Frost may pinch as hard and tight as he chooses without doing the least damage to the precious little gem<sup>1</sup> within. A lady packs up her gems and jewels in her morocco cases, lined with satin, and made soft with cotton wool; but nature guards her jewels still more choicely, for smoother than satin is the green lining of the innermost of these gummy scales, and finer than cotton wool is the soft silky down within them, where nestles the young spike of blossoms and leaves. You can already see the form of the tapering spike, and the green of the mites of leaves, and if you have a little microscope, and are always hunting for objects for it, you will be delighted to see for yourself how perfect the whole branch of leaves and blossoms is already in this embryo state. Is it not beautiful? And the more we look into them the more we see the perfection of these works of a Divine Hand; a German botanist, with a much better glass than we are likely ever to have the use of, managed to count the flowers, sixty-eight in number, and to see the pollen on the stamens.

In the Spring the sun dries up the gum, the scales crack off, and are strewn under the tree, as we pull brown paper off a parcel; and as if a fairy wand had touched them, out burst the light green leaves, like drooping fans,

<sup>1</sup> Gemma, a gem, is the Latin name for a leaf-bud.



seven springing from one foot-stalk, and four or five foot-stalks from each bud, all centring round the straight spike of blossoms, which alone points upright, while the leaves hang drooping round it. Then how fast they grow, as if they all were racing which should come to their full size first, the spikes shooting higher and higher; the leaflets, which to-day were as long as a baby's finger, are to-morrow quite as long as your own, the next day a man could hardly span them, and in a week it must be a giant indeed who could lay the leaf on the palm of his hand. Next, the May sunshine opens the blossom buds on that tall upright branch, where they grow together in little bunches of three, twenty-two of these threes perhaps on one spike, each with a calyx divided into five, a corolla of five petals, with seven stamens, and one pistil, its germ round and its style tapering. The petals are white, but the two upper ones have a large spot of colour on them, sometimes yellow and sometimes pink, and this gives the flowers a peculiarly pretty variegated appearance. Beautiful things! I am always sorry when the white petals fall off and the tree of noble spikes loses its beauty and ceases to be what it has been very well named, a giant's nosegay. It would be too much for the poor tree to maintain and bring to perfection a fruit for every one of the sixty-six flowers on each spike; so only two or three on each even form their fruit, and of these one or two generally fall off, and lie like little green prickly balls on the ground; the others swell into a large prickly green case, with a beautiful smooth lining, like white kid leather, fashioned into two cells, holding the delight of all children, two polished brown seeds, as large as a marble, and veined and smooth as the mahogany dining-table. What a prize they are, and what fun to

pick them up and play with them ; and how they are admired, especially when only half ripe, with their brown and white in spots like a piebald horse. If you put them in the fire beware, for the heat turns their moisture to steam, and in trying to break out of their hard case the steam drives them out with a bounce, breaks the case, and makes it fly all over the room. Don't eat them either, for they would make you very sick ; leave them to deer, which are very fond of them. There is another kind of horse-chestnut, with red blossoms and smooth fruit, not nearly so handsome as the common kind. Now we have come to another tree, we will not leave it without my telling you something about bark. Did you ever peel a stick ? First there is a thin brown skin, next a thicker coat, green outside, which is apt to hurt one's fingers. These are the two coats in their youth, and they are always growing and thickening each year, not from the outside, but by layers from within. The inner rind is called the liber, and on this the Romans used to write, and so in Latin a book was named liber, and you know in English a number of books is termed a library. Who would have thought of a library being so called from the bark of a tree ! The bark, I said, grows from within, receiving layers from the useful sap-wood, and so the outer coat of the tree is always growing too tight for it.

Some trees, such as the horse-chestnut, seem to manage nevertheless to keep their garments whole, but the birch peels off its old skin in long thin purplish ribbons, that are tempting to pull at ; the plane makes a ragged figure of itself by casting off its jacket in great flakes, and the oak and elm show deep furrows in their outer bark where it has split and parted wider each year, to make room for the under growth of the liber and the enlarging rings of the sap-wood.

## CHAPTER XXI

### *SUB-CLASS II*

#### STAMENS ON THE CALYX—MANY PETALS

WE have been going through one great sub-class of the first class. That first order, you remember, is of plants that grew from the outside—Endogens, and have two seed leaves—so as to be dicotyledons. The first class again of this order is of plants with stamens growing on the receptacles. We have done with that class. Now for another. This time the class is of flowers where the stamens grow on the calyx.

The first half of these, or sub-class, as the learned call it, have many petals to their flowers—like a rose ; the second half have petals all in one, like the primrose.

We begin with the many petalled set. Some of the tribes we have talked of before ; for the two first are the Butterfly flowers or Pea tribe, and the Roses, of which we talked in June.

I told you about most of the eighth class, with parts in fours and twice fours, when we were about the last bells of summer ; there are only a few more worth mentioning, such as the bright yellow-wort, with its stiff stem and handsome flowers, and the whole tribe of whortleberries and cranberries.

We pass on to the Burnet tribe, droll-looking flowers growing in clusters, the blossoms of which come out a few at a time on its round green head. It used to be valued for the food of cattle, and though it is now little regarded, it is often to be found in grass fields. If picked to pieces these little flowers will be found to have each a number of drooping stamens hanging down in crimson tassels. There is a pretty green and red moth that feeds on it and is called after it.

We now and then see the almond tree in gardens, its delicate pink blossoms coming long before the leaves, which in one variety have their under sides covered with a white cottony substance that gives them a gray, dull appearance. It is this hoariness that is referred to in that last and most solemn chapter of the Book of Ecclesiastes, where the Preacher says among other tokens that the time is coming for "man's going to his long home," that "the almond tree shall flourish." The almond tree grows wild in the Holy Land, and its fruits were among the gifts that Jacob desired his sons to carry to the governor of Egypt, whom they knew so little. The rod by which the Lord was pleased to show that he had chosen Aaron to be His priest blossomed with almond flowers and was laid up in the Ark. The wild almond, with its branches, buds, and blossoms, was the pattern of the seven-branched golden candlestick or lamp-stand. The knops we read of were for buds, the lights the flowers. Perhaps it was because the almond is the first tree that buds and shows promise.

The almonds we use are chiefly brought from Smyrna ; they are much grown about Avignon, in France, where the hoary leaves are said to give the country a dull desolate aspect. The outer case of the nut is brown, and of a

long form, to suit the white crescents that look so inviting on purple raisins, or are the hearts of such very large sugar-plums that people with moderate-sized mouths had rather have nothing to do with them, and only very small people have much desire to have such a mouthful.

That we may not be entirely un-English, we must just mention our pretty mountain-ash, its white flowers, feathery leaves, and brilliant red berries. It belongs to the same family as apples and pears, and has, like them, five pistils. The Scots call it rowan, and used to believe it had many virtues, and that a sprig of it would protect them from many strange evils.

Nearly related is the pretty Lady's Mantle, so called from its elegant leaf, somewhat like that of a geranium. The flower is a queer one in loose spikes, and grows in rough grassy places.

Of the strawberry, raspberry, and blackberry we spoke before, and near akin with their clustered heads and many stamens are the spiræas or meadow-sweets.

The creamy meadow-sweet, otherwise prettily called Queen of the meadow, must be mentioned here. The meadow-sweet has a very pretty, irregular corymb, and is particularly pretty mixed with willow-herb and purple loose-strife. There is a garden kind of meadow-sweet about which I have another pleasant school-child story to tell you :—

We had once a girl who had a very pleasant, quick, obliging way, an honest face, and good temper, that made us like her very much. We took a great deal of pains with her, and I do believe she was very fond of us, but, after a time she got careless and idle, did not do well in her first place, and we lost sight of her. After a long time her two little sisters came to school one Sunday each

with a very large nosegay of flowers, that evidently came from no garden of theirs, and which they triumphantly gave to us. We asked about them, and found that our old friend was now in service at a gardener's, had come home for a Sunday, and had got leave to bring these beautiful flowers, which she sent to us. The part of the nosegay we chiefly admired was this meadow-sweet, and a little while after, to our great surprise, the little girls brought us a present of a root, which their sister had begged from her master. You will guess, after this, that she had conquered her idleness, and was going on very well; and I am glad to tell you that I have heard nothing but good of her since, nothing to spoil the pleasure her meadow-sweet gives me every year when I see its cream-coloured blossoms.

## CHAPTER XXII

### MOUNTAIN FLOWERS AND POMEGRANATES

WE have come to a very different set of tribes still many petalled, and named from the rock lover the Saxifrage, or Stonecrop. It is a careful observer of the rule of five, with starry five-pointed flowers, yellow, white, or pink, five pistils, and twice five stamens, and fat fleshy leaves, growing low. It loves rocks and stone walls, which it lights up with its bright little stars. There are a great many sorts, best known to those who live in rocky places, and there is one very pretty kind grown in gardens, white, spotted with tiny red dots, and little pink styles and stamens. Some one called it "None So Pretty," and some one else must have thought it conceited, for its other name is London Pride; also it is Irish cabbage and Lady's needlework. Another mountain flower is the Grass of Parnassus. It is not grass at all, but has a white blossom with five round petals, and makes sheets of white in boggy places on mountain sides. It takes its name from Mount Parnassus in Greece, where those poetical ladies the Muses were thought to live.

On moorlands and in bogs grows that very strange plant the Sundew, a great lover of bogs, but very well worth pursuing into them, though you must be an early

riser indeed, if you wish to see its white blossoms open, for they never expand except just at sunrise, and shut up again immediately after it. Yet they and their six pistils are not the strangest part of the plant. Look at its leaves, round green things, widening out from a red stem, the shape of a battledore, and covered with red hairs, and on these red hairs, however hot the sun may be, there is always what looks like a pearl of dew, retained there since the morning. It is not, however, a real drop of dew, it is viscid or sticky, as you will find on touching it, and it exudes from the plant. Sometimes small insects may be found glued to the leaves by this drop of dew, and some persons think that the plant lives on their juices, and that the leaves act as a sort of trap to catch them for it. I do not much like the idea of this pretty flower being so like a beast of prey in its own small way, but it is not the only plant that actually entraps insects and is nourished by them.

The next English tribe that follows contains only one sort of plant, and that plant is remarkable for having only one stamen. You may discover it if you like to take the trouble of poking into a stream of running water, where, waving slowly with the motion of the current, you find the marestalk, why so called I cannot tell, since such a tail would look remarkably droll on any horse. It has a round thick fleshy stem, as all water-plants have, a root with a profusion of fibres, which, when you pull it up, bring an immense mass of wood and slime, and leaves, which grow in whorls, that is to say, in circles round the stem, at intervals of about an inch. They are long and narrow; and as to the flower, it is almost as if there was none at all, for there is no corolla and very little calyx. The blossoms, which come out in May and June, have no



stem, and are wedged in at the foot of the leaves ; the single anther is red.

Don't take horsetail for maretail : they are two very different things, and are as far removed from each other as possible, for the horsetail has an "unseen blossom," and belongs to the last of the classes ; while maretail, though very possibly its blossom may be unseen by you, is in all the dignity of the very few number ones of England.

A very different tribe may be mentioned next. It has many stamens growing on the calyx. Who does not love the myrtle, so pure and fresh, with its tufted stamens and delicious evergreen leaves ? It is a home friend, whether reared with pains and care in a little flower-pot on the window-seat, or, as in some favoured places it may be seen, flourishing up to the very eaves of the house. Broad-leaved or narrow-leaved, it is always honoured and respected, and treated as something choice—one of the simply dressed but high-born ladies of the flowers, her purity and modest grace, her attraction, without gaiety of colour, as we said before of her companion the jessamine. It grows in perfect thickets in Italy and Greece, though ancient writers say that it was not originally a native, but was brought from Asia. It was highly esteemed by the old Greeks and Romans, and myrtle wreaths were used as well as bay to adorn the victors in their games. It was considered to be the plant of peace and love, and when a general gained any great advantage for his country without bloodshed the myrtle was wound with his garland of bay. The goddess of beauty, Venus, was said to have sprung from the sea-foam with a myrtle wreath round her brow, so the Roman ladies used to put the leaves into the water in their baths, as if they thought beauty must come out of myrtle tea. German

girls each grow a myrtle in a pot, and from her own plant the bride's wreath is woven. The fruit of the myrtle is a purple berry, which seldom or never ripens in England, but was once used in cookery by the Romans. There is, however, a large kind of myrtle growing in Jamaica, which is called the pimento, and which supplies us with allspice for our puddings.

The tribe of loose-strife seems as if it might be so called because the blossoms are both loosely shaped and loosely set on their spikes. They have crumpled petals, and about eleven or twelve stamens more or less. A dry, hard, narrow urn or capsule takes the place of the flowers. One sort is the tall purple loose-strife, which borders our streams with rich purple wands fit for a fairy emperor, with leaves that at touch of autumn turn to a bright rich crimson, or sometimes they make a sheet of gorgeous though sober colouring over a marsh.

That urn of seeds is something like that which is borne by a few more renowned sorts.

The Pomegranate tree is sometimes seen in England against walls, for the sake of its deep crimson blossoms. We must look to the bright Mediterranean shores to find its fruit ripened; rich orange-shaped and coloured fruit, divided into five cells, containing numerous seeds in purple pulp (from which it is called the Pomegranate, the seeded apple), gathered into a sort of crown at the top, formed by the old calyx. Its name puts us in mind of many things: the bells and pomegranates of gold that bordered the robe of the high priest, and the workmanship of the gold of the inside of the Temple, where it must have had some signification which we cannot understand. The Spanish Arabs named their loveliest city Granada, because they thought the form of the soft rounded vale like the outline of the

fruit. The fruit became the ensign of the city, which was the birthplace of our poor Queen Katherine of Arragon, and in remembrance of that fair home of her youth the pomegranate became her badge, and afterwards that of her daughter Mary.

## CHAPTER XXIII

### WILLOW HERB AND FUCHSIA

THE rule of four is observed by all the plants we come to now. They all look a good deal alike when they are young, for they all have leaves growing in pairs on opposite sides of the stem, simply shaped, rather pointed, and often toothed ; and their petals, their stamens, and their seed cells are always either four, half four, or twice four, and generally rich red and purple colouring.

There are the willow herbs, the tall French willow herb, with its curiously-cut petals and red calyx and spires of blossom, and the English willow herb, better known as "codlings and cream," which opens its fine red blossoms by the river side, the white stigma within divided into four, and opening like another little flower. There are three or four poor little pale willow herbs besides, which do not look as if they were of the same family as these fine handsome flowers, but, like them, have very beautiful seeds, each furnished with a very long graceful feather of white silk with which to fly away to seek their moist nursery.

The parts of willow herbs are all in fours ; four petals, four divisions of the calyx, four seeds, twice four stamens ; and so it is with the bright-coloured yet grave bell that is

ringing in all gardens, almost in all houses, and taking its part in the last chimes of summer.

The fuchsia I mean, with its deep red calyx, and the fine violet petals rolled round the long stamens, one of the most richly coloured of flowers. It grows wild in Mexico, where its crimson flowers hang down from very large bushes, high up on the wild volcanic hills. The first that was ever brought to England was a present from a sailor to his old mother who lived in some small street in London, and kept it in a flower-pot in her window. Much must the old woman have delighted in watching the unfolding of the long crimson drops into the drooping blossoms, so unlike all that she had ever seen before, and putting her in mind how her son had remembered her and thought of her in lands so far away over the broad sea. But she was not the only person who admired the flowers, though no one could have loved them so much ; a lady stopped at the sight of what was so beautiful and uncommon, looked at the blossoms, and heard their story. She went to a great gardener to try to find this new plant there, and described it to him, but he had not seen one, nor even heard of such a flower. He asked the direction to the old woman, went to her, and offered half a guinea, one guinea, two guineas for the beautiful plant, but still the mother would not part with it till he had promised her that the first young plant he could raise should be hers. He took it home, pulled off every blossom, cut it up into slips, and put them into a forcing frame, where they quickly grew and flourished. And soon fuchsia plants at two guineas a piece were in the grandest drawing-rooms in London, but the most prized of all was that which came back to the old mother. She had her share of the profits too, and when the sailor son came home from

his next voyage he found that his present had provided for the comfort of her old age, as well as cheered her in his absence.

This was a long time ago, and the fuchsia thus obtained is now called "the old-fashioned fuchsia," and not often found except in the gardens of old houses, it is rather larger and more delicate than those we usually see, which are for the most part seedlings.

There are several large new sorts, but they have in general lost their grace while becoming larger, and their colours are not so good and deep as those of the smaller and hardier ones. I suppose it is an acknowledgment of the beauty of the fuchsia that it is a very favourite shape for ornaments, such as brooches, pins, etc., which, however, only serve to show us how miserable and clumsy are man's best imitations of the wonderful works of God. How well I remember days when it was our delight to keep shops in the garden—grocers, dressmakers, jewellers, etc.—with flowers, leaves, and grass to represent the goods. We all wanted to have fuchsias in our shops because they were so pretty, and I think we used them very ill, for they were ear-rings at the jeweller's, and artificial flowers at the milliner's, and at last our little tailor decided "that they were a very curious sort of trousers," and so they figured in her shop.

A fuchsia is a very puzzling word to spell till one learns that it was called after a German botanist named what would be Fox in English, but is Fuchs in German.

To these must be added the Enchanter's nightshade, a very pretty little plant, with a long spike of delicate white flowers and pink buds, but only two stamens. It comes up as a weed in gardens, but I do not know the reason of its name.

Those pretty delicate annual flowers, the Clarkias, belong to this family, and another relation is the evening primrose, which opens its lemon-coloured flowers in the twilight. All have those beautiful curling two-cleft stigmas.

## CHAPTER XXIV

### THE PASSION FLOWER

THE next plant returns to the rule of five. It is one that has a glorious name, the beautiful Passion Flower. It is a South American plant, but will grow freely in England, so that even cottage walls may be wreathed with its climbing stems, twisting tendrils, and hand-like leaves. It is so curious that I will give you a close description of it, which you may compare with the flower when it is in blossom. The calyx does not, as usual, form the bud ; there are three large pale leaves, or bracts, just outside, which fold over the blossom and hide its mysteries till they are ready to unclothe. Within these are the corolla and calyx, each consisting of five divisions, and so much of the same colour that we should take them all alike for petals if botanists did not tell us to think otherwise ; the calyx leaflets may be distinguished from the petals by an odd little horn growing on the back of each. Within is the especial glory of the flower, a circlet of fleshy threads, spreading out like rays, and marked with brilliant blue, black, crimson, and white. Some sorts have ring within ring, growing gradually shorter, till they end round the column in the centre, where on one stem, as it may be called, grow both stamens and pistils, five yellow anthers



arranged in a circle, and not, like other anthers, opening their boxes of pollen downwards, but holding them upwards. Why is this? How is the pollen to reach the germ if it is not as usual poured down?

There is a fruit-bearing passion flower with large yellow berries, and there are purple and crimson sorts. It is curious that while the fruit is harmless the root is poisonous.

Climbing and weak like the passion flowers are the whole tribe of Gourds, but they have the habit of keeping all their stamens in one blossom, all their pistils in another, and the pollen is carried by the bees, who like to revel in their yellow depths. They all have soft trailing stems of marvellously quick growth, large pinnate leaves, and blossoms generally yellow, of one petal divided into five; in the stamen-bearing ones containing three filaments and anthers closely joined, like the brotherhood class; and the pistil-bearing perched above a great swelling germ, which in time becomes a very large fruit.

Here in England we are obliged to raise them under glasses, as the heat is not sufficient to bring them forward; and here, for want of winds and bees to waft the pollen, gardeners are obliged to do it themselves, and carry the stamens to the pistil, before the fruit can be formed.

The cucumber is the most grown and most useful; next to this comes the melons, handsome round fruits, full of fleshy pulp, most cool and delicious, with its sharp taste. The water-melon is full of juice, which is most precious to people in hot countries. In Italy men set up booths with shelves of water-melons, slices of which they sell to the thirsty people, who enjoy them exceedingly; and in the East they are much prized. It seems a special gift of Providence that with very little water these im-

mense plants should grow up bearing such a profusion of the coolest fruit.

Sometimes the gourd plants are trained over porches and trellises so as to make a cool and beautiful bower. You remember how Jonah rejoiced in the gourd that grew over him, most likely supplying him with food and drink as well as shelter, and how he was grieved when the worm at its root withered it at once away in a single night.

Here the first touch of frost is as effectual as the worm, and our great vegetable marrows that the day before threatened to take the whole garden for themselves with their noble branches and great leaves and mighty fruit are, on the October morning, nothing but a spectacle of yellow ruin and decay, showing indeed how "the creature is subject to vanity."

Some kinds of gourds have a rind which becomes very hard, and these are very useful to the Hindoos and many other dwellers in hot countries. They scrape out the inside, fill the rind up with sand to prevent it from contracting, and set it in the sun to dry, when it becomes a vessel capable of holding water, and often called a calabash. Another kind is called the bottle-gourd, because by tying a band round the fruit when young it is made to grow into the shape of a bottle. For many reasons, therefore, these great fruits, though all kinds are not equally wholesome for food, are very precious, and are much grown in the East. You know the prophet Isaiah speaks of the "daughter of Zion being left like a lodge in a garden of cucumbers," meaning the little hut built in a field of melons where a man might be set to watch lest they should be stolen. As lonely stood Jerusalem when all her surrounding villages had been destroyed.

The pumpkin is a fine handsome gourd, often marbled

with patterns of green. In America it is much used for cattle, and I believe a horse at an inn door will eat a pumpkin when our horses would be having hay. A pumpkin pie, too, is one of the favourite dishes; it is what we should call a pudding—there is no crust over it, the pumpkin being mashed up and used with egg and milk as we use sago or arrowroot in making a pudding.

Pumpkins make us think of Cinderella's coach, and there is another funny story of them with which I will end my chapter. It is rather old, but perhaps you may not know it. An idle man once lay down under an oak tree and began thinking with himself how much better he could settle the world if he had the power. For instance, what a pity it was to see such a fine lordly tree as the oak bearing such a wretched little fruit as the acorn; it ought to be ashamed of itself, while there was the pumpkin going crawling on the ground with those large handsome fruits. For his part, he thought acorns were good enough for such plants, and that pumpkins ought to grow on oak trees.

Just then he felt a tap on his nose; he jumped up in a hurry, and found it was an acorn that had fallen on him. "Oh!" cried he, "how lucky this was not a pumpkin!"

You may have your laugh, and then think whether this fable does not show that when people dare to find fault with the wisdom of God's doings it is their own ignorance that is displayed.

The climbers of the pentagon race have a very pretty relative here, with the same pinnate leaves, corkscrew tendrils, bright berries, green blossoms, and climbing stems; the wild vine, or white bryony, which throws itself about on all the bushes within its reach and adorns

them with its graceful shoots. There is one which I have been watching all the summer creeping up a tall pink thorn, and it is now nearly at the top.

There follow Begonias, hot-house plants from America, with curious highly-coloured one-sided leaves. You may generally meet them at a flower show of all manner of shades of red or yellow.

## CHAPTER XXV

### PRICKS AND UMBRELLAS

MORE many-petalled flowers are to come, the great Cactus race, sometimes called melon-thistles. I have only known them in greenhouses or windows, where they unfold their rich scarlet or pink blossoms on their ungainly, leafless, prickly stems, bristling with tufts that seem as if they had been pulled out of a tooth-brush, and stinging the unwary finger. The finest we see is the Cactus Grandiflorus, a very handsome red flower, with an exquisite tinge of purple within, and a long tongue of white stamens clustered close together ; or there is the pink kind, and a second pink one, that creeps about in long ropes covered with bristles, and very seldom does its owners the favour of blossoming. At gardeners' shops we now and then see odd-looking round things, like little melons, stuck all over with tufts of hoary spikes, like vegetable hedgehogs, and now and then, by good luck, bearing one small pink blossom in the centre of each tuft ; or perhaps some kind friend has brought you home, from the Pantheon bazaar, one of these droll little wonders, growing in the smallest of red flower-pots, and looking more like a thing in a doll's house than a living plant ; but all this gives us very little notion of what a cactus really is—no, and we should

not be much nearer the truth even if we had seen them growing in the beautiful rocky gardens of the Scilly Isles, where they hang down with their rich red blossoms over almost perpendicular faces of rock.

As far as I can make out, a cactus, in its own tropical regions of South America, is like a vegetable boa-constrictor, covered with porcupine's quills, hog's bristles, or wasp stings, in addition to the most magnificent crimson, scarlet, or yellow flowers. Some of them are so large and thick that they produce solid wood, and they hang from tree to tree in matted, tangled ropes, twisted in and out so thickly as to be perfectly impenetrable. The axe of man is soon wearied out in struggling with them; and the wild animals themselves cannot force their way through, but can only pass through lanes, as it were, in the forest, which their own constant tread has worn down, while even jaguars cannot descend through the tangled mass below the branches of the trees. Two missionary settlements, but half a mile apart, situated on different small streams running into the same river, have not the least communication with each other through the jungle, and the only way of going from one to another is by descending one stream and ascending the other, a distance of eight or nine miles.

In India fences are made with cactus, and the unwary who have tried to get through them have come out stuck completely over with spikes, pinning the clothes and even boots fast down to the flesh. In fact, as a fortification for a garden, the cactus must be acknowledged to be superior even to our own holly hedge. Of the same race is the great night-blowing cereus, a rich white flower that only opens by night, and with its flame-coloured stamens, as it unfolds in its own flowery land of Mexico, looks almost like a great lamp.

It would be hard to love a cactus for its own sake, though many love it for putting them in mind of some friendly window where the red blossoms have peered over the white blind, and kind voices and cheerful faces have dwelt ; but the staring flower and unshady stem have few personal charms.

There follow it the sun-basking flowers or Mesembryanthemums—dreadful word to look at, but only meaning noon-flower, a thing with a star blossom, and thick, fat, fleshy leaves, that hang over rocks and walls in the sun.

Both these hot, high-coloured sunny things are great contrasts to their neighbours, the quiet, homely umbrella carriers, or umbelliferous plants, so called from the Latin word *umbella*, an umbel, or little shade.

They are not, however, by any means the most shady of the vegetable tribe, for few are of any great height or size, and their leaves are so deeply cut and carved, so slender and so branching, that even a parasol-ant would hardly be sheltered under one. They have nothing of the umbrella but the spokes.

First, there rises from the ground one tall straight stem, often hollow, and sometimes either ribbed, curiously spotted, or covered with hairs. The leaves, spreading and elaborately pinnate, grow for the most part close to the root, and a few more grow at the joints of the stem.

Each stem is terminated by an umbel, that is to say, five, six, seven, or eight little slender branches, all growing out from it, as their common centre, and all of equal length, like the ribs of a fan. From each of these there springs a second set of lesser spokes, each of which bears a small flower, with five petals, five stamens, and two pistils.

These flowers are usually white, yellow, or green, and so much alike are the plants of the tribe in general appearance that it is not easy to distinguish one from the other. Almost all have an oval fruit, which splits into two halves when ripe and becomes brown. The prettiest seed among them is that of the shepherd's needle, a low plant, which you may easily find among the corn, with some of its umbels still bearing white flowers, whilst others stretch out the long sharp-pointed beaks of their seeds, from which they have taken the name of Shepherd's needle, or Venus's comb.

Umbelliferous plants usually are found in temperate climates, and, strangely enough, they are in most cases unwholesome in their native state, though, when cultivated, they become very valuable vegetables. Carrot, fennel, parsley and celery, all have wild brothers, which it would be very dangerous to eat, and even our garden celery is only made wholesome by being kept in the dark, half-buried in the earth, which, though it makes it very pale and yellow for want of the light of the sun, deprives it at the same time of its poisonous qualities.

Carrots have by diligent cultivation been brought to be those large bright orange-coloured roots which look so tempting when sliced into broth. Their leaves, too, are remarkably pretty, and in the days of the shops of which I told you before, the carrot-bed was our best warehouse for silk dresses, as the variety of colours, purple, crimson, scarlet, yellow, and green, all blended together, was such as no other plant furnished.

Caraway seeds, which we find in seed-cakes, belong to an umbelliferous plant; and that best of sweetmeats, angelica, is made from the stem of another which grows in wet places.



Earth-nuts, which all country children are perpetually seeking in vain, lured on by the legend of some elder cousin, who once dug up a beauty, are the tubers belonging to a very pretty umbelliferous plant, with star-like blossoms and delicate leaves, and a fibrous root, with a tuber that unskilled hands generally leave behind.

Hogweed has rough hairy pinnate leaves that children often bring home from the hedges to delight the pig with, and late in the year it bears large umbels, so thick and close that they make quite hollow cups.

Cow-parsley is a delicate pretty plant, and its purple stem in early spring, fluted like a pencil-case, and covered with small white hairs, is one of the most beautiful of unregarded common things.

The largest of the tribe that is common among us is the tall poisonous hemlock, whose ribbed and spotted stem is so well known to village boys as being capable of being made into a sort of musical instrument for the perpetrating of horrible noises, causing great exertion to themselves, and making their sisters stop their ears and run away. An immense kind, called the chandelier hemlock, has lately been brought to our gardens from America. It is like the common sort seen through a magnifier; it is to common hemlocks what the Mississippi is to other rivers.

The gout-weed has handsome dark green smooth leaves and a creeping root, very hard to turn out when once it has made its way into a garden. It used to prevail to a great extent in my own little nook; and no wonder, you will say, when you hear the way I managed it, which was so silly that I can hardly believe any child could have thought of it.

“Mamma, I am going to give up half my garden to

that weed and see if it will not be contented with that."

Well, I was a bad gardener; but it will be well for us if we do not treat the gardens within in the same fashion, by letting some one fault go on unchecked, for it will as surely eat up and ruin our hearts as the gout-weed did my poor little piece of ground.

The sanicle, a curious plant growing in woods, has umbel-forming little balls of brownish white flowers, and is the last of the tribe that seems to be worth noticing.

You might be tempted to think that the cornel tree was umbellate, but it has not the regularity of the true umbrella, and has irregularly-formed heads, called cymæ. The commonest sort is the dog-wood, which has little white blossoms, rather shabby, and dark purple berries. Its beauty is in autumn, when its leaves turn to all kinds of colours—very dark purple, almost black, reds, and yellows, framing the hedge with new glories in decay.

## CHAPTER XXVI

### HONEYSUCKLE AND ELDER

WE have gone through most of our acquaintance of the many-petalled flowers with stamens on the calyx, and now we begin on those which have all their corolla in one, so that when it drops it looks for a little while as if the whole flower had fallen. We start with the honeysuckle, or woodbine, far from a regular flower, though constant to the rule of five. Delightful honeysuckle! a dweller indeed by our paths and homes, and a constant long-enduring friend, its stem becoming hard wood, and growing on and on till perhaps generation after generation have been born and died within the house where it spreads and luxuriates, and the children who have gathered its fragrant blossoms have grown old, still owning them as an unchanged part of their home.

A constant, early, hardy friend it is, its twin leaves coming out first of all, even in the midst of winter, bringing cheerful promise of spring, and hanging on the bare boughs through many a return of cold and storm, bearing the chill crystals of hoar frost as merrily as if they were but dewdrops of a summer morning. A constant friend, indeed, as many a hazel stick can testify, so constant that it becomes part of the very wood itself,

actually one with it, assuming the same bark, and giving it a strange twisted, whorled appearance, as if a snake had twined round it. Most boys have met with these twisted sticks, and in that case the friendship has generally ended in the death of both, for who could resist cutting such a precious walking-stick, unless, indeed, it was in a wood where such cutting was forbidden!

There are two sorts of wild honeysuckle; one is all white outside with the interior of a pale glazy cream colour, and with leaves making a cup round the stem. It blooms in the autumn. The other is red on the outside, and has leaves in pairs. They are alike in all the main points, such as the long, pin-like pistil, the five slender stamens, the corolla with its very long throat, the little drop of perfumy nectar at the bottom, and the top deeply cut into two divisions one long and thread-like, the other broad and notched into four scallops, so as to keep up the pentagon character. Then look at the bud, how the wide part is doubled down, and the slender linear division closes down over it, with a red edge marking its form, buds and fully opened blossoms all standing in graceful, bending, diverging positions on the common receptacle, guarded a little way down by leaves embracing the stem, one of the most elegant, the sweetest, and most charming of all our plants. The fruit is a red, glossy berry, which you may often find in clusters in the winter.

There is besides the French honeysuckle, with small sweet blossoms out of very red buds and long red shoots; and the pretty variegated Chinese honeysuckle, whose few blossoms are delicious.

Of the same tribe is the pretty white Snowberry with its little pink flowers in pairs. It came originally from Canada, but it likes our climate so well, and has been

planted in so many woods for pheasants to eat, that it may soon be looked upon as being naturalised among us.

The elder tribe has cymes irregularly branched, and the small white blossoms have three stigmas instead of only two, and their fruit is a single hard seed, enclosed in a berry.

Elder blossoms are delicious in smell, as you pass along some shady lane, where they raise those fine broad flat cymes, valued by the makers of elder flower water, and afterwards bearing dark rich purple berries so useful for making elder wine, while little boys have scarcely less liking for the tree, the branches of which may furnish them with pop-guns when they have pushed out the soft pith. This pith is so large that we have a good opportunity of seeing in it what plants are made of. If you look at a thin slice of it, or at the pith of a rush in a magnifier, you will see that they are something like a honeycomb, divided into six-sided compartments or cells. These cells, tiny as they are, are larger in the elder pith than in almost any other plant, for they are found in every vegetable that grows, in stalk, leaf, and blossom; the whole is a tissue of these minute cells, formed of a thin skin, or membrane, colourless itself, but holding in each cell a drop or grain, green, red, blue, or whatever may be the colour we see in flower or leaf. How beautifully arranged these little cases must be, to give the delicate shading in one flower, and the sharply-defined tints in another—a blush rose, and a tulip for instance. It is the white shining membrane through which we see the colour, that makes flowers have their satiny polished look, and indeed that polished surface is of great use in turning off wet, being such that dirt cannot stick to it. Inside the petals the colour is generally liquid; in the

leaves there is a little grain in each cell, lying in the midst of a green liquid, which dries up as autumn comes, while the grain turns yellow, red, or brown.

A good deal like the elder in appearance are the white blossoms of the wayfaring tree, so called because it grows by roadsides, and cheers the eye of the dusty traveller. It has large ribbed leaves covered with short white cotton, and its berries when half ripe are most beautiful, being a pale waxy yellow, shaded on one side with deepening red. Of a bright clear scarlet are the berries of the pretty wild Guelder rose, which blossoms in a very peculiar manner. All the outermost flowers in the cyme are large, and of a much brighter white than those within ; but on examination you will find that they contain no stamens or pistil, and only serve as an ornamental border to the smaller flowers within, which are perfect in all their parts. The Guelder rose, cultivated in shrubberies, and called by children the snow-ball tree, bears nothing but these imperfect flowers, which, instead of being merely an edging, occupy every branch of the cyme, and form those beautiful white globes, so brightly white and so soft. Most delightful playthings are those summer snow-balls, coming with Whitsuntide, and joined in all our pleasant remembrances of May and June, and long warm evenings, when they look so white and moon-like in the midst of the dark foliage of some shady path. The snow-ball tree is said to have been first brought from Flanders, and to have taken the name of Guelder rose from the duchy of Gueldres.

Laurustinus, gay even in winter, with evergreen leaves, pink buds, and white blossoms, is a native of the south of Europe and north of Africa.

## CHAPTER XXVII

### LIPPED FLOWERS

THE Figwort tribe follows, led off by the English glory of the woods in late summer.

In the south of England the foxglove peals of bells have in general ceased to ring before the 1st of August. The foxglove, the special fairy flower, called in Ireland fairy-cap, and where the little elves are said to hide themselves when a human foot approaches to disturb their evening dances, and I believe the English name is properly folks'-gloves, the fairy folks. Beautiful foxgloves! the purple bells hanging in profusion on their tall proud stalks, growing in whole multitudes on the sunny dry bank, or lifting tall spires among the gray dark ruined walls! how fair and bright they are, and yet it is half sad to greet them, for they first come to tell us of the decay of summer.

They are loved by little children too for the loud popping noise made by enclosing the air within them and then cracking them, for which reason they are apt to call them poppies, though this is a silly name, and does not belong to them.

The foxglove is one of the largest of a numerous tribe of flowers, called Labiate or lipped, and therefore its parts

should be examined closely. Its corolla is of one petal, with a narrow throat fastened into a five-cleft calyx, there is one pistil divided at the top, and a large round germ. The stamens are four, two long and two short, and it is this which is the chief distinction of the tribe.

Those of the foxglove are bent in the middle; the outside of the corolla is purple, the anthers are of a very pretty bright delicate yellow, spotted with dark brown; the throat of the flower is shaded with white, and speckled with dark red spots, sometimes bordered with white rings, with long downy hairs growing out of the spots; the pistil is deep purple; the calyx and leaves are of a soft light green, and altogether there are few English plants so handsome.

Another of the tribe is the snapdragon, with its odd red and yellow, or white and yellow mouth, within the close-shut lips of which may be seen the two long and two short stamens, and the pistil like a tongue, and plenty of honey too, after which the bees creep into the little box, shut themselves in, and then come backwards out, all over yellow pollen. The great snapdragon grows on the old town or castle wall which once saw battles and sieges; its relations are humbler, the small ones live in dry fields; the tall yellow toad-flax, with its sulphur-coloured upper lip and orange-coloured lower one, and its long spur, abides in dry hedges; the ivy-leaved lilac toad-flax clothes the bare rock, and the brown and yellow sort creeps in the fallow field.

The beautiful blue skull-cap grows by the water-side, its seed-vessel is really like a skull, and that of the garden monkey-flower is not unlike a monkey's face. The musk, with its strong scent, is the smallest of this family of monkey-flowers, it is very necessary to say, or





been handed down by tradition without books from many ages past.

Many fatal mistakes these poor old people must have made, and very thankful we may be that all the benefits of good and superior care have come amongst us, more easily obtained by the poorest now than then by the richest and greatest.

Most of them come rather late in the summer. Among them are the red and the white eyebrights. The red is not beautiful, it grows by roadsides, and is all dingy red with a pale pink blossom. The white is a bit of the embroidery of heaths and downs, a beautiful little white stitch in the pattern, with its clear white blossom prettily marked with yellow and purple.

Two plants somewhat alike in flower follow—the yellow cow-wheat and yellow rattle. It is said that yellow cow-wheat grows in woods only that have never been disturbed. It has dark smooth stems, long thin brownish leaves, and pale yellow flowers. The yellow rattle is in damp meadows and bogs. Its name is given because its ovary swells into a loose purse where the seeds rattle, but it is also called St. Peter's Wort, because to each flower there is a bract, curiously jagged like the comb of a cock.

Red rattle is of two kinds, one large and tall with pink flowers and a branching stem, the other a little pink bit, of the same embroidery as the eyebright.

Then there is figwort, a tall plant with a square hollow stem, and dingy dark red blossoms, far from beautiful.

And very curious is the broom rape, a brown thing with nothing flower-like about it but the four yellow anthers. The root is a succession of yellow scales, and

one might be in the case of the gentleman who sent to Brazil for all the sort of monkey-flowers his friend could obtain, but unfortunately made the important blunder of leaving out the word flowers, and in consequence received a whole ship load of chattering, grinning monkeys from the American woods, with a message that there were a few scarce ones to follow by the next opportunity. The yellow monkey-flower grows so easily that it is sometimes found quite wild. Gardens possess, too, the tall, long, red penstemon, with five stamens indeed, but one only a mock one, for it never carries an anther.

All these have a large high seed-vessel ; but there are labiate flowers proper, which have only four naked brown seeds at the bottom of the calyx. To this tribe belong the herbs which have the strongest scent, the lavender and rosemary, basil and marjoram. The sage, which has but two stamens, branched however so as to carry four anthers, is one of this tribe, with all the other *Salvias*, less useful, but far handsomer, scarlet, blue, and crimson, and the wild clary of the woods. Nor must we forget thyme, sweet thyme, both wild and tame, beloved by bees, the delicious beds of which are so soft, and send forth such a fragrant smell when trodden on ; the basil thyme, too, in the fallow field, deep blue, with a pretty white crescent on its lower lip. Almost all this tribe have a strong scent, and are often very useful. There is the white and the red archangel or dead-nettle, so named from their nettle-shaped leaves, and with so sweet a drop of honey at the bottom of their throat. The purple prunella or self-heal, and the creeping ground-ivy, all used to be very highly valued when doctors were few and the chief mediciners of the villages were "cullers of simples," whose knowledge of herbs had

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Many fatal mistakes these poor old people must have made, and very thankful we may be that all the benefits of good and superior care have come amongst us, more easily obtained by the poorest now than then by the richest and greatest.

Most of them come rather late in the summer. Among them are the red and the white eyebrights. The red is not beautiful, it grows by roadsides, and is all dingy red with a pale pink blossom. The white is a bit of the embroidery of heaths and downs, a beautiful little white stitch in the pattern, with its clear white blossom prettily marked with yellow and purple.

Two plants somewhat alike in flower follow—the yellow cow-wheat and yellow rattle. It is said that yellow cow-wheat grows in woods only that have never been disturbed. It has dark smooth stems, long thin brownish leaves, and pale yellow flowers. The yellow rattle is in damp meadows and bogs. Its name is given because its ovary swells into a loose purse where the seeds rattle, but it is also called St. Peter's Wort, because to each flower there is a bract, curiously jagged like the comb of a cock.

Red rattle is of two kinds, one large and tall with pink flowers and a branching stem, the other a little pink bit, of the same embroidery as the eyebright.

Then there is figwort, a tall plant with a square hollow stem, and dingy dark red blossoms, far from beautiful.

And very curious is the broom rape, a brown thing with nothing flower-like about it but the four yellow anthers. The root is a succession of yellow scales, and

perches on the roots of furze and broom to suck their juices. A smaller sort lives on the roots of clover in like manner. These have capsules over their seeds. Other labiate plants have only four black seeds at the bottom of their calyx, quite uncovered. These are the white dead-nettle, or archangel, so called because it shows its white flowers and black stamens about Michaelmas Day, the yellow dead-nettle or weasel-snout, the purple betony, the blue bugle, gray mint, and pale green wood-sage or germander. There is a beautiful deep blue sage not very common. Some people, when anything has gone into the eye, put in a seed of this sage to clear it out.

Most of the pot herbs belong to this tribe, as almost all its plants are wholesome and have a strong aromatic or spicy smell.

## CHAPTER XXVIII

### TWO STAMENED FLOWERS

NEARLY related to the lipped flowers are some others that have only half their number of stamens, and do not form a gaping flower. These are the pretty tribe of veronica, tiny plants, with a corolla always four-cleft, with two divisions equal, and of the other two one much larger than the other. Their English name is speedwell, and a very pretty name it is, for such bright cheerful wayside flowers as they are, peeping out with their blue eyes under the dusty hedge to smile on the tired traveller, and give him a cheerful greeting to speed him well on his way. The largest English kind, the germander speedwell, is of the most lovely azure that I know in any flower. The common speedwell, with a small pale flower, is a very troublesome weed in gardens; the water speedwell, or brooklime, with a fat fleshy stem, has a very pretty blue flower, and is no doubt known to watercress gatherers. The leaves of all, except the two water kinds, are cut like the edge of a saw, and covered with small white hairs. The capsule, or seed-vessel, is very prettily shaped, just like a heart with a rib in the middle, dividing it into two halves. There are a great many English sorts, and many more foreign ones, some of which are cultivated in gardens.

The Latin name, *Veronica*, means true image. I do not know why it was given to this little flower, but I like to think that it was thus intended to put us in mind that the true image of the greatness and goodness of God may be seen reflected in the marvellous structure of even so lowly a work as a little blue speedwell.

And growing in spikes with five-cleft corollas and downy stamens are the mullein tribe, very woolly plants in general, leaves and all covered with down, and the yellow blossoms in tall single spikes. The great white mullein has leaves nearly white with down, white furry stamens and red anthers; the black mullein is likewise yellow flowered, but the down on the filaments is purple; the moth mullein is the prettiest of all, with yellow butterfly-like blossoms on a loose spike. It is often found in gardens; sometimes, though rarely, wild.

The bladderworts have yellow flowers with a long stem and two stamens. Their name comes from their leaves having little vessels scattered over them, which keep the plant buoyed up on the surface of the pool in which it grows till it has ripened its seed, when the plant sinks down. It is a cruel plant, for it makes itself a trap to little insects, also the young of fish, and feeds on them. Its cousin, the pretty purple butterwort, growing in bogs is more harmless.

After some tribes of which we know nothing, here follows the sweet-scented verbena, with those most fragrant of all leaves, which are sometimes called lemon. It comes from Buenos Ayres, and its splendid brethren, the creeping verbenas, purple, crimson, or dazzling scarlet, are, I believe, Mexican, and form the pride of gardens in early autumn. But the most curious history of all belongs to the little plain English verbena, a plant with insignificant

whitish lilac flowers, that is generally to be found in hedges by turnpike roads, in July or August, coated all over with dust. Vervain, as it is called in English, played in ancient British days a most important part; indeed, the Druidesses made as great a fuss with it as the Druids did with the mistletoe. The strangest thing was that they were never to touch it. It was to be gathered at midnight, at the full of the moon, in this manner: a long string with a loop in it was thrown over the vervain, and the other end fastened to the left great toe of a young virgin, who was then to drag at it till she had uprooted it. The eldest Druidess then received it in a cloth and carried it home, to use it for medicinal purposes and offerings to their gods.

After Druidism had long been forgotten, vervain was still considered as full of healing virtues, and it always stood first among the herbs used by the old women who used to be the only doctors.

The verbenas have a four-cleft corolla, and sometimes two sometimes four stamens.

After which we turn to the plantain or ribgrass, the prettiest kind of which is the ribwort plantain, better known to country children by the name of knock-heads. You see the reason of the name of ribwort in the broad ribs of the leaves, with their purplish pink stems; and oh, the toughness of the stalks, so much easier to pull up from the root than to break.

The head of blossom is very pretty; the little calyxes as black as jet, and very hard and lasting; the corollas very small and brown, and coming out like the teazel, in bands, instead of all at once; the anthers cream-coloured, and the filaments very long, so that when in blossom the black head wears a most beautiful and grace-



ful wreath of white dancing pearls or studs, I hardly know which to call them.

I daresay you have often twisted and knocked the heads together, to try which has the strongest stalk, but I wonder whether you know how to make a knock-head basket? Gather a good many of the longest and strongest you can find, pull off their pretty black heads, crowns and all, then take the stoutest of all, and give it to some small brother or sister to hold at full length for you. Then take one of the others, bend it in the middle, and give it one twist round the first. Oh, but we want another pair of hands, some other little person must come and hold the ends; hold them tight while you twist another knock-head in the same way, and add the ends to the former one; then another, another; hold fast and be patient, little helpers, till some twenty or five-and-twenty have been put on, twisted in the middle, and the ends held in two bundles. Now get some string, tie one set of ends together, now tie the other, cut them even, then release the little ones who had been holding the first stalk so patiently, and tie the ends of that together as neatly as you can for the handle, and now you have a knock-head basket. It will not stand, to be sure, for it has only a ridge at the bottom, and it will only last a day, but it will do very nicely to please the little ones and hold daisies; and if you are as happy making them as I have been you will not be much to be pitied.

Here is the hoary plantain, with leaves growing in a neat compact form close to the ground, tall stems with white cottony coats and tall heads, which have pretty pale pink filaments and white anthers; there is also the buckshorn plantain, or star of the earth, so called from its branching leaves, which spread out like a star in very

dry pastures. And the greater plantain, with very long heads and pink stamens, growing in the edges of fields and in the sides of cart-tracks, is well known to all keepers of caged birds, for the chirp and hop with which the canary or bullfinch receives it is a sufficient reward for all the pain the tough stem may give the fingers that uproot it.

The bay tree belongs to the next tribe ; I daresay you know it well, those fragrant evergreen leaves are so pleasant to gather and make a nice mark for the collect and psalms in a prayer-book. It grows wild in the south of Europe, and was greatly prized by the Greeks and Romans ; indeed it was of bay leaves that they wove the wreaths with which they crowned their victors, either in war, poetry, or their games of strength and skill. These are the corruptible crowns for which the Greeks strove and trained themselves with so much more self-denial and steadiness than the children of light are always ready to take for the crowns of glory that will never fade away. The Latin name of the bay is *Laurus*, and this has made a little confusion, as the laurel is quite a different plant ; but whenever you hear of people being crowned with laurel, like Julius Cæsar, it is sure to mean with bay.

The cinnamon tree is a sort of bay, which grows plentifully in Ceylon, and its light shining evergreen leaves are most beautiful in the woods. It is the inner bark that we use to flavour puddings, and the seed, when boiled, yields an oil that hardens into white cakes and is made into candles. The camphor tree, another of the same family, is found in China and Borneo, and the white lumps of fragrant refreshing camphor are obtained from its leaves by distilling them.

## CHAPTER XXIX

### CROSSWORDS

ALL the plants in this tribe follow the rule of four, but still have only one four-cleft petal. Though the Valerians often have only three anthers, it is because one stamen is imperfect. There are three sorts. One, dark red, making a grand banner to adorn old castle walls or rocks by the seaside. Great Valerian is of a pale flesh colour, and likes bogs and river sides. It has pretty feathery leaves, and what is curious is that cats are very fond of it, and like to roll and tumble and purr over it in perfect ecstasy. Lastly, Small Valerian is a lesser likeness of its big brother, and whiter. There is also a very small kinsman of Valerian known as corn salad, or lamb's-lettuce, growing in stubble, with a much-forked stem and little heads of white flower. I do not know that lambs are specially fond of it, or whether it is good with lamb.

The next are a set called crosswords, with all their parts divided in fours; a stem in an exact square, leaves at regular intervals, growing in twice fours, a calyx in four divisions, a corolla likewise in fours, four stamens, half four cells to the germ, and four seeds.

The largest of these crosswords is the sweet woodruff, with its pretty white stars of flowers, and the leaves that

remain sweet so long after they are gathered. It has many relations, with very small flowers and a profusion of them ; the white and yellow lady's-bed-straw, which you may find in quantities along the lanes in the latter part of the summer, and there is a pretty lilac sort somewhat larger, which grows in gardens, whither it has been brought from Persia, and which is apt to grow and spread much too fast.

There is also the cliders, cleavers, or goose-grass, which everybody knows and everybody dreads, so thickly are its long, weak, trailing stems, its narrow leaves and round seed vessels, stuck with little tiny hooks, which, when once they have a hold, seem as if they would never loose it again, and when you pull them off in one place catch hold in another.

Woe to the silk fringes which venture into a hedge with cliders, for the little round balls roll themselves in so tight that fringe and all must come away to get them out ; and even our spaniel's long silky ears often come home so thickly stuck and knotted with them that much pulling and tugging from us, and many a little remonstrating squeak on his part, come to pass before they look, as they ought to do, like his own beautiful flowing locks.

Cliders have a very minute white flower ; I believe the proper name is cleavers, because they cleave so fast. They are very good food for young turkeys when chopped up with chives and egg ; indeed, in former days great virtues were attributed to them, especially the cure of the ear-ache, and bites of vipers and *spiders*. If ever a spider bites you, pray try to cure it with cliders. My old botany book also says that Dioscorides observes that the shepherds make use of it to strain their milk through. I wish Dioscorides had also told us how they managed to do so.

These tiny English crossworts have very notable relatives. The bed-straw itself has been used to cure fits ; but it has a cousin which grew wild in Arabia, and was first found to be valuable in Abyssinia, the strange country that lies south of Egypt. There is a province there named Caffa, whence the red cherry-like berries of this crosswort were gathered, the two beans within them roasted and ground, and a drink made of them which refreshed people and helped to keep them awake when they were sleepy.

In the fifteenth century, that is to say about the time that the battle of Agincourt was fought, an Arab sheik brought a quantity of it to Aden. He had four names, very hard to speak or spell, so we will not trouble ourselves about them, and he brought all his friends to drink this *caffa berry*, or coffee, as it came to be called.

At first the Arab mollahs—who are instead of clergy to the Mahometans—said that to drink coffee was as bad as drinking wine, which was forbidden ; but when it was found that no one became tipsy on coffee they allowed it to be used, and the best coffee is still grown at Mocha in Arabia. No Turk or Arab receives a visit, or even has a customer in his shop, without offering a pipe and a cup of coffee—a curious little cup without a handle in a little stand.

About a hundred and fifty years later a great army of Turks came and tried to conquer Vienna, the capital of Austria, and brought the city to such distress that the people had to eat cats, which they called *roof hares*. However, at last the King of Poland came, beat the Turks, and drove them away, so that they left all their tents and their stores ; guns and powder and provisions of all kinds were to be found in quantities. There was a

great deal of coffee, and the Viennese liked it so much that they sent for more, and coffee-houses began to be set up in all the great towns in Europe. And a capital drink it is on a cold morning !

When the West Indian Islands were found the settlers thought coffee would be sure to grow there, as they are as hot as Arabia. In 1717 the French sent out some plants in pots to their island of Martinique ; but on the way there was a dead calm, and as the way to use steam had not been found out, the ship could not go on. The fresh water in the casks was nearly drunk up, each man had a very little served out to him, and there was none for the poor coffee-plants. One died after another. But the gentleman in whose charge they were was true to his trust. He bore all the pain and misery of thirst to save one of his coffee-plants, and gave the little bush his own share away from his parched mouth ; and the plant lived to reach the island, and all the coffee grown all over America sprang from that one plant ! This, and Ceylon coffee, is what we chiefly use, for Mocha is too dear for most people.

Were you ever weak and poorly ? And did the doctor say you should have a tonic to take three times a day, and was not the tonic very bitter and disagreeable ?

You cannot hate it more than a poor Spaniard once hated the water he had to drink. He was out with a party seeking gold in South America soon after the discovery of that great continent. He fell ill, and his comrades would not wait for him or carry him on. So they left him behind them, lying on the ground near a pool of water, thinking it might slake his thirst till he died. But the poor man found the water quite bitter—so bitter that nothing but his terrible fever thirst would

have made him touch it. He could not help sipping it again and again. He fell asleep, woke, felt better, drank again, slept again, and by and by was quite cured.

Then he saw that a tree had tumbled into the pool, and its yellow bark had come off and mixed with the water. It was the quinine tree. The good God has set in the hot lands, most apt to cause fevers and agues, the very tree which cures them best. The blossom is one of the four-cleft sort, growing in cymes, but it is the bark that is precious in giving strength to a worn-out frame and checking the fevers of the tropics. These bitter waters have saved many a life.

There are thirty-four species of scabious, but only three which come much in our way—two in the heaths and woods and one in the garden.

The larger English scabious is a tall straggling plant, growing in ill-kept hedges, wild rough ground, and barren pastures. The leaves are of a pale colour, covered with short rough hairs, and variously cut, more or less deeply, and the stems are strong and irregularly branched, the blossoms are of a pale cloudy blue, almost gray; the calyx consists of a number of long narrow leaflets lapping one over the other, but each flower within has its own proper calyx, consisting of little hard chaffy points growing out of the germ. The germs are hard four-sided wedges, the points of which are all packed together beneath, while the upper spreading parts bear the four stamens. The anthers are the prettiest part of the flower, being of a bright blue, a very uncommon colour in anthers, which, as you may have observed, are almost always of some shade of yellow. The corolla is of one petal, irregularly cut, and sometimes in four, sometimes in five divisions; the outermost of the flowers seem to make it their business

to guard the rest, and therefore wear much larger corollas, so that the whole head of flowers sometimes has the appearance of one of those pretty round garlanded shepherdess hats that one sees in old picture-books ; but in general it is an awkward, untidy, irregular-looking plant, not nearly so pretty as the other English kind, the meadow scabious.

This is much smaller, and when its flock are all lambs it is uncommonly pretty, the little buds being all hard and round, and sitting so close together that they give the notion of being well packed and comfortable. It is very pretty when in full blossom too, with its dark blue corollas, all alike, and all regular and well cut, and seen through a whole forest of pretty anthers, sometimes blue, sometimes pink, and of the white pin-like stigmas.

The garden kind is the handsomest of all, but it requires to be well tied up and trimmed, for it is a straggling, unruly, scrambling plant. The flowers are of the richest deep dark red purple, the larger ones forming an ornamental trimming round the border, and the inner ones being almost black, which, with their white stigmas, has caused them to be called, in cottage gardens, by the name of widows. I have sometimes wondered that little girls who are ingenious with their needles do not try to make velvet pin-cushions in imitation of these flowers, with pins for the stigmas ; though, to be sure, they would produce anything but a flattering resemblance of the flower, so perhaps they had better let it alone.

When the blossom of the scabious is over it is easy to see the little wedges of germs, still with their sharp prickly whiskers of calyx, all rising up together in a sort of mountain, holding at first tight, then more loosely, to each other, as if loath to part from the loving friendship



in which they have flourished together and worn together their rich and sober array ; and not parting till rain, frost, or wind finally rend them asunder and send them each to be the founder of a fresh colony of scabious. Nobody exactly knows whence this kind of scabious came ; it has been growing in English gardens for the last two hundred years, but whence it was brought is not certain.

The next aggregate flower is a bold fierce fellow, one of the tallest, strongest, and sharpest of the dwellers in our hedges, the teasel, namely. How prickly it is, only second 'in sharpness to the thistle, wearing a hedge of thorns in every possible place where there is room for them. The whole of the firm hard hollow stem is scattered with little hooks, bent downwards ; the chief ribs of the leaves have prickles all along their under side ; the long narrow leaflets of the common calyx are perfect ranks of pricks beneath ; and as to the great head itself, it is a very porcupine, for each little lilac flower dwells at the very bottom of a deep calyx, furnished with two hard sharp strong spikes, like a warrior's spears set up before his tent. Not only are these spikes sharpened at the point, but the whole length is jagged with little hooked teeth, and so hard and tough is the substance that long after the blossom has faded, all through autumn and winter, you may see the brown stem and bristly head standing boldly up, facing all the storms of snow and rain, and not lost sight of till summer comes again.

Indeed, from its long endurance in this condition we generally think of a teasel as this hard, dry, bleached object, instead of the beautiful creature it is in its prime, in the middle of July, when the calyx spines are in their full glory of green freshness, and the principal head standing

up in its grandeur, with the little attendant ones on either side, looking like a monarch wearing his crown ; for the flowers do not all blossom at once, but come out in bands or circlets round the conical head, so as to resemble a garland bound round it. Truly the teazel thus crowned is a noble warrior of the wayside. And he is to be admired, too, for his patient endurance in firmness and strength long after his brightest days are past.

The leaves of the teazel are curious ; they are what is called sessile, sitting on the stem, that is to say, without leaf-stalks ; they grow in pairs, and the lower ones meet quite together and join at the bottom, forming but one leaf round the stem, and making a deep cup, which after rain is often to be found filled with water ; indeed I have seen this pretty green pond well filled, even in the midst of a dry summer, so as to keep the leaves strong, healthy, and fresh, as long as they are required to draw in air for the growing seed.

The teazel is of importance to the making of cloth, for the little delicate yet firm hooks are better than anything that man, with all his machinery, has ever been able to devise for raising the nap without tearing the cloth itself. For this purpose large fields of teazels are grown in the manufacturing counties, their heads are cut off and fixed in a frame, well sorted according to their sizes, and the cloth being damped and spread out on a table, they are drawn across it, and the little claws just raise the threads sufficiently to give the soft woolliness of effect. So much did the cloth-makers of old value the teazel that three teazel heads are the arms of the Clothiers' Company.

## CHAPTER XXX

### OLIVES

OF the great tribe of compound flowers we spoke in quite early September days with the thistle and the daisy (see Chapter VIII.) So we did of the next tribe, the bell flowers—as last bells of summer (Chapter VII. p. 45); and in the same chapter we had the heaths (p. 47), last bells too, only that they ring a chime of eight, and the bell flowers one of five.

Nearly related to these are the beautiful American plants, azaleas and kalmias, belonging to this class. I think the bud of the great white kalmia, or calico flower, as it is called in America, one of the prettiest things I know; and the flower pinned down with its eight regular stamens is very elegant. The stamens have the same curious property of springing up and shedding their pollen as the barberry. These are not apt to be seen out of grand gardens, and the only one of the race that is apt to come in small people's way is the rhododendron, a very splendid mountain dweller, who has made himself, his evergreen leaves, and bunches of crimson or lilac blossoms, nearly at home in our climate. One small sort grows in Switzerland; and the Asiatic ranges of mountains are the proper abode of the handsome ones, where they keep high

enough to be out of the great heat, but too low for perpetual snow ; and when planted here, in peat or bog, or anything like mountain soil, they grow like natives, flourish, and attain a great size. All these three, however, kalmia, azalea, and rhododendron, have honey, which is good for bees, but not good for man ; and there are stories, both ancient and modern, of very serious illnesses being caused by eating honey made entirely from these flowers.

Also another set of bell-shaped blossoms with berries good to eat. They grow on mountains and in bogs, and in many sorts bear berries—many berries. These have stiff white blossoms and low shrubby stems, they grow on a peaty soil, chiefly on mountains or bogs, and their berries, either red or purple, have a pleasant sharpness, which makes them very good for tarts or for jam. I have heard a lady say, who spent her younger days in a town on the borders of the New Forest, that all the tarts to be bought there in shops were made of whortleberries, and very sour they were. Now the cranberries most used in tarts are imported from America ; but many mountain children in our own country still gather them for market, and the children who have learnt that pretty book, *Moral Songs*, will not have forgotten the little sick boy's gift of purple berries to the kind lady.

The primrose tribe came into pentagon flowers in May (p. 19). Among them too are reckoned the pretty cyclamen of our gardens, and the loose-strifes, very different from the purple kind we spoke of in the last subclass. They are the tall yellow loose-strife, with its shining yellow spikes, by the river side, and its pretty trailing brother, the moneywort, or creeping jenny, with leaves in pairs, and polished yellow blossoms, creeping on the moist hedge bank in long wreaths, which make ready-made

garlands for little girls' heads, and hangs over window boxes in London ; and a third kind, the yellow pimpernel, with thin leaves and bright golden stars of blossom.

Then comes the true pimpernel, the shepherd's weather-glass. Bright little thing, one of the three scarlet flowers of sober England ; does not every one know it and like it, even though we must call it a weed ? Surely it may grow under currant bushes and among cabbages without offence, though it must be turned out of our flower beds. Its Latin name, *Anagallis*, is derived from a Greek word meaning a laugh, and certainly it does laugh in the sunshine, which it loves so much that it shuts up its leaves not only in the evening on cloudy days, but when there is rain in the air—little weather-wise thing. Its blossoms are on long slender stems, and its round urns of capsules turn down to the earth to ripen the fruit. The stamens are covered with a beautiful soft down, and the leaves grow in pairs. Sometimes you may find a pimpernel exactly like this in everything, except that the corolla is a rich deep blue. We had one single plant in our kitchen garden some ten or twelve years ago which we thought a great prize. Now its descendants have spread all over that part of the garden, and sometimes, from the pollen of the scarlet and blue getting mixed, as I suppose, there come up pale lilac pimpernels, not so pretty, but curious. A third kind of these laughing flowers is found in wet places, the delicate bog pimpernel, white, striped with pink, growing in long trailing wreaths, with little round leaves in pairs. A large handsome sort, very rich blue, looking like my own blue pimpernel magnified, is grown in gardens by its company name of *Anagallis*.

All these beauties are five stamened, but the jessamines have only two stamens. Most of them are very regular,

and follow the same rules. One pistil with two divisions in the germ, two stamens, a corolla of one petal, but with twice two divisions, and a calyx with twice two teeth, a berry or a capsule with two seeds. Look up to the taller shrubs, and see the green buds swelling in the rains of February; look at those brown dry clusters of old seed vessels, consisting each of two hard valves, which once enclosed the seed. Those pale green buds at the end of their dry branches contain the promise of our May garlands. There lie folded up the whole branch of delicate green heart-shaped leaves, and the cluster, the delicious cluster, of lilac blossoms, so thick, so solid, so sweet, so full of perfume, so beautifully and so irregularly shaped. May only the spring be warm enough to bring them out by the first of May. Sweet lilac! One of the first things I can remember was the glory of being carried on the shoulder of a kind friend to gather the nodding heads of the lilac blossoms, fresh and dewy with the spring showers; and there is one white lilac bush which I never look at without a feeling of shame, when I remember the sad day when I tore down one long branch in trying to reach the flowers from my own small height; the mark is still to be seen on the bark, though it happened many years ago.

The lilac's native home is in Persia, a hilly country, as you know, and therefore in parts a cold one, so that it is very hardy, and does not fear our winters. It is one of the kind plants which are the Londoner's friends, for it grows without being very much stunted in the midst of the black gardens.

I wonder if you know those pretty lines about the tenth commandment, which say that as the daisy is like the lowly cottage child, so the lilac blossom nodding on its high tree is like the high-born child, and how both

alike are sweet humble flowers in themselves, doing their own duty where their Maker has placed them.

The leaf of the lilac is very pretty, and will serve well to show you how most leaves are formed. Out of the sapwood of the tree, within the bark, springs a foot-stalk, a bundle of small fibres, which, after growing some way, put forth on each side a number of little branches or veins, which again send out lesser veins, so that there is a close network forming the frame or skeleton of the leaf. This network is filled up by a skin, or properly speaking, by two skins with little vessels between them, wondrously arranged, but so as you cannot see them, for they are smaller than anything you can even imagine. And the use of leaves? Besides shading us, and some kinds being good to eat, they are of great use to the plants, for by them they breathe. I do not think I can make you understand even what has been discovered about it; but by day they draw in the portion of the air which by night they breathe out again, and this is what keeps them alive, with the sap flowing to the points of the leaves through all the network of veins.

The jessamine, which is also of the second class, always puts me in mind, more especially the white one, of the quiet humble grace and simplicity that is most often to be seen in the most nobly born maidens, and which make, in every station, a lady's mind.

Those starry pearly flowers, are they not like the pearl of great price, the ornament of a meek and quiet spirit?

The throat of the corolla of the jessamine is remarkably long, which is what gives it its peculiar elegance; the buds are most gracefully folded, and the leaves, which consist of seven leaflets, are particularly elegantly formed. The fruit is a berry, but the cold of England prevents it

from ripening here, for the native country of the white kind is India ; of the yellow, Madeira. The small yellow kind is hardier, as it comes from Circassia, and there have been "jasmine bowers" in England, at least ever since the time of Queen Elizabeth.

The olive, that sacred plant, which furnished the holy oil for anointing, is another of these plants with two stamens. It has a white blossom, and a large black berry full of sweet oil, which is used for food all through the south of Europe and western Asia. The leaf is of a curious pale bluish green, and the trunk grows to a great size, and lives to a considerable age. Pilgrims to Jerusalem tell us how they have knelt with fear and reverence among the aged trees of the garden of Gethsemane sprung from those which shaded our blessed Lord in His agony.

And do you remember that the oil of olive is a token of the grace of the Holy Spirit shown in love ? And that the Psalmist says of the righteous man that "his children are like the olive branches round about his table." Perhaps this is the reason that Olive and Oliver are Christian names ; at any rate I am sure those children are more like olive branches who sit in love and kindness round their father's table than those who grieve him by strife and bitterness.

Ever since Noah's dove brought back the olive leaf it has been an emblem of peace and joy even among heathen nations. The Athenians had a fable that two of their deities, Neptune and Minerva, disputed which should be sovereign of their city, and it was resolved that it should be that one who could give the richest present to the new town. Neptune gave a horse, Minerva an olive, and that precious tree was adjudged to be so much the best gift that Minerva became the great goddess of Athens, which



was called after her Greek name of *Athene*. There was a tree in the *Acropolis* which they fancied was the very one she had produced, it was burnt and cut down when *Xerxes* took the town, but they thought it a promise of their renewed prosperity when a fresh branch shot out from the root.

Sometimes when a nation intended to offer peace or war to another people they gave them their choice between a sword or an olive branch, and this gave rise to the saying, that when a person wishes to be reconciled to his enemy he holds out the olive branch.

The privet, with its white blossoms and black berries, is of this tribe, as you will find by examining it.

## CHAPTER XXXI

### PENTAGON STARS

PERIWINKLES are more regular pentagons. The throat of this pretty flower is furnished with a soft white down, and the pistil in the middle is one of the most exquisitely formed things that can be seen anywhere. Look at the green germ in five divisions, the taper little brown style, and the wonderfully beautiful stigma, like a white downy flower within a flower, or perhaps more like a very small model of a round brush. And the down is very useful in collecting the pollen and conducting it to the germ.

If you have a periwinkle copse near you, pray go to it and admire the bright blue eyes of the flowers peeping out among the long wreaths of leaves. The stems throw themselves out to a great length, and take root in the earth again, so as to make a network in which you might chance to entangle your foot and get a fall. Pull up one of these, and you will see the little white root it is throwing out to lay hold of the ground with.

These long wreaths seldom blossom, unless sometimes they do so in despair, because they cannot find the way to root themselves in the earth. The main root puts up little straight shoots which bear the buds and blossoms in the early spring, and when their flowering time is over

stretch themselves out into wreaths. The leaves grow opposite to each other in pairs, and owing to their thicker and more substantial structure retain so much sap that they remain on all the winter, and the flower is to be found in blossom nearly through the whole year, though its full glory is in April and May. At the end of each long creeping shoot there grow two pair of leaves just opposite to each other, and setting out so as to form a pretty green cross.

One of the prettiest May garlands I ever saw was ornamented with long strings of periwinkles, threaded alternately with cowslips, hanging in festoons all round it. In Italy the blue eyes of the periwinkle do not seem to the people to have the same joyous look as they have here. They call it the flower of death, because it is used to put round the heads of little children who die young when they are carried to their graves. They are not put into coffins, but are dressed in white frocks, a cross is put between their hands upon their breast, and with a wreath of the blue flowers round their hair they are carried to church, and there lie looking like wax, till the Psalms and prayers are read over them, and they are laid in their resting-places. I suppose the periwinkle is chosen because it is so frail and fading a flower.

So too are the deep bells of the intensely blue gentians, the dwellers on the heights of the Alpine Mountains, and on wild boggy heaths in all countries; their blue, from its extreme depth, though of so much darker a shade, reminding us more of the unsearchableness of the sky above than any other colour I know.

The starry pentagon flower of the centaury, with its delicate pink tint, comes next, and of all English plants I think it is the earliest in going to bed, for even before

our afternoon's walk is finished its pink blossoms have drawn in their five points, and folded closely up, not to open till the sun wakes them next morning.

If you have a river near you, with marshes round it, perhaps you may be able to find a beautiful pentagon flower, the bog-bean, more elegantly, though less correctly, called the fringed lily. Less correctly, I say, because all true lilies have six stamens and six petals, and I hope the children who read these chapters may learn a little more about flowers than to call everything a lily, even to a white convolvulus, or still worse, a cowslip.

The delicate pink and white petals of the bog-bean are crested with curious white curling fringes, from the midst of which peep out the five black anthers at regular distances like the angles of a pentagon. Did you ever see a more elegant flower? I wish its delicate fringes would not shrivel and turn brown so very soon after it is gathered—but so it is—pure and delicate things cannot bear to be rudely touched and examined.

And a pentagon is to be traced in the grooves of the convolvuli or bindweeds. These beautiful flowers spread nearly all over the world, and the English kinds, as usual, are as graceful and elegant, though less showy, than their foreign cousins.

Of all the fair things in the world what is more lovely than our great white bindweed, its twining wreaths of heart-shaped leaves and delicate white flowers, their buds so gracefully rolled and folded in that tapering form? Nothing gives a greater sense of purity than those stainless flowers, in the midst of their green bowers, looking as if it was a sort of cruelty to touch or injure anything so exquisitely beautiful and delicate that a breath will almost soil it, and if gathered, in a few moments it is a

melancholy, crushed, faded thing. It is like the driven snow, too pure to bear the taint of man's touch.

The little pink bindweed is one of our prettiest flowers ; the five deep lines that mark its divisions almost always white, while the space between them blushes to every shade of pink, according to the place in which it grows ; if in the sunshine, it is almost white ; if in the shade, the colour is bright and deep ; always beautiful, however, with its twining spiring stems. It is a pity that, beautiful as it is, it must, like other good things when they get into unfit places, be often considered as a weed and rooted up. We cannot suffer it to creep about our neat paths, or fetter our choice plants, any more than we can or ought to allow our healthful play to take up the time that ought to be spent on our useful employments.

Equally frail and still prettier is the flower which the French call "the beauty of the day," and we the *Convolvulus minor*, that blue, white, and yellow bell, blossoming in the morning and fading by sunset, closing up too on cloudy days as if it felt the change to our gray sky from its own sunny clime on the Mediterranean shores. It grows near the ground, and does not climb, as does our other common garden *convolvulus*, the major, which delights to twist about a trellis-work, or wind round a pole. It is an East Indian plant, and therefore requires care ; but in its native home its flowers can be open but a very short time, for they cannot even bear the heat of our own July sun. The most curious and beautiful quality of this species is, that the same plant bears blossoms of every variety of colour, some deep intense violet, with red veins, others pink or purple, veined with white, others again quite white, with the divisions purple.

Many, and many more, are the kinds scattered over

other countries, growing to great size and beauty in the tropical lands, where the humming bird glances among their bells, and the tailor bird sews their leaves together with long flakes of cotton, to shield the nest containing its tiny eggs ; some few have been brought to England, but none except the splendid Mexican *Ipomea* are much known.

Closely related to the bindweeds is a very strange plant, which you may find on the common, the dodder. Do you know it ? Queer, red, stringy thing ! creeping about on the furze and heath, binding them down by a close, hard network of its fibres, without root, without leaf, only with these twisting stems, bearing white blossoms in little round balls, like some of the aggregate flowers of the fourth class. If you can find it you will be much amused with its strange appearance, and probably it will entice you to get your fingers well pricked with the furze on which it hangs ; not feeding on it, however, but nourished by air and dew.

And beautiful, most beautiful among garden shrubs, is the budlea, with its little orange-coloured balls, delightful to the eye and delightful to the smell. Oh, the beautiful garden where I remember them, with its sloping green bank, and the ragged fir trees opening to show the church tower, and the arm of the sea which could just be seen through the trees, with the little white-sailed boats tacking about on it ; and the gum-cistus raining down its frail leaves in the middle of the grass plot where we used to blow our soap-bubbles and try to make them sail away over the house ; and the blue sky and bright sun, and the orange balls of the budleas hanging high up and contrasting with the blue of the sky ! You will say the budlea has little to do with all this, but it was there that I first knew

and first loved those bright little orange marbles, and the very sight of them always brings back in a moment the sights and sounds of that pleasant place. I daresay it is beautiful in its own home on the skirts of the Andes in Chili, from whence it was brought to England about the year 1774.

The Borage tribe is very prickly, the blossoms almost always blue. The borage, which gives name to the tribe, is something between a weed and a plant, much loved of bees. It is dark blue, and has black stamens, but is not near so handsome as that tall dignified plant the viper's bugloss. In its perfection it is one of the most magnificent of wild flowers, though it varies extremely in size. On a loose gravelly soil, such as suits it, it grows to a great height. I have pulled up one piece which, from the crown of its purple head to the extreme point of its jetty black, straight, tapering root, measured more than a yard and a half, whereas in a poor starved ground, where it has either too much or too little water, it dwindles to be scarcely three inches high, and is hardly to be recognised as the same plant.

It is named both in Latin and English from a viper, because of its numerous stings or rather bristles. They grow white and hoary all over its alternate leaves, and dark red and sharp they stud the pale green stem; they fringe the calyx, and guard the whole person of this monarch of the waste from head to foot.

I call the viper's bugloss a monarch because it is so royally robed. See the beautiful deep blue of the full-blown flowers, the purple tinge of those which have just opened, and, more exquisite than all, the bright red of the bud which is slowly rising from its bristling case and preparing to unfold itself to-morrow. And these fine

colours are brought into close contrast, for see, the grand spike bears its blossoms on little side stems, each closely set with a double row of buds, and curling downwards and inwards towards the point. The flowers nearest to the main stem blossom first, then, as they wither, the spikelet straightens as those farther back expand, and thus, unlike most spiked plants, where the lower blossoms come out first and fade before the upper ones are blown, the whole length of the tall head is at once arrayed in blue flowers and crimson buds, the blue set off to still greater advantage by the five long crimson stamens within.

There are several others of these coarse prickly-stemmed plants, with curling spikes of blossom, and for the most part with blue flowers with a tendency to turn red. The *anchusa* or *alkanet*, the lungwort with spotted leaves, often found in cottage gardens, and the comfrey, are of these. The wild comfrey, growing by the river bank, with large rough leaves and bell-shaped flowers, blossoming in pairs, and with five curious scales closing the throat of the corolla, is of all shades, between deep red, purple, and yellowish white; you can hardly find two plants bearing exactly the same tint; but that fine, tall, bushy plant, the prickly comfrey, which grows in gardens, has blossoms which are pink in the bud and blue when unfolded.

The hound's-tongue, so called from the form of its leaves, has small dark red blossoms, very pretty; but the whole plant, which grows by the wayside, generally wears a thick coat of dust, and it has a peculiar smell, which probably led to its being once used in medicine. And in old-fashioned gardens there is a lovely little blue hound's-tongue in early spring, like a little turquoise.

This leads us to a set strangely divided between poison



and usefulness, the Nightshade tribe, beginning with the great white *Datura* or thorn apple, including the tobacco plant, with its long pinky blossoms and strange scent, never known till Sir Walter Raleigh brought it from America, and King James I. was much displeased at what he called men making chimneys of their mouths.

The henbane, poisonous to those who eat it unguardedly, is very valuable as medicine when properly prepared. It is not very often seen growing, but when it is found it is usually on waste land, by roadsides. It grows close to the ground, with pale woolly clammy leaves, an unpleasant smell, and a handsome but venomous-looking flower, of pale cream colour, covered with a network of purple lines, and with a deep dark purple throat. If you find any keep the little ones from touching it, but don't pull it up, for it is so rare that botanists think a specimen a great prize, and lament if they find it gone from the spot where it once was known.

Even more rare than the henbane, and still more poisonous, is the dwale, or deadly nightshade, which has its Latin name *Atropa* from one of the three Fates who, as the ancient Greeks believed, spun the thread of human life; *Atropos*, the one from whom this deadly plant is named, was the third, who held the shears which cut off the thread when it had come to its full length.

Every now and then we hear of some poor little child who has been so carelessly watched as to be allowed to eat the dark purple berries of the nightshade, which have a sweetish taste, and thus tempt it on to its own destruction, for one alone is sufficient to produce a fatal stupor and heaviness which are almost sure to end in death.

Poison fruits seem to be placed in this world in order to put us in mind of temptation and sin, which allure us

at first and then destroy us. We may almost feel sure that the earth brought forth no poison before sin had entered into the world, and death by sin.

Do you observe, too, that the birds and other animals never poison themselves with wild fruits, it is only children that ever do so. This is because God has given the creatures instinct which guards them from even desiring what would hurt them, whereas he has given us reason to conquer our desires when they would lead us to our own injury. I believe, too, that no child who has not a habit of pampering its taste and craving after things, not because it is hungry, but only because it is greedy, will ever be in much danger of being tempted by these wild, unwholesome-looking fruits.

The dwale is very uncommon. I have only once seen a plant of it. It was growing on an old bridge ; it was very tall and branching, reaching some way above the parapet, with a quantity of light green downy leaves, and a profusion of dark, dull, reddish purple, bell-shaped blossoms, such a plant as no one could ever mistake after having once met with a description of it.

This is the real deadly nightshade, a different plant from the woody nightshade, which is much more common and less dangerous. This last has shining red berries, drooping, and of a very pretty form ; they would make you very sick and giddy for some days if you were to eat them, but would probably not kill you unless you were very weakly. It grows on heaps of rubbish, and by waysides ; it is a small plant, with heart-shaped leaves and very pretty flowers, the corolla being either purple or white, and what is called deflected, or turned back, so that the yellow stamens, which are all gathered together in one, with the pistil like a point, in the middle project-

ing forwards, like the boss on an ancient shield, while the corolla and calyx lavish all their care upon the germ behind them.

There are several other plants formed like the woody nightshade. There is the pretty American cowslip, with its trim, fair lilac blossoms nodding round its slender stem, not very like a cowslip, to be sure ; but as it grows in its own country in the long grass, and blows in early spring, I suppose it put the first settlers in Canada in mind of the yellow cowslips they had left at home ; and when their children trotted up to their log huts with hands full of these pretty flowers, as their own used to be of the cowslips in their own native village, they liked to call them by the same friendly old name, bringing back, perhaps, the remembrance of playfellows who had been cowslip gatherers with them in the old country.

Another plant with lilac deflected corolla and projecting yellow stamens was imported from America three hundred years ago by Sir Walter Raleigh. It has fibrous roots, with tubers at the knots ; large, compound, wrinkled leaves, and the fruit is a dark purplish berry.

Sir Walter planted these curiosities on his estate in Ireland, and there left them, telling his servants that they would be very good food. In due time they budded, the lilac flowers opened and faded, and the green berries became dark. The servants tasted them, and soon found them both nauseous and unwholesome, so they dug up the roots and threw them away ; but when the master returned he made inquiry for them, searched, and found some still alive, which he caused to be re-planted, explaining that it was the root instead of the fruit that was good to eat.

And so it proved : the root was found to be excellent,

the culture was improved, and care made the plant grow better and produce more and larger tubers, till at last this American root became the chief food of the inhabitants of Ireland, and few persons in England like to make a dinner without it. The French call this excellent root the apple of the earth; we give it a name something like the Indian word it was called by when first brought from South America, and what that is I am sure you have guessed by this time.

The reason why the berries of the potato are unwholesome is that they partake of the nature of the *Solanum* or woody nightshade, the whole of which race are more or less poisonous. You know that very little use is made of the potato berry, even for seed; it is only now and then sown, when people wish to produce some new variety; and the plant is propagated from what is called the eye, the little black spots which we see in the tubers, or, as we are more used to calling them, the potatoes. I believe that in fact what we eat are not roots at all, the roots being only the long stringy network of fibres that go so deep into the ground, and that the tuber is really a sort of underground stem protecting, in a fleshy nest, the young buds which are to bear leaves and blossoms in the next year. The eye, then, is the bud, which, when planted with a sufficient quantity of the tuber to afford it nourishment through the winter, will grow, and in the summer put forth leaves above and fibres beneath, which will in due time form more tubers. Thus you see that Providence has provided food for us at the same time as for the plentiful increase of the plant.

Potato grounds are a very pretty country sight, with their regular ridge and furrow, and the long ranks of plants growing so evenly, with their rich green bending foliage, and the white or lilac flowers hanging four or five

together on their slender stems ; indeed the flower is in itself so pretty that I think the plant would be grown for its beauty even if it was of no use.

Autumn, too, brings a very pleasant sight, when the stout men and boys go to work, digging deep in the ridges which stand up so neat and trim before them, while behind all is trodden down flat ; and their prongs and forks bring up a whole net of fibres, with the brown lumps hanging among them ; and there are the women behind with great gloves, and knives or spuds, clearing off the fibres, throwing away the old dry haulm, and scraping off the rich brown earth, then, as the potatoes come out, tumbling them into the sack or barrow to be wheeled off to the winter's store, often a droll little thatched burrow in the field. Funny things are those potatoes, brown, yellow, or red, and of such comical shapes, especially pigs' potatoes, like strings of beads, and now and then in clusters, almost like a little man with a little round head and two legs. They have odd names too, according to the varieties, which are very different according to the soil. Some places are so much less favourable to their goodness than others that the best potatoes degenerate in them after the first year, and the seed (the eye, that is to say) has continually to be renewed from the more suitable soil. Thus London is supplied with potatoes grown in Yorkshire, the seed of which is brought every year from Scotland. Some parts of Cornwall and the Channel Islands are also regions where the potato thrives and is better than elsewhere.

Ireland is, however, its great home, and it is only within the last hundred years that the cultivation has spread so universally in England. It has so become the poor man's food that it is hard to think how people lived

without it ; and for many years it seemed the most certain of all crops ; but some years ago, as almost the youngest reader can remember, came a warning that our own skill, labour, and foresight can never secure us from famine, and that it is God alone who can give or withhold our daily food.

The tall flourishing green haulm of the potatoes, which had been finer than ever that year, began to shrivel and turn black, a sickly unwholesome smell spread over the gardens, and in a few weeks every plant was but brown withered stalks ; then the mischief spread to the roots, and the whole promise of the year was turned to blight and decay. There was scarcely a cottage that did not suffer more or less, or where the children did not leave their dinner scarcely satisfied ; and in poor Ireland there was starvation and misery such as, thank heaven, we never saw and can scarcely conceive.

Then came the Fast Day, which bade us mourn for the sins which had brought wrath upon us, and pray that God would again bless our basket and our store ; and then in His mercy we received an abundant harvest of corn, while the potatoes, though not free from disease, were far more healthy than in the past year. Then did we remember to give thanks with our whole hearts ? And have we since remembered the resolutions we made in the time of our fear and distress ?

Since that first year, though the potatoes have never been quite free from disease, they have not been so much touched as at first ; and besides the training in giving up to others and denying ourselves, which doubtless the year of distress brought to some, it taught prudent people not to rely so entirely on it as a certain crop, but to grow other things that may be used in case the potato should fail.

In old-fashioned gardens is the curious winter cherry, which has a small white flower, whose calyx grows into a bright scarlet case, almost like a Chinese lantern, containing an orange-coloured berry the size of a cherry, very pretty, but not good to eat. Tomatoes and egg plants likewise are of the nightshade kind.

## CHAPTER XXXII

### THE SPURGE TRIBE

THOSE odd things called spurge form a tribe. There are two sorts which you may have often pulled up as weeds in your garden—the sun spurge, and the small spurge ; both are plants of a very regular growth, their stalks full of milk wherever you break them, their leaves bluish, and their blossoms yellowish green. It is this milkiness of the plant that is the distinguishing mark of the spurges, the juice has that taste which is called acrid, and was formerly used to remove warts, from which the plant has derived the name of wart-weed. The stem is always regularly forked and branched, in some kinds almost like the umbelliferous plants. In the lesser spurge there are two regular stages of stems, springing out like spokes, and with three long narrow leaves at each starting point. The upper umbel bears from three to four little green flowers, some with very minute single stamens, others with round swelling pistils. There are pretty little yellow crescents in the flowers, which at first sight we should take for curiously-shaped anthers, but which are in reality nectaries. This small spurge has long, narrow, lance-shaped leaves ; those of the sun spurge are more nearly heart-shaped, and form pretty little cups round the small



flowers. There is a larger sort growing in the woods, and named the wood spurge; it is less milky, and has a red shrubby stem, very neat regular green cups, and pretty yellow crescent nectaries. It comes with the primroses and bluebells, and looks spring-like and friendly. Another small sort is found in corn fields, and there is one sometimes cultivated in old gardens, and called, from the regularity of its alternate leaves, Jacob's ladder. They are not a very interesting race, and I only mentioned them because they are so common. In the southern hemisphere these spurges grow to a great size, and become forest trees, figuring in books by their Latin name of *Euphorbia*.

They have many curious foreign relations of which we cannot speak now.

Under every hedge in early spring grows a green plant with shining leaves and long narrow loose spikes of little green flowers. This is the Dog's Mercury, why so called I cannot tell you, nor is it of much use, but every one likes it for the sake of spring.

Our useful evergreen box follows. Look for its tiny green blossom among the cup-shaped leaves.

It has a little hard seed, but the next race has varieties of nuts good to eat. The stately Spanish Chestnut has spikes of stamen blossoms, all dusty, and with a curious smell, long spikes also of the sharp pointed pistils. These turn to spiky cases for the brown nut. If you pick up these nuts, and get them out of these spiky husks—pray, pray roast them before you eat them. They will make your lips very sore if you do not, and they are very unwholesome besides. I have known of deaths from eating many raw. And surely it is great fun to roast them in the evening.

Those we buy come from Italy and Spain. There bread is made of them, and a chestnut tree is often the whole fortune of a family.

The Beech, the Lady of the woods, has likewise these prickly cased nuts, which we call beech masta. The Beech is a lovely sight with the delicate green leaves and fair white bark. No brushwood grows under it, and a beech wood is like a great solemn natural cathedral, with branches arching over white trunks for pillars, a ruddy brown floor, and the sun glancing through the leaves above.

Of the kingly old oak you can read much elsewhere, and there would be no stopping if once we began upon him. His slender relative the hazel was in our second talk long ago in Chapter II. Likewise of the mistletoe in "Christmas Evergreens" in Chapter XI.

Of the great family of cone-bearing trees we spoke as needle trees, in Chapter XII. Like them in leaf, though in nothing else, is the Yew tribe.

In the yew tree the barren flowers have neither calyx nor corolla, but are like a cluster of little white stands—for the bunches of small stamens, covered with light buff pollen, which forms a floury-looking head in March or April, when shaken, will cover the tree with white dust. The fertile flowers are little scaly white cups, with a single germ, and as they are not nearly so conspicuous as the barren ones, we are apt to wonder in autumn why the trees which were so full of blossom are now without fruit.

The fruit is a very pretty berry; the seed swells and grows black, and the calyx gradually enlarges and becomes fleshy, till it grows into a beautiful waxen cup of a soft red colour, unlike anything else, containing the black or rather deep brown stone.

Yew berries are said to be poisonous ; and though I have seen boys perched all over an old yew tree, devouring them with all their might, yet, as I believe village boys will eat any thing, whether wholesome or not, and have a stronger digestion than most people, I would advise you to consider the berries as rather intended to please your eyes than your mouth.

One part of the yew tree is certainly poisonous to cattle, the leaves and young shoots, especially when withered. They do not seem to be equally dangerous when fresh, but horses, cows, and pigs, have frequently been killed by eating the half-faded clippings of a yew hedge. So if ever you have to do with the sweeping up of such clippings, be careful they are thrown where animals are not likely to get at them.

In former times it used to be the fashion to ornament gardens with yew trees clipped into all manner of wonderful shapes—peacocks, lions, fans, and pyramids—and a book was even published on the art of shaping them. Even now we sometimes see, and very snug it looks, a gateway under an arch of well-clipped yew, and sometimes an old churchyard, with a yew tree cut into the shape of a perfect mushroom, with a bench round the trunk, completely sheltered from the rain by the matted branches and close foliage.

The yew tree looks best of all on the borders of chalk downs, great round dark green bushes standing up in the hedges like over-grown shrubs, of such curious shapes that you may know your old friends for miles off, and their huge, thick, short trunks, containing such quantities of dry, crumbling, dead wood, that it is only a wonder how they can prosper as well outwardly as they seem to do.

I believe there is hardly any tree that lives so long as the yew. It is two years before the seed grows at all, and then it is very slow in getting on, and when it has reached its prime it is so hard, and the thick ever-green leaves keep out wet so well, that it is still longer in decaying. Perhaps some of the yew trees may still be green and fresh which stood when they were thought so much of for the archery of England. Perhaps these old fellows gave some of their branches to furnish the tough yew bows which sent the cloth-yard shafts that won the battles of Crecy and Poitiers, and many another besides; and the English yeomen and peasants, thanks to Magna Charta, were well cared for, well protected, prosperous men, willing to use their good yew bows in their monarch's cause.

Yew branches are the Easter deckings of churches, and sometimes are carried on Palm Sunday, as the nearest approach we have to the palm.

And they have from very old times been grown in churchyards; indeed, King Edward I. made a law that they should be planted there.

The juniper is not unlike the yew, and grows in low gloomy-looking tufts on bleak hillsides. It has dark purple berries, and it has hardly any blossom. You remember that Elijah sat him down under a juniper tree in the wilderness when he requested for himself that he might die, and when the angel came to him and brought him the food that sustained him in his journey to Mount Sinai. However that was not a real juniper, but a sort of broom. The Eastern people hate juniper, and think it is an accursed plant, belonging to the devil. This is very curious, for the notion arose long before strong spirits were distilled, and before Geneva, in Switzerland, made,

and flavoured with juniper berries, that most harmful liquid called gin, which is the ruin of so many souls. I must tell you a story of a juniper bush. There was a very clever Scotchman—a poor man—who loved flowers, insects, and all things in nature, and knew all about them that could be known from observing them, and from the books he saved his money to buy. Ignorant people laughed at him and thought him foolish, and teased him. At last he said, “Now, daft as you think me, I will foretell something. That lonesome bush of juniper on the hillside, that never yet had a berry, will bear fruit next year.” They laughed the more, but he knew that the reason this one bush bore no fruit was that it had no stamen-bearing plant within reach. Therefore, when both sorts were in blossom, he went in secret, cut branches of the stamen-bearing bushes, shook them over the poor solitary one, and in the summer it was so well covered with purple berries that all who saw it began to think there had been a wise man among them.

## CHAPTER XXXIII

### EVERLASTING FLOWERS

WE have had stamens on the ovary and stamens on the calyx, many-petalled flowers and single-petalled flowers, and now we come to flowers with no petals at all, though sometimes with so bright a calyx that at first sight it may be taken for a corolla.

Thus it is with that handsome garden flower the Marvel of Peru, which has a purple tube like a corolla, but which is really only the calyx.

Little white calyces form the spike of the polygonum or persicaria tribe, with eight stamens, red stems and leaves, often streaked with black-knot grass in the wheat, pepperwort in bogs, persicaria on heaps of refuse ; the only ones of the kind that have a welcome are the buck-wheat grown for pheasants, the snake-weed in hay fields, and the handsome greater bistors in running water.

Lastly, before leaving the water we must take the table-cloth of the butterfly and grasshopper. Do you remember ?

“ A mushroom their table, and on it was laid,  
A water-dock leaf, which the table-cloth made.”

The water-dock is very handsome, its dark green leaves,

red stems, and strange blossoms make a grand appearance, and here it does little harm, though its relations are some of the most troublesome of weeds, their roots creep so obstinately and are so hard to kill. Even when dug up and left outside the earth they will still shoot out again ; and perhaps it is from this steadiness in growing, in spite of adverse circumstances, that one kind has acquired the name of *Patience dock*. The largest sort of dock is the *rhubarb* that is made into tarts and bears the very large leaves.

The small sort, called the *sorrel-dock*, is esteemed by many children for its pleasant sharp taste, and by many a dock leaf is used as a cure for the sting of a nettle.

The dock has three calyx leaves, three red petals, six stamens in a little bunch, three pistils, each possessing a most beautiful little white tufted stigma, and altogether producing one seed.

Another tribe with brightly coloured or chaff-like scales is the *amaranth*, everlasting flower. Its scales do not soon decay, and the flowers grow close together, some holding five stamens, others two styles. Of these are the purple globe *amaranth*, also the spike, covered with deep red blossoms, that, when it stands upright we call *prince's feather*, when it droops, the *love-lies-bleeding*. Last year I saw a little girl in a railway carriage with the finest *love-lies-bleeding* I ever met with, it was wound in two or three large coils and tied into her nosegay, otherwise it would have dragged on the floor ; I really think that if it had been at its full length it must have measured more than a yard. *Cockscombs* are *amaranths*, all their red blossoms gathered into one large spreading head.

Next follow a race not very pretty to look at, though

all of them are wholesome, and some really valuable. These are the goosefoot family, with their tall spikes of small green blossoms, all possessing five stamens and two pistils, and large coarse spreading leaves. There are many of them growing wild in England, the largest of which was once much valued, and eaten as an excellent and nourishing article of food. You may find it growing on most old dunghills and heaps of rubbish, and may know it by the bright pink colour of the lower part of the stem. Its old names were "fat hen," or "Good King Henry ;" after which King Henry I cannot tell, though I had rather call King Henry VI. "good" than any of the other seven. One kind, however, is still favoured by being grown in gardens, and that is the spinach, which makes such a pretty dark green ground for poached eggs to repose upon. Of the same family is the beet, the root of the most beautiful colour that ever comes in our way, so fine is the deep rich red of those concentric rings in the midst of their clear pink juice ; and another of the same tribe is the great mangel-wurzel, a German name, which signifies "root of scarcity."

And what do you think I am going to set you to examine now ? Don't scream when I tell you it is the nettle ! yes, the stinging nettle ! Take hold of it boldly ; squeeze it well ; does it sting ? No ! how is that ? Ha ! I hear a little outcry—so you are stung after all. Yes, but not by the stem which you are grasping, but by a leaf which has lightly touched your hand. Is this because the leaves sting and not the stem ? No, for the least touch of the stem will cause you a prick, and raise a little burning white head. What is the meaning of this ? Perhaps a nettle is like taking trouble, or doing what we do not like—learning a hard task, or taking a dose of physic



perhaps ; as long as we dally with it, and touch it, and taste it, and pity ourselves, it seems very bad, but take to it bravely and grapple with it at once, and there is an end of the matter, and most likely there is no sting at all. Did you ever find it so ?

Boys well know that this is the only way to treat nettles, and sometimes they take in other children in a way I do not approve of at all, by running after them with a bunch of nettles, calling out, "This is the month that nettles don't sting," and when the poor silly child has been persuaded to give a timid touch, the very way to get stung, they laugh, and say, "Oh, I told no story, I said nettles didn't sting the month, not that they would not sting you." But I call this a regular cheat, and very unkind, so I put this in as a warning.

The reason of this is, that all the little white hairs that cover the stem and leaves of the nettle are bristles, like a serpent's tooth, each with a little bag of poison at the bottom, which a slight pressure squeezes into the hand through the tiny pipe into the bristle, whereas a good hard squeeze crushes bristle and bag together and makes them harmless. It is only such poison as inflames the skin but does no harm if eaten. When vegetables were more scarce, and there was famine in the land, we hear of boiled nettle tops being used for food, and they are sometimes given now to young turkeys. The flowers grow like many four-stamened ones in flocks ; they are green, and the fertile have shorter stems than the barren, which hang out rather prettily in autumn along the serrated leaves.

Do you remember the fairy tale of the seven princes who were turned into swans, and could only be restored to their true selves by putting on shirts which their little sister was to spin from nettles ? It used to seem to me a

stranger fancy than it does now that I have found out that in countries too cold for flax and hemp the fibres of nettles were much used to make sheets, etc. The Scotch poet Campbell, who wrote "Ye Mariners of England," and "The Battle of the Baltic," said that his mother liked nettle sheets better than any others, and nettle thread was once much used.

A plant that grows on old walls, with dark stems, large green leaves, and tiny blossoms at their base, some with tufted stigmas others with odd curled stamens, is called pellitory of the wall, and belongs to these.

## CHAPTER XXXIV

### FIGS AND HOPS

SOME curious trees come now—all *trees* with milky juice, and with their stamens and pistils in different tiny flowers.

The mulberry tree is one of these, with fruit like a red blackberry, and leaves which are the favourite food of the silkworm.

“Silkworm, weave a robe for me,  
Weave it of the mulberry tree.”

There is an Italian saying, “With patience the mulberry leaf becomes satin.” But the silkworm, spinning its own pale golden shroud, must have worked first.

The leaf is shaped so like the peninsula of Greece in the map that the Venetians called the place the Morea, from *Moro*, their word for the mulberry tree.

These trees were first brought to England in the time of Henry VIII. James I. advised every one to plant them, breed silkworms, and get silk woven here, but it turned out too cold for the worms to thrive, though many children still watch their caterpillars in paper trays, wind off their soft yellow silk, and see the white moths come out. The trees are very long lived, and are often to be found in old gardens, where those who pick up the fruit in their childhood get to like it very much. There used

to be an old notion that a mulberry tree never bore fruit till three cats had been buried under it !

The fig is most curious. Did you ever see a fig flower ? No. There are only young figs. The blossoms are really inside that green coat ; and what is even stranger, the barren and fertile flowers are not within the same fig. How is the pollen ever to get at the pistil ? The way is this. There is a little hole at the top, and a small fly has been created which bears the nectar of fig flowers. So it goes from one young fig to the other, and carries the pollen of one to the ovaries of the others, so that the fruit can grow. The little figs which fall off unripe are those that had only stamens in them. Perhaps the barren fig tree that our Lord withered, as a visible parable to the Jews, had refused to open its figs to the fertilising fly. Is it not wonderful !

The fig-tree, with its fine broad leaves, belongs to Syria, and will not grow in cold parts of England. Its leaves fall off at the first frost. The first fig trees were brought to England in the time of King James I. by a scholar who was sent to study books and plants in the Holy Land. He brought the plants to show the English what was meant by sitting under one's own fig tree. Figs keep well, and we get them packed in boxes. *Sykos* was their Greek name, and the tree Zaccheus climbed into was not our sycamore, but a wild fig. You may have heard the word sycophant, for a bad mean man, who gets favour by evil means. It used to mean—in Greek—a man who informed against people who sent their figs out of the country without permission from the government.

Hemp comes next, a handsome plant, as you may see if your pet bird's hemp seed falls into the garden and grows. It is of the same tribe with the hop. If you live in a hop district you know the look and smell of them most

intimately, as they hang in festoons on their poles in long beautiful avenues, and you will not think that "hopping" means nothing but going on one leg, as some other children would say. Almost everywhere the hop grows wild, flinging its beautiful leaves about on the hedges, and curling its twisted stem round the bushes; and very nice the hoptops or young shoots are if pinched short off, boiled, and eaten on toast like asparagus. The barren blossoms have a little green calyx, containing five yellow stamens, which stand up boldly; the fertile flowers droop in a beautiful head of loose green scales, each containing a single pistil, and these are the hops which are gathered in such quantities in Kent and Surrey, and serve to give bitterness to beer. Whole families come out to the hopping, and it is a time when the Irish pour in in numbers to earn the money that they hope will support them for the rest of the year. Other swarms come after the hops, a little aphid, an insect such as we call blight, lives on them, and would do much harm if it was not in its turn the food of the beautiful lady bird, who, as sure as the hop aphid arrives, spreads the gauzy wings under her scarlet shining wing-cases and flies after it as fast as if, as the rhyme tells her, her house was on fire and her children burning.

Though hops are so common now there were none in England till the reign of Henry VIII., when the saying is,

"Hops and turkeys, mackerel and beer,  
Came to England all in one year."

The hops came from Flanders, and with them I suppose the French name of beer, for ale had been English drink time out of mind, and had been made with the pretty blue ground-ivy instead of hops, as the name Ale-hoof still reminds us.

## CHAPTER XXXV

### THE ELM TREE

MOST of the next tribes are trees, beginning with the second in rank among our English trees, the noble spreading elm.

It will be a good opportunity for telling you a little about the wonders of the construction of trees, and indeed of almost all plants with woody stems. I suppose you would tell me that the trunk of a tree consists of only two parts, the wood namely, and its rough greatcoat, the bark. And this is in some sense true, as we might say that we have flesh covered with skin ; but our flesh is full of numerous little vessels and minute parts, and in the same way the wood of the tree is of far more wonderful structure than you or I should ever have guessed.

In the first place, recollect how the end of a stick looks when freshly cut and polished off very smoothly, as boys like to do when they have a good sharp knife. There is a little pale spot in the middle which, by the help of a magnifying glass, is shown to be of a soft spongy substance. This is the pith, and it serves to nourish the infant leaves when they have not yet broken from their hard coverings and are too young to obtain their support from the air and moisture.

Outside the pith is the wood, which is arranged in rings, one without the other. These rings grow darker towards the centre; and the inner and darker ones are called the heart-wood, while the outer ones are called the sap-wood. The age of the tree is reckoned by the number of the rings, as it forms a fresh circle of sap-wood every year, and at the same time the innermost ring of the sap-wood turns into heart-wood.

This heart-wood is the main strength and firmness of the tree, the sap-wood that which carries on the business of life, for through it the sap rises in the spring to support the buds and leaves. Through it, I say, for both kinds of wood are, in fact, composed of an infinity of very small tubes or pipes, through the hollow of which the sap mounts in the outer rings, while the inner ones are filled with a hard solid substance which was originally formed in the leaves.

Across the wood you may see a number of little pale fine lines diverging from the centre, not regularly, but interrupted and broken. Perhaps they are most distinct in the oak tree. These are called the medullary rays, that is, the rays of marrow, and serve to conduct to the centre of the stem the sap which has mounted through the sap-wood, which having travelled out to the ends of the leaves descends through the bark.

This is a long account, but it is so wonderful that it would be a pity not in some degree to enter into it, so I will just tell it to you once more, so as to show you how the sap of a tree has a circulation like that of the blood in our bodies.

First, it is sucked in from the earth by the roots; then it mounts through the hollow tubes of the sap-wood, which conduct it to the extreme end of every branch and twig;

then it turns and comes back again, together with the food the leaves have been gathering from the air and rain, through the vessels of the bark, parting on the way with some portion which goes through the medullary rays to feed the pith and fill up the tubes of the solid heart-wood in the middle. So you see that every branch of the tree derives its support from its union with the rest, and you know of what that should remind us. We hear of sap rising in the spring, the time chosen for felling trees, because the quantity of moisture makes it easier to strip off the bark. Now the sap is always present, but as soon as warm weather comes, and the buds swell, they call for more to feed them, and what was at rest in the branches flows into them ; the branches demand a supply from the sap-wood, the sap-wood draws upon the root, and by and by the whole begins to return by way of the bark. Cold will check all this ; and it used to be thought that the sap went up by the bark and down by the wood, but this has been shown to be wrong. A French botanist, in order to make sure, in the midst of a sudden frost cut down a large poplar, a yard from the ground, and found the stump dry, while the upper part dropped with sap. Another rising takes place to feed the midsummer shoot, which brightens the foliage in middle age with tender red and green.

When a tree grows old decay generally begins from within, but as the circulation chiefly depends on the outer portions we often see hollow trees with plenty of green leaves, though they have so little sap-wood, or wood of any kind, that it is hard to guess how they stand at all. What famous play-places for children those hollow trees make, and what capital nests do the owls and woodpeckers find in them ! An old hollow tree is likely to be a perfect



storehouse of delights for lovers of insects and lovers of birds and lovers of mosses and lichens, aye, and for lovers of merry children too, who like to hear the screams of good-humoured play, as the small people jump out of their hiding-place, or make the smooth inside a castle or cottage peculiarly their own, for enjoying their own little secrets and keeping their hoards of pretty stones and pebbles.

You can now perceive why it is so important in carpentering to cut the wood the right way, lengthways, that is to say, so as to break into as few as possible of the little tubes. If cut the cross way all the tops of the tubes would be cut open and laid bare, so as to let the minute drops of damp trickle into them and cause decay; besides, it is much smoother to go along with the tubes. The grain of the wood and the different patterns on boards are caused by the rings of the heart-wood, the larger ones being innermost and nearest the centre.

Now then for the elm itself.

In March and April you may see its branches thickly covered with clusters of small dark brown blossoms, and when you can get a near view of them you will find that these are small greenish brown cups, containing five red stamens and two styles, growing out of a little round germ; but the seed is not apt to ripen, and the tree usually propagates itself by throwing up suckers from the root.

The leaves are small, egg-shaped, and serrated, the bark rough, though of a finer grain than the oak, and less apt to be overgrown with moss and lichen. The wood is not so hard nor so enduring as oak, and though it is very useful for many purposes, the especial value of the tree is rather in its lifetime than after it is cut down. How de-

lightful is the cool shade of a lane shut in on either side with hedgerow elms, those firm grand arms of theirs reaching out and embracing, far overhead—hedgerow elms, I mean, allowed to grow to their proper form and beauty ; not trimmed close and deprived of all their fine long branches, as they are in some of our counties, where they look more like tall Jacks-in-the-green than like the fair-spreading elm tree.

Or think of a churchyard bordered round with elms, casting their quiet shadow on the graves around, and perhaps over a clear streamlet, fencing it in on one side, and dividing it from the fresh green meadows beyond, the sunlight making its way through the thick leaves, and falling in patches on the grass and water and the old gray walls of the church, and quivering and moving about so pleasantly when the wind shakes the branches. What a fair peaceful spot it is ! closed in from all the world, and those noble trees making a sort of outer church, with pillars and arches, where the thoughts of the living may be sobered, and where the dead rest within the shadow of the church.

Or how pleasant it is to see some park, the greensward shaded by tall elms, in threes or pairs, sheltering the cattle on hot sunny days, and in early spring loaded with the multitudinous nests of noisy rooks. Rooks like elms much better than any other tree, and their black satin coats and hoarse chattering voices seldom fail where these trees are numerous, as in the spring they fight over the sticks they carry to build their nests. In the summer they teach their black children to fly before they can feed themselves, and in autumn and winter fly circling round and round in the air, collecting for an evening assembly, and evidently having a friendly conversation on

the best fields for grubs and chaffers, before going to roost, like large black fruit on the elm trees.

Grandest and best of all is the elm tree when it stands alone in its pride, its magnificent trunk rising like a column, and stretching out its protecting arms all round, like a monarch in charge of the country. Elm trees grow very fast, but they live very long, and some of these fine single elms are recorded to be of a great age. There was one at Gisors, on the frontier of Normandy, where the kings of France and dukes of Normandy used to hold conferences together, and which was large enough to shelter both their trains. It was more than two hundred years old when it was cut down by King Philippe Auguste, out of hatred to our Plantagenet kings. At the first French Revolution a great many fine old elms were cut down which bore the name of King Henri IV. (who died in the year 1610). He had planted many with his own hand, and had recommended the planting of many others round churchyards, and to form avenues at the entrance of towns.

The first elm trees in Spain were taken thither from England by Philip II., who planted them near his palace of the Escorial; and at the beautiful Moorish Grenada, in the midst of all the glowing sunshine and southern beauty, the English traveller is surprised to find himself in an alley of over-arching elms, green and shady as those in the lanes of his own home.

Queen Elizabeth was a planter of trees, and the oldest elm known to exist in England is a stump at Richmond, now fenced in and covered with ivy, which was planted by her hand, and therefore has always been known by the name of the Queen's elm.

The most interesting of all our English elms is, how-

ever, one which still stands near the entrance to the passage leading to Spring Gardens, for it is that one on which King Charles looked as he was going to his martyrdom, saying, "That tree was planted by my brother Henry," that brother the remembrance of whose boyish days might well

"Haunt him in no vexing mood,  
When all the cares of life were over."

There is another kind of English elm with broader leaves, called the Wych elm, and another sort proper only to Scotland, where our English elm was not known till after the union of the two kingdoms.

## CHAPTER XXXVI

### THE CATKIN RACE

ALL the trees that follow have their stamens in the small dusty scales of their catkins, or pussy-cats' tails.

There is the birch, dark barked, with purple catkins, each with four stamens tightly packed away; and many and many a kind of willow.

Who does not love, in early February, to walk out by the side of the hedge or coppice wood, while all is moist and fresh, as the sun melts the morning frost, and shines with a sweet warm brightness that makes us talk of spring coming fast, and spy about to see if the dear green world within the brown hedge is feeling it yet?

The honeysuckle is thinking about it, aye, and on certain purplish twigs there shine tufts of silver down, growing alternately on each side of the stem. "Pussy, pussy!" we scream with joy—the withy is putting on its silver buttons, and up we scramble to pull down a shoot, and stroke our lips with that softest, silkiest of down, the little scales, within which the buds are safely and warmly guarded from the frosts that will nightly brace the young bough; or, should the spring be rainy, this same down serves, like the fur of a cat or the feathers of a duck, to

keep the wet from soaking into the little tender things, so carefully protected.

Sweet spring-like silver pussies, that last all the cold ungenial time, cheerful and kindly! we are half sorry to part with you when you shoot out into the goslings, which, however, we love quite as well. And don't the bees love them? Their first taste of fresh sweet pollen after their winter's sleep! How they buzz round and load their legs, and what a baking of bee bread there must be on those March days, when brighter sunshine has unlocked the green buds and brought out the two yellow stamens and the delicious smell from within each of the silver scales.

The tufts certainly are much like downy yellow goslings, and are therefore well named from them, soft sweet things that they are; but we also call them *Palmas*, because they are in some parts of England carried to church on Palm Sunday, since we have no real palm trees, in remembrance of the branches that the disciples cut down from the trees. In other places the yew branch is used instead, because it is one of the few trees still green, and its dark leaves show why our Lord was come to Jerusalem on that day; but I think the palm or withy suits best. Its fragrant soft golden blossom, daring the cold blasts of early spring, and foremost of trees in its praise to its Maker, is like the little children crying *Hosanna* in that time of trouble and persecution.

These yellow blossoms are the catkins, the barren flowers. The fertile ones are not so pretty; they have thick green pistils in a spike, each with a little downy wing to fly away with when the seed is perfect. The leaf comes out much later than the "kindly flower."

The withy belongs to the great genus of willow, or osier,

called in Latin *Salix*. There are fifty English kinds, and plenty more in other countries. Most of them have a longer and more drooping catkin than the gosling, but this, as well as the pistil, is always downy. They are a useful kind, as baskets small and great can testify, beginning from the huge bushel basket, which when full loaded bows down the strong man, to the exquisite little delicate white thing that balances on the tip of our finger, and just holds some bright little pincushion. We English have been famous for our basket-work since the days of wicker chariots and British baskets, after which the Roman ladies eagerly sought. In Holland the bending, yielding osier is still more valuable, for it serves to protect the great mud banks that keep the sea from overflowing the flat country below, and thus becomes a wall to preserve the whole population from ruin. Anything harder would break under the pressure of the water, but the osier can bend and yet retain its hold.

The graceful weeping willow, with its long drooping light green boughs, looks very pretty hanging over the water, and we honour it and look at it with liking, because, as its Latin name, *Salix Babylonica*, reminds us, it was the tree which grew beside the Euphrates, where the children of Judah hung their harps when they sat down and wept, and those who led them away captive desired of them a song and melody in their heaviness. The first weeping willow that came to England was brought from the marshes of "proud Euphrates' stream." Perhaps you would like to read the story of some young weeping willows that grow on the banks of the Thames, in the beautiful playing fields at Eton. You must know that about a hundred years ago some boys named Wellesley were sent to school there, and there they did, as they did

through all their long lives, what they had to do with all their might, and looked chiefly, as Arthur, the younger of them, once said, "to doing their duty in that state of life in which they had been placed." It is not, however, of the great Duke of Wellington that I am going to tell you, but of his elder brother, Lord Wellesley, who learnt at Eton to make Latin verses, which to you no doubt sounds like most difficult work, and many boys hate very much. But he did his best in work and play, and so he learnt to love them both. Well, he grew up and became a great great man, and was made Governor-General of India, and great conquests came about under his rule, and the two brothers were so great that Bonaparte said the Wellesleys had done so much for England he thought they must mean to make themselves princes of it, for he had no notion how men could love their duty better than themselves. But after all this greatness, when the Marquis Wellesley grew old, what do you think was one of his favourite amusements? It was writing Latin verses, as he had done in his school-boy days, and one of the prettiest poems he ever made was in both Latin and English, about the willows of Babylon, and the captive Jews lamenting for their sins and their exile; and when he died, at eighty-three years of age, he desired to be buried in the chapel at Eton, and that three weeping willows should be planted in the playing fields, that other Eton boys might be put in mind that as Sion was ruined because her people fell from their God, so our only hope of safety and prosperity is in holding fast by Him, or, as he says in his verses, that "God's blessing on sound faith is Britain's force." And though you are not an Eton boy, and will never be Governor of India, yet I think you can see from his example how to make your present tasks and way of life a



bright remembrance, to go with you through all your days to come, whether many or few.

A good many trees belong to this tribe, but I have told you about most of them, and will just mention one which bears downy catkins, very beautiful, though most likely you never noticed them, and no wonder, for they are so high up that unless there was a very high wind to shake them down they would never come in your way, I mean the poplar. Its eight stamens are of as beautiful a crimson colour as ever you saw, hanging from a curious little fringed scale, the pistil-bearing flowers are green, also in catkins. The poplar came to us from Italy, and is the most tall and straight of all our trees. An old-fashioned cottage with a row of poplars before it, and beehives under them, is one of our pleasantest sights, but unluckily for the poor poplar, its Latin name, *populus*, is also the word for the people, and so the factious Romans first, and afterwards the French, chose to take it as a sort of mark of rebellion. The French, in the Revolution of 1848, went about transplanting the poplars from the gardens where they were quietly growing, and setting them up in the squares of Paris, calling them trees of liberty, shouting, and firing cannon, and hanging them over with wreaths of everlasting flowers. Of course the poor trees all died, and when the people had grown tired of all this nonsense Louis Napoleon had them all pulled up and burnt. I hope our tall honest poplar trees will never be put to so bad a use.

A kind of purple aspen, with leaves always shaking with the least breath, is of this class too; the catkins of the aspen come tumbling down in May and strew the paths so that I have often taken them for hairy caterpillars.

## CHAPTER XXXVII

### *CLASS II*

#### ENDOGENS—ORCHIDS

WE have worked through the Exogens or Outward Growers, also called Dicotyledons or Two Seed Leaves, and have come to the Endogens or Inward Growers, otherwise Monocotyledons or One Seed Leaf.

The first class had parts in fours and fives, these have them all in threes, twice threes, and sometimes thrice threes. And whereas the first class has netted leaves, the second has leaves with long ribs going to the point, hardly ever branching.

The first English plant among these is Frog-bit, a not very common plant, with roundish leaves floating on the water of pools, three white petals, and nine stamens.

Another tribe is the pine apple, which grows in so curious a manner, its purple six-stamened blossoms being perched on each division of what we call the fruit, which seems to be in fact a stem crowned with the solid dark prickly leaves. It grows in quantities in hot countries, though only in hot-houses here. Indeed it has hardly been known in this country for more than a hundred years, and is still considered as one of the rarest of fruits.

It is lucky for us homely people that we can do very well without it, for we have been given much that is pleasant to our taste, and wholesome for us, to grow freely without over care or cost under our own temperate sky.

And next come a wondrous race.

One of the first glad sights of merry spring are certain stars of long, narrow, pointed leaves, spreading on the ground, growing one within the other, and often ornamented by bright spots of black. By and by a little bud appears in the middle, veiled in a thin silvery case ; it grows and it grows till it bursts its sheath, and uplifts a fat fleshy stem, bearing a purple spike of long-tailed flowers, pleasant to behold in the green copsewood among bluebells and primroses, and brilliantly setting off the cowslips and marygolds that usually form the chief groundwork of May garlands.

A nice old English name for these flowers was long purples ; but village people generally call them by the disagreeable name of dead men's hands, because they have a root of two long narrow tubers (one dies and they form a fresh one every year), and thus most educated people know them best by their Latin name of *Orchis*.

I don't think any plants that I know are so difficult to understand as these, but I will do my best to explain their structure, for it is very remarkable. The spike consists of a number of blossoms, each growing on what appears a thick stem, with a long purple leaf at its foot. This stem is in fact the germ ; you see it is curiously twisted, and if it was cut in two and magnified you would find it full of young seeds. The corolla is a wonderful thing. Behind stretches a long hollow tail, a spur, as it is called ; hanging down in front a lip, a three-notched petal, beautifully streaked and spotted

with white, black, and purple; at the sides are two other petals, which seem to protect the rest, and are called the wings, and between them are three very small petals, closing together, so as to form a little helmet, the casque. The middle one of these three bends over a dark purple thing, thick and fleshy-looking. With a magnifying glass you can, if you have clever eyes and fingers handy in using a pin, discover that this is divided down the middle by a sort of seam; then pulling open the seam you will find the purple covering is a case for two small olive green things shaped more like a comma than anything else. These are the pulp in which the pollen resides, and the purple case is in fact the anther. Filament there is none, and the germ we have seen, serving the purpose of a footstalk, while the top of its stigma forms a fleshy white cup, opening upwards under the anther. Was there ever a stranger construction, all the parts seem upside down! We should never have found them if botanists had not taught us, and here even more than in the compound flowers we should have fancied that there was neither pistil nor stamen; and which of the parts of the flower are to be called calyx, and which corolla, people are not agreed, though the wings are generally termed the calyx.

The orchises, even in the commonest forms, are the strangest of all flowers, if this wonderful structure is examined. We have several kinds, to be found almost everywhere. The earliest, with the black spotted leaves, is the purple orchis, and for old friendship's sake I like it best of all, connected as it is with May walks, and cuckoos' songs, and pleasant woods, where a little damp makes its purple spikes rise high and densely covered, growing at a little distance apart, and luring one on

through bramble and tangle in the search, and varied in endless shades of lilac, from deep dark purple to almost pink. The worst of it is that a number of them together in water have an unpleasant smell.

A little later the pretty little green-winged meadow orchis springs up all over our pastures in company with cowslips. Its wings are always pale green striped with brown, but its lip is sometimes very dark purple, sometimes very pale rose colour, sometimes even white, and though a sturdy little plant there is hardly a prettier May flower. In the marshy meadows there blossoms at the same time the large, tall, noble-looking, broad-leaved orchis, its blossoms usually rather a red shade of the orchis purple, though varying very much. You may know it from the rest by the length and brown colour of the bracts or leaves that grow at the foot of the germs, as well as by the breadth of the tapering leaves. Later there follows it the aromatic orchis, very red, very sweet, its spike very long, and its spurs of a most disproportionate length; and sometimes you may find the pyramidal orchis, which looks as if some one had pulled all the blossoms of the aromatic orchis up to the top of the stalk into one bunch, shaped like a half-opened mushroom, with a peak. In woods there come at the same time the spotted orchis, a very pretty one, its long narrow leaves very thickly dotted with black, and its white flowers with delicate purple, and sometimes, though less commonly, the butterfly orchis. I cannot tell why it is so called, as it is not in the least like a butterfly, though perhaps it might be compared to certain slender delicate-looking white moths. You cannot mistake it when once you see it; it is very unlike anything but itself, and though hardly to be called beautiful, has a peculiar grace of its own, in its

large, loose, airy, white spike, its long streamer-like white lips, its taper greenish wings, and very long curving spurs, twisting and crossing each other in a sort of zigzag pattern ; above all, there is the pure sweet scent, which is more charming in the evening. It always seems like a lady of the woods. It is also called the honeysuckle orchis, because of its delicious smell, a good deal like a honeysuckle ; and the two-leaved orchis, because half way up the stem grow a pair of oval leaves, spreading one on each side. These are not true leaves, only bracts, and you see they have not the branching mid-rib and network, but have the long ribbon-like veins going lengthways, as those growing from the root have,—like the lily and grass kind, and all the plants which have but one cotyledon, and shoot up in sheaths.

These are the most frequent of the true orchises, all of which have spurs. The other families of this tribe are without spurs, though other parts of the structure resemble those already described, and very curious some of them are. The tway-blade, so called from having two such oval leaves as the butterfly orchis, grows in much the same places, but is not of the same fleshy substance. It has a four-cleft lip, that seems to hang out the sign of the little green man, with its two arms and two legs and yellow head ; but this is not near so like as the man-tway-blade, properly so called, is said to be. Of this, however, I cannot judge, since I never saw it. The bird's nest orchis is a very strange plant, growing under beech trees, which allow scarcely anything else to come near them in their strong desire to keep their domain tidy and allow no litter under their branches ; but this little plant comes up under the lordly shade of their arching boughs, nay, even close to their smooth univied trunks ; and, as if to

elude their observation, it wears the livery of their own dead leaves, and while in its full prime is as brown—blossom, stem, and all, as if it had been dead for months. As to leaves, it attempts none; it is only glad to find sufferance for its brown petals in the deep glades of the beech wood.

In dry pastures grow the lady's tresses, a pretty little low plant with blossoms, where the wings are pure white and the lip green, the flowers twisting in a spiral line round the spike, and I suppose owing their name to their way of growth being in the line of the waves of a lady's hair. I fancy this must be the flower that village children's rhyme means—

“Daffodils and daisies,  
Rosemary and tresses,  
All the girls in our town  
Must curtsy to the ladies;  
The bushes so high, the bushes so low,  
Please, my lady, stoop under the bough!”

The children always say “*traisies*,” but as there is no such word I suspect it once meant tresses. Do you know the game the rhyme belongs to? Four little girls stand together, the arms of two crossed over those of the other pair, and sing it together; when they come to the curtseying, they all curtsy, and at the stooping under the bough the under pair bend beneath the arms of the others, and come within, so as to be enclosed between them, and then they all jump till they can hold together no longer.

I don't know whether you can understand this description, so we will go back to the lady's tresses. If you find them at all it will be in quantities; but the strange thing is, that though they are not annual, and grow in

ground by no means liable to be disturbed, they show their faces only now and then ; they will come up one year and not be seen again for four or five, or else make their appearance on some lawn where no one ever expected them.

Helleborine has long leaves and bracts, and a prettily jagged lip. The broad-leaved kind grows in dry woods ; the marsh helleborine has a white under-lip, jagged and edged with red ; the large white helleborine, a great beauty, looks at first sight like a lily, but is not common.

I have kept to the last the choicest English orchideous plants, the ophrys kind, the lip of which is arranged as if for the very purpose of affording us sport in forms like those of insects. Prettiest of all is the bee ophrys, its downy, velvety, curved lip, dark brown mottled with yellow, and its pale lilac wings, streaked with green, affording a most curious likeness of a bee about to settle on a flower. They are just sufficiently rare to make the discovery of them delightful. I shall never forget the ecstasy of my first sight of one, on a mossy bank, in a little copsewood dell, two bees full out, and another just coming ; it was a scream of joy indeed with which I flew at it. A few more I have found ; the best mine of them was an old chalk pit, now destroyed, and now and then they are met with in dry pastures ; but I suspect them of the caprices of my lady's tresses, for where I find them one year it is almost certain that there they will not be the next.

The fly ophrys I have but once seen, and then it was not growing, but freshly gathered. It looked like a house-fly cut out of dark puce velvet, a blue spot on its back, and, if I remember right, with jet black eyes. The spider ophrys I have never seen.



But these wonders of our own do not approach to what may be seen in foreign lands, especially in South America. There grows a plant, looked on and named in the same spirit as the passion flower, as another stamp and token of the Christian faith, set by the hands of its Author, the beautiful orchid called by the Spaniards of Panama the *Espiritu Santo*, because it is just like a hovering dove of the purest white, a fit emblem indeed for Whit-Sunday.

Another dove orchis grows there likewise, a large tall plant, with flowers like a white dove on her nest, her head turned back and her wings slightly raised and touched with purple. Another orchid is like a whole shower of pale purple and white butterflies, coming down from a bough, and this, like many of the tribe, is a parasite, that is, it grows on the limbs of trees, like mistletoe; while there is another kind more like sticks of coral than anything else, the whole plant being of the most glowing scarlet, except the flowers, which are deep purple. These four I have seen in hot-houses, and marvelled at; there are many more that are grown in the same manner in England, and that a few lucky people are able to go and admire, but what must they not be in their own home?

Some grow from the earth, some hang down from the trees, some sit on rocks amid moss, some beautify the decaying and fallen trees, and their perfume fills the woods at night. Their forms are beyond everything astonishing. The monkey, the mosquito, the ant, are only a few of them; there are hovering birds and every wondrous shape, so that travellers declare that the lifetime of an artist would be too short to give pictures of all the kinds that inhabit the valleys of Peru alone.

## CHAPTER XXXVIII

### FLAGS

WHEN France was true and loyal, and her sovereign gloried in the title of "Most Christian King," her banner was the same as that of these green hosts; and St. Louis led his Crusade beneath the waving fleur-de-lys, and wore it marked on his robe and on his shield, seeing in its threefold formation an emblem of the highest mystery of the Christian faith.

I cannot say that it was well represented in those days; and the thing with three points carved in stone, or represented in gold on a blue ground, which we call the "fleur-de-lys," though graceful and beautiful in form, and recalling many a bright memory of old faith and loyalty, is a very poor likeness of the lovely iris, or flagflower; so poor, indeed, that we could hardly guess it was intended for the same.

The very name of fleur-de-lys is a mistake, as modern botanists have settled it, for it means lily-flower; and the iris in no respect resembles the lily, which we shall find in the sixth class instead of the third.

Iris, the botanical name of the flag or fleur-de-lys, means the eye of heaven, and was given by the Greeks and Romans to the rainbow, which they thought the path

of the beautiful messenger of the gods. They were not so far wrong in this: or perhaps they had some dim tradition that the lovely bow in the cloud is really a messenger of mercy to us from heaven.

The name was given to the flower from its varied tints, blending into each other as the colours do in the rainbow. Purple, blue, and yellow, of all shades, are to be found in these noble flowers, and of such depth and richness that no colouring equals them.

We have two English kinds of iris; the yellow one which grows by the river side, and which perhaps you know by the name of the yellow flag; and the stinking flag, a delicate purple one, with a very disagreeable smell, which grows in hedges, and ornaments them in autumn with its splendid scarlet fruit. The great deep purple iris, in gardens, comes from Syria, the little red purple one from Persia. It was introduced by Queen Henrietta Maria, who was very fond of flowers; and the blue and yellow sort, with the very narrow leaves, which we commonly call the fleur-de-lys, is from Hungary.

When the irises come into blossom you will see their stem coming curiously out from an opening in the edge of their broad, and, for the most part, sword-shaped leaves, and bearing a thick sheath packed up in the same hard straight leaves, containing one or two buds, which, like those of the daffodil, are enclosed in a thin transparent skin, like silver paper, which peels off as the blossom unfolds. I daresay you would be puzzled at the appearance of the flower; it stands very upright, on a green fleshy stem, and seems to consist of nothing but nine petals, in threes: three broad beautiful ones, turning over and hanging down, with an exquisite pattern in blue or yellow, or shades of both, wonderfully blended

together; three little plain ones between these larger ones, standing up rather pertly; and three more middle sized, of a lighter colour, and with a ridge down the middle, shutting down like a lid on the inner side of the large ones. Where are all the stamens and pistils? We must make a few researches. Suppose we see what is so carefully nursed under that lid. Take hold of it gently by that pretty jagged fringed edge which makes a canopy over its doorway, lift it up and peep under it. How beautiful! It is like looking into a little house; and such a house as it is, with such marblings and paintings, of streaks of black, or deep blue, or rich yellow! And all along the middle of the great outer petal is a wonderful crest, or rather mane, of beautiful little soft thick hairs, forming a downy bed, exactly fitting the shape of the long, narrow, stiff inhabitant of this lovely little dwelling. I daresay you have recognised this beautifully lodged gentleman to be a stamen, with a very long anther, and his two brothers live in the other two dwelling-places near at hand. It is very curious that they should thus lodge apart, instead of being sociably together like the stamens of every other flower I know. Now, where is the pistil? Is it not to be found? Look beneath the flower at the stem. This swelling part, regularly divided into three ridges, is the germ; the slender part on which the corolla rests is the style; and the stigma—— Why! the stigma is what we have been calling the middle-sized petals, the lids of the little box containing the stamens. Certainly the iris is as wonderful a flower as it is beautiful. It is all, as you see, in threes; three large petals, three small, three stamens, three divisions of the stigma, three of the germ, and there will be three seed-vessels, and three seeds in each vessel. Last summer I found the iris

stamen houses turned to a purpose I did not expect. They were the very larder whither the spider invited the fly. In a large white iris a green vagabond spider, of the size and colour of a green pea, had his dwelling. There, for a full week, we watched him, lying in wait in the middle of the flower, and storing his victims in its divisions. There were slain and devoured in one week a dumbledore, two bees, and flies beyond reckoning, first caught, then kept awhile in the yellow and white larder, their juices sucked, and at last thrown down to make way for a fresh prisoner. The flower faded in time, and the spider disappeared, having taught us a new use for the iris blossom.

The roots of some irises are bulbous, others are creeping, especially those that grow near the water. One kind, called orris root, is used for a perfume.

The gladiolus, little sword, or corn-flag, is in some points like the iris; it is a most beautiful flower, but only one sort is very common in gardens here; this is the pink kind, which ornaments the corn fields of Italy.

And not distantly related to these flags are the banners of spring, the crocus and the snowdrop, which we had in Chapter I. Also the daffodil of Chapter II., on March flowers.

## CHAPTER XXXIX

### YAMS

THE climbing black bryony does not look as if it was an endogen, but if you study its heart-shaped leaves you will see that they have several ribs running from top to bottom, not one middle one branching into a network. Those leaves become in the autumn of a beautiful pale gold, and then a dark purple, almost black. Then it is in its beauty, climbing in the hedges, with bunches of red and yellow berries like jewels. They come from tiny green blossoms, all the six stamens on one plant, all the pistil-bearing flowers on another. Down below the plant has tubers like potatoes, which used to be scraped and made into plasters for bruises, so that it was called Beaten Women's Herb.

It has a tropical relation, almost exactly like it, except that while the English bryony twines in spires from right to left, the South Sea Yam goes from left to right. Yam tubers are as big as vegetable marrows, and taste like chestnuts or sweet potatoes. The negroes and the Polynesians live greatly on them.

Our only nine-stamened English plant is the beautiful pink flowering rush, which grows in rivers, but not very frequently. I have only once seen it, and then it was in

a river in Gloucestershire. It was almost out of blossom, but it was a prize indeed.

The graceful water plantain, standing up in bogs and ditches has white three-petalled six-stamened flowers, and the curious arrow-head, also a water plant, nine-petalled, and with leaves like a barbed arrow. The pond weeds follow. You see the green leaves over black stagnant water, and heads like plantain poking up, first of little green blossoms and then of green seeds.

It is a great leap from these to those splendid trees the palms. The growth of an asparagus is more like that of a palm tree than anything we have here, and I have read that an infant palm, when it is in the state in which we eat asparagus shoots, is more like a wheat sheaf than anything else. Thus the palm tree never forms such firm solid wood as to be of much use, and the inner part is the weakest instead of the strongest. The great body of leaves all grow out together at the top, and enormous and beautiful leaves they are, all in one, spreading out so as to form a glorious crown for the tree, taller than any tree we ever see here.

These unfading palm leaves have always been the tokens of victory. The Bible speaks of them as borne by the martyr host in heaven; and at Christ's entry into Jerusalem the branches strewn in the way are believed to have been those of the palm. On Palm Sunday, through all the south of Europe, palms are carried in procession, solemnly blessed, and laid up with high honour to be kept for the rest of the year.

The palm of Palestine is the date palm, which has feathery leaves, and bears the sweet fruit that is so precious to the Arabs in the desert, forming almost their whole subsistence on long journeys.

It is one of those that can live farthest from the equator; these trees in general can only bear a very hot climate. The only one I ever saw was in a hot-house, a fan-palm, it grew much like a grass, but at the joint, instead of hanging down a streamer, it put out a circular fan with a jagged edge. Some palms have a very few leaves, spreading out like umbrellas, but immense feathers and plumes are the most usual shape. Some are deep green, some silver white on the under side, some fringed with yellow and blue. I cannot tell you half what I have read of their beauty. You must look for it in foreign books, especially those about South America and the South Sea Islands, in which places they grow to the grandest size. That which is best known to us is the cocoa-nut palm, at least its hard round fruits are. Fine fellows, as large as a baby's head, covered with brown fibre, and their shell so hard that it will serve to break a man's head, as the ill-treated elephant showed. At the bottom of the nut are the three spots called the monkey's face, two hard, the third soft as the young plant might have sprouted through it. Piercing this, out flows the delicious cocoa-nut milk, with its nutty flavour, nearly a wine-glass full, even when we have them here after a long voyage.

The Pirijao of South America has the handsomest fruit in the world, egg-shaped, as large as a peach, of a golden colour, shaded with crimson on one side. It grows in clusters of seventy or eighty, like giants' painted grapes, each tree bearing three of these mighty bunches, hanging down under delicate flag-like leaves, curled at the edges, all at the summit of one straight trunk sixty or seventy feet in height. There are seldom seeds in these lovely fruits, which are used by the Indians like potatoes. In fact I believe there is no palm that is not in some way



useful, and of which the fruit is not wholesome. The stamen-bearing flowers are, in some kinds, very handsome, generally growing like those of their lesser lily-like cousins, in a spathe. They are generally yellowish, and crowded closely together, but now and then they are large and of a dazzling white, hanging down in resplendent garlands.

The bread-fruit tree and the cow tree belong also to this valuable tribe.

## CHAPTER XL

### REEDS

Do you know any river or pool where grows the great bulrush, with a wavy brown head of small three-stamened chaffy blossoms, dark brown or purple? Fine fellows are they; sometimes known by the name of lung-reed, but I like best to call them bulrushes, and you may know why in one moment, though of course it is not to be supposed that the little reed-woven ark where the infant prophet slept safely, as he floated among the monsters in the Nile waters, could be the same bulrush that we see in our streams. Indeed that was the paper-reed.

No monsters are found in the haunts of our bulrushes; the dragon-flies do indeed flit round them, and settle on their long leaves, to devour their prey, but the other dwellers in their pools are all harmless. The moorhen's damp cradle is found in their shelter, the dabchick swims under their tall leaves with her tiny brood, and the water-rat dives and rises, peering round with keen black eyes.

You little girls have little chance of gathering for yourselves one of the grave mace-bearers of the armies of flags and spears, you must get some big brother, who cares little for wet, to plunge in after them; and most likely he will be glad to make a commotion among all those

dwellers in the pools, and send them splashing and diving their different ways. I hope he will not forget to bring you back one of our clubs, a tall stem, long, narrow, tapering leaves, and bearing the large round mace, somewhat of the size and shape of a candle, with a wick as long as itself. Early in the season the club part, which consists in reality of the fertile flowers, is of a greenish brown, while the upper slenderer portion, which I called the wick, is covered with long anthers growing quite close together. By August these have scattered their pollen and withered away, leaving only their stalk, looking broken and rough, but making a good finish to the club, which has become of a very deep dark brown colour and soft plush-like texture. By and by all the little downy seeds of which it consists will break out and fly away, to sow the reed-maces of next year. They are sometimes called bulrushes, but they are really cats'-tails, or reed-maces.

The bur reeds are to be found by banks of rivers, in places much like the haunts of the bulrush. They have branching stems, bearing a number of little balls, some all yellow, consisting of stamens, some all brown or all green, the pistils with white stigmas, the leaves lance-shaped, and the whole plant very handsome, often with a large black fat slug enjoying himself on the back of a leaf.

The next plant is one that can hardly find a likeness anywhere, the arum—that is to say, better known to most of my friends as lords and ladies. Do you not like creeping along the hedge bank, poking into the clusters of heart-shaped, black-spotted, handsome, shining leaves, for the tall, green, rolled-up spike, which your busy fingers quickly undo, while tongues are busy guessing whether it will disclose a red-faced lord, with his slender neck

encircled by a red and white collar of gems, or a delicate white lady! Or here and there, if late enough, you find what I used to call my lord or my lady in a coach—the sheath open, and making a beautiful green bower over its inhabitant, looking, as I now think, like the drapery we sometimes see in pictures, floating, and swelled by the wind, over a sea-nymph.

My lord or my lady is in truth the stem, the collar of gems is the blossom; the stamens, as usual, grow above, in the upper row of beads; the fertile flowers are beneath, and in time give place to scarlet berries, which look very bright in the autumn. I believe they are poisonous; but the root, when dried, cleaned, and ground, becomes a soft, white flour, which is known by the name of arrow-root, or, as it ought to be called, arum-root. The most esteemed arrow-root is brought from the West Indies, but our own lords and ladies would, I believe, make it just as good. There is another kind sometimes grown in greenhouses, where the sheath is of the purest white, and the lord bright yellow; and in Greece my lord goes into mourning, and appears quite black, most beautiful, but with a horrible scent.

And one word of the funny duckweed, a green veil over the black water of the pond, with no roots at all, only one little fibre hanging down below the leaf, to drink the water; and as for flower it has none, but it keeps its two stamens and one pistil in its pocket.

Yes, really in a little pocket on one side of the leaf, where, if you look very sharp, you may just see the two tiny anthers peeping out, as the eyes of the young kangaroos do out of their mother's pouch.

## CHAPTER XLI

### LILIES OF THE FIELD

It is pleasant to have to come at last to considering the Lilies of the Field, how they grow in their beauty, and the glory of their raiment.

Most fair, and pure and regal of all, stands the great white lily,

“The Lily flower,  
With blessed Mary seen,”

which in pictures of the Annunciation is always drawn in the hand of the angel. There is nothing more purely white than the petals of this lily, not fragile and fading at a touch, like that other delicate thing, the convolvulus, but firm and steadfast, retaining their whiteness unsullied to the last. How exquisitely do the grand, queen-like flowers stand out from the tall stem, feathered upwards with narrow leaflets, and crowned with half-opened flowers and tapering buds. Very handsome, too, are the six long stamens, bearing their caskets of gold dust, as if waiting on the graceful bending pistil in the midst, all shut within those superb white petals. It is truly the queen of our gardens, and when we know that its native home is the Holy Land, we may please ourselves with thinking that it may have been the very flower of which our blessed Lord

spoke, when He said that Solomon in all his glory was not arrayed like one of these. No raiment, indeed, that ever was spun or woven can be as one of these, nothing can ever be so lovely save the robes, unseen by us, in which each heir of our royal birth is arrayed when carried from the font. Those are the only robes for which we need take thought, and, oh, how much thought!

White lilies are freely given to us with all their store of precious thoughts. They spread fast, they care little for cold or heat, they flourish in cottage gardens or smoky towns, and they live so long in water that a sick-room may often be cheered by their loveliness. I told you there was a confusion between the lily and fleur-de-lys, and so, though it is the iris that is found in the French coat of arms, the white lily is the especial flower of the royal line of France. It was scattered on their path when they returned after the great Revolution, and the name of the white lily still thrills the hearts of those who cling to the old faith and loyalty.

Some people think white lilies useful as well as beautiful; indeed I daresay many of us can remember getting some hard knock or bruise, and how the useful person of the family, who is always nurse, doctor, and healer of cuts, came out with her bottle of white lily leaves preserved in brandy, and though they did make the hurt smart, she comforted us so kindly that we could not help being cheered up.

I believe the Tiger Lily, with its orange petals and their black spots, also comes from the Levant. The Turk's cap is so called because its petals turn backwards into a round form, and, together with the stamens, look very like the pictures of Eastern princes, be-turbaned and be-plumed, just what would suit Blue Beard. Its home

is in Germany; and that of the brilliant scarlet Martagon is Hungary. There are many other species of lily, all very handsome, for the most part large, and all without any calyx. They have bulbous roots, and indeed I have told you all the general features of the whole tribe when speaking of the snowdrop and daffodil, so I will only mention a few of the most noted and beautiful kinds.

The tulip takes care not to be forgotten. Dressed in its gaily-painted robes, it holds nearly the same place among flowers as the peacock among birds, and always stands as an emblem of conceit. You know its black stamens and its great triangular pistil. It is altered by cultivation from a small species which grows wild in some few parts of England, and is the especial darling of the Dutch, who sometimes give enormous prices for a single root. There is a story of a sailor who, while waiting in a merchant's office, took up what he thought was an onion, sliced it up with his knife, and eat it. Just as he had finished there was a great search for something, and much dismay when it was missing, for behold, the onion which he had eaten was a precious tulip, the price of which would have bought his ship and its lading twice over! Some little children who meddle with what they don't understand, and what does not belong to them, may do just as much mischief.

Very like the tulip is the delicate, bending, drooping fritillary, chequered with purple squares like a chess-board, or a snake's head; indeed it is sometimes called the snake flower. It is not very common in England, and the only place where I know it grows wild is at Oxford.

A far grander flower is the great fritillary, called the crown imperial; its circlet of bells, each possessing six

drops of clear nectar, depending gracefully beneath the crown of narrow leaves, making it a magnificent plant; and it well may be called an imperial one, since its native land is the old empire of Persia, then it came to Constantinople, and then to Vienna, where it grew in the emperor's garden, and thence was sent to England—certainly before Queen Elizabeth's time. As soon as the blossoms fade the stems stiffen and hold up their heads, so as to keep the seed from falling out.

Garlic and onions belong to this class, as you may see by looking at the six-pointed blossoms in the round head of the onion.

So does the great tropical plant the aloe.

I like few names of flowers better than that of the Star of Bethlehem, a brilliant white star in truth, glancing among its long green leaves, and well fitted to put us in mind of the Star of the East. It is an Eastern star, for it comes from Palestine, and though sometimes found wild in England it is probably a runaway from the old convent gardens, whither, perhaps, it was brought, with its name, by some pilgrim from the Holy Land.

I am not fond of keeping so much to garden flowers as we have done this time; but the fact is that these flowers, with their parts in sixes, are all so handsome that they are sure to get into gardens. The blue-bell (I mean the wild hyacinth, the English blue-bell, not the harebell, or blue-bell of Scotland) is wild enough indeed, spreading in perfect clouds over the copses, and supplying the main strength of the May-day garlands, drooping its profuse blue bells in such multitudes, each footstalk bearing a little bract<sup>1</sup> as blue as the flower. How pretty are the buds pressed close together in that cluster, and how

<sup>1</sup> Bracts are leaves growing at the foot of the flower-stalk.



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Garlic and onions belong to this class, as you may see by looking at the six-pointed blossoms in the round head of the onion.

So does the great tropical plant the aloe.

I like few names of flowers better than that of the Star of Bethlehem, a brilliant white star in truth, glancing among its long green leaves, and well fitted to put us in mind of the Star of the East. It is an Eastern star, for it comes from Palestine, and though sometimes found wild in England it is probably a runaway from the old convent gardens, whither, perhaps, it was brought, with its name, by some pilgrim from the Holy Land.

I am not fond of keeping so much to garden flowers as we have done this time; but the fact is that these flowers, with their parts in sixes, are all so handsome that they are sure to get into gardens. The blue-bell (I mean the wild hyacinth, the English blue-bell, not the harebell, or blue-bell of Scotland) is wild enough indeed, spreading in perfect clouds over the copses, and supplying the main strength of the May-day garlands, drooping its profuse blue bells in such multitudes, each footstalk bearing a little bract<sup>1</sup> as blue as the flower. How pretty are the buds pressed close together in that cluster, and how

<sup>1</sup> Bracts are leaves growing at the foot of the flower-stalk.

is in Germany; and that of the brilliant scarlet is Hungary. There are many other species, very handsome, for the most part large, and many calyx. They have bulbous roots, and I have told you all the general features of the whole. Speaking of the snowdrop and daffodil, so I mention a few of the most noted and beautiful.

The tulip takes care not to be forgotten. In its gaily-painted robes, it holds nearly the place among flowers as the peacock among birds, and it stands as an emblem of conceit. You know its stamens and its great triangular pistil. It is introduced from a small species which grows in a few parts of England, and is the especial darling of the Dutch, who sometimes give enormous prices for the root. There is a story of a sailor who, while in a merchant's office, took up what he thought was a slice of meat, sliced it up with his knife, and ate it. Just after he finished there was a great search for something, and to his dismay when it was missing, for behold, the slice he had eaten was a precious tulip, the price of which would have bought his ship and its lading. Some little children who meddle with what they do not understand, and what does not belong to them, do just as much mischief.

Very like the tulip is the delicate, bending fritillary, chequered with purple squares like a chess-board, or a snake's head; indeed it is sometimes called the snake flower. It is not very common in this country, and the only place where I know it grows is Oxford.

A far grander flower is the great fritillary, the crown imperial; its circlet of bells, each pos-

nectar, depending gracefully beneath the row leaves, making it a magnificent plant; may be called an imperial one, since its native empire of Persia, then it came to Constantinople, then to Vienna, where it grew in the emperor's garden, and thence was sent to England—certainly Elizabeth's time. As soon as the blossoms stiffen and hold up their heads, so as to prevent falling out.

Onions belong to this class, as you may see at the six-pointed blossoms in the round garden.

A great tropical plant the aloe.

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graceful the long linear leaves. I daresay most children happy enough to be brought up in the country would say, as I do, that some of their most joyous days have been spent in blue-bell gathering. I shall never forget one walk, nor I am sure will the little cousin who shared it with me, when we went through a beautiful wood, tall trees above, and a path winding along close to the sea, which sparkled and glanced through their leaves, and on the other side a mossy bank rising, covered with such a profusion of blue-bells! How we filled our hands with them! And having agreed that we would be very good, each made a point of giving the other her very finest, most thickly clustered bells, or the precious white ones, or the still more valued pale lilac, which we used to call pink, and think such a prize! And then, when our nurse got into a hurry and told us to gather no more, I can still remember the feeling of resolution with which we passed the choicest, not attempting to gather them, though of course, just because we had not got them, they seemed the best of all. Only think, if that walk is so pleasant to me to remember after twenty years, and because I was honestly trying to be a good little girl, as well as for the sake of my companion, does it not show us the lasting value of really loving and trying to do right? The thought of those untouched flowers is precious still, and will always be so; but would it be so if we had disobeyed and turned aside after them? Depend upon it, it will be just the same in greater matters, for a day will come when what we most prize now will be as worthless to us as are in themselves the blue-bells of twenty years ago. The love and the self-restraint will be the lasting things.

Even blue-bells cannot keep entirely among wild

flowers, for the blue-bell is a hyacinth, and its Eastern brother, the hyacinth of Bagdad, is one of the most petted of plants. In its natural state the blossom is not so long and slender as the blue-bell, nor are the ends of the petals so prettily curled back. We generally see it double, and of many varieties, to which strange names are given. The hyacinth carries so much nourishment in its bulb as to require no earth, and many town children know the pleasure of keeping a bulb in a glass all the winter, watching it shoot out its long white fibres into the water beneath, and set up its almond-shaped bud, which grows and spreads till leaves and stem and blossoms, blue, white, or pink, unfold themselves. Grecian legends say that this flower sprang from the blood of Hyacinthus, a beautiful youth, who was killed by accident by their god Apollo, and its leaves are marked with I. A., the first letters of his name in Greek ; but no one ever has been able to find any such marks on them, nor on the wild blue-bell, which is therefore called in Latin *Hyacinthus non scriptus*, the unwritten hyacinth.

Do you know that stiff yellow thing, the *Asphodel*, its hard orange stem, its grass-like bluish leaves, its star of six petals, and six downy stamens tipped with a red anther ? We hear a great deal in poetry about dwelling in meads of yellow *asphodel* ; but they are not at all the places I could fancy dwelling in, though I like very much to botanise in them, for they are generally peaty bogs full of black moist earth. I think they must have been admired by the Greeks as being connected with the mountain air and fresh breezes delightful in so hot a country, and that they have travelled from Greek into English poetry without much reason.

## CHAPTER XLII

### ASPARAGUS

SEPARATED from the true lilies by bearing round berries is the beautiful lily of the valley, shading its pearly bells under its broad green leaf. It is wild in some fortunate woods, and there each petal is marked with a single deep purple spot, but strangely enough these disappear as soon as the root is transplanted into a garden. How well they grow and thrive in some old-fashioned gardens, spreading out in a whole wilderness of green, and raising their lovely modest heads !

Solomon's seal is of the same genus, and a very pretty plant it is, its bending stem furnished with broad green leaves, growing alternately, and at the spring of each leaf a pale green bell drooping gracefully down. Both it and the lily of the valley have their seed in a purple berry.

Asparagus is another six-stamened plant, which is good for food, though it is not the red and yellow berries that we eat, as they hang on the feathery little trees that form such pretty groves along the beds in autumn. It is the young buds of the plant itself that form the thumbs (as the French call them) of asparagus, that are so good to eat in the spring. It grows wild in one small island on

the coast of Cornwall, called after it *Asparagus Island*, and also on the coast of the Isle of Wight.

Here, too, you will find the sedges—plenty of them—for there are sixty-two English kinds, many of them very common by river sides and in woods. You would be apt at first sight to call them grasses, but though their first cousins they belong to a different family, and are of no use to man, whereas grasses are most valuable.

They are known by always having a three-cornered stem, remarkably harsh to the touch, and no wonder, for it is full of *silex*, the substance that gives hardness to flint stones. This is very wonderful, but I cannot explain it. The leaves do not, like those of the grasses, form the stem itself, though they seem at first sight to do so, for they are rolled round the stem at the lower part and sheath it. They are generally of a pale yellowish green, suiting the autumn tints, when the wood sedges usually blossom. The flowers grow in separate spikes, the fertile ones the lowest down, and generally all green, consisting of small chaffy scales protecting a hairy, bottle-shaped, two-divided germ, with three stigmas. The barren spikes are much prettier, for their scales are dark brown or black, and their anthers hang from them in multitudes of yellow or sulphur colour. A spike in full flower, bowing in its graceful manner its soft yellow plume, between two darkened unopened spikes on the bending stem, presents so pretty a mixture of colour that I wonder we do not oftener see it in river-side nosegays. In every blossom of this thick scaly head are three stamens, for the sedge is as constant to the rule of three as its relations the grass and the rush.

One of these rushes is the *Papyrus*, the reed of Egypt, on the rind of which, in former times, people used to write with an iron pen, digging in the letters. It was



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from this that paper was named. It was the real bulrush of Moses' ark. I have a piece of this paper rush which was raised in a hot-house; it is very large, a regular triangle in shape, the blossoms on branches all growing out together at the top. The green skin is tough and leathery, not at all like paper, you would say, and it is filled with a quantity of white pith. The skin was spread out on frames and written on—or rather scratched into with a sharp pen—in the curious picture-writing of ancient Egypt. Many of these writings have been found and read by scholars, and you may see them framed and glazed all along the walls of the British Museum.

The spider-wort has all its flowers packed up in a sheath, and has linear leaves.

## CHAPTER XLIII

### GRASSES

HERE, in this Endogen class, are those precious gifts the grasses, perhaps the most valuable of the whole of the vegetable creation, the food of man and beast. You are surprised now, for you never thought of eating grass, you never heard of any one who did, excepting Nebuchadnezzar in the time of his punishment. But what shall you think when I tell you that without grasses you would have neither bread, beer, gruel, porridge, rice, nor sugar, to say nothing of the mutton and beef, the milk, butter, and cheese, which are supplied to us by animals which live on grasses !

I will give you a description which applies to every kind of grass. The root is creeping, the stem smooth, round, hollow, and jointed, the lower part consisting of leaves ; long, narrow, undivided leaves, rolled up and sheathed one over the other. At each joint one of these leaves ceases to embrace the others, and hangs down, tapering off to a point, while the one next above it becomes the outside covering, and so continues till the next joint, where it, too, opens and hangs down, on the opposite side to the former one. Each joint contains a certain quantity of sweet sugary juice. The stem, properly so

called, springs from within the last leaf, and supports the blossom, which grows in a head, tuft, or spike, containing a number of small flowers. Each flower has of its own two scales, by way of corolla and calyx, one over the other, and the outer one ending in a sharp point or bristle, and these, by the assistance of the scales of the next flower, enclose a soft, pulpy, sweet germ, bearing two tiny styles and three stamens, with very long weak filaments, which hang their anthers out far beyond the flower.

If you think about it you will see then that wheat is really a large kind of grass. The spike of blossom is the ear, and in July you may see the anthers hanging out, and a beautiful shape they are—much prettier than any other anthers I know. Though there is much to say, and little space to say it in, it would be unthankful not to dwell for a little while on the beauty and precious thoughts belonging “to seed time and to harvest tide.”

The seed is cast forth for the soil to foster, even as our hearts are bidden to foster that more precious seed, and then, if it falls into good ground, it puts forth its green blades, that seem at first to be like a thin veil over the dark brown earth, which then thicken and spread in their well-ordered rows till the whole field bears that loveliest of all hues, the green of young wheat in spring. Taller and taller grow the spikes, sheath and pennon rise, joint above joint, till thick and high they stand, so high, that a little child's head is quite lost between the ranks on either side the field path, and it feels for a moment as if it was lost in a dense forest, and trots along in a fright to overtake its mother. The uppermost sheath swells and opens a long slit, within which is the tender green ear, shooting out daily higher and higher on the slender green stalk, and in time hardening its chaffy scales and putting

forth its anthers. This is the time of dread lest a hail-storm should break or bend the straw and send the whole crop flat, so that it cannot blossom or ripen equally, and may be tied down by bind-weed. It is the time when we most feel that man may do his utmost but God alone can give the increase.

But now the anthers have shed their pollen and fallen, their duty being done; the sweet pulpy germ is hardening and turning to "the full corn in the ear," and over straw and blade and ear a pale rich golden tint is gradually descending; the hillsides and valleys far away stand so thick with corn that they laugh and sing; the fields are truly white to the harvest, and the sunny waves of wind pass over them as they bend softly and rise again.

Now comes the harvest, to which all the village, small and great, have been looking forward so long. Out they all turn, father and mother, great sons and daughters, to reap, and little ones to look after lesser; long paths and gaps open before them, and the beautiful clusters of sheaves appear in the stubble; the merry cry rings out when the last field is reaped—

"We have ploughed, we have sowed,  
We have reaped, we have mowed."

And then some wild cheery shout to finish with. And then the carting, the loading, the waggons with the noble brown loads heaped high—higher; the round mow built up, and the builder rising higher in the air with every round of sheaves; and the last waggon with the horses with green boughs coming late home, perhaps by the light of the round harvest moon.

"Our work is over, over now,  
The good man wipes his weary brow;

The last long wain wends slow away,  
And we are free to sport and play.  
The night comes on when sets the sun,  
And labour ends when day is done.  
When summer ends and autumn's come  
We hold our jovial harvest home."

And last of all the gleaning, or, as the gleaners generally call it, the leasing.

Beautiful things in themselves, beautiful in the thoughts they bring with them—the good seed—the seed sown in grief, which shall be brought again with joy—the good man in his old age going down to his grave in peace, like a shock of corn in full season—and lastly, the great harvest day, when the cry shall be, "Put ye in the sickle to the corn," and the reapers shall be the angels.

In the Holy Land the harvest is much earlier than here; it comes about Easter, and this explains how it is that the feast of weeks at Whitsuntide should have been the festival of thanksgiving for the harvest. How beautiful the offering of the first-fruits was, when the Israelite brought his sheaf for the priest to wave before the Lord, acknowledging the mercy by saying, "A Syrian ready to perish was my father, and he went down into Egypt and became a great nation."

Did you ever see Egyptian wheat? I have some which sprung from seeds found within the case of a mummy which must have been embalmed at least three thousand years ago. The form of it would make you understand the seven ears on one stalk in Pharaoh's dream, for each ear is very wide, and spreads out into seven, nine, or eleven little points on each side, so as to be so many ears in one.

Next to wheat comes barley, John Barleycorn, "his

head well armed with pointed spears," which look beautiful and silvery in the summer sunshine as the wind waves gently over the field. The spears are prolongations of the awn or bristle, which all grasses bear at the point of their calyx. It is sad to think that barley, that good gift of heaven, should sometimes be turned to such an evil use by men's self-indulgence.

Oats bear their blossoms not in ears, but in loose, graceful waving heads, the florets in pairs.

Rye grows in cold, poor lands unfit for wheat. These four are sometimes called *Cerealia*, after Ceres, whom the heathens used to worship as the goddess of wheat.

Rice is a kind of grass which grows in the very hottest and wettest places it can find, chiefly in India and Carolina. It is sown under water, and trodden into the earth by asses or oxen. The blossom is a good deal like oats. It is the chief food of the natives of India, who can live upon such a small quantity that to the people of colder climates would be starvation.

These are the grasses whose grains are used by man for food. Then follow the multitudes, the leaves of which are eaten by animals. I am afraid it would be in vain to begin describing them, there are so many; but if you will only pay a little attention to them you will see how endless is their beauty and variety. There is the quiver, or quaking grass, with its delicate purple brown pendant tufts shaking in the wind on their slightest of all stems; the tall oat grass in the woods; the long ray grass, with which little girls sometimes practice a very silly kind of fortune-telling, which they had better leave off as soon as possible; the brome grass, with tufted scaly heads, in the upland hayfields; the cotton grass in bogs, with one stiff straight stem, and large tufts of silky cotton enveloping



the seed, waving white and shining in the marsh. It is said that it is used in Sweden to stuff pillows. I have seen a chimney-piece ornamented very prettily with a collection of different kinds of grasses,—tufts, feathers, plumes, ears, and spikes, an infinite variety, all brown and dry, but preserving their form and beauty.

The hay-field—I could stop there as long as in the harvest field; the sweet grass, the long ridges, the cocks, the busy sunny haymakers, the horses munching away so happily while the waggon is piled, the hay home—that is a time of times indeed!

But we must make haste, for this has been a long chapter, and speak of the great grass which is valued for its juice. The sugar-cane is a grass of twenty feet high, and the sugar is made from the juice at its joints. It is just as good sugar that you may suck out of the joints of almost any kind of English grass, only there is not so much of it. The bamboo or cane is another grass, with a much harder stem, sometimes fifty feet high, and proportionably thick, the leaves of huge size, and the whole plant of infinite use to the natives of tropical countries.

It is only in the tropics that grasses grow to such a size. In Brazil the hay is seven or eight feet high, and the huge reeds and canes are as great forests to men as our wheat fields are to babies; but grasses, small or large, are to be found in all parts of the world, excepting in the extremes of cold and of drought. The species in the southern temperate zone are much fewer than those in the northern, and very unlike them. The most noted of these far southern grasses is the tussock grass, which almost entirely covers Terra-de-Fuego and the Falkland Isles, and is said to be like little palm trees about four feet high.

Of all the lands where grass grows there is, however, not one where it prospers so well or is so fresh and green as in England. Our climate is just moist enough for it, our sun fosters it and makes it sweet and strong, and the dew and rain so freshen it that it is seldom withered and dried up, like that "whereof the mower filleth not his hand, nor he that bindeth up the sheaves his bosom." And thus England is said by all who have seen her to be the greenest of all lands. May the souls of her children only prosper equally in the dew of heavenly grace, since well do they know that of their earthly part it has been said, "All flesh is grass, and all the goodliness thereof as a flower of the field." "The grass withereth, the flower fadeth, because the Spirit of the Lord bloweth upon it. Surely the people is grass."

Some few grasses do not keep their stamens and pistils in the same blossom, and one of these is the beautiful maize, or Indian corn. Many children like to grow it in their gardens as a curiosity, so perhaps you may be able to examine it. The stamens, you see, grow in a spike of blossom much like that of other grasses; the fertile flowers are out of sight, closely folded up in those long swelling sheaths of leaves that branch out on the sides of the stem, and from which hangs out a tassel or plume, or whatever you please to call it, of whitish green hairs or strings. This is the wonderful arrangement for allowing the pollen to reach the germs, which otherwise it could never do, enclosed as they are in their double rolls of leaf. If you pull to pieces one of these sheaths you will find the soft, fleshy, green receptacle covered with odd little flowers, from each of which depends one of these long hairs, a sort of mermaid's wig. As autumn comes on the germs harden into large round grains, either red

or yellow—every one, that is to say, whose streamer has properly conducted its pollen, for on some cobs, especially near the bottom, we sometimes find that some have failed and died away. A perfect cob is a beautiful thing, with the long lines of rich amber-coloured grains close together, and as regular as lines of beads, and the whole plant is very handsome. Some kinds are of very quick growth. In our own garden we had a giant sort, one leaf of which grew nine inches in one day; the plant was at least eight feet high, and the cobs, which had red grains, were very long and handsome. It is an American plant, and was found cultivated in Peru when it was first discovered; it served the inhabitants instead of wheat, and was so highly honoured by them that they had in the treasures of the Temple of the Sun a figure of it, with the leaves and beard of silver and the grains of gold. The Spaniards brought the maize home, and it is much grown all over the southern parts of the continent, where they are pleased to call it Turkish wheat. Here, in England, it is not used sufficiently to cause it be cultivated in great quantities. The bread made from it is not as good as wheaten bread, and the chief use of it is to feed turkeys on the grains or the meal, and horses are sometimes fed on the leaves. The English horses in the Peninsular War learnt to know it well.

In America it is also extensively grown, and the harvest of large cobs in their leafy sheaths is said to be exceedingly rich-looking and beautiful. The green cobs in their unripe state are there considered as a great dainty, either raw or boiled, and both man and beast live much upon the maize flour. Picking the grains out of the cobs is a grand employment in the winter, especially for the women and children.

## CHAPTER XLIV

### *CLASS III*

#### FLOWERLESS PLAIN FUNGUSES

THE next class is of those which have no seed leaves, no visible flowers—ferns, mosses, horse-tails, funguses, and sea-weeds. Of ferns and mosses we spoke in October as unseen blossoms.

Our Chapters have brought us back to the unseen blossoms again, for the third, the last class, consists entirely of these, and includes those of which I spoke to you in the autumn months—namely, the ferns, mosses, and lichens, with three other races which I did not then mention—the horse-tails, mushrooms, and sea-weeds.

The horse-tails or Dutch rushes are spoken of by some books as a sort of fern, and in some respects they do resemble them. I think you can hardly fail to know them by sight, for in poor ground they are a very troublesome weed. They have one hollow light green stem, in sheaths, one within the other, each joint marked by a black band, and bearing no leaves but whorls of straight branches, spreading out round it like the spokes of a wheel, and often branched again. The edges of the sheaths are deeply cut and bordered very prettily with black. The

stem is excessively harsh, like that of the sedges, and for the same reason—it is full of silex or flint, which, with a powerful magnifier, may actually be seen in fine grains, and it is so rough as to be sometimes used as a delicate file. The plant looks a little like a child's first attempt at drawing a fir tree ; indeed I have known a person who had never seen the horse-tail coming on a quantity of it suddenly and at first taking it for a plantation of young larches.

This is when it is in its wintry state, and the tree-like stem answers to the frond of the fern. The part which answers to blossom appears early in the year. It is a curious-looking thing, growing about two inches above ground, and perhaps it may have puzzled you : it is more the shape of a nine-pin than of anything else that I know—a nine-pin with a head I mean, an oblong, egg-shaped head growing on a straight stalk, and of a very pale buff colour, almost white. On this head spring up dark brown shields or scales, something like those of the shield-fern, standing up like very small umbrellas, and containing beneath them an immense quantity of fine light-coloured dust. Botanists puzzled themselves for a long time about this dust, whether it was seed or pollen, but at last, when looking at it with a very strong glass as it lay on a sheet of white paper, it was found that some of the particles had minute threads proceeding from them, and that with these they had a sort of motion like that of a spider on its eight legs. This was thought to be like those movements by which some seeds are known to impel themselves towards places fit for their growth, so it was supposed that these were the seed-grains and the rest of the dust was instead of pollen.

As to the fungus race, they are more mysterious still,

and more unlike other plants. They seem to begin from almost nothing, even the larger sorts are at first only visible in a thin layer of something like a cobweb, which when something happens to favour its growth throws up little humps which gradually grow larger and longer, and gain a sort of stalk ; then, if cut in two, lengthways, there appears a hollow place, and within this a cap is formed, supported on a stem ; the cap and stem grow on and become more solid and fleshy, while the outer case grows thinner and weaker, till at last they break through it and show themselves to the world a sort of round fleshy table with one leg, the under side consisting of a great number of rays or ribs, which botanists call gills, and believe to contain purses of seeds, though these have never been seen, and some doubt whether there are any.

The morel and truffle are the only English plants of this tribe that it is here thought safe to use for food besides the mushroom, which affords an excellent example of the mode of growth. You all know the pretty white head, and the bright pink gills underneath that one looks for so anxiously to see whether it is a real mushroom or not, and when it is in its prime you may see the remains of its old case hanging down like a fringe round the edge of a parasol, and making a sort of ornamental band round the stem ; or, when it has not yet broken through the case, do we not know it well as a button ?

Who can live near upland meadows and not like mushrooming ? The baskets we prepare, full of hope and glee, and then the walk on the fresh autumn day, the green short grass, and then the merry outcries, "Oh, there's one ! I see such a beauty !" and the race to get to it ending often in "Oh dear ! it is nothing but a bit of chalk !" "Well, I am sure I see a whole lot there ; I am sure they

are mushrooms this time, for they are in a ring!" Another race, and such an outcry from the first to come up, "Puffs, puffs! only puffs after all!" But at last the real ring is spied out, and mushrooms free from doubt or blame are found, white above, pink below, delicious in scent—some old and brown, some little buttons, but all worth gathering and carrying home, perhaps to be sorted and sold, perhaps to be offered as a great present to the elder people's dinner. Under a hedge an enormous mushroom may now and then be found, which, though pink, white, and fragrant, some people call a horse mushroom and reject, but I don't believe there is any poison in it, and if it is not as delicate as the smaller kinds, it is quite fit to be used for catsup. Mushrooms grow, as we have said, in dark green rings on the grass; I believe this is because they render the soil richer and therefore the grass grows greener among their roots, if roots they may be called, but it was a pretty old notion that these rings were made by fairies dancing in circles, and that he who went to sleep within one would see the wonders of fairyland.

It is not only the true mushroom that forms fairy rings, so also do several kinds of fungus, or, according to their English name, toadstools. I must say toads seem to be better accommodated with furniture than any other animal, to judge by the beautiful cushions their stools sometimes wear. Here is one covered with rich shining crimson satin—another with crimson velvet, with embossed white spots—another of the most brilliant orange—another with deep purple—another a beautiful lilac, with white lacework over it like a lady's ball-dress. And yet you would most likely call them nasty poison toadstools, and kick them over!

That many kinds are poisonous to man is quite true, and therefore people should be warned against them ; but it is not necessary that everything should be of positive use to us to be admired, and I do not think we have a right to call any of the works of the Creator nasty. I am sure we should not if we once looked well into them.

I believe the wholesomeness of many kinds of fungus depends on the soil in which they grow and the climate of their country, so that many sorts which we avoid are eaten in Italy, Germany, and Russia ; not that I would by any means advise you to try any experiments upon them.

The little yellowish toadstool that grows in fairy rings, in such numbers that it looks as if it might be a crowd of fairies, has a French name—*Chanterelle*, which we may call it by if we wish to distinguish it. The ovate toadstool is often to be seen, in shape much like an umbrella, pale brown above and darker below, verging on purple. The great oyster toadstool is to be found in damp woods, growing on stumps of old trees, quite white, without a stem, and, unlike others of its tribe, formed like a cup or vase, the gills outside, and what is usually the cap, concave (or hollow) instead of convex, often in most graceful forms. There is, too, the velvet-stalked toadstool, red above and brown below, also a parasite on trees. The *verdigris* and the orange toadstool you may likewise find. All these with gills on the under side belong to the genus called in Latin, *Agaricus* ; in English, mushroom, or toadstool. The *Fly Agaric* is very beautiful, it grows in plantations in autumn, and looks like a round crimson satin cushion stuck with white-headed pins. It is snowy white below. The varieties of these fungi are wonderful. I have counted more than twenty in a short



autumn walk. They all flourish chiefly in autumn, and delight in damp, and what we should call unwholesomeness.

Another genus has no English name, though one species at least is common in England, the *Boletus* I mean, a red shining fungus, growing on old trees in autumn, very glossy and polished above and beneath of a spongy consistence and dull greenish yellow colour, full of little pores or holes, which are supposed to answer the same purpose as the gills.

The morel reverses the mushroom ; it has a stem and round cap, but the under side is the smooth part, the upper is covered with network. One sort of the morel is good to eat.

The puff-ball shows nothing outside but a hard white case gathered together at the bottom. In its younger state the inside is mealy, not unlike mustard, as spread on a poultice, both in substance and colour, but when ripe the white skin splits and lets loose an immense quantity of the finest brown dust, supposed to be seed, though how formed no one knows. Puff-balls are of every size, from a marble upwards ; I have seen them larger than a cricket-ball, and it is said that they grow as big as a man's head. Every one knows the funny things, and how many have been angry with them for pretending to look like mushrooms, and yet they are a very good sign, for wherever they grow mushrooms are almost certain likewise to be found. Many boys have fired off their dust at each other, and they are sometimes dried and burnt before a beehive, as their smoke will put the bees to sleep without killing them. There is one eatable sort of puff, the truffle, which grows under ground, and is a brown unsightly thing, not by any means like the white

ball on our downs. It is found and gathered in a curious way, by training dogs and sometimes pigs to smell it out, and then digging for it. It is very rare, and is generally sent to London to fetch a high price for great people's grand dinners. The only truffles I ever saw were brought to the door many years ago by a man who had his little clever truffle-hunting dog with him, quite as much of a sight as the strange delicacies he found.

In the dry ditches and hedge sides you may find in autumn and winter a jewel of the wayside, perched upon some dry withered old stick. It is an exquisite scarlet cup, of such a colour as no paint can ever equal, soft, bright and glowing—well suiting its name of fairy bath. Where could Queen Mab find a more beautiful cup to hold her dewdrop bath? They grew on little bits of broken stick, and serve our village children instead of nosegays in the winter. It is a great prize to get a large one. Their Latin name is *Peziza*.

Other kinds of fungus are like jelly; there is a yellow kind especially, growing on old railings, and named St. Gundula's Lamp, after a German lady who used to visit the poor and sick in the early dawn with a servant carrying a lamp to light her on her way. The multitudes of fungus are indeed beyond reckoning, they meet us everywhere; wherever there is decay or injury they grow up; dry rot which destroys timber is believed to be a fungus, so is smut in wheat, and some people think the same of the potato blight. Funguses grow in every unexpected place; white furry forests of them, by name mildew, start up on preserves and dismay the housekeeper. Blue mould makes woods for the mites to range in on an old cheese, and grows up feeding on the blacking of old shoes. Anything will make a soil for these smallest of vegetables

—ink, jam, leather, paper, wood, they want nothing but damp to set them growing, and where or what they spring from is beyond the guess of any wise man who ever yet lived, unless he has the true wisdom to turn all his knowledge into what each little child starts from, the beginning and the end of all learning, that God made them all, and His ways are past finding out.

## CHAPTER XLV

### SEA-WEEDS

ONE tribe more remains, the sea-weeds, as strange and untraceable as the other unseen blossoms. Some seem to have stems and leaves—fronds, as they are called—and seed-producing organs, with shields or purses, but these are only the more perfect kinds; others are all jelly or moist leafiness and fibre, and produce other plants from any part. Of those that do produce seed the greater number have two different kinds of parts for the purpose, but both these form seed, so that they cannot answer to the stamens and pistils of other plants.

Their colours are either green, olive, or red, in every kind of shade. The green kinds generally grow in shallow water, the olive in somewhat deeper, the red in the deepest of all; but this is only a general rule, and there are many exceptions.

Some grow rooted at the bottom of the sea, or on stones, rocks, or even shells, others float about on the water. I have been so little by the sea-side that I have very little acquaintance with these wonders, and of those that I remember by sight I did not know the proper names, for it was before I learnt any botany. There was what we used to call the lion's tail, but which is rightly

the sea-tangle or wand, a hard stem, as large round as a walking-stick, ending in a bunch of long broad streamers or ribbons, all dark brown, and somewhat slimy to the touch, and very salt in smell, aye, and making our fingers so, but little we recked of that when we danced about dragging them behind us on the shingly beach. Those are certainly rooted, and now and then when brought ashore by the tide bring a stone with them, as well as a number of little limpet shells, whose inhabitants live on them. The fructification is hard to find; it is in little clouds of purses in the body of the streamers. In Scotland these used to be eaten, and where wood was scarce knife handles, and other small matters, have been made of the stem. Some people hang up a lion's tail in their houses because damp in the air makes it stretch, so that it serves to show them what the weather is likely to be.

Thinking about the lion's tails I played with before I was seven years old has brought back the recollection of another branched pretty sort, which we used to find bordering high-water-mark, generally rather dry and old. This had swellings along it, from which it is called knotted fucus. They were in fact hollow places filled with air, the use of them being to make it float on the water, and it is the same again with another sort, looking like a string of brown gooseberries. These the little boy who was my sea-side playfellow used to crack, as inland children do poppies, and you may hear them snap under the foot as you tread on them. If you want a name for it you may call it swine-tangle, the people of Gothland call it so because they give it to their pigs when boiled and mixed with flour. The blossom is at the end of the fronds.

These, and many more which I do not remember, used

to be our delight in a little rocky hollow of the beach, covered with gray and red shingly stones, famous for ducks and drakes. It was no place for shells, except limpets and the solid part of the cuttlefish, but there were the fresh curling breaking waves, and such a distance of the blue bright sea. We were very happy there.

Some years after this I had a little more friendship with sea-weeds, in certain boating days, when we, merry children, used to stretch out our hands to catch them as they floated by and call them by droll names of our own. Our favourite was what we called the Mermaid's Staylace—a long round string-like whipcord, some straight, some spirally twisted, or as we used to say, these latter were the old laces that the mermaid had used and thrown away.

Once I remember our trying to dress an old stump of a wooden doll in sea-weeds, and calling her a mermaid, but it was a slippery unsuccessful business, and I don't think the ancient blue-eyed lady could have been too comfortable. These sea-weeds are nothing but a hollow stem, jointed within, and filled with air—nothing more is visible; they grow to be thirty or forty feet long, and sometimes in shallow places are a hindrance to boats. We used to gaze down when the sun shone into the clear water of the little bays, and look at the crabs crawling sideways about among these strange weeds and the stones. I have since learnt that sea-laces is their real name, and that in Shetland they are called Luckie Minnie's lines. They may well be called so, for when dried and twisted they are tough enough to serve for fishing-lines. Learned books say they are formed by one long thread twisted in a spiral, so as to make a tube of this immense length. It is covered

with hairy fibres, the seeds in cases growing among them over the whole surface of the frond.

Sea-thongs, like the laces, only flat and not round, float about with them. The thongs, however, grow out of little green round saucers, which in some places may be seen covering the rocks like green buttons. The saucers live two years, the thongs only one. The thongs are in fact the blossoms, and bear the seed within them, the round spots with which they are covered being the pores through which the seeds come out.

Do you recollect how Columbus was hindered by the multitudes that were matted together in the Atlantic, and how the sailors were frightened, and fancied they had come to the edge of the world, which they thought like a great plate, and that they should stick fast, and never come home again? It is the same still, at certain seasons, in that part of the Atlantic; such quantities of sea-weed floats about that vessels are in danger of getting entangled, and the surface of the ocean looks like a great marshy meadow as far as the eye can reach. It is a kind often found on our coasts, with leaf-like fronds, and its seeds in round berries, from which it is sometimes called sea grapes, but it is better known as gulf-weed. It is one of the green kinds.

Sea-weeds are eaten by the cattle of the Hebrides, which have little grass to eat, and they go down to look for them at low water, keeping the time of the tide as punctually as their masters could.

The ashes of burnt sea-weed are called Kelp, and are useful in the making of both soap and glass, on account of the quantity of the substance called alkali, or potash, that they contain.

Laver, a green shiny weed, found on rocks in Cornwall

and Devonshire, is pickled, and makes a very good relish to meat when eaten very hot. Some kinds are full of gluey matter; one growing in Ireland is called Carigeen moss, and is sometimes boiled down into jelly; and that which is found on the coast of Java is the substance of which the swallows build the nests that the Chinese make into soup.

There is a turkey-feather sea-weed, which any one near the shore should look for, and may perchance find, as it grows in shallow pools left by the tide in the hollows of rocks. I have never seen it, but my books say no one can mistake it; it is shaped like a fan, or like the short broad feathers of a turkey, and is covered with minute hair-like fibres, which catch the light, so that the frond shines with rainbow colours, and deserves its Latin name of the peacock. It grows in plenty in the Mediterranean, and is also found on our southern English coasts. Pray search for it.

The oyster green is a large pale-green frond, not unlike a bit of some torn leaf. It is often used to cover oysters, which is the reason it is so called.

We now come to the red kinds, those beautifully delicate things that we see polished through the shallow water, and that look very well even when spread out on paper. They have no English names, unfortunately, for people have been very apt to overlook them, like the fisherman who, when a botanist spread out a little branched specimen of clear rosy-red which he had just found, said, "he did not think there could be anything so bonnie to be got in the bay."

How bonnie they are you must learn by your own eyes, and perhaps you may some day go further into their history. I can tell you very little about them, but I



must not pass over the corallines, which stand on the borders of animal, vegetable, and mineral, something between the three.

You have heard of the coral worm that extracts from the sea-water the lime of which they build those wondrous stony dwellings which may in time become rocks and islands. The question is scarcely settled whether these red, hard, branching sea-weeds, the corallines, are vegetables or the houses of animals. They are full of lime, quite stiff and hard, and if held to a candle will give a beautiful white light. One white coralline, which is extremely hard, is used as part of the mortar of the Cathedral of Iona, which is so hard that it is easier to break the stones than to displace them. Another builder uses it—a tiny shell-fish, whose own house is too small for him, as he has a beautiful orange fringework projecting beyond his shell. To guard this soft unprotected part the little creature builds himself a grotto of bits of stone, and of almost equally hard coralline, all bound together with silk of his own spinning, and softly lined with the same. There's a wonder of the deep for you !

Conferva is the name of the slimy green hairy weed found on stones and rocks within high-water mark, spreading out when the water comes to it, and drying up and becoming like a green crust when left to itself. It is another of those which may either be plant or animal.

Powerful microscopes discover in it what opens to us another field of our own ignorance. They find that inside the thin skin that covers it there are an untold host of little grains, or atoms, each with a tiny beak, and that these are like live things dancing, whirling round each other, reeling, twirling backwards and forwards, and round

and round, not regularly, but as if each had a movement at its own will.

Sometimes they multiply, come thicker together, divide into little parties, and form a new membrane or outside case; and this motion only takes place at sunrise. At other times of the day they are still. What are they? Are they analagous to seed? Is the sea-weed a plant, or is it a case of living beings? Will man ever be able to answer?

These strange things are not found only in the sea; there are many sorts to be found in fresh water, especially stagnant pools, which they line with green. You have seen some of them hundreds of times, and know their disagreeable green shiny look, but those who have examined them tell us of their beauty. One sort grows on stones and is very like toad's-spawn. Another kind, the oscillatoria, long green hairy stuff that oscillates with the movement of the stream, is thought really to have a motion of its own, to be first cousin, if no nearer, to animals, and to be able at certain times of the year to move from place to place.

Why? And here again we stop short. It is our last of these never-to-be-answered inquiries that I have led you to, for this is the end of the Chapters on Flowers, and I am sorry for it, my little readers, for they have been a great pleasure to me. They have taught me much that was new, and made me look deeper into books to clear my notions and certify what I knew before; they have set me watching, more than I did before, the lovely things in nature; they have turned my mind back to many precious recollections of happy hours and friends of old days; and I hope that thinking about all these has helped me, as I trust it may help some of you, to think

more about the Power and Goodness that made the "field joyful, and all that is in it; planted trees for a dwelling for the birds of the air, and prepared grass for the cattle, green herb for the service of man, wine that maketh glad the heart of man, and bread to strengthen man's heart."

All study of nature must turn to His honour and glory, if only used aright. Perhaps some day you will learn far more than I can teach you, some, it may be from books, but all can and may, from a humble, obedient, adoring heart and eye, that turns from God's works to God Himself. That love is true wisdom, and the flowers of the field are precious to us, as helping us to reach up to it.

"What, though I trace each herb and flower  
That drinks the morning's dew,  
Did I not own JEHOVAH's Power,  
How vain were all I knew!"

## COMMON ENGLISH PLANTS<sup>1</sup>

### CLASS I.—EXOGENS.

*Growers from within*

#### SUB-CLASS I. RECEPTACLE FLOWERS

*Seed leaves, parts in fives and fours*

Stamens, Pistil, and Corolla springing from under the germ, from the receptacle.

##### CROWFOOT TRIBE—

All with many sepals, many stamens, and from five to ten petals—very small calyx.

Buttercup, 17.

Goldylocks, 17.

Water Crowfoot, 17.

Celandine, 18.

Kingcup, or Marsh Marigold, 18.

Anemone or Windflower, 14.

Meadow Rue.

Traveller's Joy, or Old Man's Beard.

##### THE WATER LILY TRIBE—

Calyx lasting—fruit forming are more divided—large flat leaves floating on the water.

White Water Lily, 98.

Yellow Water Lily, 98.

##### THE POPPY TRIBE—

The sepals falling off as the flower opens—one large carpel

<sup>1</sup> This is not an index but a list of common plants, with references to such as are described in the text.

turning to an urn full of seeds, or sometimes a long curved horn.

Poppy, 99.  
Pheasant's Eye.  
Greater Celandine.  
Horned Poppy, 99.

FUMITORY TRIBE—

Curiously twisted petals, climbing plants, leaves much divided.

Red Fumitory, 100.  
Yellow Fumitory, 101.

BARBERRY TRIBE—

Shrubs—clustered blossoms leaving a long narrow berry.  
Barberry.

THE CROSS TRIBE—

Four petals with long claws, four long and two short stamens.  
All the plants good for food. Two groups with seed-vessels in pouches, mostly white, yellow, or purple.

*The Pouched Group—*

Penny Cress.  
Shepherd's Purse, 109.  
Pepperwort.  
Sea Rocket, 109.

*The Podded Group—*

Tower Mustard, 109.  
Winter Cress, 109.  
Yellow Rocket, 109.  
Hedge Mustard, or Jack-by-the-hedge, 109.  
Wall-flower, 105.  
Cherlock, 109.

MIGNONETTE TRIBE—

Shrubby plants—long spikes of blossom, many parted calyx, torn petals, no styles.  
Dyer's Weed, 110.  
Wild Mignonette, 110.

## CISTUS TRIBE—

Woody stems, generally trailing—five very loosely fastened petals, many stamens, five sepals.

Yellow Rock Rose.

White Rock Rose.

## VIOLET TRIBE—

Small plants with five petals, two twisted into a spur, five stamens joined together over the five sepals, one of which has a stigma forming a point.

Sweet Violet, 24.

Dog Violet, 25.

Snake Violet.

Marsh Violet.

Cream Coloured Violet, 26.

Pansy, 26.

## SUNDEW TRIBE—

Small plants, white blossoms only opening at sunrise, leaves covered with red hairs exuding gum, growing in bogs.

Round-leaved Sundew, 138.

Narrow-leaved Sundew, 138.

## PARNASSUS TRIBE—

Five petals, five sepals, five nectaries edged with hairs bearing globes.

Grass of Parnassus, 138.

## MILKWORT TRIBE—

Two of the sepals feathered, eight stamens, petals butterfly like.

Milkwort, 101.

## PINK TRIBE—

Ten stamens, five pistils with curly stigmas, five petals, each deeply cleft in the centre, and with a long claw, deep calyx. Simple linear leaves.

Cheddar Pink.

Deptford Pink, 101.

Bladder Catchfly.	}	102.
Soapwort.		
Ragged Robin.		
Red Robin, or Red Campion.		
White Robin, or Campion.		
Corn-cockle.		
Spurrey.		
Stitchwort.		
Starwort.		
Chickweed.	}	
Sandwort.		

#### ST. JOHN'S WORT TRIBE—

Five sepals, five petals, one pistil becoming a berry, numerous stamens, united into several tufts, yellow.

Park Leaves.

Tutsan.

Fair

Upright

Perforated

Marsh

Creeping

} St. John's Wort, 111.

#### MALLOW TRIBE—

Five deeply cleft petals, twisting in bud, stamens united in a column round the style—fruit flat, leaves fan-like, very wholesome.

Common Mallow, 113.

Musk Mallow, 114.

Dwarf Mallow, 114.

Marsh Mallow, 114.

#### FLAX TRIBE—

Five thin petals twisted in bud, five sepals, five stamens, five stigmas—thin stems, linear leaves.

Flax, 126.

Small White Flax, 126.

All Seed, 126.

**MAPLE TRIBE—**

Trees, with palmate leaves, small blossoms, and fruit with lobes like wings.

Maple, 130.

Sycamore, 130.

**THE CRANE'S-BILL TRIBE—**

Five petals with long claws, five pistils, ten stamens. Seeds forming a long beak, then spreading into cottony wings, leaves round and jagged.

Blue	} Crane's-bill, 124, 125.
Bloody	
Dove's-foot	
Dusky	
Meadow	
Herb Robert	
Stork's-bill.	

**WOOD-SORREL TRIBE—**

Five sepals, five petals twisting in bud, five styles, trefoil leaves, acid flavour.

Wood-sorrel, 127.

**SUB-CLASS II**

*Stamens growing on the Calyx*

**SPINDLE TREE TRIBE—**

Four small petals, four sepals, four stamens. Fruit four cleft, with a berry in each cleft—bushes.

Skewer-wood, 127.

Buckthorn.

**BUTTERFLY FLOWERS, OR PEA TRIBE—**

Furze, 41.

Dwarf Furze, 42.

Broom, 41.

Needle Broom, 41.

Dyer's Green Weed.

Rest Harrow.

Medick.



Yellow Melilot, 43.  
 Purple Clover, 43.  
 White Clover, 43.  
 Shamrock, 43.  
 Hare's-foot Trefoil, 43.  
 Hop Trefoil, 43.  
 Strawberry-headed Trefoil, 43.  
 Rough Trefoil, 43.  
 Bird's-foot Trefoil, 42.  
 Lady's Finger, 42.  
 Milk Vetch.  
 Purple Vetch, 42.  
 Bird's-foot, 42.  
 Saint-foin, 43.  
 Everlasting Pea.  
 Crimson Vetchling, 42.  
 Wood Vetchling.  
 Yellow Vetchling, 42.  
 Tare, 42.

#### ROSE ORDER

All five petals, many stamens and carpels. Fruit, a kernel in a juicy pulp.

Wild Cherry, 31.  
 Bullace.  
 Blackthorn, 32.

#### MEADOW-SWEET TRIBE—

Hard dry seed-vessels opening at the sides.  
 Meadow-sweet, 136.  
 Dropwort, 136.

#### AVENS TRIBE—

Numerous carpels having a heavy ball of seed.  
 Herb Bennet.  
 Water Avens.

#### CINQUEFOIL TRIBE—

Leaves in five leaflets.  
 Silver Weed.

Marsh Cinquefoil.  
Barren Strawberry.  
Tormensil—A cinquefoil of four petals.

**STRAWBERRY TRIBE—**

Seeds with a large fleshy receptacle.  
Wild Strawberry, 36.  
Blackberry, 35.  
Dewberry, 35.  
Wild Raspberry, 35.

**AGRIMONY TRIBE—**

Two seeds in a hardened calyx.

**BURNET TRIBE—**

No petals, stamens hanging like tassels.  
Burnet, 135.  
Lady's Mantle, 136.

**ROSE TRIBE—**

Calyx and receptacle swell into fruit.  
Sweet Brier, 33.  
Dog Rose, 32.  
Burnet Rose. (Many more wild sorts), 33.

**APPLE TRIBE—**

Seeds within a large pulpy case, calyx on the top.  
Crab, 31.  
Service Tree.  
Mountain Ash, 136.  
Hawthorn, 32.

**ENCHANTER'S NIGHTSHADE TRIBE—**

Two stamens.  
Enchanter's Nightshade, 145.

**THE WILLOW HERB TRIBE—**

Four petals cleft in the centre, eight stamens, four sepals, all seated on the top of a long four divided pod, the stigma of

which is four cleft, like a little inner flower ; pod splits into long feathery seeds—leaves opposite.

Rose Bay, French Willow Herb, 143.

Codlings and Cream, 143.

Marsh	} Willow Herb, 143.
Garden	
Wood	

#### THE MARE'S-TAIL TRIBE—

Water plants with one stamen.

Mare's-tail, 139.

#### THE LOOSE-STRIFE TRIBE—

Tall spikes of irregular blossoms—from six to twelve stamens—hard dry capsules.

Purple Loose-strife, 141.

#### THE GOURD TRIBE—

Climbing plants—stamens and pistils divided—handsome leaves.

White Bryony, 150.

#### THE STONECROP TRIBE—

Stars of five pointed petals, ten stamens—fleshy stems and leaves—loving rocks and walls.

Wall Pennywort, 138.

House Leek, 138.

Orpine, or Midsummer Men, 138.

Yellow Stonecrop, 138.

White Stonecrop, 138.

Saxifrage—Mountain and bog plants very like stonecrops, except in the leaves and slenderer stems, 138.

Yellow Saxifrage, 138.

London Pride, 138.

Golden Saxifrage—A tiny marsh plant with no petals, but very yellow anthers, 138.

#### UMBELLIFEROUS TRIBE—

Small five petalled, six stamened, two carpelled—blossoms

always arranged in two regular whorls, with bracts hanging from them—leaves much divided.

Shepherd's Needle, 155.

Wild Carrot, 155.

Wild Parsley, 155.

Rig Nut, 156.

Hemlock, 156.

Water Dropwort, 155.

Water Parsnip, 156.

Wild Celery, 155.

Fool's Parsley, 155.

Fennel, 155.

Alexanders, 156.

Gout-weed, 156.

Sanicle, 157.

#### THE IVY TRIBE—

Ivy, 46.

Musk plant, or Tuberous Moschatel—A small plant close to the ground, with pairs of three parted leaves, and round heads of tiny green flowers.

Cornel tribe—Small bushes, single blossom, with dark berries.

Wild Cornel, or Dog-wood, 157.

#### SUB-CLASS III

*Corolla of one petal, with the stamens growing upon it*

#### THE HONEYSUCKLE TRIBE—

Long tubes in clusters, with four notches above, and one separate division, five stamens, one pistil—berried, faint, climbing.

Spring	} Honeysuckle, 158.
Autumn	

#### THE ELDER TRIBE—

Elder, 160.

Guelder Rose, 161.

Wayfaring Tree, 161.

## THE MADDER TRIBE—

Four stamens, one pistil, corolla, four divided—two round seeds, four leaves making a cross at each division of the stem, four-sided stem.

Field Madder, 173.

Crosswort, 172.

Yellow } Lady's-bed-straw, 173.  
White }

Clidiers, Cleavers, or Goose-grass, 173.

Woodruff (with more than four leaves), 172.

## THE VALERIAN TRIBE—

Large loose panicles of blossoms—four cleft, four stamens, long tube.

Red Valerian, 172.

Great Valerian, 172.

Small Valerian, 172.

Lamb's Lettuce, 172.

## THE TEASEL TRIBE—

Round heads of four cleft blossoms, each with a calyx, blowing in rings, one circle at a time.

Teasel, 179.

Small Teasel, 178.

Large Scabious, 176.

Small Scabious, 176.

Blue, or Devil's-bit Scabious, 176.

## COMPOUND FLOWERS—

This is a very large family divided into several groups. Strap-shaped, with all the florets perfect.

*The Chicory Group—*

Goats-beard, or Go to Bed at Noon.

Dandelion, 57.

Ox-tongue—Flower like a dandelion, stem branched, and prickly leaf, very much like the tongue of an ox, the calyx very prettily folded.

Sow-thistle — Dandelion-like, soft and juicy, its stem

branched, an ox-tongue all but the prickles, of which it has only a few at the edge of the leaves, which have often a very pretty pink mid rib.

Lettuce—Very small dandelion flowers, and leaves that every one knows.

Hawkweed—Dandelion-like, but of a pretty pale sulphur colour, and the stem quite dry, without the succulent juice of the others. The stems are simple, it grows in dry places, and the “clocks” are particularly beautiful, each seed bearing such a perfect star. These hawk names are said to be given because hawks were supposed to feed their young ones on these to make their eyes bright.

Lapsana—Tiny dandelions on tall stems.

Wild Succory—Like garden succory, with a pretty blue flower.

Burdock, 57.

Saw-wort—A purple flower like a thistle, but with fewer prickles, and those chiefly at the edges of the leaves—whence its name.

Thistle, 56.

Bur Marigold, or Goldilicks—A yellow flower with a somewhat drooping head, and long lance-shaped leaves, growing in marshy places.

Mouse Ear—A tiny sulphur hawkweed, excellent for whooping cough.

#### *The Daisy Group—*

Outer florets having pistils alone, inner florets perfect.

Tansy—Yellow star-like flowers.

Wormwood—Gray pale downy oft-divided leaves, light yellow flowers.

Hemp Agrimony.

Cudweed, 55.

Flea-bane, 54.

Groundsel, 54.

Ragwort, 54.

Golden Rod, 54.

Sea Aster—A gray flower, like a Michaelmas daisy, growing in sea mud, 53.

Daisy, 52.

Ox-eye, 53.

Corn Chrysanthemum, 53.

Camomile, 54

Yarrow, or Milfoil—Heads of white flowers, so small that at first sight it might almost be taken for an umbellate flower, now and then a little tinged with pink. It is the leaf that is its peculiar beauty, one long mid rib, feathered twice in two divisions of long pointed segments, each bearing almost a thousand little leaves in one, from which its name milfoil—1000 leaves.

*The Knapweed Group—*

Outer florets empty.

Knapweed, 58.

Corn-flower, 58.

**THE BELL FLOWER TRIBE—**

Drooping Bells, with five notches, five stamens, one pistil, five lobed calyx—numerous seeds.

Giant Bell Flower, 46.

Rampion, 46.

Nettle-leaved Bell Flower, 46.

Ivy-leaved Bell Flower, 46.

Harebell, or Bluebell of Scotland, 46.

Round-headed Rampion, 46.

Sheep's Bit, 46.

**THE CRANBERRY TRIBE—**

Bells with eight stamens—small bushes bearing berries—broad leaves.

Whortle-berry, 181.

Cranberry, 181.

**THE HEATH TRIBE—**

Eight stamened, one pistilled bells, but hard dry fruit, and linear leaves in whorls.

Common Heath, 47.

Cross-leaved Heath, 48.

Ling, 47.

## THE HOLLY TRIBE—

Holly, 80.

## THE OLIVE TRIBE—

Four cleft corolla, two stamens, or wings—berry.

Privet, 186.

Ash, 186.

## THE PERIWINKLE TRIBE—

Wheel-shaped corolla, five cleft brush-like stigma—trailing plants, small leaves in pairs.

Greater Periwinkle, 187.

Lesser Periwinkle, 187.

## GENTIAN TRIBE—

Deep corolla, five cleft, five stamens—leaves narrow.

Marsh  
Spring } Gentian, 188.  
Autumn }

Centaury—Pink stem, branched, 188.

Yellow-wort—Yellow.

## THE BUCKBEAN TRIBE—

Five cleft corolla, curling over and fringed, five stamens—weak plants.

Fringed Lily, 189.

Bogbean, 189.

## THE BINDWEED TRIBE—

Trailers—corolla undivided, but marked with five ribs.

White }  
Pink } Bindweed, 190.  
Sea }  
Greater }  
Lesser } Dodder, 191.

## THE BORAGE TRIBE—

Five stamened, one pistilled, five cleft corolla, coarse rough leaves—blue flowers (generally).

Borage, 192.



Viper's Bugloss, 193.  
 Lungwort, or Jerusalem Cowslip, 193.  
 White }  
 Yellow } Gromwell, 192.  
 Purple }  
 Alkanet, 193.  
 Comfrey, 193.  
 Bugloss, 192.  
 Forget-me-not (marsh, large, heath), 24.  
 Hounds-tongue, 193.

#### THE NIGHTSHADE TRIBE—

Poisonous berries succeeding five cleft blossoms, with anthers gathered round the pistil.

Deadly Nightshade, 194.  
 Henbane, 194.  
 Bitter Sweet, or Woody Nightshade, 195.  
 Garden Nightshade, 195.

#### THE BROOM-RAPE TRIBE—

Broom-rape—A marvellous brown thing, that looks as if it never lived ; blossoms, leaves, root, and all, of one pale brown ; nothing flower-like about it but its yellow anthers, within their brown cave. The leaves are linear and brown, and the root is a most curious succession of scales. It fastens itself on the roots of broom and furze, and sucks their juices, instead of going direct to the earth itself. You may see its brown spikes on heaths and commons in June and July, and it is well worth examining.

Toothwort.

#### THE LABIATE TRIBE—TWO GROUPS—

Seeds in a capsule, often mask-like flowers, closing their mouths.

##### GROUP 1

#### THE FIGWORT TRIBE—

Figwort—A tall bushy plant, the stem hollow, and very square ; the blossoms dingy red, looking rather as if they had been eaten off by insects, 165.

Foxglove, 162.

Bartsia—A small low reddish plant with dingy purple flowers, growing in dry rubbish.

Yellow rattle—A yellow flower, on a swelling calyx, growing in meadows, called rattle, because the seeds when ripe rattle in their vessel, 165.

Yellow Cow-wheat—Much like the rattle, but it grows in woods, the calyx is not so swelling, the leaves are linear, and it has curiously pinnate bracts, the stems are black and wiry, 165.

Eyebright—Is a little beauty, growing close to the ground in pastures; the blossom white, marked with brown and yellow, prettily cut at the edge, 165.

Snapdragon, 163.

Toad Flax, 163.

Red-rattle—Two kinds, large and small, the latter grows close to the ground; the former has a branching stem; both have notched leaves, and large handsome pink blossoms. They grow in marshes, 165.

Skull-cap—Large and Small, 163.

## GROUP 2

*With four naked seeds, open flowers*

Clary, 164.

Sage, 164.

Mint (many kinds), 164.

Marjoram, 164.

Betony, 166.

Germander, 166.

Self-heal, 164.

Motherwort, 164.

Weasel-snout, 166.

Archangel, 164.

Red Dead-nettle, 164.

Wild Balm, 164.

Catmint, 164.

Basil, 164.

Basil-thyme, 164.

*The Speedwell Group—*

Corolla gaping, four cleft, one large division, one small opposite to it; two stamens, sometimes four, one pistil.

Brook Lime (blue, white), 167.

Germander Speedwell, or Birds'-eye, 167.

Ivy-leaved	}	Speedwell, 168.
Banbaums		
Spring		
Spiked		

Figwort, 165.

Purple betony, 166.

Greater	}	Mullein, 168.
Black		
Moth		

Gipsywort, 164.

**THE VERVAIN TRIBE—**

Vervain, 169.

**THE BUTTERWORT TRIBE—**

Two stamens—small plants, 168.

Common Butterwort, 168.

Pale Butterwort, 168.

Bladderwort, 168.

**THE PRIMROSE TRIBE—**

Long tube, five cleft corolla, five small stamens almost hid within it—small plant.

Primrose, 19.

Cowslip, 21.

Ox lip, 21.

**THE PIMPERNEL TRIBE—**

Wheel flowers, five cleft, five stamens—small plants, feathered stamens.

Scarlet	}	Pimpernel, 182.
Blue		
Bog		

## THE LYSIMACHIA TRIBE—

Wheel, five cleft, starry flowers, but stamens smooth.

Money-wort, 182.

Yellow Loose-strife, 182.

Yellow Pimpernel, 182.

## THE THRIFT TRIBE—

Heads of flowers five cleft, five stamens, five pistils.

Thrift, or Sea Pink.

## THE PLANTAIN TRIBE—

Spikes like grasses, four stamens, one style.

Knockheads.

Common

Hoary

Stag's-horn

} Plantain, 169.

## SUB-ORDER IV

*Flowers without corollas*

## THE GOOSEFOOT TRIBE—

Green spikes, five stamens, two styles, broad leaves—herbs.

"Good King Henry," 209.

Numerous lesser species, 209.

## THE BUCKWHEAT TRIBE—

Calyx coloured pinky white, eight stamens, trailing spikes—  
leaves in pairs.

Bistort.

Buckwheat.

Knot Grass.

Water Pepper.

Spotted

Water

Biting

} Persicaria.

## THE DOCK TRIBE—

Sharp-tasting plants, with a red tinge, long leaves, six  
stamens, three styles (an exception to the rule of three never  
being found among Exogens), red scaly sepals.

Water-dock, 207.  
Sorrel, 208.  
And other species, 207.

THE SPURGE TRIBE—

Full of milky juice, acrid and stinky; stamens and pistils separate, green cups, stigmas crescent-shaped.

Wood	}	Spurge, 201.
Dwarf		
Sun		
Cypress		

Dog's Mercury (nearly related), 202.  
Box Tree, 202.

THE NETTLE TRIBE—

Separate blossoms; stringy stems.  
Nettle, 209-211.  
Roman Nettle, 208.  
Pellitory-of-the-wall, 211.

THE ELM TRIBE—

Trees—five stamened perfect flowers, 215.

THE CATKIN TRIBE—

Stamens in catkins, pistils in tufts—trees.  
Willow (numerous sorts), 222.  
Dwarf Willow, 222.  
Withy, 222.  
Poplar, 226.  
Aspen, 226.  
Birch, 222.  
Sweet Gale.  
Alder.  
Beech, 203.  
Chestnut, 202.  
Hazel, 9.  
Hornbeam.  
Oak.

## CONE-BEARERS—

Scotch Fir, 91.  
 Weymouth Pine, 91.  
 Larch, 93.

## YEW TRIBE—

Like the cone-bearers in foliage, but with berries.  
 Yew, 205.  
 Juniper, 205.

## CLASS II.—ENDOGENS

*Growing from the outside. One bud, parts in threes*

## THE FROGBIT TRIBE, 227.

## THE ORCHIS TRIBE—

Curious twisted flowers growing on the germ ; one anther ;  
 hollow place instead of stigma.

Butterfly	}	Orchis, 228, 229.
Purple		
Green-winged		
Marsh		
Narrow-leaved		
Pyramidal		
Sweet-scented		
Dwarf		
Meadow		
Man		
Bee, 233		
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Spider		
Drone		
Ladies' Tresses, 232		
Tway-blade, 231.		
Bird's-nest Orchis, 231.		
White	}	Helleborine, 233.
Marsh		
Green		
Purple		

## THE IRIS TRIBE—

Sword-like leaves ; three petals, large and overhanging, three short and upright, all on the top of the germ ; stigma like three other pistils shutting in the stamens.

Iris or Flag, 235-238.

Yellow Flag, 236.

Stinking Iris, 236.

## THE CROCUS TRIBE—

Six petals, three stamens, one pistil, beautiful cleft stigma ; no stem, except an underground bulb.

Purple, 6.

Saffron, 6.

Spring Crocus, 5.

Autumn Crocus, 2.

## THE AMARYLLIS TRIBE—

Three petals, three sepals of the same colour, sheaths covering the bud ; sometimes nectaries—bulbs.

Daffodil, or Lent Lily, 7-9.

Butter and Eggs.

Two-flowered Narcissus.

Snowdrop, 2.

## THE YAM TRIBE—

Green flowers, scarlet berries, twining stems, tuberous roots.

Black Bryony, 239.

Herb Paris, 239.

## THE LILY TRIBE—

Six stamens, six petals, one pistil, no calyx.

Martagon, or Turk's Cap, 247.

*Asparagus Group*, 252.

Butcher's Broom, 86.

Lily of the Valley, 252.

Solomon's Seal, 252.

*Squill Group*—

Vernal Squill.

Autumnal Squill.

Blue-bell, Blue Bottle, or Wild Hyacinth, 249.  
Star of Bethlehem, 249.  
Crow Garlic, 249.  
Fritillary, or Snake's head, 248.  
Meadow Saffron.

THE RUSH TRIBE—

Leafless—clusters of six stamens.  
Common Rush (several species).  
Wood Rush (several species).  
Asphodel, 251.

FLOWERING RUSH TRIBE, 239.

WATER PLANTAIN TRIBE, 240.

REED-MACE TRIBE—

Cat's-tail, or reed-mace, or bulrush, 243.  
Bur Reed, 244.

ARUM TRIBE, 245.

SWEET SEDGE TRIBE.

DUCKWEED TRIBE, 245.

POND-WEED TRIBE.

REED TRIBE—

Staminate and pistillate flowers in different spikes ; tall round stems, like grasses.

Sedge or Reed, 253.

Bulrush Proper (beautiful feathered brown heads of blossom), 254.

Spike Rush.

Cotton Grass.

Sedge (many sorts).

THE GRASS TRIBE. (These would take too minute study for young botanists.)



## BOTANICAL TERMS EMPLOYED

**PISTIL**, or **Carpel**—the central point of the flower which becomes the seed-vessel.

**Stigma**—the top of the pistil.

**Style**—the column of the pistil.

**Germ**—the bottom of the pistil, containing the seed.

**Stamens**—the cases of pollen, supported on stalks.

**Anther**—the case containing pollen.

**Pollen**—the dust of the anthers which makes the germ fertile.

**Filament**—the thread-like stems that support the anthers.

**Corolla**—the whole case in which the stamens and pistil are contained, usually the coloured part of the flower.

**Petal**—a single leaf of the corolla.

**Nectary**—the honey-cup in the corolla.

**Calyx**—the green cup enclosing the corolla.

**Sepal**—a single leaf of the calyx.

**Spathe**—a sheath like that of a daffodil.

**Receptacle**—the bottom of the calyx, or top of the stem on which the flower grows.

**Superior corolla**—a corolla growing above the germ.

**Inferior corolla**—growing below the germ.

**Capsule**—little purse, the case where the seed is contained.

**Bract**—a leaf growing at the foot of the flower-stalk.

**Cotyledon**—a seed-leaf, which springs up first, then falls off.

**Alternate leaves**—those growing by turns on opposite sides of the stem.

**Serrate leaves**—those notched like a saw.

**Linear**—long narrow ones.

**Pinnate**—winged, such as vine leaves.

Cyme—a head of blossom like elder.

Umbel—a head like hemlock.

Frond—a fern, or sea-weed leaf.

Imbricated—scales growing one over the other, as in a fir cone.

Fibrous root—one in little branches.

Bulb—an underground bulb, such as an onion.

Tuber—a fleshy swelling on the root like a potato.

All these parts of plants are really only leaves in different forms.



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