
NAS
HAWKS

PETER GRIEVE PAYING TO THE BOYS.

UNCLE PHILIP'S CONVERSATIONS

WITH YOUNG PERSONS.

NEW-YORK.
HARPER & BROTHERS, 82 CLIFF ST.
1854.

THE

AMERICAN FOREST:

OR,

UNCLE PHILIP'S

CONVERSATIONS WITH THE CHILDREN

ABOUT THE

TREES OF AMERICA.

NEW-YORK:

PUBLISHED BY HARPER & BROTHERS,

NO. 82 CLIFF-STREET.

1834.

TO THE

MESSRS. HARPERS, IN NEW-YORK.

My Dear Nephews :—

As you expressed a wish in your last letter to have our Conversations on Trees, of which I spoke on a former occasion, I now send them. Others may not like trees as much as your old Uncle does, and may therefore conclude that the children and I might have found a more agreeable subject; but I believe it did not prove tedious either to them or me. Indeed I have often been struck with the fact that children seldom become weary of having their attention directed to the objects of nature. I hope it will not be deemed time misspent to have taken some pains to acquaint them with the wealth and beauty of those magnificent forests which spread over the broad surface of our dear country. American children ought to know something of American trees: and when I look around upon the

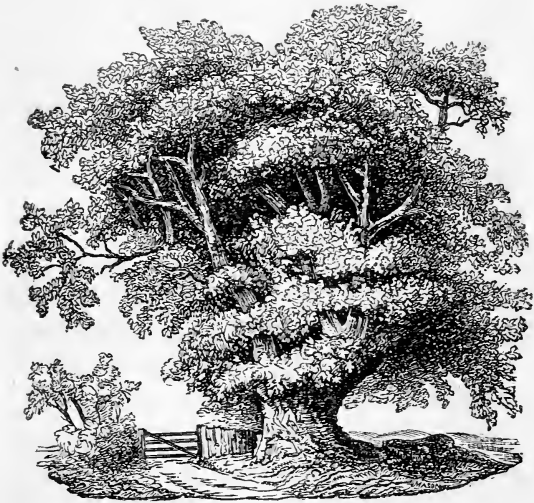
wanton destruction of trees, of which too many of our countrymen are guilty, I confess that I am anxious to teach my dear children how to find interest in a tree, and to love it; it may make them pause ere they cut it down without necessity. You must excuse the natural feelings of age, and forgive an old man for pleading earnestly to have an old tree spared. I would have children's children sit under the same shade which sheltered their fathers. Good-bye.

Your affectionate

UNCLE PHILIP.

Newtown, Sept. 1, 1834.

CONTENTS.



The Oak.

CONVERSATIONS

ON

THE TREES OF AMERICA.

CONVERSATION I.

The Boys come to visit Uncle Philip, and they get into a conversation about Trees, and their uses. Uncle Philip describes the Oaks.

"WELL, boys, you have come to have another talk with your old friend the traveller, have you? I am glad to find that you remember me when you have nothing to do but enjoy yourselves."

"Yes, indeed, Uncle Philip; we do remember you, and all the wonderful things you have told us; and we like to come and listen to you, for we know that whatever you tell

us is true, and will make us wiser and better, if we take care not to forget it. And so, Uncle Philip, as it is Saturday afternoon, and it is too warm to play, we all agreed that we would come and ask you to talk to us about some of the things that we ought to know, to be as wise and as learned as you are."

"Ah, boys, I hope you will live to know a great deal more than I can teach you. When I was a boy, it was not so easy to learn as it is now; there were not so many schools, and people did not think so much about giving their children a good education, and more than all this, there were not a quarter so many good books written and printed for young folks as there are now. But seat yourselves here in the shade, and I will try to think of something useful to talk about, with you."

"Oh thank you, thank you, kind Uncle Philip; that will be a great deal better than running about in the hot sunshine; this great tree will serve as a large umbrella for us all, and here we shall be as happy as so many little kings."

"I like that name you have given to the tree under which we are sitting; it is indeed a natural umbrella, and shelters us from the

burning glare as completely, as any contrivance we could imagine ; yet it costs nothing, and puts on its thick covering of leaves summer after summer, without any assistance from us, who receive so much benefit from it: and see, boys, how bountiful God is to us ; he makes the sun to pour down his hot beams to ripen the corn, and the fruit, and every thing that grows in the earth, for our use ; and the large trees to give shade for us when the heat is greatest, or else we should hardly be able to bear it."

"But these huge trees must be good for something besides shade, are they not, Uncle Philip? We know that apple-trees, and peach-trees, and all the other trees that bear fruit are useful, but they are not near as large as the great trees down by the river, and over on the other side of the bay ; but these have no fruit, and some of them are not good even for burning ; yet I suppose they *are* good for something."

"You may be very sure of that, boys ; God has created nothing in vain, though we may not be able always to see what things are good for. There are a great many things in the world that nobody has found out the use

of as yet, but they *have* their uses, and good ones, too; and people are finding them out every day. As to the trees, I think I can soon convince you that many of them are useful enough, though they don't bear apples, or peaches, or cherries. What sort of a tree is this under which we are sitting?"

"A chestnut; we gathered a great many nuts from it last fall, when you were gone to New-York, and they are almost ripe again now."

"Well, boys, I suppose you found the chestnuts very good eating, although not quite as large as the peaches. Now tell me another thing; you have been up in the pasture-lot this morning, and seen one of the men at work; what was he doing?"

"Splitting rails for the new fence."

"Well, the logs that he was at work upon, are chestnut, and the handle of his axe was hickory, and the beetle or mall that he drove his wedges with, was oak; so there you see was the wood of three large trees made useful in one single operation. And now, boys, as we have begun to talk about trees, if you like I will tell you something about the principal trees that grow in our country, and the things

they are good for, and this will be a very good subject for our conversation. What do you think of the plan?"

"Why, Uncle Philip, trees are not as curious as insects; but we know very well that whatever you tell us must be worth knowing, and that you talk to us for our good and pleasure more than your own: so we will listen to you very gladly, and thank you for your kindness to us."

"You must not expect that I shall be able to mention all the trees that grow in the United States; there are some that have never been described at all, and if I knew every one of them, the number is so great that it would take up a great deal too much time to tell you even a little about each. More than a hundred and forty different kinds of large trees have been already discovered and examined, growing in North America, and most of these are to be found in the States: so you see that it would be impossible for me to describe them all to you in a great many conversations; but I will try to tell you something about the most useful and remarkable, and when you are older, you can read more about them, and about the others too, in books that have been

written on purpose. Can you tell me now which is the most useful tree in the world?"

"The most useful, Uncle Philip? I think I have heard our schoolmaster say it was cocoanut."

"Well, boys, I suppose it is; the natives of the islands in the Pacific Ocean, where the cocoanut is found, make use of every part of it for one purpose or another; and this single tree supplies them with food, drink, clothing, and materials for building; the wood is excellent timber, and good fuel; the leaves are used to make the roofs of the houses; the fibres and the soft inner bark are made by the natives into cloth; and you know how good the nut is to eat, I dare say."

"But, Uncle Philip, how do they get their drink from the cocoanut?"

"Why, the water, or milk as some people call it, that fills the hollow of the nut, is most delicious; better than all the beer and cider in the world, because it is pleasant to the taste, and when fresh does not make people drunk. But it is time for us to come back to the trees of our own country."

"Stop a moment if you please, Uncle Philip; I want to ask one other question. You said

that the natives of the islands where the cocoanut is found make the roofs of their houses with the leaves; I should think they would make but a sort of very poor covering; they cannot keep the rain out, can they?"

"They could not, indeed, if they were such leaves as you have been used to see; but they are immensely large, and quite thick enough to serve all the purposes of a roof, as well as shingles, or even slates. Now can you tell me which is the most useful tree in this country?"

"Pine is very much used for carpenters' work; is it the pine, Uncle Philip?"

"No, boys; though the wood of the pine is good for a great many things, it is not as valuable as that of the oak, nor indeed is any other wood that grows in this country applied to as many and such important uses; and I suppose that the oak, as it is to the eye the grandest, must also be pronounced the most useful of trees. The wood is very firm and solid, and lasts a long time; and for some purposes there is no other kind of wood in the world that can compare with it."

"I have heard the miller say, that oak timber is the best for mills, and all kinds of car-

penter-work that are much exposed to get wet; so I suppose it is good for building ships, is it not, Uncle Philip?"

"Yes, excellent; and the knees, and frames, and all the large and most important timbers of vessels of all kinds, are generally of this wood. In England, where trees are not as plenty as they are with us, oaks are worth a great deal of money, and people make a business of planting them on purpose for the government. You know that the English have more ships of war than any other nation in the world; and they take a great deal of pains, and go to great expense, in getting the best timber they can find for their navy."

"Ah, then, I suppose they do not burn oak wood in England, as we do; it would cost too much money."

"No, indeed; wood of all kinds is too scarce in that country to be much used for fires; but they have plenty of coal, and in some parts of the country they burn a great deal of turf. Wood is becoming scarce in some parts of the United States, too, near the great cities; and there is not near as much oak used for fuel now as there was several years ago. In Philadelphia and New-York

most of the fires are made of coal. But we must come back to our oaks again, boys; can you tell me some more of the uses to which they are put?"

"I know that the bark is used at the tan-yard for something; but I do not know what good it does to the leather."

"Well, then, I will tell you; oak bark contains a great deal of *tannin*, which has the property of giving consistence and toughness to skins, and making them last much longer than they would without it; the tanner puts a quantity of the bark, ground up fine, into water, which after a while becomes very strong of the *tannin;* then the hides are soaked in this water for several days, and so they become leather."

"Ah, then, Uncle Philip, that is what the boys dip their hands into the tan-vats for, when they are afraid of getting a whipping at school."

"Well, I suppose it is; but it is of no use, for the whipping will hurt just as much; they had better behave well and never get whipped at all."

"Uncle Philip, is not the bark of the other trees good for tanning?"

"Yes; most of the barks have a portion of

tannin in them ; but none have so much of it as the oak, and the tanners never use any other when they can get oak. Did you ever taste the fruit of an oak."

"The fruit, Uncle Philip? I did not know that oak-trees had any fruit. I thought they bore nothing but acorns."

"Well, what is an acorn but the fruit of the oak? I suppose you think nothing deserves to be called fruit unless it is very nice like a pear or an apple. But did you ever taste an acorn ?"

"Not very often, I must confess ; they are very bitter."

"But the hogs eat them gladly enough ; and I have heard it said, the flesh of those that feed mostly on acorns is of a better flavour than any other. It is not so solid, but it is sweeter. I have read, too, that in ancient times acorns were eaten by men; but I suspect that it was from necessity, and not choice. If you could get nothing else, I dare say you would be glad enough to get acorns, and perhaps come to like them in time ; and if you had never had any thing better, you would think acorns quite good enough. I suppose you have heard of the Greenlanders, have you not ?"

"Oh yes, Uncle Philip; we read about them in the 'Tales from American History.'"

"Then you know they are a very poor people, and live chiefly on the rank flesh and blubber of whales, and seals, and such oily creatures. Well, a young Greenlander was taken some years ago to Denmark, where he was fed upon what we consider very nice food, such as beef, and potatoes, and mutton, and fish, and good wheaten bread; and he seemed to like all these things very well, too: but one day he happened to find a large can of lamp oil, and took a long draught of it, saying, 'he wished he was in his own country again, where he could get as much as he pleased.'"

"What a strange taste!"

"Yes, it seems strange to us, but it shows what *habit* will do; and so if you had been eating acorns all your life, I dare say you would think it as hard to have none, as the poor Greenlander did when deprived of his whale oil. In some of the Southern States, that is, Virginia, North and South Carolina, and Georgia, there is a kind of oak called the chincapin oak, which is rather a shrub than a tree, for it never grows more than seven or eight feet

high; but the acorns it bears are very good and sweet; almost as good as the chestnut; and there are some other kinds that have sweet acorns."

"Oh, Uncle Philip, I have heard of those chincapins: there was a boy at our school from North Carolina, and he used to tell us a great deal about them; he said they were as good as a hazel-nut."

"But it was the real chincapin that he told you of, which is a sort of chestnut; this that I have just mentioned is the chincapin oak. By-and-by, when we come to talk of the chestnuts, you will hear more of the chincapin. But to return to the acorns; I have heard that all acorns lose much of their bitterness when they are boiled, but I never tried the experiment: you can if you like, the first time you go into the woods."

"I will go and get some to-morrow; sister wants some of the cups for her doll's tea-table."

"Yes, they make very pretty little tea-cups; in old times, when people believed in fairies, the cups of the acorns were supposed to be used by them at their feasts and suppers. But

we have not done with the uses of oak-trees yet. Do you know what cork is ?"

"Oh yes, Uncle Philip, we know very well; it is a very light wood, and very soft, and full of holes like a sponge, and people cut it up into corks to stop bottles with."

"Very true, boys; but do you know where people get it, and how it grows ?"

"Why, I suppose it grows like any other tree; but I do not know where."

"Well, then, I will tell you; it is the bark of an oak."

"Of an oak, Uncle Philip ! We have seen oaks very often, and the bark did not look much like cork."

"Ay, but this is a different kind of oak, that is not found in this country, but in Spain, and the south of France, and in Italy; you can find those countries on your maps when you go home. You have no idea of the vast quantities of cork that are used every year; it is said that France alone consumes 120 millions of cut corks."

"But why does not this oak grow in America, Uncle Philip ? I should think it would be better to make our own corks than

to go to France and Italy for them, would it not ?"

"Why the cork oak does not grow here I do not know: I should suppose that the climate of Florida, which you know is the most southern part of the United States, would agree with it very well; and as corks are so useful, and so much used, I dare say the trees will be introduced by-and-by. But just now it is easier and better for us to cultivate wheat, and other things which do grow in our country, and send them to Spain, and France, and Italy, in exchange for corks, than to raise the trees for ourselves."

"Uncle Philip, are the oaks that do grow in this country useful for any thing else ?"

"Oh yes; a very good colour or die is got from the bark of the red oak, and the branches of oak-trees make the best kind of charcoal; that which is used for making gunpowder. Powder, you know, is made of sulphur or brimstone, and saltpetre, and charcoal. Besides these, some kinds of medicine are extracted from the leaves; and the very best ink is made from the oak-apples."

"Oak-apples, Uncle Philip! what are they."

"They are little balls of a brown colour,

and nearly the size of an egg, that are often found sticking to the branches; they are caused by a fly which pierces the bark and leaves its eggs in the hole; in a little while the bark swells, and forms the oak-apple, or *gall*, as some people call it; the diers make great use of these galls; I dare say you have picked them up very often; they are full of a sort of dusty pith. And now, boys, I believe I have told you the principal *uses* of the oak; if you like I will describe some of the different kinds to you."

"Are there many different sorts of oak, Uncle Philip?"

"Yes, a great many; but they differ from each other mostly in the shape of the leaves. In North America, forty-four kinds have been described, some of which bear fruit every year, and some only once in two years. The principal kinds are the white oak, the black, the red, and the live oak; the others are mostly varieties of these four.

"The white oak is found chiefly in the Middle States, and is most abundant in Pennsylvania; it grows seventy or eighty feet high, and the trunk is from three to seven feet thick; the bark is white, with large black

spots; the acorns are large and sweet; and the wood is the best and the most used of all the American oaks. It is preferred to all other wood for the timbers of houses, bridges, and mills; for the frames of coaches, wagons, and ploughs; the spokes and felloes of wheels, and for the backs of chairs. When the trees are quite young, the wood splits well, and is easily bent, and is used to make baskets, sieves, and whip-handles; and in some parts of the country vast quantities of it are made up into pail-handles, and axe-handles. It is very much used, too, for fences, and it is the only kind of oak wood that is proper for staves of wine barrels. You would be astonished if I were to tell you how many millions of staves are made every year of white oak; fifty-three millions were exported in one year to the West Indies alone. White oak is very much used, too, in ship-building, but it is not so good as the timber of the live oak.

"The live oak grows only in some parts of the Southern States; it is best in Florida and Louisiana; it requires a mild climate and sea air, and is never found more than fifteen or twenty miles from the shore. It seldom grows very large, the height being in general about forty-

five feet, and the trunk is from twelve inches to two feet thick. The bark is hard, thick, and black, and the wood heavy, close-grained, and of a yellowish colour. It is chiefly used for ship-timber, being in fact too good to be made use of for any thing else; it grows very slowly, and is getting scarcer and scarcer every day. The acorn is longer than that of the white oak, and the leaf is of a quite different shape.

"The black oak is the most common of all; it grows in every part of the United States, except at the remote north, and in all kinds of soil. It is the largest, too, for it stretches up to the height of eighty or ninety feet, and the trunk is often five feet in thickness; the bark is very rough and black, and the wood is reddish and coarse-grained. It is the bark of this kind that is most used in tanning, because it is the cheapest, and has the most *tannin*. The inner bark is called *quercitron*, and is very much used for dying; the colour it gives is a brownish yellow. The wood is employed in building, for fences, and in making staves and heading for flour barrels &c. The acorn and leaf are different from those of the white and the live oaks.

"The red oak is very common, too; it grows to the height of about eighty feet, and is two or three feet thick; the leaf is cut into very deep scallops, and it bears the largest acorns of all the oaks except one; hogs are very fond of these nuts, and so are horses and cows, but the wood is not good for much; its greatest use is to make staves for all sorts of barrels except those which are intended for liquors.

"These are the four principal sorts of oaks; but, as I have already told you, there a great many varieties; there is the mossy cup oak, so called because the cup has a fringe round its edge; the over cup white oak that bears an acorn almost as large as a hen's egg; the post oak, with a very small sweet acorn much eaten by wild turkeys and squirrels; the over cup oak, the acorn of which is completely covered up in its cup; the willow oak, with a long slender leaf like that of the willow; the running oak, which is the smallest known in the world, being only from sixteen to twenty inches in height; the water oak, with leaves shaped like a pear; and several others."

"Then you cannot always tell an oak-tree by the shape of the leaf, Uncle Philip; I thought

all the leaves were scalloped as though somebody had been clipping large pieces out of them with a pair of scissors."

"No, boys; for the leaves of the different kinds are all very unlike each other; you may know the oak-tree in general by the roughness and thickness of the bark, and by the stately look of the tree itself, with its straight strong trunk, and its wide spreading branches; but, after all, the acorn is the only sure mark to distinguish it by."

"Do not oaks grow very large sometimes, Uncle Philip?"

"Yes, sometimes; when one is left standing a long, long time, and there are no other trees near it, so that it has a large piece of ground to itself. The largest I ever heard of was in a part of Great Britain called Dorsetshire; it took a rope sixty-eight feet long to go round it, and when it was very old, and the trunk became rotten and hollow, they made a large room in the hollow part, which a man occupied as an alehouse or tavern; twenty men could stand in it at once."

"I suppose it was very old, was it not, Uncle Philip?"

"Nobody knew how old it really was, as

you may well suppose when I tell you that it was standing about eighty years since, and that it was three hundred years before that, when the room was used as an alehouse. Oaks, you know, are very slow growing trees, and very few of them get their full growth in less than a hundred years, and then they will stand a long time before they begin to rot. In Torwood, in Scotland, there was very lately another huge oak, or rather the remnant of one, for there was hardly enough of it left to show where it had stood; it is supposed to have been about twelve feet thick when it was full grown, but nobody knows any thing certain as to its size or its age. You have heard of Sir William Wallace, have you not?"

"Oh yes; we read of him in the 'Tales of a Grandfather:' he was a brave Scotchman, and fought for liberty and his country, like our Washington."

"And how long is it since he lived?"

"About five hundred years, Uncle Philip."

"Well, it is said, and the story has been told and believed for a great many years, that Wallace and his principal officers used to sleep in the hollow trunk of the oak I have just told you of, and it has been called the

Wallace Oak for a very long time; so long that nobody knows when it was not called by that name: so you see that must have been a very old tree. You have heard of the royal oak, I suppose, in which Charles the Second, one of the kings of England, hid himself from his enemies, and which is still standing at Boscobel in Staffordshire; it is not as large as the other two I have mentioned, but a great many curious people go to look at it, on account of its age, and the circumstance of a king having to hide in it to save his life; when you are older you may read in one of the volumes of the 'Family Library,' about Charles, and his father,—whose head was cut off."

"But, Uncle Philip, are there no famous oaks in this country?"

"None that I know of, boys; I have not seen or heard of any that are remarkable either for size or age; our people are more apt to think of the use they can make of a good tree than of keeping it as an object of curiosity, and there are not many oaks left standing after they have grown large enough for timber or firewood; besides, as I have already told you, trees grow so very large only where there are not a great many of them,

and their roots have plenty of room to spread, as in England, where forests are scarce, and the trees stand a great way apart; in our forests they grow close together, and therefore we do not often see such huge fellows."

"Is there no way of telling how old an oak is, Uncle Philip?"

"Not till it is cut down; then if you look at the end, you will find a number of circles, one within the other, from the bark to the centre; each of these circles counts for a year, and oaks have been felled in which three and even four hundred of these rings have been counted."

"What makes the circles, Uncle Philip? do you know?"

"I can tell you what men who have studied the nature of trees say about it: they tell us that the sap-vessels, which lie just under the bark, are soft and spongy in the summer, and harden and get to be firm wood in the winter; when spring comes again, fresh sap rises in another circle of vessels, pushing the bark outwards; and this in turn hardens again in the winter, and so it goes on year after year, forming new circles until the tree dies. And now, boys, I believe I have told you enough

about oak-trees, and it is time for you to go home to your suppers, for the crows are flying away to the woods, and the sun is almost down."

"Well, indeed, Uncle Philip, you have told us a great deal that we did not know; who would have thought that a tree was so useful and good for so many things!"

"Every thing in the world is useful, boys; and it is our business to find out what every thing in the world is good for. People are making discoveries every day, and I think it quite likely that when you are as old as I am, you will know a great deal more about an oak than I or any other man can tell you now. Perhaps some of you may find out something new and exceedingly useful; but to do this, you must learn what other men have discovered, while you are young, and never pass any thing by as not worth examining, however humble or useless it may appear. The bark of an oak seems to be good for nothing; but you see that without it your shoes would not last half so long, or keep out the water as well as they do; the branch of an oak you would pass by as worthless; yet from it is made one of the ingredients of gunpow-

der, one of the most powerful substances in the world. Remember this, boys, and try to learn all the uses and properties of all sorts of things, and who knows but that you may make yourselves famous, or, which is better still, useful, one of these days by some very important discovery. Good night, boys."

"Good night, Uncle Philip."

The Black Walnut.

CONVERSATION II.

Uncle Philip and the Children talk about Nuts and Hickories.

"How do you do, boys? Would you like to walk into the woods with me to-day, and talk of the trees for a while?"

"Yes, if you please, Uncle Philip. But before we go, there is one thing we want to ask you about: there is another use for oak-trees, and all other trees, that you did not say any thing about; is there not, Uncle Philip? For the dear little birds to make their nests in."

"Why, certainly, boys, the birds do make their houses among the branches of trees; I thought it not worth while to mention that to you, partly because I supposed that you knew it, and partly because I intended only to tell you what trees were good for, to men: but I am glad you have mentioned it now, since

it shows that you have been thinking of what we were talking about, and that what I told you has not 'gone in at one ear and out at the other,' as the saying is. And so, as you have been good boys, we will take for our subject to-day a kind of tree that you like better than oaks, I am sure, for the sake of the nuts; you are all very fond of butternuts, are you not?"

"Yes, when they are nice and dry in the winter; they are not good for much till they have got to be quite dry."

"Well, and you like hickories, too, do you not, and shelbarks?"

"Oh yes; hickories are the best, after all; I never get tired of them."

"Then we will talk about walnuts to-day; so come along, boys, for the wood. And now, as we go, I will tell you a thing in which trees are useful to man: all trees, but large ones particularly. You know how important it is for trees and all other things that grow in the ground to have rain."

"Oh yes, Uncle Philip; sister's flowers were almost all dead last month for want of a wetting; and father had to water his young salads

and cabbages every night; he was afraid they would die, too."

"But you do not know that it is partly owing to the trees, that we get rain at all."

"To the trees, Uncle Philip! why, how can that be? rain comes from the clouds, and not from the trees."

"Very true; but what are the clouds?"

"Why, they are up over our heads, Uncle Philip."

"Oh yes, I know *where* they are very well; but I want you to tell me *what* they are, if you can. But I suspect that you have not learned that yet."

"No, Uncle Philip; I believe I do not know *what* the clouds are."

"Well, then, I will tell you: you know that water when it is heated becomes vapour; you have seen the vapour rising from the spout of the tea-kettle; now the water all over the world is constantly giving off vapour just as the water does in the kettle, and this vapour is in fact nothing but water, made very thin and light by the heat, and it always becomes water again when a great deal of it gets together, and there is no heat to prevent it; when a great deal of the vapour does get

together, floating about in the air, we call it a cloud: and when the clouds come near enough to the earth, they become water again, and come down in rain."

"But what good can the trees do, Uncle Philip?"

"Do not be in a hurry, boys; I was just going to tell you. The leaves have the power of attracting or drawing the vapour as it is sailing about over the tops of the trees: there is always more rain in those parts of the country where there are mountains, and plenty of trees, than in places where trees are scarce; and so you see that if the trees are obliged to the rain for making them grow, they are useful also in causing the very rain that is so useful to them."

"Well, Uncle Philip, that seems very curious, and I should like to know more about clouds and rain."

"You are too young yet to understand much about it; and besides, it is always the best way to do one thing at a time; so we will go on with our walnuts, boys, if you please, for the present; and in good time here we are close by a fine clump of your favourite butternuts."

"Uncle Philip, I remember that when you began to tell us about the hickories and the butternuts, you said that your talk to-day would be about walnuts; are walnuts and butternuts the same?"

"They are all of the same species: I know that when you say walnuts, you mean only the large black walnuts, that people make pickles of before they get ripe; but walnut is the general name of a species of tree of which the black walnuts and butternuts, and all the different sorts of hickory, are only varieties."

"Uncle Philip, I have heard people say that hickory-nuts only grow in this country; is that true?"

"No, not exactly; they will grow in Europe, but none have ever been found there growing naturally; they have all been raised from nuts taken from this side of the Atlantic."

"It seems to me, Uncle Philip, that God has been very good to this country; there are a great many very good things here that are not to be found anywhere else."

"God has been very good to us all, and given us a great many blessings, if we did

but know how to enjoy them properly. It is true that we have some things in America that other people have not; and the people of other countries have some things that we have not: but then it is very easy to carry the productions of different lands from one to another; and so we can have, not only what grows here, but every thing good that is found anywhere else."

"And are there no butternuts either in Europe, or anywhere but in our country?"

"No; there is but one kind of walnut that grows anywhere else, and that is the common European walnut, or, as we call it, the English walnut; some call it Madeira-nut. You have eaten some of them, I dare say."

"Oh yes, Uncle Philip; the shell is a great deal thinner and softer than the shell of our black walnut; I can crack it with just my fingers. And does not that walnut grow in America?"

"Yes, it will grow: but it must be planted; and, indeed, it is not a native production of Europe; it was brought, in the first place, from Asia, a very long time ago. There are very few of the trees in this country as yet."

"Is it better for any thing than our black walnut?—better than the hickory?"

"Yes, for some things it is better; and I dare say it will be cultivated very extensively by-and-by. It is a very beautiful tree, in the first place; and so are all the walnuts. The nut is decidedly better for eating than that of the black walnut, and it makes a much finer oil; but the wood is neither so good nor so handsome."

"Oil, Uncle Philip! Do they make oil out of walnuts?"

"Yes; and it is chiefly for the sake of the oil that the tree is so much thought of in France, where it is most plentiful."

"How do they get the oil, Uncle Philip? and what is it good for?"

"To get the oil, they take out the kernels carefully from the shells, and grind them in a mill like a cider-mill; then they put the paste into bags of strong linen, and press them in a very strong press, and the oil is squeezed out. It is very good to eat, and the people of that country use a great deal of oil with their food; much more than we do, for we use it only in dressing salad and lobsters, and such things, but they eat it with all kinds of meat, and even with bread, as we do butter: but it is for another purpose that the

nut oil is most used; for the preparation of fine paints and colours, and of the ink used by engravers; it is the best oil in the world for these purposes."

"Well, I did not know walnuts were good for any thing but to eat; it is almost a pity to waste them in that way, since they can be made so much more useful. Is it good for any thing else, Uncle Philip?"

"Yes, they make a very good medicine from the unripe nuts; and the husk, when it is boiled, gives a good brown for dying woollen cloths."

"Uncle Philip, why is the black walnut called so? The bark is not blacker than a great many other trees, and the leaves are quite green."

"The name comes from the wood; when the tree is fresh cut, the heart is of a violet colour, but after it has been exposed to the air for some time it turns very black."

"You said that the wood is better than the English walnut; what do they do with it?"

"Why a great many things, boys, just as they do with the wood of the oak. It keeps sound a long time; it is hard, and strong, and tough, and is very unapt to split or warp; moreover it

takes a fine polish, and is very handsome when it is made up; and for all these good qualities it is a favourite wood with the cabinet-makers. Then, it is seldom injured by sea-worms, which, you know, do a great deal of mischief to the bottoms of vessels; and therefore it is a great deal used in ship-building. In some parts of the country they make timber for houses out of the black walnut; and shingles, and the stocks of muskets are made of it; and I have heard that there is no sort of wood that bears the shock and strain of the firing as well as this. In Virginia they make posts of it, in preference to any other, because it will last a very long time in the ground without rotting; from twenty to twenty-five years, which is much longer than any other wood, except the locust, and the cedar, and the cypress; it is very good, too, for the naves of wheels, and in Philadelphia, coffins are made of it almost entirely."

"Is not the husk good for something, Uncle Philip?—for dying, or something like that? I know that it stains the hands very much; I have had my fingers so black with it that I could not wash it away, and it lasted several days."

"Yes, the colour it yields is exceedingly strong, and the country people use it for dying their woollen stuffs; but regular diers do not think much of it, because there are other things that answer their purpose better. I have only to tell you now that the black walnut is found in all parts of the United States, but is most plentiful in the Middle and Western: it loves a good soil,—neither sandy nor swampy, and cannot endure a very cold climate. And now, boys, we will look at those butternuts you have been picking up while I was talking."

"They are not ripe yet, Uncle Philip."

"No, but they will be very soon; they ripen about the middle of September, a fortnight earlier than the other kinds of walnut. I suppose you know what the nut is good for."

"Oh yes, Uncle Philip; good to make pickles, and very good to eat. They seem to be very plenty this summer. Last year we had scarcely any."

"Yes, they are very irregular in their growth, as to quantity: some years one man can gather several bushels in a day; and at other times there is hardly a nut to be seen."

"Is the wood good for any thing, Uncle Philip? I dare say it is, though; for every part of a tree seems to have some use or other."

"It has one good quality of the black walnut; the worms do not destroy it. It lasts a long time, too; and therefore the farmers like it to make their fences of: but it is not strong enough for house-timber, or any other purpose where strength is required. It is very good for making wooden shovels, and bowls, and dishes, not being apt to split; and for the same reason coach-makers like it for the panels of carriages."

"Uncle Philip, what do the doctors make of butternut-bark? They use it for something, I know, for one of the doctors in New-York gets a great deal of it here every spring."

"They make a very good medicine of it, by boiling it in water, and then mixing the decoction with honey. Do you know what a decoction is?"

"Not exactly, I believe: I have heard father speak of decoctions and infusions, but I do not know what the difference is."

"A decoction is when any thing is boiled in water for the sake of some property which

is communicated to the water in the operation; an infusion is when any thing is steeped or soaked in water, or any other liquid, for the same purpose."

"Oh, then, Uncle Philip, when sister makes tea, that is an infusion, is it not?"

"Yes; and soup a decoction: and now then you know what a decoction of butternut-bark is. I have heard that the bark itself, soaked in warm water, and applied to the face and the neck, is good for the toothache, but I never tried it. But there is another good thing got from the butternut, boys, that I suspect you do not know, although you have lived in the midst of them all your lives."

"And what is that, Uncle Philip?"

"Sugar."

"Sugar!—Maple sugar?"

"No, butternut sugar; not as good as maple sugar, but still better than none. And in some parts of the country very far from the sea, where the people are poor, and have no money to buy West India sugar with, and maples are not plenty, they are very glad to get such as they can make from the butternut. It is made in the same way, by boiling the sap, which is very sweet."

"May we cut a hole in the bark of one of these trees, Uncle Philip, and taste the sap?"

"No, boys; and for two reasons: in the first place, the trees are not yours or mine, and you have no more right to injure another man's tree, than to take one of his sheep; and the other reason is, because it is not the right time of year. The Spring is the season for drawing the sap, and you would not be able to get any now, if you were to bore ever so deep."

"Well, that *is* new, Uncle Philip; I thought sugar was got from no tree but the maple."

"Sugar may be made from the sap of almost all trees; but it is only of the maple and butternut that the sugar is either good enough or in sufficient quantity to pay for the trouble of making it."

"Uncle Philip, what is the reason that butternuts are so much more plenty than black walnuts? There are only about twenty black walnut-trees in this wood, and the butternuts are scattered all over it."

"I suppose the reason is that the butternut is a more hardy tree, and bears the cold better; it grows, too, in very poor soils; the

largest I ever saw are in New-Jersey, on the high banks of the Hudson, nearly opposite New-York, where the soil is very poor, and cold, and stony. Some of them are four or five feet thick, and fifty feet high. They grow very well, too, in Vermont and New-Hampshire, where the black walnut does not thrive at all. In fact, the butternuts seem to flourish all over the United States except at the south; the climate is too warm for them there, and there you see another instance of the wisdom with which God directs every thing. The butternut is very oily, and, as you said a little while ago, it is not good until a long time after it gets ripe; but, being so oily, it would soon become rancid in a hot climate, and so there is no use in its growing there. And now, boys, for the hickories."

"Ah, we are always glad to meet them, Uncle Philip; they are old friends."

"And yet, I dare say, you cannot tell me how many there are of them."

"Oh yes, but we can though; there is the kisky thomas nut, and the pignut, and the shelbark, and the plain hickory; four sorts, Uncle Philip."

"Yes, and four more, boys. There are

three bitter kinds, besides the pignut, and another that you have not mentioned at all; the pecan-nut."

"The pecan, Uncle Philip! what, that long nut, as big round as a finger, with pointed ends, and a thin smooth shell? Is that one of the hickories?"

"It is one of the walnuts, and the proper name of it is the pecan-nut hickory."

"Why, Uncle Philip, I thought those pecan-nuts were brought from the West Indies."

"Yes, I know that many people think so; but instead of that, they are taken to the West Indies from New-Orleans. You must know that it is not common in the Eastern or Atlantic States; but it is amazingly plenty at the West, all along the Mississippi as far north as Louisville."

"Did you ever see one of the trees, Uncle Philip?"

"Oh yes, a great many; but there are none about here, that I know of: it is a very beautiful tree, sixty or seventy feet high, and very straight, like the hickories we have; there is one objection though, to its cultivation, and that is its slow growth: there are trees in France that have been planted more than

thirty years, and have as yet yielded no nuts. The wood is heavy and tough, but not as good as that of our common hickory, and therefore it is not much used. But before I go any further, boys, I must tell you the right names of all the different kinds of hickories. Tell me again the names of the four kinds you know of."

"The kisky thomas, the shelbark, the pignut, and the hickory."

"Well, now, tell me what sort of a nut is the kisky thomas."

"Oh, it is the nicest and sweetest kind, Uncle Philip; not very large, flat at the sides, and the shell is thicker than the pignut, but thinner than the shelbark."

"Show me one of the trees, and tell me if you discover any thing remarkable in the bark."

"Oh yes, Uncle Philip, it is very rough, and seems to be cut up into long narrow slips, that bend outward at the ends, and stick to the tree only in the middle."

"What sort of a husk has it?"

"Look, Uncle Philip, here is one of them; it is not ripe yet, you see."

"Well, now, boys, you observe that the nut

in its husk is shaped something like a peach, being quite round, and having four deep cuts, or grooves, reaching all the way down to the stem; and when the nut is ripe, the husk opens at these grooves, and splits into four quarters."

"Yes, Uncle Philip, we know that; and the nut comes out of itself; but none of the other kinds come quite out of the husk."

"Well, this nut, kisky thomas, as you call it, is really a shelbark; that is the proper name of it: and the large nut that you call the shelbark is so called, to distinguish it from this, the thick shelbark. Now find a hickory for me,—what you call a plain hickory."

"There is one, Uncle Philip; you see it is a great deal larger than the kisky thomas."

"And is there no other difference?"

"Oh yes; the shell is a great deal thicker, and the meat is very hard to get out."

"Well, this is properly called the mockernut; some people give it the name of the hard walnut, on account of the hardness and thickness of the shell. And now see if you can find a pignut."

"That large tree with a smooth bark is a

pignut, Uncle Philip; there are plenty of nuts lying about."

"Well, you see that the nuts are of different shapes, some quite round, some oval, and some wider than they are long; you see, too, that the husk is thin, and of a beautiful green, and has four splits extending only half-way down to the stem. The nut is small and quite smooth, and the shell, as I dare say you know, is exceedingly hard."

"Yes, indeed, Uncle Philip, it is; so hard that it is not worth cracking; the meat is not good for much,—it is too bitter."

"The squirrels though, with their sharp little teeth, soon make a hole in it; and the hogs devour them at a great rate. Now you call all the bitter nuts pignuts; but in fact there are four different kinds of them; and this, which is the true pignut, is the least bitter of all. The other kinds are the bitternut, the water-bitternut, and the nutmeg."

"The nutmeg, Uncle Philip! why is it called so?"

"On account of its shape and size, which much resemble those of a nutmeg: I suspect, however, that you never saw any of them, for

they are not common, and I never met with any of them except in South Carolina."

"Uncle Philip, what are these bitter kinds good for?"

"Why, boys, I can hardly tell you. I believe that even the pigs will not eat the nutmeg, or either of the bitternuts so long as they can get any thing else. In some parts of Pennsylvania they make oil from the bitternuts; but it is not good to eat, and they can use it for lamps only. But the wood of all the hickories is very useful; not for building though, because it is too heavy, and is very liable to be worm-eaten: but for many other purposes there is no wood so excellent. Its toughness makes it exceedingly proper for axletrees, axe-handles, and large screws, such as they have in cider-mills: it is good, too, for the cogs or teeth of mill-wheels, for whip-handles, flails, musket-stocks, and ox-bows. In the country the farmers make runners for their large sleighs, or sleds, of hickory: it makes capital hand-spikes, too, and you know how proper it is for making bows; the Indians make all their bows of hickory, and before the white people came among them, they had nothing better than bows and arrows with which to kill the wild

beasts of the forests, and each other; but now they are very generally supplied with guns, and bows and arrows have gone out of fashion. But of all the uses of hickory wood, there is none more general or important than hoop-making: it is very pliant, you know; that is, it bends very well, without breaking: and now only consider what vast quantities of flour, beef, whiskey, sugar, pork, apples, cider, molasses, and many other things are taken from or brought to the United States in barrels, and you may imagine what amazing numbers of hickory trees must be cut up into hoops every year, and what sums of money are paid for the poles; and it is a very sad thing to reflect that they are becoming scarcer and scarcer."

"But, Uncle Philip, there is another great use of hickory, that you have not mentioned."

"And what is that, my boy?"

"For burning; I have heard mother say that hickory makes the best fire of any wood in the world."

"It does, indeed; the heat it gives out is very strong, and the coals last a very long time. A hickory log completely ignited, and well covered with ashes, will keep twenty-

four hours, and even longer. There is a difference though, even in this respect, between the different kinds; the mockernut makes the best, and the bitternut the worst fire. And now, boys, I believe I have told you all that it is worth your while to know about the walnuts just at present; when you come to see me again, we will talk of the maples. You had better go home now: I shall stay in the woods a little while longer, and treat myself with a long walk this fine evening."

"Uncle Philip, sisters told me to ask you if they might not come and hear you talk about the trees, as they did about the proofs for the New Testament; I have been trying to tell them as much as I could recollect about the oaks, and they said they should like to learn the uses of all the trees, too, if you would be kind enough to let them come with me."

"Certainly, my dear boy, they shall be very welcome; and they can bring their work, if they like, and do a great deal of sewing, while I am talking. It is true that a knowledge of trees and their uses is not likely to prove so important to females as to men; but for many reasons it is desirable that they should know, at least, something

about them. And for this great reason, among the rest, that the study, like that of all other natural objects, tends to enlarge the mind, and to carry the thoughts up to the great and beneficent Being from whom we receive all our blessings; the mighty trees that lift their tops towards the clouds, with their majesty of form, the beauty of their foliage, and their infinite variety of properties, are all the works of His hand, and tell of his goodness and his power. Let your sisters know, then, that Uncle Philip will be heartily glad to see them; and the oftener they come, the more he will be pleased. And now, boys, good night. Come to me again whenever you have time, and would rather sit still than run about playing."

"That we will, Uncle Philip. Who would have thought that so much was to be learned about trees!"

The Sugar Maple.

CONVERSATION III.

Uncle Philip tells the Boys and Girls about Maple-trees, and how to make Maple-sugar.

"Good day, Uncle Philip; we have come to put you in mind of your promise, to tell us about the maples; the beautiful maples that give us such nice sugar and sirup to eat with our buckwheat cakes."

"And Uncle Philip is very glad to see you, my children; he is always pleased to talk with good little boys and girls, and to tell them any thing that he knows. You spoke of the maple just now, my dears, as though there was but one kind; you must know that there are no less than fourteen: but only seven of them are found in this country; the others are peculiar to Europe, and therefore I shall not say much about them."

"We know three of the kinds, Uncle Philip;

the sugar maple, the curled maple, and the birds'-eye maple."

"But you are mistaken, my dears; the curled maple and the birds'-eye are not distinct kinds; they are only accidental varieties. But I will tell you the seven different kinds, and explain to you what the difference is.

"The first is the white maple, which is very plentiful in the Western States, and particularly on the banks of the Ohio: the leaves are very beautiful,—bright green on the upper side, and of a brilliant white on the under: and this charming variety adds wonderfully to the loveliness of the forests in that fertile region. It is the largest of all the maples, being often seen four or five feet thick, and the branches spread out so widely that a single tree covers a very large space. The wood is silvery white, but it is the softest and lightest of all, and from its want of strength is not very much used. It is made into wooden bowls, and the charcoal that is made from it is very much liked by hatters, and various other workmen who desire a steady, permanent heat."

"And do they not make sugar from this kind, Uncle Philip?"

"Yes; sugar may be obtained from all the maples; and the sugar of this kind is very white, and has a more pleasant taste than that of the sugar maple."

"Well, then, Uncle Philip, why do not they call it the sugar maple? I should think they would give that name to the tree that gives the best sugar."

"The reason is, that the white maple does not give as much sap as the sugar maple, and the same quantity of sap only gives half as much sugar; and this is the case with the other kinds, too."

"Uncle Philip, there is a maple-tree down by the river that has very pretty red blossoms; is that a white maple?"

"No, that is another kind, and takes its name from the blossoms; it is called the red-flowering maple: it grows very abundantly all over the United States, and particularly in the Middle and Southern: you are almost sure to find it wherever there is a brook or a swamp. It has a very beautiful appearance in the spring, when it is covered with flowers; and the wood is put to several uses."

"Oh, I am glad to hear that, Uncle Philip; I do not like the trees that are good for

nothing. And what do they do with the red maple wood?"

"It is mostly employed in cabinet-making; it is pretty hard, has a fine grain, and takes a high polish: you know that a great deal of this wood is used in the manufacture of chairs and bedsteads."

"Ah, is this the curled maple, then, Uncle Philip?"

"Yes, it is the kind of maple that sometimes has the beautiful waving grain that is so much admired; for you must know that it is not found in all the trees, and indeed the proportion of waving-grained trees to the others is very small; not more than one in a hundred."

"What makes it, Uncle Philip, do you know?"

"God makes it, my child, as well as every thing else in the world; but how the effect is produced, and for what purpose, unless it is merely to please our eyes, are secrets that have not been found out as yet."

"The trees that make the curled maple are more valuable, then, than the others, are they not?"

Yes, much more so; and therefore, as

you may suppose, the curled wood is only used in making furniture, and ornamental work, such as panels for rooms, and the stocks of fowling-pieces, and picture-frames, and the like. The plain wood is very good for spinning-wheels, and all kinds of machinery that does not require much strength, and saddle-trees, and wooden shovels and bowls, and all such light articles. Before mahogany came into fashion, this wood was very much used for making bureaus, and tables, and all kinds of furniture; and very handsome they were, too. But it does not last as long as mahogany."

"Is the bark good for any thing, Uncle Philip?"

"Yes, the country people make a very dark blue die of it; almost black."

"The wood is not good for burning I believe."

"No, very bad; it burns away too fast, and does not make good coals: and it is not esteemed for building or fencing stuff either, because it is very soon destroyed by worms."

"I suppose they make sugar from the sap?"

"Yes; but, like the white maple, the proportion of sugar got from a certain quantity

of sap is only about half that of the sugar maple."

"Oh, when will you tell us about that sugar maple, Uncle Philip?"

"Now, my dears. You must know that the sugar maple is one of our own trees; for it grows neither in Europe nor in the Southern States."

"What, then, do they have no maple sugar in Europe, Uncle Philip?"

"Yes; within a few years attempts have been made in some of the European countries to get sugar from the sycamore, which is a species of maple, and they have been successful: but there is no kind that gives as much sugar as this, from the same quantity of sap."

"And what do they do for sugar in the Southern States?"

"Oh, in the remote South, the sugar-cane grows; and besides, you know, if they want it they can get plenty of maple sugar from us, in exchange for their cotton and rice. They can also get sugar from the West Indies."

"Oh, true, Uncle Philip; I did not think of that."

"You have seen sugar maple, I dare say, my dears; but if you have not, I will tell you

that it is a tall, slender, and beautiful tree, commonly growing about fifty feet high, and a foot or a foot and a half thick, and remarkable for its very white bark. The leaves are bright green on the upper side, and silvery white below; but they turn red with the first frost, and thus add very much to the beauty and brilliancy of our forests in autumn."

"I suppose the wood is not much used; people would rather save the trees, for the sake of the sugar."

"But you are wrong, my dear: it is one of the peculiarities of this tree, that the wood is equally valuable with the sap, and the number of trees has been wonderfully reduced in consequence; but there are thousands and tens of thousands left yet, and farmers are getting to be more careful about them: so I suspect there will never be any great scarcity."

"And what is the wood good for, Uncle Philip?"

"For the same uses that the other maples are good for: some of the trees have the wavy and beautiful grain that gives it the name of the curled maple; and others have spots that give the wood a still more lovely appearance;

when it has these spots it is called birds'-eye maple: it is used for bedsteads and ornamental furniture, but especially for portable writing-desks, which are very elegant, and bear a high price. It is very good fuel, too; and indeed most people like it as well, or nearly as well, as hickory. But another use is made of it, which I suspect you know nothing about."

"And what may that be, Uncle Philip? Is it for tanning or dying?"

"No, neither of these; it is for making potash."

"Oh, from the ashes; why, what a capital tree this is, Uncle Philip; first we get sugar from it; then it gives us all sorts of beautiful furniture; then it warms our houses, and cooks our dinners; and then, even after it is burnt, we get something useful and good from the ashes."

"Yes, and besides that, it makes excellent charcoal; blacksmiths will tell you they like maple charcoal better than any other."

"Uncle Philip, what is potash good for?"

"Oh, for a great many things; but its greatest use is in making glass."

"Glass, Uncle Philip! and can a maple-tree be made into glass?"

"Yes, with the help of a very strong heat, and a certain portion of flint, or fine sand. They put potash and flint-stones, broken up small, into a melting-pot, and shut them up in a furnace, with a large fire under the melting-pot; the heat is made very intense by constantly blowing; and after a long time, the flint and the potash are melted together into a substance that looks something like honey; and this substance, when it gets hard, is glass. But, after all, the great value of this tree is in the sugar; and as I suspect that you have never seen the operation of making it, I will describe it to you, as I have seen it done at the west.

"The first thing to be considered is the right season for tapping, and this is generally at the end of February or the beginning of March, when the sap begins to ascend. Then a shed is built in some convenient spot near the trees to be tapped, large enough to shelter the boilers, and the persons who tend them; and this is called a sugar-camp. The tools that the sugar-boilers require are only an auger three-quarters of an inch wide, to bore the trees with, tubes eight or ten inches long, made of elder, troughs to receive the sap from

the tubes, buckets for emptying the troughs and carrying the sap to the camp, boilers large enough to hold fifteen or eighteen gallons, moulds to run the sugar into, and, lastly, axes to cut firewood.

"Each tree is bored in two places, at about eighteen or twenty inches above the ground, and the holes are four or five inches apart: experienced boilers say that the holes should be on the south side of the tree, and not more than half an inch deep; they say that more sap is got by attending to these directions.

"As fast as the sap runs into the troughs through the tubes, it is poured into the boilers, under which they keep up a brisk fire; and they take care to strain off the scum that rises to the top. The boiling is kept up till the sap has become thick, like sirup; and then it is strained through a blanket, and left to cool.

"After standing twelve hours, the sirup is boiled again, till, on being rubbed between the finger and thumb, it seems to be full of little grains, and then it is ready to be poured into the moulds. If it boils over, they throw a small quantity of butter or lard into it, and

this makes it settle down again in a moment. As the sirup cools in the moulds, it becomes hard: the molasses is drained off, and there is your sugar all ready."

"And very nice it is, too; and so is the molasses: but why is it not white, like the loaf sugar, Uncle Philip?"

"And so it would be, if it were refined like that; loaf sugar, you know, is made from common brown sugar, and by the same process the maple sugar can be made as white as snow."

"And how much can be got from a tree, Uncle Philip?"

"The quantity varies according to the soil, and the size of the tree; but, in general, about two or three pounds may be taken as the average: I have known four to be got from a tree, and I have heard of trees yielding as many as seven; but these were extraordinary instances. The sap continues running about six weeks."

"And do they make any thing of the sap besides sugar?"

"Yes; by exposing it to the sun for three or four days it becomes very good vinegar: and

the molasses is better than that which comes from the West Indies."

"Uncle Philip, why do not people use more maple sugar than they do? It is a great deal nicer than brown sugar."

"Yes, but everybody does not think so. However, there is a great deal used, much more than you have any idea of. I have heard it said, that about ten millions of pounds are consumed in the United States every year. There is not a great deal of it made near the large cities, because most of the lands are cleared, and employed in the cultivation of grain, and vegetables, and fruits; but in the Western States, where maples are plenty, and the common brown sugar is scarce, the people use great quantities of the maple sugar.

"There is another kind, called the black-sugar maple, that grows very plentifully in some parts of the Western States; but the only differences between it and the sugar maple are in the colour of the leaves, which are darker, and in the wood, which is coarser grained, and not so brilliant and beautiful when it is polished."

"Uncle Philip, are there any more kinds of maple?"

"Yes, three more, that grow in this country, the striped maple or moose-wood, the box elder or ash-leaved maple, and the mountain maple."

"Why do they call striped maple moose-wood, Uncle Philip?"

"The name was given by the first settlers in Nova Scotia, and the most northern parts of the United States, from observing that the moose, which, you know, is a very large animal of the deer kind, fed upon the young twigs in the winter. It is not very common in any part of the United States except Maine; but still, it is found all along the Alleghany Mountains as far south as Georgia. The bark is smooth and green, with black stripes; and this gives it the name of striped maple, by which it is known in Pennsylvania and New-Jersey."

"Oh, then I have seen some of the trees, Uncle Philip; the leaves are rose-coloured."

"Yes, in the spring, when they first come out; but they soon change to green."

"And is it as valuable as the sugar maple?"

"Oh no; not by any means: the trees are too small to allow of the wood being much used; and the greatest use that is made of the moose-

wood is for feeding cattle towards the close of the winter; the leaves begin to sprout much sooner than those of the other trees; and the young twigs and shoots, being tender and full of sweet juice, are gladly devoured by the famishing horses and cows.

"There is nothing curious, or much worth knowing, about the other two kinds, the box elder and mountain maple: the box elder grows in great abundance west of the Alleghany Mountains, but is very scarce in other parts of the country. It gives no sugar, and the wood rots so fast that it is of no service in cabinet-making or building. They cultivate it in Europe to adorn pleasure-grounds, on account of its rapid growth, and its beautiful foliage: the leaves are of a bright green.

"'The mountain maple is rather a shrub than a tree, for it never grows higher than six or eight feet. As you may suppose from the name, it grows only on mountains, and in rough rocky places: the wood is too small to be good for any thing. And now, my dears, we have gone through our list of American maples.'

"And what class will you take up next, Uncle Philip?"

"The next class will be the magnolias; but before we come to them, there are three single trees that I must tell you something about: by single trees, I mean trees of which there are no varieties, or at least none discovered as yet. The first of these is the dogwood, or, as they call it in Connecticut, boxwood."

"Oh, I know the dogwood, Uncle Philip; there is plenty of it in Jersey, and about here too. It is covered in spring with large flat white flowers, as big as a dollar, and the berries are bright red."

"Yes, my dears, as you say, it is very common, not only about here, but all over the United States, except quite at the north: wherever there are swamps, there you are sure to find dogwood. Now you must know, my children, that there are in fact eight kinds of dogwood, but there is only one of them large enough to be called a tree, and that is the one that you know so well."

"And after all, Uncle Philip, it is not very large."

"No; it is never found much over thirty feet high, and the most common size is about sixteen or eighteen feet. There are two things about this tree that are singular; one

is the bark, which is black, and almost always split up into little squares; the other curious thing is in the branches, of which, by-the-way, the number is much smaller than on other trees: if you look at them you will find them always arranged so as to make crosses."

"It is a very beautiful tree, Uncle Philip, in spring, when the flowers are out. But I never heard that it was good for any thing. The berries are not good, I know, for I have tried them."

"Yes, they are bitter enough; but your friends the robins are glad enough to get them when the frost comes. As to the uses of the tree, in the first place, it is very beautiful, as you say; the dark green leaves and the abundance of white flowers are pleasant to the eye, and when the seeds or berries are ripe, I do not know any thing that is more lovely in colour. As for the wood—"

"The wood, Uncle Philip! what can the wood of such little trees be good for?"

"I was going to tell you, when you interrupted me, which is a very bad practice. Small as it is, the wood is very hard, and fine-grained, and solid, and takes a good polish, and it makes capital handles for hammers,

and chisels, and mallets, and small tools of that kind; and it serves very well, too, for the cogs or teeth of mill-wheels, and for the teeth of harrows, and the wood-work of horse's collars. The inner bark, I have heard, makes an excellent medicine for people that have the ague and fever; very nearly as good as the Peruvian bark that the doctors give for that sickness; and the outer bark makes ink quite as good as the oak-apples."

"Well, I declare, Uncle Philip, the dogwood, though it is little, is quite useful, and I shall think more of it than I used to."

"Big things are not always the best, my children, any more than big people."

"Uncle Philip, what is the Peruvian bark, that you mentioned just now?"

"It is the bark of a tree that grows in Peru, in South America; one of the most precious trees in the world, because the bark cures the ague and fever; which no other medicine is certain of doing."

"And does it not grow in this country?"

"No; it grows nowhere but in South America; but there is a tree that grows in some parts of our Southern States that is very much like it, both in appearance, and in its

medical properties. They call it the Georgia bark. It is a small tree, seldom growing higher than twenty or twenty-five feet, with beautiful large flowers, white, with rose-coloured stripes. The wood is soft, and of no use; but the bark is exceedingly bitter, and the people in Georgia take the decoction of it in cases of fever and ague, just as we do the Peruvian bark; and I have been told that it cures very frequently."

"And is this one of the three single trees you said you would tell us about?"

"Yes, this is one of the three; and the last is the coffee-tree."

"Not the coffee that we drink, Uncle Philip? that does not grow on a tree, does it?"

"It grows on a shrub, or very small tree; but the coffee-tree that I mean is a different thing: it received its name from the first settlers in Tennessee and Kentucky, where it is most abundant. Of course, you know, when they first went into those countries there were no steamboats to bring them whatever they wanted from New-Orleans, and it was not as easy to carry all sorts of goods from the great commercial cities into the West as it is now; and, besides, they were too poor to be able to

buy luxuries; yet they were unwilling to go without their coffee, and so they were very glad when they found a tree growing in great plenty, with large pods like the honey-locust, and seeds in the pods that tasted something like coffee; and they called it the coffee-tree."

"And did they burn the seeds and make coffee of them, Uncle Philip?"

"Yes; but the country was settled very fast, and the merchants soon began to come from New-Orleans, and the settlers grew rich, as the land was very good, and it was but a short time before West India coffee was plenty enough; and then they roasted no more of the seeds of the coffee-tree; but it kept its name."

"And what is it good for now, Uncle Philip?"

"It has one use that is rather curious; it never grows but in very rich land, and the settlers always know that the soil is good where they find it; so it saves them the trouble of digging, and ploughing, and planting, to see whether the land is worth cultivating. Besides this, the wood is of an excellent quality; fine-grained and hard, and good both for cabinet-making and building.

The flowers are very beautiful, too; and as the tree grows remarkably fast, it is proper for planting about houses and pleasure-grounds. The flowers are like stars, with green and white rays, and a large yellow spot in the centre. The leaf is like the leaf of the locust.

"And now, my dears, I think we have done for to-day. If you wish to learn any thing more about trees, come to me on your next holyday, and I will have some pretty pictures to show you of very beautiful trees, and flowers that grow in other parts of the United States; and I dare say there are several of them that you have never seen. And so good night, my dear children."

"Good night, Uncle Philip; we shall be sure to come."

Cone, Flower, and Leaf of the Large Magnolia.

CONVERSATION IV.

Uncle Philip tells the Boys and Girls about Magnolias and Laurels, and other beautiful Trees; and shows them why they ought to be grateful to God for such Trees, although they are not useful, as well as for Oaks and Maples.

We come now, my dears, to a useless but very beautiful class, that has long been famous for the elegance of its flowers, and the magnificence of its foliage. The magnolia has been called the pride of the southern forests, and if beauty alone could establish its claim, there would be no tree to dispute with it for the title; but usefulness is more prized than what merely pleases the eye, and the oak, the pine, the maple, and various other trees, plain as they are in comparison, are much more esteemed for their services than the splendid magnolia with all its loveliness."

"Ah, that is like the story of the tiger and

the camel: a little boy went to see some wild beasts, and he was delighted with the beautifully striped skin of the tiger, and wondered why the keeper had such an ugly beast as the camel in his collection, till his father told him how cruel the beautiful tiger is, and how useful the ugly camel."

"Very true, my dear; and I hope you will remember always to try to find out what the use of a thing is, and not pass it by or throw it away, merely because it is not as beautiful as some other things. However, there is no reason why you should not admire the flowers and cones of the magnolia; see here is a drawing of them." (See p. 84.)

"Oh, what a curious cone! Uncle Philip, what are those little balls hanging down from the sides?"

"Those are the seeds; but before we come to the flowers, let me tell you something about the trees."

"I remember you called them a class. Are there many different kinds of magnolia, then?"

"Yes; thirteen, in all, have been discovered, five of which belong to China, one to the West Indies, and the other seven to this

country; these seven are very much alike, except in size, and in the shape of the leaves; and are all equally useless, except to increase the beauty of gardens and plantations: a description of one, therefore, with very slight notices of the rest, will serve for the whole. The names of the seven kinds are, the large magnolia or big laurel, the small magnolia or white bay, the cucumber-tree, the heart-leaved cucumber-tree, the umbrella-tree, the long-leaved cucumber-tree, and the large-leaved umbrella-tree."

"I suppose they do not grow anywhere about here, Uncle Philip; I never heard any of these names before, except the magnolia."

"The white bay and the umbrella-tree are found in New-York and New-Jersey, but they are not very common; the others are seldom found north of Virginia, and they all seem to prefer the mild climate of Georgia, and the Carolinas: in Florida, too, they are most abundant, and grow to the largest size."

"I have read a story of an Indian chief, Uncle Philip, who saved the life of a British officer, and afterward sent him home to his father; and in that story there was something

about a magnolia; it said, the lofty magnolia: do they grow very large?"

"Some of them do; the large magnolia and the cucumber-tree are found sometimes as high as eighty or ninety feet: the umbrella-tree is the smallest, and is not often seen more than thirty feet high: the others are about forty or forty-five feet. But in the neighbourhood of New-York and Philadelphia, the white bay can hardly be called a tree, for its usual height is not more than eight or ten feet; at the south, though, it grows to its full size. The trunks of them all are straight and slender, except that of the white bay; and the tops are of a regular and beautiful shape."

"What a pity it is that such beautiful trees should be good for nothing: why can they not make things of the wood, Uncle Philip?"

"Because it is soft, and weak, and does not last long: they make canoes sometimes of the cucumber-trees, and the wood answers very well for that purpose, being so light and buoyant: but boats are a great deal better than canoes, and the wood is not strong enough to make boats of. It is not even good for burning; it gives but little heat, and burns away very fast.'

"And is the bark good for nothing, too? I should like to find the beautiful magnolias made use of for something."

"They may have very excellent uses, and perhaps you may be happy enough to discover some of them when you grow older; all I mean to say is, that no valuable properties have been found in them as yet. I believe that the bark is not good for any thing, but I have been told that in some parts of New-Jersey the people steep the cones of the white bay in whiskey, and drink the infusion as a preventive against fall fevers; they call it bay bitters. But I doubt whether it really answers the purpose or not."

"Now, Uncle Philip, will you please to tell me about the cones, and the little balls hanging down from the side?"

"As I told you before, the little balls are the seeds: the cone is the fruit of the tree, and consists of a great number of little cells; and when the cone is ripe these cells open and let out the seeds, which hang for several days by a white thread, or *filament:* the seeds are something like cherries, being stones covered with a red pulp; but they are not good to eat. The cones of the large and

small magnolias, and of the cucumber and heart-leaved cucumber-tree, are green: the others are of a lovely rose colour. The seeds are bright red."

"And how large are the cones, Uncle Philip?"

"Of different sizes; the cone of the large magnolia is about four inches long, while that of the white bay is seldom more than an inch, or an inch and a half."

"Uncle Philip, why are the cucumber-trees and umbrella-trees called so? what has given them their names?"

"If you were to see the cones of the cucumber-trees, you would know in a moment; they are shaped exactly like young cucumbers. The umbrella-trees have their name from the great size of the leaves, and the curious manner in which they grow. They are often seen eighteen or twenty inches long, and seven or eight wide; and a number of them are frequently found growing at the end of a shoot or stalk, and all standing out different ways, like the spokes of a wheel, so that they display a very large surface; almost as large as an umbrella. The leaves of the large-leaved umbrella-tree are still more enor-

mous ; they have been seen thirty-five inches long, and ten broad. All the magnolias have large leaves, but none of the other kinds have such monsters as the umbrella-trees. They are all ever-green, thick, smooth, and shining, and of a darker colour on the upper side than the under."

"And the flowers are very beautiful, too, are they not, sir ?"

"Yes, exceedingly beautiful ; large, graceful, and delicate, and of a very agreeable smell. The flower of the large magnolia is white, and seven or eight inches wide ; that of the small magnolia is also white, and two or three inches broad, with a yellow centre : of the cucumber-tree, five or six inches wide, and of a delicate bluish white : of the heart-leaved cucumber, yellow, and four inches wide : of the umbrella-tree, white, and seven or eight inches broad : and of the large-leaved umbrella, hugest of all, for they are nine inches in diameter, purely white, with a purple spot on the inside of each petal or leaf, near the bottom ; delicious in perfume, and exceedingly beautiful. Fancy the shining dark green leaves, the brilliant large white flowers thickly scattered all over the tree, and

the rose-coloured cones, with the scarlet seeds hanging from them, and you can scarcely imagine any thing more lovely."

"And yet this beautiful tree is of no use; what a terrible pity it is, Uncle Philip."

"Not so, my dear child; though the magnolia is useless, its beauty pleases the eye, and we have a right to suppose that this was the purpose for which it was created. God has been so good to us as not merely to provide for our wants, but also for our pleasures; for this, He has given perfume to the rose, brilliancy to the diamond, and loveliness to the magnolia; and though we can neither eat the gem or the flower, nor make use of the beautiful tree for any of the purposes to which we apply the oak or the pine, they are not the less gracious and estimable gifts, and they call for our gratitude just as much as the most useful productions of nature."

"Uncle Philip, are there any more trees that have large handsome flowers?"

"Oh yes, several; there are the tulip-tree, and the catalpa, and some of the bays and laurels. There are the loblolly bay, and the franklinia, that in some respects seem to belong to the class of magnolias; but they have

not the cones, and the leaves are notched at the edges, instead of being smooth: and so they have been placed in a distinct class by themselves."

"And do they grow about here, Uncle Philip?"

"No, not unless they are planted; but in the Southern States they grow wild. The loblolly bay is fifty or sixty feet high, and from sixteen to twenty inches in thickness; the trunk is perfectly straight; the wood is rose-coloured, and very fine-grained, but it lasts only a short time, and is therefore of no use, not even for fuel. The bark, though, is good for tanning, and, as the red oaks are scarce in those parts of the country where this tree is most common, the people use a great deal of it in their tan-yards."

"Oh, I am so glad, Uncle Philip; I am glad to find one of the beautiful trees useful for something. Is it as handsome as the other magnolias?"

"Very nearly: the leaves are ever-green, smooth, and shining on the upper side, and whitish below: and the flowers are white and very sweet-scented. The fruit is small, and oval in shape, divided into five cells, which

contain little black seeds. The franklinia is very much like the loblolly bay, only a great deal smaller; it generally grows to about thirty feet high, and the trunk is six or eight inches thick. The flower is white, and very sweet-smelling, and consists of five leaves, with a yellow spot in the centre as large as a shilling. The fruit is something like a hazel-nut, only not so hard; and it has five seams at the top, that open when it is ripe, and let out the seeds, which are very small. All these trees are ever-greens. Do you know what is meant by an ever-green?"

"Oh yes, Uncle Philip; a tree that has green leaves in winter as well as summer: the leaves do not fall off or change their colour when the cold weather comes; the laurel is an ever-green, and so is the box that grows in the gardens."

"Very true; and now, as I have been telling you about ever-greens, there are two others that I will describe to you, although they do not belong to the magnolias, and in fact can hardly be called trees at all, for they seldom grow more than ten or eleven feet high.

"It is the laurel that you mentioned just

now, as one of the ever-greens; you know the colour and shape of the leaves, of course, but I suppose you have never seen the flowers; they are of a delicate purple colour, and curiously shaped. Some call it the ivy, and some the calico-tree; but the general name is the mountain-laurel."

"And that is the best name, too, Uncle Philip; for you hardly ever see it except upon hills and mountains."

"Very true; and in those parts of the country where the lands are all low, it is not to be seen at all. It is very abundant in New-Jersey, more especially on the high grounds about Weehawk, and all the way up the North River, wherever the land is rocky and mountainous, and the whole chain of the Alleghany Mountains is covered with it; but it disappears in those parts of the Southern States where the rivers enter the low country."

"It is a beautiful little tree, Uncle Philip, even without the flowers; but very troublesome to get through."

"Yes, the branches and trunks get so twisted and locked together, that it is almost impossible to make way through them at all:

and, as you say, the bright green leaves with which the branches are covered appear very beautiful at a short distance; but when the flowers are all in full bloom, there is no shrub more lovely. The leaves and berries are poisonous, and you must be very careful never to eat them."

"I suppose the wood is too small to be good for any thing."

"No, it is not; for you must know that in North Carolina the laurels grow larger than they do in this neighbourhood: the trunks there are often three inches thick, and sometimes more; and the wood is so good, that a great deal of it is used for small boxes and screws, and the handles of small tools, and musical instruments, such as flutes and clarionets, and for carpenters' rulers, and scales. It is very like boxwood."

"Uncle Philip, what is the other ever-green you said you would tell us of? Is it as beautiful as the laurel?"

"Perhaps you would think it more beautiful, if you were to see it; and that you may do very easily in the spring, for it is almost as common as the laurel: in the swamps of New-Jersey opposite New-York, on Long

Island, and, indeed, in almost every part of the Middle States, it is very abundant; that is, wherever there are mountains, for it does not love low grounds. It is also a species of laurel, and the name of it is the dwarf-rose bay. The flowers are much larger than those of the mountain-laurel, and shaped something like a star-fish: of a deep rose-colour, with yellow dots on the inside; sometimes they are perfectly white, but not often. It grows generally about ten feet high; but trees are occasionally seen measuring eighteen or twenty, and four or five inches thick. I have not a picture to show you, but it is so beautiful, with its green leaves and red flowers, that it is worth taking a walk into the woods in spring, just to look at it. The wood is not as good as the laurel, and no use is made of it that I know of."

"Uncle Philip, is there no other laurel than the two you have just told us of? I have heard that the sassafras is one of the same kind of trees."

"So it is; and there is another still, called the red bay. The sassafras, as you know, I suppose, is a fine tall tree, forty or fifty feet high, and more than that even, in some parts

of the Southern States.—It is very common all over the country, except in the mountainous districts; and it is as useful as it is common. The leaves are four or five inches long, and of different shapes on the same tree; some you will find oval, with plain even edges; some divided into three parts by deep notches in the edges; and some with only one notch. The flowers are greenish yellow, small, and grow in little clusters. The fruit or seed is a small oval berry of a deep blue, contained in a bright red cup; the birds are very fond of them, and they soon strip the trees. The bark of the young branches is of a beautiful green, but that of the trunk is gray and full of deep cracks. The wood is not at all strong, and is of a reddish colour; but it rots very slowly and is not attacked by worms, and for that reason makes very good posts and rails for fences; and it is said that bugs are never found in bedsteads made of it. But it is as a medicine that the sassafras is most prized; you know what a pleasant smell it has, and I dare say you have tasted the bark; oil is made from the bark of the roots, and from the flowers a tea is made which is thought

to be good for purifying the blood; and in Louisiana the leaves are boiled in soup to thicken it, and give it a pleasant flavour. In Virginia too, the people make beer from the young shoots, which they like very much: it is made in the same way as the spruce beer.

"The red bay is the largest of all the laurels; it is only found in Virginia and the States still farther south, where it grows from sixty to eighty feet high. The flowers are quite small and not beautiful, and the fruit or seed is like that of the sassafras. The wood is strong, fine grained and of a lovely rose colour, and it takes a brilliant polish. It was formerly very much used for furniture, but mahogany is preferred now; it is mostly employed in ship-building, being both strong and durable. There is another species of laurel that is of more value than any of those I have mentioned, but it only grows in the East Indies; it is almost exactly like the red bay in appearance, except that the berries are purple; and its worth is in the gum that is got from the roots; this gum is the camphire that we buy from the druggists."

"And will not that laurel grow in this country?"

"I should think it would, from its being so much like the red bay; and I dare say it will be introduced and cultivated in Florida, and the Carolinas and Georgia, by-and-by. Now, my children, I believe we have done with the magnolias and laurels."

"Uncle Philip, I saw a curious tree once at Oyster Bay in Long Island, that had a very beautiful large flower, and a cone somewhat like the cones of the magnolias; but they called it a tulip-tree; I believe there was only that one anywhere about Oyster Bay, at least so they told me."

"Oh, I know what you mean; the flowers are very large, with yellow and red leaves, and a sort of spike in the middle. Some people call it white wood, and many give it the name of poplar; but tulip-tree is the most proper name, as the flower is something like a tulip, and there is a different tree that is always called poplar.

"The tulip-tree grows to a magnificent size; it is found in most parts of the Middle States, and still more abundantly at the west.

In New-York and Pennsylvania, it has been seen seventy and eighty and even one hundred feet high, and three or three and a half thick; but in Kentucky it grows sometimes as high as one hundred and forty feet, with a trunk six or seven feet thick, and as straight as an arrow."

"Well, that is a very great size to be sure; now if it is only as useful as it is large and handsome, that it is something worth talking about. I suppose it must be the largest of all trees."

"Oh no; the button-wood or button-ball as you call it, is still larger, but we will talk about that by-and-by. The wood is yellow, and fine grained, and it takes a very good polish; and besides this, it is strong enough for almost any use that can be made of it. The heart or perfect wood, when well seasoned lasts a long time, and is never attacked by worms, and for this reason it makes very excellent house timber, and for rafters and roof pieces it is better than oak, being equally solid and durable, and much lighter. In some parts of the country, where pine wood is scarce, boards for the outside of houses are made of the tulip-tree, but it is not as good for this use as

the pine and cedar, because it is apt to warp and bend when exposed to the changes of weather. In Ohio and Kentucky, shingles are made of it; and great quantities of the wood are used all over the country for the panels of carriages. It is much employed too in making chairs and bedsteads and trunks. The Indians used to make their canoes of the tulip-trees in preference to any other, partly on account of their size, and partly because the wood was so easy to work, and lasted so long. In short it is excellent for all kinds of use except ship-building and such others as require solid and heavy timber; and it makes capital charcoal too."

"And is the bark good for tanning or any thing, Uncle Philip? If it is, I shall think the tulip-tree almost as useful as the oak."

"No, it is not used in tanning; but an infusion of it in brandy is thought to make a good medicine, in some parts of the country; and it is given to horses in powder to cure them of worms. Some physicians have given it as their opinion that the bark has the same properties as the Peruvian; but I believe that it has never come into general use as a medicine."

"Uncle Philip, where can I see a tulip-tree? I should like to look at the flowers very much, and at the tree too; I love large trees."

"You may see the flowers in market during the spring; or if you will go into the woods almost anywhere, you will be sure to find some of the trees, for it is quite common all over the United States, except at the East. But you must not expect to find it as large about here as it is near the great rivers of the West.

"But if you admire the size of the tulip-tree so much, what do you think of the majestic sycamore, or button-ball, as most people call it in this part of the country; the largest and loftiest tree that grows in the United States. Very often it may be seen on the banks of the Ohio and Mississippi with a trunk seven feet thick, and sixty or seventy high, perfectly free from branches, which then tower up fifty, sixty, and even eighty feet higher, making the whole tree from a hundred and twenty to a hundred and fifty feet high."

"Uncle Philip, what is the reason that trees always grow larger in the Western States

than they do anywhere else? All the large trees you have mentioned except the magnolias, seem to come to their greatest size on the banks of the Ohio and Mississippi."

"The principal reason is the great fertility of the soil in that part of the country; greater perhaps than in any other part of the world; the climate too is favourable; and another reason is, that until very lately, the country was very thinly inhabited, and the trees were left to grow as long as they could; in the more settled States trees are cut down as soon as they are large enough to be made use of; but there they were suffered to stand till they fell by their own decay."

"And do the sycamores grow a long time then, Uncle Philip?"

"Yes, they are a long-lived tree, although not so much so as the oak. A few years ago there was on a little island in the Ohio one which was measured by General Washington when he was a young man, and then it was forty feet in circumference or thirteen feet thick, at the height of five feet from the ground; General Washington was born in 1732, and therefore, it must be fifty or sixty years since he measured the tree, and when I saw it, ten

years ago, it was very little decayed, and no larger than he found it. There was another about thirty-five miles from Marietta in Ohio, that was forty-seven feet in circumference; and I saw one about fifteen years ago, on the banks of the Mohawk, not far from Utica, that was famous all over the country; it was called the big button-ball, and it took eight men, with their hands joined, and their arms stretched out as far as they could be, to encircle the trunk. A part of the hollow trunk of this tree was exhibited at one of the museums in New-York last summer."

"Oh, then I saw it, Uncle Philip; it had a carpet in it, and chairs, and a table, and it made quite a nice little room."

"But even these, huge as they are, do not equal a famous tree, something like a sycamore, that grew in Asia, and is mentioned by Pliny, one of the ancient writers. He says that one of the Roman generals, with eighteen of his attendants, found a retreat for the night in the hollow trunk of this monstrous tree, and that the inside of the cavity was seventy-five feet in circumference. Can you tell me why the sycamore is so often called button-ball?"

"Oh yes, Uncle Philip; from the number of little balls that grow on it, and which are shaped very much like a bell-button."

"And do you know what those balls are, and what they are good for? I suppose not. Well then you must know, they are the fruit of the tree, and contain the seeds. You have seen that they are about an inch in diameter, and that in the course of the autumn they fall from the tree, and break into a great number of little tufts or feathers, which are scattered about by the winds; each of these little tufts is a seed, and it is in this way that the trees are planted and spread about over the country."

"Is the wood good for any thing, Uncle Philip? I suspect not, though, for I have heard father say that it was a pity such a fine large tree should be so little useful."

"The wood is handsome and polishes well, but the cabinet-makers find fault with it, on account of its being so liable to warp; and it decays very rapidly too when exposed to the weather. It lasts a long time under ground, however, and therefore I should think it would be good for such timbers of houses, as are used in cellars; but there are

so many other woods that are more durable, that very little use is made of the sycamore, and it is chiefly cultivated for the beauty of its appearance; the foliage is very rich, and abundant, and the leaves are not as much devoured by caterpillars as those of most of the ornamental trees, and for this reason it is much esteemed in Europe, for parks and gardens. The Indians make their largest canoes of the trunks, and I have read of one that was seen some years ago, on one of the Western rivers, that was sixty-five feet long, and carried nine thousand pounds weight of cargo, made from a single tree.

"I have three or four trees yet to tell you of that do not belong to classes, but stand alone by themselves, and are besides of but little use in commerce or manufactures; and when we have done with these, we shall take up those of greater utility. And, first, there is the papaw."

"The papaw, Uncle Philip! does that grow in this country? I have read of it in Robinson Crusoe, and in some other books; and I thought it was found in the West Indies, and in South America, and other places a long way off."

"So it is, my dear; but it grows in this

country too, in Kentucky and Tennessee, and other parts of the Western States, and in some parts of Virginia: but it is not very common, and grows only in the most fertile soils. It is a very small tree, seldom growing more than fifteen or twenty feet high. The flowers are dark purple, and the fruit is yellowish, about three inches long, and of an irregular shape, somewhat like a sweet potato. It is soft and insipid, and not very good to eat: the children gather it in the woods, but it is never brought to market. The wood is entirely useless, and the inner bark and the roots have a very strong disagreeable smell. It is cultivated in Europe solely on account of its flowers and leaves, which give it a handsome appearance. The seed is a stone not much unlike that of the date.

"The next is the sweet gum, which is very plentiful all over the country. You know it, I dare say, by the fruit, which is a sort of prickly ball, about an inch in diameter, and of a reddish brown colour."

"Oh yes, Uncle Philip; I have seen thousands of them at Hoboken; the ground is covered with them in the fall. But I did not

know what tree they came from before. Why is it called sweet gum, Uncle Philip?"

"If you had ever examined the tree in warm weather, you would know without asking; by cutting through the bark into the sap, you will find a sweet smelling liquor oozing out, which hardens into a transparent gum when exposed to the air, and the same substance is found on the leaves."

"And is this gum good for any thing, Uncle Philip? Is it like the gum arabic that I have seen at the druggists?"

"I dare say it has the same properties; but the quantity that can be got from a tree is so very small that it is not worth the trouble of collecting it. The wood is strong and tough, and if properly seasoned, lasts longer than the red oak, but it is not much used; cabinet-makers sometimes employ it, but they prefer the black walnut, and the wild cherry. In New-York, it is often made into coffins. If you will examine one of the prickly balls that grow on the tree, you will find that it is formed of a great number of little cells, each of which contains a small black seed, with a sort of wing attached to it. At the close of

the summer, these cells open and let out the seeds, which are scattered about by the wind, and so the trees are spread all over the country. The leaves are very handsome, and shaped somewhat like a star, with one of its points wanting. The tree generally grows thirty or forty feet high, and it is found in great abundance in every part of the United States.

"Another beautiful Southern tree is the catalpa, that grows plentifully in the Carolinas and Georgia: its height is about fifty feet; the bark is smooth, and of a silver gray colour; the leaves are very large, and shaped like a heart; and the flowers are showy and handsome, white with yellow and violet spots, and something like the sweet-pea, only more beautiful. You have seen the pods, I dare say, for there are several of the trees about this neighbourhood, and in New-York they are quite numerous."

"What, is that the catalpa, with long round slender pods, like beans, hanging down from the branches, more than a foot long? They are of a deep dusky red, and not so big as your finger. Is that the catalpa?"

"I suppose it is, my dear, from your description; but I could tell better if you had noticed the leaves."

"Uncle Philip, I have heard that the honey made by bees that suck the flowers of the catalpa is poisonous. Is that true, sir?"

"Indeed, my dear, I do not know; it is very certain that honey does sometimes produce unpleasant effects on those who eat it, but whether this is owing to the flowers or not I am not able to say, but I think it is very likely. The wood of the catalpa is white, very light, and of a fine texture, and when it is polished, very brilliant and beautiful. When it is perfectly seasoned it lasts a long time, and for this reason it makes good posts for fences; but it is not much used, and the trees are chiefly cultivated for the sake of their flowers and foliage. In the Southern States, the catalpa is a very great favourite."

"Uncle Philip, I want to ask you a question, if you please."

"Well, my boy, what is it? I will answer it if I can."

"I want to know, then, why you have not told us about any of the fruit trees. You have described a great many that are

useful, and some that are beautiful: but you have said nothing about cherries, or peaches, or pears, or apples: and yet they all grow in the United States, do they not?"

"Very true, my dear boy; but I only undertook to describe to you such trees as grow naturally, that is without being cultivated, or planted by men. Now there are but few wild fruit trees to be found in this country; all the varieties of apples have been produced by cultivation from one or two species; and so of the cherries and plums; peaches, I believe, are not natives of this country at all; and indeed the changes that have been produced in all the fruit trees, by the skill and attention of men, are so great, that it is almost impossible to say what the original stock is. Did you ever see a crab apple?"

"Yes, Uncle Philip; it is a small tree, not larger than a peach-tree, and the apples are always green and very sour."

"Yes, but the flowers are beautiful, and have a most delightful perfume. Well, that is the only wild apple that grows in the United States; and all the other kinds, and there are several hundreds, are but artificial varieties. You have seen the flowers, I dare say."

"Oh yes, they are white and rose coloured, and when the trees are in blossom you can smell them a long way."

"And did you ever taste the leaves when they were young?"

"No, sir."

"If you had, you would have found them bitter, but not unpleasant; some people make tea of them, when they cannot get better. The apples, you know, make the best cider."

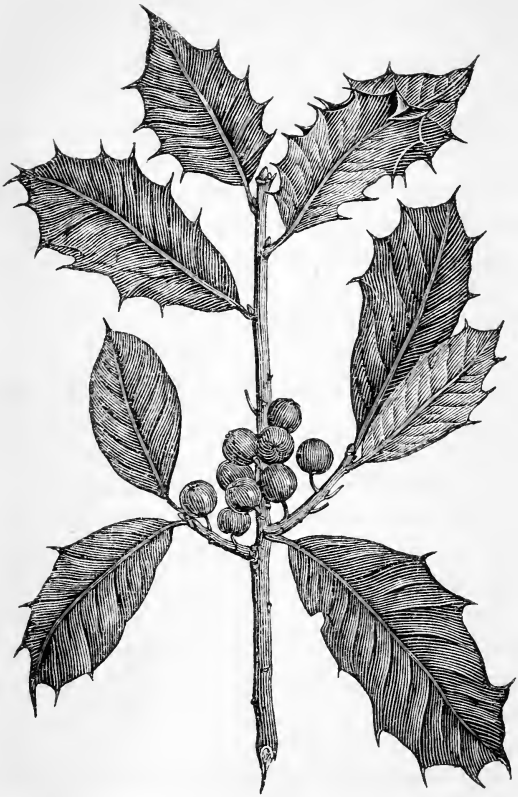
"Yes, and capital sweetmeats too; but they take a great deal of sugar, they are so very sour."

"There is another wild fruit tree, that I suspect you have never seen, for it grows principally among the Alleghany Mountains, although it is sometimes found in swamps near Philadelphia and New-York. Its common name is the June berry; its height is from twenty to thirty feet; the leaves are small, and when they are young they are covered with a thick, silvery down, that gives them a beautiful shining appearance; but this disappears as they grow older. The flowers are small and white, and the fruit is reddish purple, very sweet, and not larger than a pea: it looks somewhat like a very small cherry, but

there is no stone in it; and the substance is more like that of an apple."

"Oh, I should like to have some of those trees, Uncle Philip; the berries must be very good to eat."

"They are not near as good as a cherry, and besides, you could never get more than half a pound from each tree; so you see they would hardly be worth the trouble of gathering. The wood is of no use except for burning, and not particularly good even for that."



Leaves and Berries of the American Holly.

CONVERSATION V.

Uncle Philip's Visiters learn how to make Canoes of Birch-bark; and how to make Birdlime; and the Uses of Oil, and the Olive-tree. Uncle Philip gives them a short Lesson in Political Economy.

"WELL, my little utilitarians, I think you will be pleased with the class of trees that we shall talk about this morning. But I suppose you hardly know what I mean by utilitarians: it is a name given to people who think a great deal about the usefulness of things, and who are always studying, and contriving how to employ them for their best purposes. So I call you utilitarians, because you seem to be so fond of the useful trees."

"And what are you going to tell us about now, Uncle Philip?"

"The birches; one of the most serviceable of all the different kinds of trees that grow in this country."

"We are always learning something from you, Uncle Philip; I did not know that there were more than one sort of birch."

"There are, though, seven; but I shall only describe five of them to you, because the other two are so small that they cannot be called trees; they are, in fact, nothing but shrubs. Four of these five sorts are distinguished from each other by the colour of their bark, or of the wood: they are called the white, the red, the yellow, and the black birch. The other is called the canoe birch, from one of the important uses made of the bark."

"Uncle Philip, I have read of bark canoes, made by the Indians; and I suppose it is birch bark they are made of, for I know it is very tough and strong."

"Yes, birch bark is different from almost every other; the bark of most trees is brittle and weak, and breaks very easily; but birch bark is a great deal like leather, and will bear a great force without giving way. It comes off in large pieces; indeed, you might take off the whole bark, with a little care. Did you ever notice the seed or fruit of a birch?"

"Yes, sir, I have; it is a long slender sort

of berry, somewhat like a mulberry, hanging down from the branches; those I have seen were about an inch long, and as big round as my little finger, and of a very light green colour."

"The kind you saw was a white birch, then, or a canoe birch; the seeds of the other kinds are somewhat different: but you are wrong in calling them berries; they are more like the cones of the magnolia, only that they are so much smaller; and they are covered with little scales. The leaves are notched at the edges, like the teeth of a saw, very smooth, and dark green. The canoe birch generally grows sixty or seventy feet high, and the trunk is about three feet thick. The heart, when cut open, is dark red, and the rest of the wood perfectly white; it is strong, but rots very soon when exposed to changes of weather, and therefore is not much used: but it is sometimes found elegantly shaded and veined, and then it is used for cabinet-work, and for inlaying mahogany."

"Birch wood burns well, Uncle Philip."

"Yes, it makes very good fuel, and great quantities of it are consumed in this way. But its great value lies in the bark. This, as

I have already told you, is exceedingly tough, and strong, and flexible, and the Canadians say it lasts for ever; not that it does actually last for ever, for nothing that exists in this world can do that; but to whatever use it is put, it lasts for a long time; and I do not know of any other substance so cheap, so plentiful, and so easily procured in those parts of the country where it is used, that would answer as many purposes, and as well. When the trees are small, that is, not more than eight or nine inches thick, the bark is of a brilliant white; but on the larger trees, it has more of a dusky hue: and it is so durable that trees are often found lying upon the ground that have fallen or been cut down so long that the wood is perfectly rotten, and yet the bark is as sound as ever. The uses to which it is put are almost innumerable: in Canada they place large pieces of it on the roofs of houses immediately under the shingles; and they say that it makes the most perfect and impenetrable covering; not a drop of rain can come in: they also make of it baskets, and boxes, and portfolios, and ropes, and harness, and seats for chairs, and even car-

pets; you have seen the neat little Indian baskets, I dare say."

"Yes; but, Uncle Philip, they were not white, but a sort of yellowish red; and you told us the bark was white."

"Ay, and so it is white on the tree; but it changes its colour when it is stripped off and exposed for some time to the air: the outer bark makes very good paper."

"Paper, Uncle Philip!"

"Yes, paper: it is split into thin sheets, and I can assure you that when there is no better to be had, birch-bark paper is by no means a bad thing to write on; but, after all, its greatest and best use is for making canoes. You must know that great numbers of Canadians are employed in making journeys and voyages far into the interior of the country, to trade with the Indians for furs and skins; and these journeys are made upon the great rivers by means of canoes."

"But why do they not use boats, Uncle Philip?"

"Because there are many places in the journeys where the *voyageurs*, as they are called, have to cross from one river to another by land, or to avoid rapids; and then they

are obliged to carry all their baggage upon their backs, and their canoes, too, which they can easily do, because they are so light: a canoe large enough for four persons, weighs only forty or fifty pounds; but a boat of the same size would weigh more than twice as much; and besides, the canoes are not as liable to injury as boats, and if they are injured it is more easy to mend them."

"Uncle Philip, how do they make the canoes?"

"Why, in the first place, you know, they must have large pieces of bark: to get these they cut through the bark round the tree in two places ten or twelve feet apart, and then make an upright slit from one to the other; then they peel off the bark with the help of a wooden wedge, and so they get off the whole sheet without much trouble: these sheets are generally ten or twelve feet long, and two and a half wide; then they set up the frame of the canoe, and stitch the sheets together over it very strongly with roots of the white spruce, which are tough and flexible like twine, after they have been split and soaked in water: then they cover over the seams with the resinous gum of the balm of Gilead

or the pitch-pine, place seats in the inside, and the canoe is complete, and ready to make a voyage."

"And how large do they make them, Uncle Philip?"

"Sometimes large enough to carry fifteen passengers with their baggage."

"Well, Uncle Philip, I think that is a very good way to make a boat, and a very cheap way, too; a man wants nothing but a hatchet, and a large needle, and some sort of a brush to put on the gum with. Does the canoe birch grow all over the country, Uncle Philip?"

"No; it seems to be almost confined to the northern portion of the continent; it is very plentiful in Canada, and is found in considerable quantities in Vermont, and New-Hampshire, and Maine: farther south it is quite rare.

"The white birch is more common as far south as New-York and Pennsylvania, but is never found in the Southern States; it is not very abundant, however, anywhere. It is much smaller than the canoe birch, and the wood decays much faster and sooner: it is seldom or never used, not even for burning:

the bark is much like that of the canoe birch, but it cannot be split into thin plates like that, and of course, from the smallness of the tree, such large sheets can never be got from it; in other respects these two kinds are very much alike.

"The red birch, again, is still more of a southern tree; it is seldom found north of New-Jersey, and in Maryland, Virginia, the Carolinas, and Georgia, it is quite common. It grows as large as the canoe birch; the leaves are of a lighter green, and the fruit has more of a reddish cast."

"Ah, that is why they call it red birch, then, I suppose?"

"No; it has its name from the outer bark, which is quite red, and not white, like that of the canoe birch; it is much coarser, too, and rougher: the inner bark is thick, rough, and of a greenish colour."

"And can they make canoes and things of it, Uncle Philip?"

"No, it is neither so flexible, nor so tough as that of the canoe birch. The wood is better, however; it is white, with fine red streaks running through it lengthwise. In Virginia and Carolina they make bowls and

trays of it; the saplings and small branches are good for making hoops, and great quantities of the twigs are used in the manufacture of birch brooms, for sweeping streets, and yards, and such places; you have seen them, I dare say, for sale in the shops. The twigs of the other kinds of birch are too brittle for brooms.

"The yellow birch, like the canoe birch, is confined to the northern parts of the continent of North America, and it is probably the most beautiful of all the varieties. It grows sixty or seventy feet high, with a perfectly straight trunk, on which no branches appear lower than thirty or forty feet from the ground. The outer bark, or epidermis, is of a bright golden yellow, and it frequently divides itself into fine strips, which are rolled backwards at the ends, and stick to the inner bark at the middle: the leaves and the bark have a very pleasant smell: the fruit is light brown, and oval-shaped: the wood is better than that of all the other kinds, except the black; it is strong, dark-coloured, and when polished makes handsome furniture. In Nova Scotia and Maine it is a great deal used for ship timber, and for the runners of sledges; the

saplings are made into hoops; and besides this, great quantities of it are consumed as fuel. The bark is highly esteemed for tanning.

"But of all the birches, that which supplies the best wood is the black. In some places it is called cherry birch, and in others mountain mahogany, but black birch is the most common name. It is found in the Northern or Eastern States, but abounds most in the Middle, particularly in New-York and Pennsylvania. The leaves are very much like those of the cherry-tree; when bruised, they give out a sweet and agreeable smell, and retain this property when they are dried. The bark of the young trees is smooth, grayish, and in other respects exactly like that of the cherry; when the trees are old, the outer bark cracks into plates six or eight inches wide.

"The wood, when first cut, is rose-coloured, but it soon becomes quite dark: the grain is fine and close, and it takes a remarkably brilliant polish; it is very strong, too; and cabinet-makers in the country esteem it next to the wood of the wild cherry. Tables, and bedsteads, and other furniture made of it, in

time get to look much like mahogany, if they are taken good care of; and it is therefore used in the manufacture of chairs, and sofas, and coach panels, and various kinds of furniture. The bark is not made use of in any way that I know, but I believe that it might be used in tanning.

"There are two more uses of birch-trees of which I must tell you, and then we shall have done with them. The sap, which is very abundant in all the kinds, can be boiled into a sirup, that is sweet, rich, and pleasant, although it will not turn into sugar. By adding yest a good sort of beer may be made of this sap, and by letting it stand in the sun, it turns into vinegar. The other use is not quite so pleasant to boys, but it does them a great deal of good sometimes. Can you guess what I mean?"

"Is it for medicine, Uncle Philip?"

"Why, yes, a sort of medicine; it is given when boys are naughty, not when they are ill."

"Oh, I know what you mean now, Uncle Philip; it is for rods, to whip naughty boys with."

"Yes; the twigs of the red birch make

very good whips for idlers, and truants, and mischievous children; but I hope you are too good ever to have them applied to you."

"Uncle Philip, I have sometimes found in the woods just such little things as grow on the birch-trees, about as long as my little finger and as big round as a quill, hanging from the ends of the branches of a very small tree, not so high as a peach-tree; but I do not think it was a birch, for the leaves were a great deal larger."

"I suppose it was the alder; one of the smallest trees that grow in this country There are two sorts, the common alder and the black; but the black alder is scarcely ever found except in Massachusetts and Vermont, and even there it is not at all common. The other kind grows all over the United States. The black alder is sometimes found as many as eighteen or twenty feet high, and three inches thick. The bark is the only part that is made use of; it makes a black die, that is used by hatters. There is an alder that grows in Europe which is much larger; sometimes fifty feet high, and the wood is a great deal used: but this kind has never been found in the United States. It will probably

be cultivated here at some future time, for it is thought a great deal of in England and France."

"Oh, I hope not, Uncle Philip; I hope we shall never go to other countries for trees, when we have so many, and such fine ones, of our own."

"Now, my dear, that is a very foolish notion of yours; why should we not seek for good things wherever they are to be found? Suppose the people of other countries should think the same way, and refuse to come to us for our cotton, and wheat, and our oak staves, and all the other things that are cultivated or made in this country on purpose to be sold to other countries; would not that be a great loss to our farmers? Now I am always glad to see the blessings which God has sent into the world distributed among all countries, and enjoyed by all people: we have given to Europe one of the most valuable trees in the world, and it is but right that we should get from it any that may be wanting here."

"What tree is that, Uncle Philip, that we have given to Europe?"

"The locust; as I have already said, one of the most valuable of all the trees."

"It is not as useful as the oak, is it, sir?"

"No; that is, it is not applied to as many purposes; but it has a great many merits. It grows all over the United States, except in the northern parts; but the largest trees are found in the fertile lands of the Western States, where they are often seen eighty feet high, and four feet thick: in this neighbourhood, you know, it never attains half that size. There are five kinds of locust, but I suppose you have never seen any except what is called the sweet or honey locust, which is common enough all about here."

"Oh yes, we know that kind very well, Uncle Philip; it has small leaves, and long sharp thorns, and small white flowers that are very sweet; and after the flowers are gone, the tree bears long flat pods, like pea-pods, only a great deal longer and wider, and of a dark red colour, almost black; and these pods have little brown beans in them, that are almost as hard as stone."

"And is there nothing else peculiar about it? What is it that gives it its name?"

"Oh, the honey that grows in the pod."

"Very true; the most common of all the kinds is called simply the locust; and it is

very much like the sweet locust in all the particulars you have mentioned, except that the pods are not near as large, and the flowers are both larger, and have a stronger perfume. The thorns, too, are only found on the young trees; when they grow older the thorns all fall off. The wood is yellow, with a very slight tinge of green; and it is for the excellence of the wood that the locust is so much valued. There are but very few kinds that will last as long without rotting."

"And is it strong, too?"

"Yes, very strong and compact; and it can be polished, and made to look very beautiful."

"And what is it used for, Uncle Philip?"

"Where it is very plentiful, it is a great deal used for fencing-stuff; posts that have been well seasoned before they are set in the ground will last forty years; and they are so much esteemed that they sell for as many as forty and fifty cents apiece. Shipwrights are very fond of locust-wood, too; it is as durable as the live oak, although not quite as strong; but then it is lighter, which is an advantage. They use it for the frame timbers, and also for the *trunnels*, or pins that the

planks are fastened to the frame with; the older these trunnels are, the harder they get. It is used, too, in houses; but it is too good and too costly to be much employed for house-timber. Turners make great use of it in making boxes, and salad-forks, and other small articles for housekeeping.

"Another great excellence of the locust is, that it grows so rapidly; more than twice as fast as the oak. It is very hardy, too, and will grow in almost any climate; but it thrives most in warm countries.

"The rose-flowering locust is one of the five varieties which I mentioned; it is very similar to the locust, except that it is never found more than half as large; that the flowers are of a beautiful rose-colour, and have no smell; and that the leaves are considerably larger: the pods are of the same size with those of the locust, but they are covered with a sort of hair or furze. The wood is equally good, but it is so small that little use can be made of it as timber, and the tree is chiefly admired and cultivated as an ornament to gardens and plantations. It grows wild only in the mountainous parts of the Carolinas and Georgia.

"There is another species of locust, that is always called yellow-wood in Tennessee, where it is found. It is a small tree, seldom growing more than thirty feet high: it differs from the locust in the bark, which is smooth, whereas that of all the other kinds is quite rough, and in the leaves, which are a great deal larger. The flowers are like those of the locust, but not as sweet-smelling, and they hang in large elegant bunches. The heart of the tree is of a brilliant yellow, and it gives its colour to water; but as yet no use has been made of it in dying, because the stain is not permanent: perhaps somebody will find out a way of preventing it from fading or washing out.

"The sweet locust, or honey locust, as I have told you already, is much like the locust in size, and in some other particulars. It differs from it in the bark, in the form of the trunk, which almost always appears twisted, and in the quality of the wood, which is coarser-grained, and neither so strong nor so lasting. But the greatest difference is in the honey contained in the pods, and in the enormous size of the pods themselves. How large were those you have seen?"

"Oh, very large, Uncle Philip; some of them more than a foot long."

"Yes; and none of the other kinds have pods more than three or four inches long: and the pods of the water locust, which is the last, are still smaller and of a different shape, too, for they are almost as broad as they are long; they grow together in bunches, and each pod has in it but one seed, whereas all the other kinds have three or four seeds in each pod."

"Does it grow in the water, Uncle Philip?"

"Yes; it is never found except in swamps, where the soil is constantly wet, and often overflowed when the waters rise in the rivers. It grows fifty or sixty feet high, and a foot and a half or two feet in diameter. The bark of the young trees is smooth, but on the old ones it is cracked like the bark of the oak. The branches are armed with thorns, but they are not as long as those of the honey locust: the leaves are almost the same: the flowers are quite small, and green: the wood is very inferior, and no use is made of it, I believe.

"Now, my dears, here is a picture for you to look at; notice the prickly leaves, with

little sharp hooks growing out of the edges, and the brilliant red berries: can any of you tell me what tree they belong to?" (See p. 116.)

"I know, Uncle Philip; it is the holly: I have seen it at cousin Mary's, over on Long Island, when I went there for the Christmas holydays: they dressed up the church with it."

"Yes, I know that is often done; it is an evergreen, and one of the most beautiful too; the leaves are so bright, and the berries so red. In England they always use it at Christmas, to dress up the churches and houses: in this part of the country it is not as common as it is in the Southern States; but I have seen great quantities of it in New-Jersey, and it is spreading more to the north. It generally grows to the height of thirty or forty feet; the flowers are white, and not remarkable either for size or beauty: the wood is fine, compact, and heavy, and very brilliant when polished: it is naturally of a brown colour, but it is generally died black for cabinet-makers' use; they employ it for inlaying mahogany. Turners use it for making screws, and for small boxes of superior finish

and quality. It is very good for making the wheels of pulleys, and ship blocks; but lignumvitæ is still better. The holly is much used by engravers on wood, too, for the blocks on which they cut their engravings."

"Do you know what bird-lime is?"

"I never saw any, Uncle Philip, but I have read about it; it is a sort of sticky paste, I believe, that they use in England, and some other places, to catch birds with, alive. They smear it over the branches of the trees, and when the birds alight on them, they stick fast, and cannot fly away."

"Very true; well, the best bird-lime is made of the inner bark of the holly; it is first pounded into a paste, and then left in a cellar, or some cool place, to ferment: after it has fermented, the paste is washed, to clear it from the fibres, and then mixed with a little sweet oil, and kept in tight bottles or pots till it is wanted for use."

"Uncle Philip, are the berries as good to eat as they are pretty to look at?"

"No, by no means; on the contrary, they have some medicinal properties: but there are so many other medicines that are more easy to take, and much more certain and safe

in their operation, that they are very seldom made use of, except to ornament churches and rooms at Christmas. In England, hedges are very often made of a small kind of holly, and very beautiful they are too."

"What are hedges, Uncle Philip?"

"Fences made of small trees and shrubs planted close together in lines; they are not much used in this country, but why, I am sure I do not know, for they are much more handsome than fences either of stone or wood, and they last longer, too, and keep cattle out better."

"Perhaps it is because they take a long time to grow high enough, Uncle Philip."

"Perhaps it is; but whatever the reason may be, I should be very glad to see the fashion of making hedges introduced: in England you will see twenty hedges to one fence; and they add very much to the appearance of the country. You have eaten sorrel, I dare say, very often."

"Yes, sir; it is very sour and nice."

"And did you ever meet with a tree with leaves that tasted exactly like sorrel?"

"No Uncle Philip; I never heard of any

such tree. Does it grow anywhere about here?"

"No, I believe not; at least I never met with it anywhere except in the Southern States, beginning at Virginia and ending in Georgia. It is sometimes found of a good size; forty or fifty feet high, and a foot and a half in diameter; but in general it is so small that it cannot properly be called any thing more than a shrub. The flowers are small and white, and grow in long strings; collected in bunches they look very pretty. The wood is perfectly useless, but the sour leaves are sometimes used in dying, when better materials cannot be had: they yield a good black."

"Uncle Philip, it seems very strange to me that things of so many different tastes and colours should all grow out of the same ground; some are sweet, and some sour, and some bitter; some have red flowers, and others white; I have heard and read that trees and plants are nourished by the moisture that they get from the ground; but this moisture must be the same, I suppose, everywhere, and I cannot imagine how it turns into so many different things."

"Neither can I, my dear, nor any one else;

this is one of the wonders of God's providence, that can never be understood or found out by the wisdom of man. Curious and astonishing it is, to be sure, and so is every thing around us; the wisest man that ever lived knew no more about such wonders than you; and it is a good lesson for people who are proud and vain of their learning, to know that the growth of even so little a thing as a blade of grass, is just as much beyond their comprehension as the motions of the sun and the stars, or the secrets that lie hid in the very lowest depths of the ocean, are beyond the capacity of a child."

"Uncle Philip, when you told us about the walnuts, I thought it very strange that the sap of a tree should ever turn to oil; but now when I think of it, I see that there is nothing more strange in this than in any thing else about trees."

"Very true, my dear. But I suppose you know that the walnuts are not the only trees that produce oil; you have tasted sweet oil, I dare say, or at least you have seen it used for salad."

"Oh yes, Uncle Philip; but sweet oil does not come from a tree, does it, sir?"

"Yes, but it does—from the olive; and a

most valuable tree it is too. In France, and Spain, and Italy, where the finest olives are found, it is considered the first among trees, the pride of the forest; and yet it is by no means remarkable for beauty; on the contrary, it is a rather insignificant little tree in appearance, seldom rising more than eighteen or twenty feet high; but this is where it is cultivated; the wild trees are found much larger. Olives are very long-lived; they will continue to bear fruit, it is said, for more than two hundred years. The flowers are small and white, and have a slight perfume. The wood is strong, heavy, compact, and brilliant when polished: it is used by turners, and in making small articles of furniture, such as dressing cases, &c., and it burns extremely well; but the value of the fruit is so great that the trees are seldom cut down, either for manufacturers' use or for fuel. This fruit is in appearance something like a small plum, only that it is considerably longer than it is broad, and it has in it a stone of nearly the same shape; and it is from these fruits or olives that sweet oil is obtained. Vast quantities of them are pickled too in salt and water. I suppose you know most of the uses of oil?"

"Yes, sir; for eating, and burning in lamps; and it is very good for curing burns and scalds; and for putting on hones to sharpen knives and razors."

"Very true; but these are only some of its uses. It is an indispensable article in the preparation of a great many ointments and other medicinal articles; in the making and polishing, as well as the sharpening, of all sorts of edge tools; it is used too for keeping steel, and iron, and brass from becoming rusty; in softening horn and tortoise-shell for the manufacture of combs, &c.; in the preparation of leather; and, in short, there is scarcely any manufacture in which oil is not of great service. But, after all, one of the most important uses to which it is put, is in diminishing the friction of all kinds of machinery. You know how much more easily a wagon or carriage will run when the wheels and axles are greased, than when they are dry; the grease or oil makes the parts that touch slip smoothly over each other; and you can imagine of what service this property is in the vast quantities of machinery of all kinds that have been invented, and are now used in the production of almost every necessary as well as luxury

of life. I suppose that with some of the most complicated machines, such for example as the cylinder printing-press, one man could do more by the help of a little oil than two, or even three, could without it; and that a small boy, like one of you, could turn a piece of machinery that was well oiled for half a day at a time, whereas if the wheels and other parts that rubbed against each other were dry, it would tire a strong man in less than an hour."

"And is there nothing else that would do as well, Uncle Philip?"

"No, nothing; grease or fat would, perhaps, answer for large coarse machinery, but it would clog up and stop the finer kinds, such as watches and clocks, and a great many other delicate contrivances that have been invented for various purposes."

"But, Uncle Philip, is that olive oil that people burn in lamps? It looks very different from the sweet oil that we buy in bottles."

"No, lamp oil is got from whales, and some other kinds of large fish; olive oil is too costly to be used for burning. Whale oil may be purified, and made to look almost as transparent as olive oil; and, indeed, the best lamp oil is almost perfectly clear and colourless."

"Uncle Philip, I thought sweet oil came from foreign countries; I never heard of olives growing in the United States."

"You are quite right, my boy; it is from the southern parts of Europe that we get our sweet oil, and our olives. But I have described the tree to you, partly because it is so extremely useful, and partly because there is a small tree which is found, although not abundantly, in some parts of the Southern States, and which is no doubt a species of olive; perhaps it wants nothing but cultivation to become as valuable as the European. It sometimes grows twenty-five or thirty feet high, but not very often; its general height is eight or ten feet. The leaves are a great deal larger than those of the European olive, but in other respects very much like them. They are evergreen. The olive is round, about as large as a small cherry, of a dark purple colour, and consists of a stone covered with a very thin coating of pulp and skin. They are harsh and disagreeable to the taste, and no attempt has been made to get oil from them, that I know of. In fact, the quantity of pulp on each is so small that there would not be oil enough to pay for the trouble. The wood is heavy and very close-grained, and

when quite dry, it is excessively hard, and difficult either to cut or to split; for this reason, it has the name of devil-wood given to it by the people who live where it is found."

"Uncle Philip, since the olive is so good and so useful in those countries where it grows, I should think it would be a good plan to take pains with the devil-wood, and try to improve it. Do not you think so too, sir?"

"I do, indeed; by grafting slips of the European olive upon our wild kind, I have no doubt very excellent fruit might be got; and I dare say it will be done by-and-by, when the Floridas are more thickly inhabited than they are now. The climate there is quite as mild as in Italy, and besides, the devil-wood or wild olive is much more hardy than the European kind."

"Uncle Philip, it seems to me that we might raise in this country almost all the nice things that we get from others. I know that sugar grows in the Southern States, and I have heard father say that tea and coffee would grow in Florida, if they were properly cultivated: and then if we had olive-trees and could make our own oil, it would save us a

great deal of money, would it not, Uncle Philip?"

"Perhaps it would, my dear; but I am not by any means certain about it: perhaps the tea and the olives would cost us more than they do now."

"How can that be, Uncle Philip?"

"Because both tea and olives require a great deal of preparation before they are fit to use; and the workmen employed in preparing them might, perhaps, be doing much better by cultivating grain, or cotton, or sugar. In China, where we get our tea, and in Italy, where the oil is made, the country is very thickly inhabited, and because there are so many people ready to work, wages are very low; but in this country there is always plenty of work for people to do, and workmen can get much higher wages; so that the labour necessary to prepare a pound of tea for exportation would not cost, in China, one-half,—no, perhaps not one-quarter so much as it would in Florida. Therefore, you see, it might not be cheaper for us to raise our own tea, after all."

"Well, that is very true, Uncle Philip; I never thought of that."

"I will tell you a story. A farmer once had a few acres of land, which, by his great industry, gave him and his family a good living. One day a gold mine was discovered in his ground; and he began to dig for the precious metal, rejoicing in the hope of abundant riches. But it lay very deep, and he had to hire men to help him; and then his wife and children wanted food and clothes; he had no money, and his farm, you know, brought him nothing while he was digging. He sold his horse, then his oxen, then his cow and pigs; and when they were gone, he ran in debt. At last he found some gold, but it was in the ore, and had to be pounded, and washed, and melted, and all this was expensive. At the end of the year, he had got several pounds, but it all went to pay his debts. His horse and cattle, his crops and his gold were all gone; and he had been working hard all this time only to find himself poorer than when he began. He had bought wisdom, however. He gave up his digging and went to work again on his farm; but it was not until after several years of hard labour that he recovered what he had lost by his gold mine."

The White Poplar.

CONVERSATION VI.

Uncle Philip and his Young Friends talk about Poplars, and Aspens, and Persimmons, and Wild-cherries, and the Cabbage-tree, and Chestnuts, and Chincapins. Uncle Philip, among other things, describes the great Chestnut on Mount Etna, called the Chestnut of the Hundred Horses.

"I THINK I have two or three trees to tell you about to day, my children, that you will be glad to make acquaintance with; partly because of their utility, and still more on account of their fruit, which I dare say you have eaten many a time. I mean the wild cherries."

"Oh yes, Uncle Philip, they seem like old friends. But I did not know that there were more than one kind of wild cherries."

"There are three, but there is only one of them that you are likely to be acquainted with, for the other two are found only in remote

parts of the country. The wild cherry-tree, then, the only kind that grows about here, is one of the largest productions of the American forests. It grows in every part of the United States, but it is not common either at the northern or southern extremities of the country; in all the Middle States, in Virginia, and on the banks of the Western rivers, it is very abundant, and it is in the Western States of Ohio, Tennessee, and Kentucky, that it grows to its largest dimensions. I have heard of wild cherry-trees there from twelve to sixteen feet round, and ninety or a hundred feet high."

"Why, Uncle Philip, that is almost as large as the sycamores, that you told us of."

"Yes, next to the sycamores, and the tulip-trees, the wild cherries are most frequently found of enormous size. The leaves are five or six inches long, of a beautiful light green, and notched at the edges into very fine teeth, smaller than the teeth of the finest saw. The flowers are quite small, white, and consist of five little petals, or leaves, marked with pink spots. They grow in long spikes or stalks, and look very pretty. The cherries are about the size of a pea, and when ripe, almost black; they grow in the same manner as the flowers,

a number of them on a long spike or stem, and not hanging down singly or in bunches of two or three, like the common cherries, that grow in gardens. They are bitter, and not very good to eat; nevertheless, the birds devour them greedily; and people use them to make cherry-brandy, which is certainly pleasant enough to the taste, but, like all other strong liquors, very poisonous and destructive."

"Uncle Philip, I have seen the pigs eat the cherries, after they had been used to make cherry-brandy, and were thrown out into the street; the pigs staggered about just as if they were drunk."

"I dare say they were, too; for, by being soaked in the brandy, the cherries become very strong. Now there was some excuse for the pigs, because they knew no better; but what a shocking thing it is for a man to drink liquor, which he knows very well will take away his senses, and make him reel about, and fall down in the dirt, like a beast. The cherries had much better be left for the birds, than made into such ruinous stuff."

"Uncle Philip, when you began to tell us about the wild cherry, you said that we

should be glad to hear about it on account of its utility; you did not mean making the cherries into brandy, did you, sir?"

"By no means; it was on account of the wood that I said the wild cherry was useful. This wood when it is first cut, is of a dull light red colour, but the red grows deeper with age. It is almost as hard as mahogany, very solid and heavy, and polishes exceedingly well. In the country, where mahogany is not so easily got as in the cities, the wild cherry wood is almost universally used instead of it, for making furniture of all kinds; and in the Western States it is also employed in ship-building. It has one excellent quality, in great perfection, and that is, that it does not warp by exposure to heat or damp, as many other kinds of wood do.

"You remember I told you that there were three kinds of wild cherry. One of the other two kinds is called the wild orange, and the third the red cherry. The wild orange is a very scarce tree; I have never heard of its being found in the United States, anywhere except on the islands that lie along the coast of Georgia and the Carolinas."

"Uncle Philip, why is it called wild orange, if it is really a cherry?"

"I believe it is on account of the leaves, which are evergreen, like the leaves of the orange, and are shaped more like them than they are like cherry leaves. The flowers, too, are much smaller, and they grow in little bunches of an inch or an inch and a half long; but the fruit is exactly like that of the wild cherry. The wood is nearly the same too, but the tree is smaller, and besides, it is so scarce that no particular use is made of it; I have heard that bees are more fond of the flowers of the wild orange than of the flowers of any other tree.

"The red cherry is common only in the northern parts of the United States; it is much smaller than the wild cherry, but the leaves and flowers are very nearly the same. The cherries are of a bright red, and excessively sour. The wood is as good as that of the wild cherry, but it never grows large enough to be made use of to any extent, except for burning. There is one peculiarity about this tree which nobody has yet been able to account for; and that is, its springing up of itself, where the woods have been

cleared away by fires; the canoe birch does the same, and these two are the only trees of which this fact has been noticed.

"Now, my dears, here is a nut; can you tell me what the name of it is?"

"Oh yes, to be sure we can, Uncle Philip; it is a horse-chestnut."

"Very right; and now can you tell me what this is? you see it is exactly like the other, except that it is not much more than half as large."

"Why, that is a horse-chestnut too, Uncle Philip."

"Very right again, but the large one is the Asiatic, and the other the American; that is, the small one is a native of this country, and the other came originally from Asia, although it is now very common in this country. This small horse-chestnut is called, in order to distinguish it from the other, and, from the spot on one side of it, the buck-eye; and from its being found only on the banks of the Ohio River, some writers call it the Ohio buck-eye. The tree on which it grows is quite small, seldom exceeding ten or twelve feet in height; the leaves grow in a curious fashion; five of them are always found springing from one

stem, and forming a sort of star; the flowers are yellowish white, and grow in long clusters or bunches: the nuts grow in prickly cases or husks; they are not good to eat, and the wood of the tree is white, soft, and perfectly useless.

"Now here is another buck-eye, much larger than the other; this is also a native of America, and grows in the mountainous parts of the Southern States, where it is known by the name of big buck-eye. The tree is large and handsome, shooting up to the height of sixty or seventy feet; the leaves are larger and longer than those of the Ohio buck-eye; they grow in the same way, five on a stem, but with this difference that they are always found hanging down. The flowers are light yellow, and grow in large upright bunches; they are very abundant, and when the tree is covered with them, it has a beautiful appearance with its leaves hanging down in star-like clusters, and its rich yellow flowers. The principal difference between the large buck-eye and the Asiatic horse-chestnut, is in the husk or case which surrounds the nut. In the Asiatic kind, and also in the Ohio buck-eye, this husk is covered with prickles, but in the big buck-

eye, it is quite smooth. The wood is soft, and good for nothing. The only value of both these trees is in their appearance, and in their hardiness; they bear cold extremely well, and grow very fast, and for these reasons are much esteemed for purposes of ornament: as for utility, they have no pretensions on that score.

"I have a fruit tree now to describe to you, my dears, which I suspect you have never seen. The fruit looks something like a plum, only it is yellow instead of purple; its name is the persimmon: it grows, I am told, in New-Jersey and Pennsylvania, but I never saw it except in Virginia and North Carolina; it is very common there, and in the other Southern States, and the people think very highly of it, not only on account of the fruit, but also for the goodness of the wood. It grows from forty to sixty feet high there, but in the more northern parts of the country its size is much less. The leaves are from four to six inches long, green on the upper side, and white below."

"Uncle Philip, I have seen persimmons at the fruit-shops in New-York; they were quite shrivelled, and the man that kept the shop told

me they were not fit to eat until they were frost-bitten."

"Yes, my dear, that is true; until the frost touches them they are very harsh, and make the mouth feel rough; but after that, they are quite nice. If you had ever opened one, you would see that it had inside of it six or eight seeds, very hard, and shaped something like the seed of a pumpion, but of a dark brown colour, and not more than half as large. Pigs and cattle, and in fact most animals that eat fruit, both wild and tame, are very fond of persimmons; the opossums live on them almost entirely. In Carolina the people make beer of them too; they pound the persimmons with bran, and make them into cakes, which are dried in the oven, and then kept till they are wanted: to make the beer, these cakes are dissolved in warm water, and yest and hops are put to it; after standing a little while, it ferments, and makes an agreeable drink.

"The heart of the persimmon is brown, hard, compact, strong, and very elastic, like hickory; the other part of the wood is of a greenish colour. From the solidity and hardness of the heart, it is very good for large

screws, and for mallets, such as are used by tinmen and carpenters. In Philadelphia, lasts for shoes are made of persimmon wood; in North Carolina they make wedges of it, for splitting logs; in South Carolina the shafts of gigs are generally made of persimmon wood, and I have been told that there is scarcely any other kind so good for this purpose. A gum may be obtained by piercing the bark, but in very small quantities, and I do not know that it is good for much; the bark is exceedingly bitter, and I have heard that it is useful for medicinal purposes; but I suspect that the Peruvian bark is a great deal better.

"The next kind of tree that I have to describe to you is one that you are pretty familiar with, at least with one of its varieties,—the poplar."

"Oh yes, Uncle Philip, we have seen hundreds of them; they grow almost everywhere."

"And yet the kind you know so well is not a native American tree; the poplar that is so common is called the Lombardy poplar, and the reason why it is so much cultivated in preference to the other kinds is, that it grows so fast; but none of them are of much use as

timber, because the wood is soft, and not durable.

Of American poplars there are eight kinds: the first is called the Carolinian poplar, from its being more common in North and South Carolina than in any other parts of the country; it is one of the largest, being sometimes eighty feet high, and thick in proportion. The leaves are smooth, and of a bright green, and notched at the edge; it is curious that they are much larger on young trees than on old ones; they are heart-shaped, seven or eight inches long, and about as wide in the broadest part; at the top they rise to a sharp point. The bark of the young branches is marked with projecting ridges of a reddish colour, but these disappear as the branches grow older. None of the poplars bear flowers, but in the spring of the year they put forth green buds, which are sometimes used in dying; the wood of the Carolinian poplar is white, soft, of no value as timber, and of but very little for fuel."

"Uncle Philip, is it not with poplar buds that people die eggs at Paas?"

"Yes, where that Dutch custom is kept up."

"The next kind is the Canadian poplar, or,

as some call it, cotton-wood. As you may suppose from the name, it grows in the northern parts of the country: I have seen one on the banks of the Genesee River, in the State of New-York, eighty feet high and four feet thick; but in general it does not grow quite so large as this. The leaves are very much like those of the Carolinian poplar, but not quite as large; the stems on which they grow are often of a bright red, and the branches, instead of being round like those of most other trees, have angles or corners running along lengthwise, the edges of which are white; and the trunk is almost always angular too; and this is also the case with the Carolinian poplar. The wood is no better.

"Another kind is the American black poplar, which also grows only in the Northern States: it is much smaller than either of the two kinds I have mentioned, for it is seldom seen more than forty or fifty feet high. The bark is grayish white, and the buds are brown; the leaves are quite small, not more than three inches long, and two broad; one of the distinguishing features of this species is the hairiness of the young shoots, and of the

stems; and this same hairiness is found too on the backs of the young leaves.

"The Virginian poplar is sixty or seventy feet high; the trunk is round, and not with angles, like most of the other kinds. The leaves are small, heart-shaped, and as broad as they are long; the young branches are angular, but as they grow old they become round; the wood is very soft, and is never used except for burning.

"The fifth kind of poplar is called cotton-tree."

"Why, Uncle Philip, you told us about that a little while ago."

"No, that was the cotton-wood; the name of cotton-tree is given to another kind; it is a very bad plan to give names so much alike to different species, but we must take them as we find them. The cotton-wood, however, is very much like the cotton-tree; it grows in the Southern States, but is by no means common there: it is a fine large tree, seventy or eighty feet high; the branches are round, and not angular like those of the cotton-tree; the leaves are covered, when quite young, with a thick white down, which gradually goes off on the upper side, leaving it perfectly smooth.

The wood is very soft and light, and of no service either in the arts or in manufactures.

"The balsam poplar grows in Canada, and in still more northern parts of the country, but is very rare in the United States; it grows as high as eighty feet. In the spring, when the buds begin to come out, they are covered with a yellowish gum, of a very agreeable smell. The leaves are deep green on the upper side, and silvery white below. There is another kind of balsam poplar that does grow in some of the northern parts of the United States, particularly in Rhode Island, Massachusetts, and Vermont. The leaves are three times as large as those of the other kind, perfectly heart-shaped, and the stems they grow on are covered with hair or down. The buds are covered with the same sort of balsam or gum. This species never grows more than fifty feet high, and the bark is quite smooth.

"The remaining two sorts of poplar are known by the name of aspen. The first is called American aspen, and is common enough in the northern and middle sections of the country; its height is generally about thirty feet, and its diameter only five or six inches.

The bark is green and smooth, and the leaves are about two inches wide, heart-shaped, and terminating in a sharp point; the stems on which they grow are long and slender, and so very flexible that the leaves dance about with the slightest breath of wind, and are never still for a moment. The other kind is called the large aspen: it grows in the same sections of country with the first kind, but it is not common. It is about forty feet high and ten or twelve inches thick. The trunk is quite straight, and covered with a smooth green bark. The leaves, like those of the smaller kind, are covered with thick white down in the spring, which goes off as the summer advances. They are almost round, two or three inches wide, and bordered with large teeth.

"All the poplars have their seeds growing in bunches, two or three inches long, and as big round as a quill, hanging from the ends of the branches. You have seen them, I dare say, in the summer."

"Yes, sir: they lie about under the trees, and look very much like some sorts of caterpillars."

"I suppose you have not been much in-

terested about the different kinds of poplar-tree, and indeed they have not much to recommend them."

"No indeed, Uncle Philip; we like much better to hear about trees that are useful, like the oaks and the sugar maple, or curious like the holly, or beautiful like the magnolia."

"Well, we shall soon come to some that you will like better; some that bear nuts, and them I know you are fond of. But, first of all, I have two to describe to you that are somewhat remarkable. Here is a picture of one of them. Have you ever seen such a tree?"

"Why, Uncle Philip, that does not look like a tree; it looks more like a high post set in the ground, with a few bunches of curious leaves fastened on the top.* Does it grow that way, sir?"

"Indeed it does; the name of it is the cabbage-tree; and this name is given to it because a part of the leaf is eaten with oil and vinegar, like a salad, when it is young, and it tastes very much like an uncooked cabbage."

* See Vignette on the title page.

"But how do they get them, Uncle Philip? Nobody could ever climb such a tree as that, I should think. But perhaps it does not grow very high."

"But it does, though, forty or fifty feet; and when the people want to get the branches they have to cut the tree down."

"Well, it seems to me that is taking a great deal of trouble."

"So it is; and a great waste too, for the cabbage-tree grows very slowly; I have heard that it is more than a hundred years in reaching its full size. It belongs to the class or genus of the palms or palmettoes, and they are all slow growing trees."

"Oh, Uncle Philip, is it from the leaves of the cabbage-tree that the palmetto fans are made, that are sold in the stores?"

"No, those fans are made of the leaf of another kind of palm, that grows in Africa and Asia. The cabbage-tree is the only species of palm that is found in the United States, and it grows only in the most southern parts of the country. As you see in the picture, the trunk is smooth, and almost of the same size all the way up; and its straightness and height, with the large spreading summit

of leaves with which it is crowned, give it a very majestic appearance. The leaves are of a brilliant green, and spread out like a fan; these leaves are of different sizes, from twelve inches to five feet long, and are borne upon stems nearly two feet in length, all springing together from the very top of the tree; the leaves are so arranged that the smallest grow in the centre, and the largest spread out around, so that the summit of the tree is quite round, and of a regular shape, like a wheel or an umbrella. When the leaves are young they are folded up just like a fan, and spread out as they grow older. It is the base of the leaf that is eaten; that is, the part where all the stalks or sticks grow close together, like the sticks of a fan; it is white and tender, and makes a very good salad. Do you see the clusters of little black berries growing among the leaves?"

"Yes, sir; they seem to be very small for such a large tree. They are the fruit, I suppose; are they good to eat, Uncle Philip?"

"No, not at all. They are about as large as a pea; and before they appear, the stems on which they hang are covered with clusters of little green flowers."

"Uncle Philip it seems to me that it is a great pity to cut down such a fine looking tree, unless the wood is useful."

"It is useful for one purpose, although very coarse-grained and porous, and neither hard nor tough. You know what docks and wharves are; and you have seen that wharves are generally made of timber: now there is in sea-water a species of worm that eats wood; and these worms are sadly destructive to wharves, by boring holes into the timbers; I have seen logs taken out of wharves, that were bored through and through in every direction, so that pieces of them looked very much like pieces of honey-comb."

"And will not these worms eat the wood of the cabbage-tree?"

"No; I suppose there is something in it that they do not like, for they have never been known to injure wharves made of it."

"Uncle Philip, does the cabbage-tree grow in England?"

"No, my boy; but why do you ask?"

"Because I have read about very large docks and wharves there, and I was thinking that the worms must give them a great deal of

trouble, if they have no cabbage-tree wood to make them of."

"But they have what is better; plenty of stone: all those large docks you have read of are built of a species of stone called Portland stone, that is soft when first taken out of the quarries, and hardens by exposure to water or air."

"Ah, that is better than wood, certainly; why do not they make docks of stone in this country, Uncle Philip?"

"Because they are much more expensive than wooden ones; but I hope they will be made of stone before many years, at least in all our principal cities; and even in those parts of the country where they are made of cabbage-tree wood, stone must be used before a very great while, for the trees are becoming scarce.

"The tree that I am going to tell you of now is not properly a native of America, for it came originally from Persia, which, as you know, is a large country in Asia; but it thrives so well in the Southern States, and has become so abundant, that it may almost be considered a natural production of the soil. It is called the Pride of India. You have heard of it, I dare say, and you may see it by going

to green-houses, where plants and trees are kept for sale: there is a very fine collection of curious plants kept by Mr. Thorburn, in Liberty-street in New-York, and I have no doubt you would find the Pride of India there.

"In the streets of Savannah and Charleston it is as common as poplars are in the northern cities and towns; and it grows to a good size, too; from thirty to forty feet high, and fifteen or twenty inches in thickness. The leaves are of a dark green, small, sharp-pointed, and notched at the edges, very much like a rose leaf, in fact; and they grow upon long stems, in pairs, that is, one on each side, with a single leaf at the end; there are generally five or seven on each stem: the flowers are small, somewhat like those of the lilach, and their smell is delightful. The seeds grow in small clusters or bunches; they are round, and of a yellowish colour, and nearly as large as a cherry. Some birds are very fond of them, especially red-breasts; but they have a stupifying quality, like opium, and after eating great quantities, the birds are often so overcome by it that they fall to the ground. The Pride of India is one of the fastest

growing trees in the world, and for this reason, as well as for its beauty, and the sweetness of its perfume, it is a great favourite. But, besides these good qualities, the wood is valuable: it is of a reddish colour, quite strong enough to be used in building, and lasts very well: it is good, too, for fuel: I have heard that an ointment is made from the leaves, that is excellent for curing certain diseases of the skin, but I never saw it tried myself. And now, boys, for the nuts.

"I suppose you think there is hardly any thing I can tell you about a chestnut more than you know already; and I dare say you *have* managed to make yourselves pretty familiar with at least the eatable part of it. But we will try if we cannot find something new to say on the subject."

"I dare say you can, Uncle Philip; all I know about it is, that the nuts are very good to eat, and that the trees are split up into rails for the fences: oh, yes, I do know one thing more; and that is, that the wood crackles and snaps very much when it is burning."

"Well, in the first place, then, I will tell you that the chestnut is a very large tree;

there was one on Mount Ætna that surpassed all the trees in the world in size: it is said to have been a hundred and sixty feet round, and large enough to shelter a hundred men on horseback under its branches."

"Oh, Uncle Philip, is that true?"

"I cannot say; you know where that mountain is, I suppose?"

"Yes, sir; it is a volcano, in the island of Sicily."

"Very right; well, I have read of the great chestnut in several books, and there is no reason why we should not believe it, that I know of."

"I suppose that tree must have been very old, Uncle Philip."

"Yes, nobody knows how old; there is no account of it that gives any information as to its age, and the oldest speak of it as having stood for hundreds of years. The inside of it was almost all gone, and the trunk, in fact, consisted only of bark, with a very thin shell of wood; for you must know that in chestnut-trees, the sap circulates in the bark, and as long as that remains the trees will live, even after all the wood is decayed and gone, as

was the case with the great chestnut. It is the same with willow-trees. In the hollow trunk of this huge tree there was a sort of house built, in which were kept refreshments of various kinds, for travellers who came to look at it: this house had an oven in it for roasting the nuts and for other purposes, and the people who kept it used to supply themselves with fuel from the branches of the tree, and they injured it terribly in this way."

"Oh, that was very ungrateful, Uncle Philip, and foolish, too; for I suppose there would be very few people to buy of them if it was not for the tree, and yet they were destroying it all the time. Is the great chestnut standing yet, Uncle Philip?"

"I believe the ruins of it are yet to be seen; but I have heard that it is not much resorted to now, and indeed there is no mention of it in several books of travels to that part of the world, which I have read within the last two or three years. There are several other large chestnuts, however, upon Mount Ætna; some of them as many as seventy-five feet round; but I have never heard of any that came near the Chestnut of the Hundred Horses, as the great one was called."

"I suppose there must be something in the soil there very good for the trees, since they grow so large."

"Yes, chestnuts love the sides of mountains, and a climate that is neither very hot in summer, nor very cool in winter; the largest in this country are found in the hilly parts of North Carolina and Virginia: I have seen them there fifteen or sixteen feet in circumference, and more than a hundred feet high. I have read of one in France that is supposed to be a thousand years old; in a book written six hundred years ago it is called *the great chestnut*, and it is still sound, and bears nuts every year: it is ten feet in diameter. There is another in England fourteen feet thick, which is also believed to be nearly a thousand years old. But it is time for us now to look at the leaves and the wood. You have noticed the leaves, I dare say; but in case you have not, we will pluck one; you see that it is long and narrow, and pointed at both ends, like the leaf of the peach-tree, only a great deal larger. The peach-leaf, you know, is not more than two inches long, whereas, the chestnut is seven or eight, and

about two inches wide, with very large, deep, sharp-pointed teeth, and ribs running all along from the stem in the centre to the edges. The flowers are very small, and grow in long slender bunches or stalks, somewhat like the seeds of the plantain that people give to birds; they are whitish, and have an unpleasant smell. The fruit I suppose you can describe to me."

"Oh, you mean the nuts, Uncle Philip; they are very nice raw, and boiled, too, and I have heard that they are good roasted, but I never tried them that way. They grow two together in a large thick husk, covered all over with sharp stiff prickles, standing as thick as they can; they hurt us sometimes when we take them up in our hands."

"I see you understand them very well: the wood of the chestnut is strong and elastic, and bears exposure to changes of dryness and damp remarkably well, and this makes it a very good material for posts and fences: I have heard it said that chestnut rails well seasoned will last nearly fifty years: chestnut-wood makes very good shingles, too, but they are apt to warp; it is also used for staves for flour-barrels, and sugar-barrels

but it is not compact enough for liquor-barrels: it is a great deal used for fuel, but it makes an unpleasant fire, on account of its snapping so much: the charcoal made from it, however, is excellent."

"Uncle Philip, what is the reason of that snapping, do you know, sir?"

"I know, but I am not sure that I can make you understand it: chestnut-wood you know, is very porous, that is, it has little holes and cracks in every part of it, and is not close and solid, like locust or cherry-wood: well, these little holes are full of air, and it is one of the properties of air to expand or swell when it is exposed to heat: you can satisfy yourselves about this if you like, by blowing air into a bladder until it is almost full and tight, then tie the neck of it and lay it before a fire, and you will see it swell till it is perfectly full and hard; and then if you sprinkle cold water on it, or take it away from the fire and let it cool, it will shrink again to the same size it was before. Just so it is with the air in the chestnut, when the wood is put on the fire; the air that is confined in the pores begins to swell, and it swells and swells till at last it bursts open the place in which

it is shut up, and so makes the snapping and cracking you hear. Do you understand this?

"Yes, I believe so, Uncle Philip; but I should like to try that about the bladder."

"Well, do; it is very easy: and in the mean time I will tell you about a very pretty variety of the chestnut.

"Do you remember that in our first conversation, I mentioned a nut that grows in the Southern States, called the chincapin? If you do, you will no doubt remember, too, that I told you it was a species of chestnut, and that the nuts were exceedingly good."

"Oh, yes, Uncle Philip, we remember."

"In appearance, the chincapin is almost exactly a chestnut in miniature. In Delaware and Maryland, it seldom grows more than seven or eight feet high; and farther south, where it is largest, it never exceeds twenty or thirty: the leaves are exactly like the leaves of the chestnut, only that they are not more than half as large, and are whitish on the under side; the flowers, too, are just the same, and so are the nuts, except that they are convex, or rounded on both sides, whereas, the chestnut, you know, is flat on one side, and convex on the other: they are

considerably smaller, too, and so, of course, are the husks in which they are wrapped up: the taste of the nuts is very pleasant, and I never saw a little boy yet, or girl either, that did not like them.

"Uncle Philip, I should like to go into some of the Southern States, on purpose to taste those chincapins; I have a suspicion that they must be uncommonly nice."

"I hope you may go there one of these days, my child, when you are older; but I trust it will be for something better and more important than to eat chincapins. The great object of travelling is to learn and improve the mind, and not merely to gratify the appetites. But to come back to our chincapin-trees.

"The wood is finer-grained, heavier, more compact, and lasts longer than the chestnut; it is used for posts when trees large enough can be got: the small branches are straight, and very tough, and at the south, where the red birch is not common, the twigs of the chincapin are always used by the teachers of schools to keep naughty boys in order. So you see that it is very useful. And now we have done with the chestnuts."

"Oh, Uncle Philip, I hope you have some more nuts to talk about; nuts are such nice things."

"We will see, the next time you come to me: if you are good children, I dare say I can find something pleasant to tell you; but I think we have had enough for to-day; and so good night, my dear little scholars; run away home and get your suppers, and do not forget every thing I have told you."

"We will remember it all if we can. Good night, Uncle Philip."

The Beech.

CONVERSATION VII.

Uncle Philip describes to the Children the virtues of Beech-nuts, and of Ash-trees; also of the Mulberry-tree, on the Leaves of which Silk-worms feed; he tells them a Story, too, of a Poet, and how Willows were first brought into England by means of a Basket of Figs.

"How do you do, Uncle Philip? We have come to hear you tell us something more about the trees, if you are at leisure to talk to us."

"Very well, boys; you know I am always glad to see you. You have been nutting, I see; here are hazel-nuts, and chestnuts, and black walnuts; and what are those you have in the basket?"

"Beech-nuts, Uncle Philip."

"Oh, beech-nuts are they! well then, sit down and eat them, and I'll tell you something about the trees on which they grow.

"You must know that there are two kinds of beech that are found in this country; the red and the white. These names are given them on account of the colour of the wood. The white beech is the kind that you know; the red only grows in Canada and the north-eastern parts of the United States; in Maine and New-Hampshire it is one of the most common of all trees; but farther south it is almost unknown. The red beech is a very handsome tree; its general height is sixty or seventy feet, but I have seen it nearly a hundred. The trunk is almost always straight, and rather slender for its height; and the branches are very thick and spreading, and full of leaves, so that the top, or branching part, is very spacious. The leaves are of a beautiful, brilliant green, notched at the edges with sharp even teeth; they are handsomely shaped, and about three inches long, and one and a half wide. I suppose you can tell me something about the fruit; at least you can describe the fruit of the white beech, and I will tell you wherein the other kind differs from it."

"The fruit is the same as the nuts, is it not, Uncle Philip? They grow two of them

together in a brown husk, about as big as a hickory nut, and covered with little sharp prickles: this husk, when it is ripe, splits into four parts and lets out the nuts. Here are some of the nuts, Uncle Philip: you see they are three-cornered and sharp pointed, and not near as large as a chestnut. The shell is brown, like the shell of a chestnut, but a great deal thinner; they are very good to eat, and taste something like a butternut."

"Very well, my dear; now the nut of the red beech is very much the same, but sharper and larger; and the husk is thicker and has more prickles. But the greatest difference between the two kinds is in the wood; that of the white beech is white, and not very good, although the bark is used in tanning; but the wood of the red beech is strong, tough, and compact, and is employed for a great variety of purposes. In some parts of the country it is used in ship-building; but it is more generally esteemed for making lasts for shoemakers, and the handles of planes and other carpenters' tools. If properly seasoned, and not exposed to changes of wet and dry, it lasts a very long time; and in Europe, where there are not so many trees that furnish durable

wood as there are in America, beech-wood is put to a great variety of uses: there they make it into tables, and bedsteads, and other furniture; into screws, and rollers, and dishes, and corn-shovels; into wheels, and oars, and a great many other things for which we prefer ash or hickory. A great deal of it is burnt, too, to make potashes.

"You remember that I told you before about hedges; well, in some parts of Europe they make the hedges of young beeches, placed seven or eight inches apart, and bent so as to cross each other; and very solid and elegant they are too; far better than any fence in the world.

"But these are not all the uses of beech-trees; you know I told you before that the bark is used for tanning: that is where oaks are scarce; and besides this, an excellent oil is got from the nuts, almost as good as the olive oil. In some parts of France vast quantities of the nuts are gathered every year for this purpose. They gather them as soon as they are ripe, and spread them out in garrets or barns to dry; as soon as they are quite dried, they are ground into a paste with a very little water; then the paste is put into sacks,

and pressed very slowly, and the oil is drawn off into casks, and left for several months to settle and become fine; at the end of about six months it is fit to use, but it improves by age, and keeps longer and better than any other kind. In some parts of France they make coffee, too, of beech-nuts; they roast them just as we do the real coffee, and I have heard that one could scarcely tell the difference."

"Oh, what a comfort that must be for poor people who cannot afford to buy real coffee!"

"Yes, I dare say it is; and the French people in general are very fond of coffee. There is another tree that bears nuts very much like those of the beech, only they are a great deal smaller; not as large as the pip of an apple. It is called the hornbeam, and it grows in all parts of the United States, but most abundantly in the Southern. It is a small tree, seldom growing more than twelve or fifteen feet high; the leaves are exactly like beech-leaves, but not half as large, and the nuts, instead of being shut up in a husk, grow in bunches of small leaves that hang from the ends of the branches; these little bunches remain on the tree long after the other leaves

have fallen to the ground. The bark is smooth and spotted with white; the wood is strong, and fine, and elastic, but too small to be of any use, except for making hoops. There is another kind of hornbeam, called iron-wood; this kind is much larger than the other, being sometimes, though not often, found thirty, and even forty feet high, and never less than eighteen or twenty. The leaves are larger and broader than those of the horn-beam, and the bunches that contain the seeds or nuts are red, and grow in clusters like hops. The wood is exceedingly hard, compact, and heavy, and perfectly white, but hardly ever large enough to be much used; it is generally made into mallets, and the small parts of mill machinery, in which great strength and tough-ness are required.

"You remember the sweet gum that I told you of some time ago. Now I have another gum to describe to you; at least it is called black gum, and sometimes sour gum, but it is not at all like the other gum-tree, and, indeed, I cannot imagine why it has got the name, for it produces no resinous fluid. It properly belongs to a class that has several varieties, and the proper name of which is the tupelo."

"The tupelo, Uncle Philip! Then, I suppose, it does not grow anywhere near here, for I never heard of such a tree."

"No; the tupeloes are properly southern trees, though some of them are found in New-York and New-Jersey. The variety called the black gum is a fine tree, sixty or seventy feet high, but very slender: and it has one remarkable peculiarity; the trunk is almost always found to be twice as large close to the ground as it is a foot higher; it diminishes in size very rapidly to the height of twelve or fourteen inches, and then tapers up gradually like any other tree, so that it spreads out at the bottom, like a sugar-loaf. The leaves are five or six inches long, oval-shaped, smooth at the edges, of a shining green on the upper side, and whitish on the under; they grow on slender red stems. The flowers are very small, and grow in bunches: the fruit is oval, of a deep blue colour, and something like a whortleberry, only longer and not as round; it has in it a stone like a plum-stone, and always grows in pairs. The bark is white, and the wood yellow, and fine-grained. It is not liable to split, and for this reason is much

used for the naves, or hubs, of wheels, and for hatters' blocks, and some parts of mill-work.

"The tupelo is almost precisely the same with the black gum, except that it is smaller and more common, especially in New-Jersey and Pennsylvania. It is sometimes called sour gum, and sometimes peperidge. The trunk is all of the same size from the base to the branches, and the bark of the full grown trees is remarkable, from being broken up into figures of six sides, that are often quite regular in shape. The leaves, the flowers, and the fruit are exactly like those of the black gum; the taste of the fruit is slightly bitter, yet the birds eat it greedily, particularly the red-breasts. The wood is not very hard, but, like the black gum, it has a remarkable peculiarity in the fibres of which it is composed; in most other kinds of wood these fibres are straight, and lie side by side, so that they split and come apart without much difficulty; but in the tupelo and the black gum they lie crossing each other, and are so twisted, or rather braided, together, that it is almost impossible to split them asunder. This peculiarity makes the wood very excellent for certain purposes: where it has to resist great

pressure, as in the naves of wheels, and the side-boards and bottoms of carts and heavy wagons. It makes very good fires, too, for it burns slowly, and gives out a great deal of heat.

"In Georgia, and South Carolina, and Florida, there is another kind of tupelo, called the large tupelo, and sometimes the wild olive. It is often seen eighty feet high, but the trunk is very slender, except at the ground, for this kind has the remarkable swelling I told you of as belonging to the black gum. Close to the ground the trunk is often found seven or eight feet thick; then it diminishes rapidly, until at the height of four or five feet it is not more than eighteen or twenty inches in diameter, and it continues of this size to the height of twenty-five or thirty feet."

"Uncle Philip, that must give the trees a very odd appearance. What is the cause of it, do you know, sir?"

"No, I do not; some people have supposed that it was owing to the dampness of the soil; but if this were the case, the same thing would be found in other kinds of trees; but it is not, and is peculiar to the tupeloes and the cypress only. The leaves of the large

tupelo are five or six inches long, and about three inches wide; they are oval-shaped and the edges are cut into three or four scallops of different shapes and sizes, with sharp points between them. The fruit is shaped something like a thimble, but more pointed at the end, and very much of the same size: it is of a deep blue, and when bruised in water gives out a fine purple juice that may be used in dying; the stone is large and rough; the wood is too soft to be applied to any useful purpose.

"There is another kind of tupelo, called the sour tupelo, that grows in Georgia and Florida; some call it the wild lime. It is a very small tree, but the leaves are as long as those of the large tupelo; they are not so wide, however, nor of so dark a green. The fruit is shaped like that of the large tupelo, but is of a light red, and exceedingly sour, and the stone is pointed at both ends. The wood is soft and useless."

"Uncle Philip, will you not tell us about some useful trees, if you please? All these that you have just been talking about, except the beeches, seem to be good for nothing."

"Have a little patience, my dear child, and

you shall soon hear of useful trees, very useful trees: but first of all, I have two kinds of nettle-trees to describe to you. One is called the American nettle-tree; it grows in the Middle States, but is not very common anywhere. It is tall, but remarkably slender, for the trunk of a tree eighty feet high is scarcely ever seen more than a foot and a half thick: the leaves are about three inches long, and very sharp-pointed, and notched at the edges: the flowers are white, and very small; and the fruit is a red berry, much like that of the holly, only that it does not grow in bunches: the wood is dark-brown, hard, and tough, but I believe it is not used for any particular purpose, probably because it is so scarce."

"Uncle Philip, why is it called nettle-tree? are there nettles on it?"

"No; and I do not know whence it has its name, any more than the other kind, which is called hack-berry. This is a western tree, and a very fine one, too; the trunk is perfectly straight, and very slender: the leaves are about six inches long, and remarkable for their colour, which is a dusky green, almost black; and the fruit is of the same size as

that of the nettle, but perfectly black when it is ripe: the wood is fine and compact, and quite white when fresh cut; but it is too light and soft to be much used. The Indians make baskets of the young branches. Farmers in the western country prefer hack-berry wood for fences, on account of its splitting very easily. And now for some useful trees.

"First let me tell you about the mulberry."

"Oh, Uncle Philip, I know the mulberry; we have one in our garden. The berries are white, and very sweet, and shaped like blackberries. Father says that silk-worms feed on the leaves; and silk, we know, is very useful and valuable."

"Yes; so valuable that the quantity consumed every year, in the United States alone, is worth a great many hundred thousand dollars. But the mulberry that you have in your garden is a European tree; that is the white mulberry, and the only kind that grows wild in the United States is the red."

"And will silk-worms eat the leaves of the red kind too, Uncle Philip?"

"No, only the white; and therefore the red kind is not as valuable as the other; but still it is a quite useful tree. It is large, and

the wood is both handsome and strong, and almost as durable as the locust. It makes excellent ship-timber, and would be very much used in ship-building if its growth was not so slow; in this respect the locust is much to be preferred. The leaves are very large, thick, and tough, almost round, of a dark green, and different from the leaves of most other trees, in being rough and wrinkled on the surface, somewhat like the leaf of a cabbage. The fruit is exactly like the fruit of the white mulberry in size and taste, but it is purple. It is pleasant, but too sweet to eat much at a time. The leaves of the white mulberry are thin and tender, and the silk-worms will eat nothing else. White mulberries grow readily in all parts of the United States, and they are very much cultivated; within the last ten or twelve years the business of raising silk-worms and preparing the silk, has begun to be quite extensive and profitable, but it will be a long time before we shall make enough to supply our own wants."

"Where do we get silk, Uncle Philip?"

"Principally from France, and Italy, and from China. The worms require a great deal

of care and attention, and it is only in countries where wages are very low, and where there are a great many more people than can find employment in cultivating the ground, that it is worth while to take all the pains and bestow all the time required in raising them. Now in China and Italy the people are much more numerous than in the United States; that is, in comparison with the extent of the countries: and in the United States there are many other kinds of occupation more profitable than raising silk-worms; and therefore we must be content to get most of our silk from others, and give our flour and cotton, and sugar, and rice in exchange for it, until our population is much greater than it is now."

"Uncle Philip, it seems to me very wonderful that different trees should be useful in so many different ways. In some, the wood is useful, in others the bark, in others the roots, in others again the fruit, and now you have told us about one that is valuable only on account of the leaves; what curious things trees are!"

"Yes, indeed; there is no end or limit to God's goodness, or to the number of things

He has provided for our comforts and necessities. I can tell you of another tree that is of use only in its leaves. It is called the sweet-leaf, and is common in the Southern and Western States, particularly in those parts where the soil is very poor and sandy, and produces no grass: the leaves of the sweet-leaf supply its place. They have a sugary taste, and the horses and cattle devour them very eagerly. Besides this, when they are dry, they make a beautiful yellow die, and the country people are glad to get them to colour their cotton and wool. But now I will tell you about some trees that are far more useful. The ashes.

"Except the oak, there is probably no tree either in Europe or America more extensively useful than the ash. The principal qualities of the wood are strength and toughness. There are a great many varieties, but the differences between many of them are so slight as not to be worth noticing, and therefore I shall only describe to you the six principal kinds. The first and best of them all is the white ash; this kind prefers a cold climate, and is common in the Northern States and Canada; it has its name from

the colour of the bark, which is quite white. Its height is from sixty to eighty feet, and its thickness from one and a half to three; the trunk is perfectly straight, and seldom begins to branch out within less than forty feet of the ground. The leaves are about three inches long, oval-shaped, with smooth edges, and a soft delicate surface; the upper side is green, and the under side whitish; but this is not the case with the other kinds of ash. The seeds are curious; they resemble the pod of a pea, but they are not flat the whole of their length; about half-way they are round, after that they begin to flatten, and at the end they are quite flat like the blade of a knife; they are about two inches and a half long: I cannot think of any thing more like them in shape than a paddle. The round part is green, and the flat part straw-coloured; and they hang together in bunches of three, four, and five. The wood is reddish, very strong, supple, and tough; and the uses to which it is put are numerous and very different. The shafts of gigs and carriages are almost always made of white ash; in New-York and Philadelphia it is used for the frames of carriages, and for the felloes or rims

of wheels, and for the runners of sleighs; in Maine, for the backs of chairs, for scythe and rake handles, hoops, and staves, for making some parts of the frames of ships, and for ship-blocks; and, above all, for oars and hand-spikes, for making which, it is preferred to all orts of wood except hickory: in short, for all purposes which require strong, elastic, tough, and durable wood, the white ash comes into use, and there is no other tree that is so general a favourite with the wheelwright, the cabinet-maker, and the carpenter. In addition to its other good qualities, it grows very fast.

"The red ash is much like the white, except that the leaves are not more than half as large, and that their under surface is covered with thick down, which turns red as autumn approaches; the wood, too, is of a brighter red, and the seeds are not as long. This kind is most common in the Middle States, and as far south as Virginia. The wood is very nearly as good and as much used as that of the white ash.

"The green ash grows in the western parts of Pennsylvania and Virginia, and in Ohio. It is much smaller than either the white or

the red, for its general height is only thirty or forty feet. It has its name from the brilliant green of its leaves, and from their upper and under sides being both of the same colour, which is very seldom the case in trees. The seeds are quite small, not half as large as those of the white, but of the same shape. The wood is of very good quality, but not so much used as the other kinds, from its being so much smaller.

"The black ash, like the white, loves a cold climate, and is found in greatest abundance in Canada, and the most northern parts of the United States: in size, too, it is like the white ash; but the leaves are smaller, and of a deeper green; on the under side they are covered with red down: the seeds are shorter and are flat throughout their whole length: this kind has its name from the colour of the bark which is much darker than any of the others. The wood is brown, very tough, and more elastic or springy than the white; but it does not last as long, and is much less used in carpenters' work: in Maine it is chiefly employed for making hoops and potashes: it is sometimes found handsomely mottled and veined, and is made up into furniture. But it is not

as much valued as the white for any purpose except making potashes.

"The blue ash is found only in Tennessee, Kentucky, and the southern parts of Ohio. The leaves are notched at the edges, which is not the case with the other kinds: the seeds are flat in every part: the wood is excellent, and very much used, particularly in the frames and flooring of houses: a blue die is obtained from the bark; and it is said that milk in which the leaves have been boiled is a certain cure for the bite of the rattlesnake; but I never tried it, and I hope none of you may ever have occasion to make trial of its virtues.

"The last kind I shall mention is the Carolinian ash, which is only found in the Southern States. It is much smaller than the others, for it hardly ever grows more than thirty feet high. The leaves are large, almost round, dark green, and notched at the edges; and the seeds, unlike those of the other kinds, are almost as broad as they are long: the wood is too small to be of much service, but it is of very good quality.

"Now, my dears, tell me, do you know a willow-tree when you see it?"

"To be sure we do, Uncle Philip: willows are as common as poplars; they almost always grow in water, or by the sides of ponds and little streams."

"Ay, you mean the weeping willow, and a very beautiful tree it is, too: but the weeping willow, common as it is, is not a native of the United States; we had it from England, and the English got it, I believe, from Turkey or Persia. There is a story told about the way in which the weeping willow was first brought to England, which is curious enough, but I cannot say whether it is true or not. You must know that about a hundred years ago, there lived in England a very celebrated poet, whose name was Pope, and who was fond of trees and gardens. The story goes that he received once from a friend who had gone to Turkey a basket or hamper of figs as a present; that he found upon one of the twigs of which the hamper was made a bud, which he planted in his garden; the bud sprouted and grew, and in the course of a few years became a fine weeping willow; and this, it is said, was the first ever seen in that country."

"How pleased Mr. Pope must have been,

Uncle Philip, when he found his bud turned into a beautiful tree!"

"Yes, I dare say he was; and remember that for all the pleasure it gave him he was indebted to observation: many people would never have perceived the bud at all, in their eagerness to get at the figs; and many others who might have seen it, would not have noticed it, but left it to be burnt or otherwise destroyed. Mr. Pope made use of his eyes and thought, and had a fine tree for his pains."

"But, Uncle Philip, do you think that a bud would live so long after the branch on which it grew was cut from the tree?"

"Why, my dear, I must say that I think it rather doubtful; still, however, it is possible, and we know that the buds and branches of trees will sometimes sprout a very long time after they have been cut. But it is time for us to come back to our willows.

"Although the weeping willow is not a native of the United States, there are a great many kinds of willow that do grow naturally in this country; but none of them are either large or useful. In Europe there is a species of willow, different from the weeping willow,

from the long slender branches of which baskets are made; but the branches of the American willows are too brittle."

"But, Uncle Philip, I have seen a great many baskets at the basket-shops in New-York, that were made of small round branches like willow; did they come from England?"

"Oh no; the European willow has been introduced into the United States as well as the weeping willow, and it is almost as common here as in Europe. It is larger, and has tougher branches than our native willow. The kind that comes nearest to the European is what we call the black willow: it grows from twenty to thirty feet high, and is common enough in the Middle and Western States: the leaves are very much like those of the weeping willow, but the branches do not hang. Both sides of the leaf are of the same colour. The country people sometimes make a decoction from the roots, which is extremely bitter, and said to be a good purifier of the blood; no other use is made of the black willow except to make charcoal for gunpowder. Another kind is called the shining willow, on account of the brilliancy of the leaves, which are very large; sometimes

as many as four inches long, and two broad, whereas, you know, the leaves of all the other kinds are very narrow and slender. Baskets are sometimes made of the branches of this kind, but they are not as good as the branches of the European willow."

"After all, then, Uncle Philip, it seems to me that the willow is not a very useful tree."

"No; but it grows fast, and is so handsome, particularly the weeping willow, with its long, slender, drooping branches waving about in the wind, that it is a great favourite with everybody. And now, my dears, I think we have had trees enough for to-day; the next time you come I will tell you about the elms and three or four other trees: after that, we shall have nothing left but the different kinds of pine and cedar, a very large family: and when we have finished them we shall have done with the trees of the United States."

"Uncle Philip, before we go will you have the goodness to tell me one thing? I have often seen weeping willows carved upon tombs and grave-stones; why is that done, do you know, sir?"

"It is for the same reason that the name

of weeping willow has been given to it. When people are very much afflicted, they droop, and seem to be, as it were, weighed down with sorrow: the branches of the weeping willow hang drooping towards the ground; and their appearance, to a fanciful eye, has something of the character of mourning; and therefore the tree is represented upon tomb-stones as an emblem of the grief occasioned by the death of relatives or friends.'

The White Pine.

CONVERSATION VIII.

Uncle Philip and his little Friends continue their Conversation about Trees; he tells them of the different kinds of Elm, and Lime, and of the numerous Family of the Pines; and of a vast Trough that was made once in Switzerland, reaching from the top of a Mountain to a Lake nine miles distant.

"Uncle Philip, we have come to claim your promise about the elms, if you please."

"Certainly, my dear children; you know that nothing pleases me more than telling you whatever I know that is useful. In Europe, the elm is considered one of the most valuable trees of the forest: second only to the oak, which it almost equals in size. In France, there are a few very old elms that were planted nearly three hundred years ago, and are now nearly ten feet thick, and a hundred feet high; but these are uncommonly large. The general

height is about seventy feet, with a thickness of two and a half or three. The wood is neither as tough as the oak, nor as elastic as the ash: but it is still very tough, and less apt to split than either. In France, it is more generally used for making the carriages of guns, or cannon, than for any other purpose; cannon, you know, are exceedingly heavy, and the carriages must be very strong, and able to bear a great deal of rough usage; no wood is found so proper as the elm: and they take a great deal of pains in choosing and seasoning the trees cut down for the purpose; I have been told that they keep them seven or eight years under sheds before they use them, and turn them two or three times a year, so that they may become perfectly dry. The wood makes excellent ship-blocks too. In England they use it for wheels, and for the wood-work of large machinery; and in some parts of the country, where the elms are abundant, and coal scarce, they burn it, and very excellent fuel it makes. The bark is tough and stringy, and may be made into good ropes.

"In the United States there are three kinds of elm. The largest is called the white elm,

and grows in every part of North America; the leaves are four or five inches long, and very beautiful, from their regular shape, and the evenness of the teeth into which the edges are notched; the flowers are small, and grow in handsome purple clusters; the seeds are shaped something like pumpion-seeds, and consist of a sort of brown pip with a green fringe round it, and they hang in bunches of three or four together. The white elm is a large tree, sometimes four feet thick, and very lofty; the trunk is perfectly straight, and shoots up thirty or forty feet before it begins to divide into branches. There is one peculiarity about the white elm that I have not noticed in any other tree; I scarcely ever saw one that had not two of its lowest branches growing downwards towards the ground. The arrangement of the branches generally in the white elm is very striking and beautiful. The bark is white, tender, and deeply grooved or furrowed. The wood is dark brown, but is neither as hard nor as tough as the European elm. It is used for making coach-wheels and the keels of ships. The bark, soaked in water and made supple

by pounding, is used in some parts of the country for the seats of chairs.

"Another kind is the red, or, as some call it, the slippery elm."

"Oh, we know that, Uncle Philip; the bark is good to eat."

"Yes; it is used by physicians too: by boiling it in water they make a thin jelly, very like flax-seed tea, that is good for colds and fevers. It is thought to be nourishing, and is often given to sick people, instead of arrow-root. The red elm is smaller than the white, but the wood is stronger, and more durable. The leaves are larger, thicker, and rougher; the seeds are larger and rounder. The bark is brown on the outside, and of a reddish white on the inside. The wood is chiefly used for ship-blocks, and the timbers of boats; it makes excellent rails, too: but it is not very common.

"The other kind of elm grows only in the Southern States, and is there called the wahoo; an Indian name, of which I do not know the meaning. It is a small tree, seldom more than thirty feet high, and nine or ten inches thick. The seeds and leaves are very much like those of the white elm, but not

near as large; but the most curious thing about it is a sort of fungous wing, like what boys call punk, that grows on each side of the branches through their whole length: it is of a pale brown, and has a very singular appearance."

"What makes it, Uncle Philip? What is it for?"

"I do not know, my dear; some people suppose that it is caused by insects that lay their eggs in the bark; but I suspect that it grows naturally. What the use of it is I have not the least idea.

"There is another tree resembling one of the species of European elm, that is sometimes found in the Southern States; but it is very scarce, and has no common name. Botanists call it the planer-tree. The leaves are quite small, of a lively green, and shaped somewhat like those of the European elm; but the seeds are like hops, and not flat, like the seeds of the elms. The wood is very hard and strong, but too small and too scarce to be made any use of.

"I have one more class of trees to tell you of before we come to the numerous family of the pines; but it consists of only three varieties.

The general name of this class is lime ; and the three varieties are called the American lime, or bass-wood, the white, and the downy-lime."

" Uncle Philip, does the sour lime that they sell at the confectioners'—that they make lemonade of; does that grow on either of these ?"

" No ; that is a species of lemon, and grows in the West Indies and other hot countries. The limes that I am going to tell you about are very different. The American lime is a fine tall tree, sometimes as many as eighty feet high, and very straight. The leaves are heart-shaped, and very like the leaves of the common Lombardy poplar, only smaller ; but the most curious thing about it is the way in which the flowers and seeds grow. Besides the common leaf which hangs from a stem like the leaves of other trees, there is a long, very narrow leaf, that springs directly from the branches ; from the centre of this narrow leaf grows a long stem, which splits into three towards the end, and the flowers, which are pale yellow and quite pretty, hang at the ends of these in small clusters ; and after the flowers are gone, the seeds come in their places : they are little gray balls, much like

peas, but harder. The flowers are said to have some good medicinal properties. The bark is remarkably thick, and so fibrous or stringy that it can be made into ropes like hemp. In some parts of Europe, well-ropes are made of it. The wood is white and soft, and works very easily: it is mostly used by carvers in wood. Cabinet-makers prefer it for making drawers, and such things; they generally call it bass-wood. Common wooden chairs are made of it, too, as are the little wooden toys that are made for children, such as images of cows, and horses, and monkeys; you have seen them, I dare say.

"The white lime differs from the bass-wood in size, being only about half as large, and in its bark, which is silver gray and quite smooth: the leaves, too, are much larger, and of a darker green on the upper side; on the under side they are almost white: the flowers are larger, too, and have a very pleasant smell: in other respects, this kind of lime is exactly like the other.

"The third kind is called the downy lime, from the under side of the leaves being covered with a very thick coat of fine soft down or furze. They are almost round, and pointed

at the top, and differ very much in size, according to the situation in which the trees grow: in dry open places, they are not more than two inches wide, but in cool moist spots they are twice as large. In general appearance, the downy lime is not unlike the American lime or bass-wood, but only about half the size; the greatest difference is in the seeds and flowers; the flowers are smaller and whiter, but grow in larger clusters; and the seeds grow in clusters of ten or twelve, instead of three, as in the other kinds; but they hang in the same way, from a long slender stem, springing out of the middle of a narrow leaf."

"Uncle Philip, I read once in a book that matting was made of the bark of the lime-tree; but I do not know very well what matting is."

"It is a kind of thick coarse cloth, sometimes made of rushes, and sometimes, as you say, of the bark of trees; and it is chiefly used for packing some kinds of merchandise; most of the hemp and flax that are brought to this country from Russia is packed in matting made of lime-bark. If you would like to see some bass or lime-wood you can by going to the shoemakers'; the boards they use to cut

their leather on are almost always made of this wood; they like it because it is soft, and does not blunt their knives. But its greatest use is for all kinds of ornamental carving. Sugar may be made from the sap, but in very small quantities. I have only to tell you that the American lime abounds in the northern, the white lime in the middle, and the downy lime in the southern sections of the United States. And now we are ready to turn our attention to the long list of the pines, and spruces, and cedars."

"Uncle Philip, I know that there are a great many different names given to various kinds of pine, and spruce, and hemlock, and fir, and cedar; and I suppose they are in fact all different kinds of trees: but some of them are so much alike that I should think they might be arranged in classes, like the magnolias and the birches; could they not, Uncle Philip?"

"Yes; and so they are: all these trees are ever-greens, and they all have some very strong general features of resemblance; but still they are not all the same kind of trees, and they are divided into three great classes, each including several species; these are the pines, the spruces, and the cedars: I will first

try to make you understand the general distinctions between them, and then go on to describe the principal varieties of each.

"In the first place, then, the pines differ from the others chiefly in the leaves, which are long and slender, like large hairs, or pieces of wire, and mostly grow in bunches, from the ends of the branches, just as though a number of them were tied together; you have seen what is called the white pine very often, I am sure, for it is one of the Christmas greens; and you have noticed the leaves, sometimes five or six inches long, dark green, and about as thick as a knitting-needle: well, all the pines have the same kind of leaves, only some of them are not quite as long. And whenever you see a tree with such leaves on it, you may be sure that it is a pine of some sort or other.

"The leaves of the spruces, on the contrary, are very short, not more than half an inch, or at most two-thirds of an inch long; and instead of growing in bunches like the pines, they stand out all along the sides of the small branches, like the feathers on a quill, only not as close together: there is some difference in the cones or seeds, too, but we will not

take notice of that now. The cedars again have leaves quite different from either of the others; the leaves of the pines and spruces, you know, are smooth and shining; those of the cedars are irregular on their surfaces, and look very much like bits of green twine: this roughness or irregularity is caused by very small scales with which they are covered; besides, they are not as stiff as the leaves of the pine or spruce, and each leaf is, in fact, a small branch, dividing itself and spreading out, like branches of coral: there are other differences, too, which we will notice by-and-by.

"Of all the trees in the world, there are none as universal as these ever-greens, or having as many varieties. Go where you will, to any part of the globe, and you will be sure to find some sort of pine or trees of a similar kind; and although the oak, and some other trees, may be useful in more ways, there are none that are as much used, or that we should find it as inconvenient to be deprived of. All the pines produce a resinous substance, which is of great use and value for very many different purposes; and the wood is an article of universal consumption; indeed,

for some purposes there is no other kind of wood that answers so well; and although no part of the pine, spruce, or cedar, except the wood and this resinous substance, is used in manufactures and the arts, yet they are employed in such an infinite variety of ways that we could better spare any other tree in the world, not even excepting the oak.

"The varieties of pine in different parts of the world are exceedingly numerous; in North America alone, there are ten, most of which are not to be found anywhere else, and indeed almost every country seems to have species peculiar to itself. We will begin with that kind which grows farthest at the north.

"The first, then, is called the red pine, from the colour of the bark; it is most abundant in the neighbourhood of Hudson's Bay, and the most northern parts of Canada, and it is seldom found farther south than New-York. Its general height is seventy or eighty feet, with a diameter of two feet; and it is remarkable for having the trunk all of a size for nearly two-thirds of its length. The leaves are dark green, about six inches long, and two are always found growing from one

root: the cones are light yellow, and two inches long: the wood is very heavy, from being full of resinous matter, or turpentine, and this makes it last a long time: it is used chiefly for planks for the decks of ships, and for pumps; the reason why it is so good for these purposes is that it is almost entirely free from knots."

"Uncle Philip, do they get tar or turpentine from this kind?"

"They might; but there are other kinds, of which the wood is not so valuable, and most of the tar, and pitch, and turpentine is got from them.

"There is another kind that is also found only in the northern parts of America, and it is the smallest of all the pines; it is called the gray pine, from the colour of the cones; it is never more than eight or ten feet high, and the leaves are only an inch long."

"I suppose it is good for nothing, then, Uncle Philip; it must be too small for timber, and I should think it was hardly worth cutting down for firewood if any thing better could be got."

"You are right, my dear; and besides, it is not plentiful anywhere. It is said, how-

ever, that tea made of the cones boiled in water is good for colds.

"The next is the white pine; one of the most common, and also most valuable of them all. It is found in great plenty in the Eastern and Middle States; but the largest trees are found in Maine and New-Hampshire, and the northern parts of New-York: they have been seen as many as a hundred and eighty feet high, and seven feet thick; but in general the height is from ninety to a hundred and thirty feet."

"And is it straight and slender, like most of the pines, Uncle Philip? If it is, it must be a very fine tree."

"Yes, both straight and slender; and this is one of the best things about it; for being very light, the white pines are capital for the masts and yards of ships, which, you know, must be very straight. The leaves are of a lighter green than most of the others, about four inches long, and they almost always grow five together from one root or spot; a few of these little bundles of five are scattered along the sides of the branches, but at the ends they are gathered together in large bunches, all seeming to grow from one spot.

The cones are five inches long, and composed of thin smooth scales, that stick out from each other; these cones always hang down in the white pine, but in some kinds they stand up: like the cones of all the other pines, they are full of turpentine, and burn very brightly."

"Oh, I know that right well, Uncle Philip; I have picked them up very often to kindle fires with. They catch as quick as paper or straw."

"So they do; and a very pleasant cheerful blaze they make, too. This pine, and another kind called the yellow pine, furnish the boards, and planks, and joists, and beams, and shingles that are used in building houses, and for an infinite variety of other purposes; you have made little ships and boats, I dare say, out of pine wood, and you know how soft and easy it is to cut, and how light it is; it is on this account, and from their being so free from knots, that the white and yellow pines are so useful: I suppose that two-thirds at least, of all the houses in the United States are built altogether of white pine; and even in brick and stone-houses, all the beams and rafters are made of it; so you may judge

what a consumption there is of it, and what a number of trees must have been cut down; and besides, you know, there are millions and millions of feet of pine boards exported every year to Europe and the West Indies. Then most of the bridges in the United States are made of it; and all the doors nearly; and looking-glass frames are made of white pine, too, because it takes gilding so well; and, in short, there is no end to the uses made of it."

"Why, Uncle Philip, I should think that the whole country would have been cleared of it by this time, if such vast quantities are used."

"It is disappearing very fast: a hundred years ago, the United States were almost covered with white pines; and now we have to go far into the interior for them: in a hundred years more, they will be scarce enough, I dare say."

"Uncle Philip, it must be a great deal of trouble to bring such large trees any great distance; I cannot think how they can carry them."

"Well, I can tell you; in every part of our country there are rivers, all running towards the sea; and you must have observed that all

the large cities are near the places where these rivers empty themselves into the ocean: the trees are generally cut down in winter, and dragged to the nearest river, where they are all fastened together upon the ice, and made into rafts; in the spring, when the ice melts, these rafts float down the rivers until they come to the city where they are to be sold, or sawed up; and that is the way they are carried. Sometimes there are several thousand trees fastened together in one raft, when the river is wide enough.

"But before we go any further, I must tell you of a very wonderful contrivance that was made by an ingenious man once in Switzerland, to convey trees into the Lake of Lucerne. You must know that in Switzerland there is a mountain called Mount Pilatus, which is covered with fine large pine-trees: the trees were valuable, but as the top of the mountain was nearly nine miles from the lake, the expense and trouble of carrying the logs down to the water were too great, and so the fine trees were perfectly useless. At last the man that I told you of, whose name was Rupp, undertook to make a vast trough extending from the top of the mountain down to the

water, so that the logs might slide down; and he did it too."

"Oh, Uncle Philip, what a monstrous trough that must have been! What did he make it of?"

"Of trees; and you may judge of the size of it when I tell you that it took twenty-five thousand large pines: it was six feet wide, four feet deep, and forty-four thousand feet long; it had to be brought over rocks and valleys, and deep chasms; but Mr. Rupp was a persevering man, and industrious, too, as well as ingenious, and he finished it in little more than a year and a half; then what a sight it must have been to see the great trees sliding down into the lake! The largest and heaviest went the whole distance in six minutes; they plunged down into the water with such speed and power that they would go sometimes a mile before they came up again: and once when a tree, on its way down, struck against a knot or some other obstruction in the bottom of the trough, it flew out with such force as to strike down great pines as though they had been struck by a cannon-ball."

"What a curious contrivance that was,

Uncle Philip; I should like to go to Switzerland to see it."

"Oh, it is all gone now; Mr. Rupp has been dead several years, and the trough fell to ruin, and now there is scarcely a trace left of it. But let us come back to our pines.

"The kind that is most valuable, after the white and yellow, is the black or pitch pine. The wood of the pitch pine is remarkably knotty, and full of resinous matter; it is much inferior in quality to the white and the yellow pine, and is generally used for coarse work, such as candle and soap-boxes, and common packing-cases; it is also sawed up in some parts of the country for boards for flooring; its greatest consumption, however, is for fuel; vast quantities are used on board steamboats, and by bakers, and brick-makers. Formerly, when the black pine was much more plentiful than it is now, great quantities of tar and turpentine used to be got from it in those parts of the country where it grows; but it is rapidly diminishing, and most of the tar and turpentine made in the United States now is got from another kind that is very abundant at the south; it is called the long-leaved, or Georgia pitch pine. In the course of twenty

or thirty years more, I am afraid, the black pines will be all gone; the wood is much dearer now than it was ten years ago."

"And then what will the steamboats do for fires, Uncle Philip?"

"Why, they must then burn coal, as they do in England."

"And when the coal is all gone, Uncle Philip, what shall we do then?"

"Oh, as for that, I think we need not feel uneasy; there is coal enough in the United States to last some thousands of years yet, a time so far distant, that it need not give us any concern at present.

"Of all the pines, the most abundant, except the white, is the long-leaved pine, that I mentioned just now; it is not found farther north than Virginia, but from thence all the way through the Southern States and the Floridas, you may find it almost every step, and in many places in this region, you meet nothing else in the shape of a tree. The leaves are the largest of any; they are more than a foot long, of a beautiful brilliant green, and there are always three growing together from the same root: the cones too are enormous;

their general length is seven or eight inches, and in shape and colour they resemble a huge sweet potato; the seeds are white (unlike those of all the other pines, which are black), and have an agreeable taste: wild turkeys, and squirrels, and pigs eat them with every appearance of relish. The wood is strong, heavy, and full of resinous matter; it is moreover fine-grained, and takes a good polish. In the Southern States it is very extensively used in building both ships and houses, and vast quantities of it are consumed in fencing; and besides, under the name of Georgia pitch pine, it is a great article of exportation to the West Indies. Over and above all this, it is subject to great waste of another kind, from the destructive attacks of a small insect which lodges in swarms under the bark, pierces the body of the tree, and causes it to die in the course of the year."

"Uncle Philip, what does the insect kill the tree for?"

"It feeds upon the wood, or rather upon the sap. It is from this tree that the tar, and turpentine, and pitch, and resin are made, as I told you before: if you like, I will de-

scribe to you the process by which they are obtained."

"Oh do, if you please, Uncle Philip; that must be very curious."

"Well, then; turpentine is simply the sap of the tree in its natural state, and is obtained by boring, just the same as the maple sap; as it runs from the tree, it is about as thick as honey, but gets thicker and more sticky after a little while; it begins to run in March, and continues until October; after five or six years, the tree is abandoned, as no more sap will run from it. It is calculated that in general, forty trees will give a barrel of pure turpentine every year, and about a third of a barrel of inferior quality, called *scrapings*. Turpentine, you know, is used for making soap, and the spirits of turpentine, made by distilling the sap, is used by painters, and also in medical preparations. Resin, or rosin as some call it, is what remains after distilling the turpentine and obtaining the spirits. Tar is made from the limbs of the long-leaved pine, and from the dead trunks of such as fall through age, or are blown down by storms. To procure it, a kiln is formed in some part of the forest where there are a great many

branches or fallen trees; they are cut into billets of two or three feet long, and three inches thick, and then piled in a circle, so that the ends all point to the centre of the pile; the pile is raised on a low flat hillock, having a ditch around it; the top of this hillock is a little hollowing towards the centre, and there is a trough cut from the middle of it to the ditch on the outside. The pile is generally about twenty or thirty feet wide, and ten or twelve high; but considerably wider at the top than at the bottom, like a tin pan: when all the sticks are piled, the top is covered with pine leaves and turf; this is to prevent it from burning too fast; then fire is set to it, and as it smoulders and burns, the tar runs down to the centre of the hillock, and thence through the trough into the ditch on the outside, from which it is ladled into casks. A kiln that is to yield a hundred and twenty barrels of tar, is eight or nine days burning."

"Uncle Philip, what is tar used for?"

"Principally for covering or coating the bottoms of ships, to make them water-tight; also for tarring ropes to keep them from rotting; and a great deal is made into pitch,

which is only a thicker and better sort of tar. All these articles, turpentine, resin, spirits of turpentine, tar, and pitch, are of great use in arts and manufactures, and valuable materials of commerce; and as they are all obtained from the same tree, the wood of which also is excellent, you may well consider that as one of the most useful of all the trees of the forest.

"The yellow pine is found chiefly in the Middle States; but it grows also in the Southern. It is a beautiful tree, and of a regular shape; its height is seldom more than fifty or sixty feet, and its diameter about eighteen inches: the leaves are about four inches long, very fine, dark green, and always grow in pairs: the cones are quite small, and every scale has on it a prickle. The wood is yellowish and of very good quality, as I dare say you know very well, for it is universally used in house-building; particularly for the doors, stairs, window-frames &c.; it is as easy to work as the white, and more durable. Great quantities of it are exported to England and the West Indies, but it is becoming scarce.

"In North Carolina there is a mountain called the Table Mountain, the top and sides

of which are covered with a species of pine different from all the others, and not found in any other part of the country; for this reason it is called the Table Mountain pine. The leaves are about two inches long, very dark green, and twice as thick as those of any other sort of pine: the cones are large, shaped exactly like an egg, and covered with thick short prickles. The turpentine got from this pine is said to be of superior quality, but the trees are so rare that very little of it is made.

"The pond pine is another scarce and useless variety; it grows but in very small numbers in the Southern States, on the borders of ponds, and in small swamps; the leaves always grow three together, and are seven or eight inches in length: the most remarkable thing about it is, that the cones almost always grow in pairs upon the opposite sides of the small branches; they are bright yellow, and very nearly of the same size and shape as an egg.

"The last kind of pine is also a native of the Southern States, and is called the loblolly pine."

"Uncle Philip, what does that word loblolly

mean, do you know, sir? It seems to belong to a great many kinds of trees; there are the loblolly oak, and the loblolly bay, and now the loblolly pine."

"I do not know, indeed, my dear, what it means; I suspect, however, that it is used to signify common, for I observe that the trees to which it is given are all very abundant and hardy, and grow in almost any kind of soil. This loblolly pine is quite common in Virginia and the Carolinas, where it shoots up to the height of eighty or ninety feet: the leaves are very slender, light green, and grow in parties of three: the cones are long and slender, and rather handsome: the wood is bad, but it yields turpentine in abundance. It is used chiefly for fuel, but sometimes for pumps, and in making wharves. This ends our talk about pines; the next time you come to see me, I will tell you about the spruces and cedars."

Leaves, Cone, and Seeds of the Cypress.

CONVERSATION IX.

Uncle Philip teaches his little Visiters how to make Spruce-beer ; and goes on to tell them about the different kinds of Spruce-trees, and the Cypress and Cedars ; after this he describes the Larch, or Hackmatack, and then brings his Conversations upon the Trees of America to a close.

"WELL, my dears ; you have been taking a long walk, I suspect : for you look hot and tired : come and sit down here in the shade. You shall have some milk : or, if you would like it better, some spruce-beer."

"Oh yes, some spruce-beer, if you please, Uncle Philip ; it tastes so cool and fresh when one is hot and thirsty. Uncle Philip, you promised to tell us about spruces ; is spruce-beer made from any part of the spruce-trees ?"

"Yes, from the young branches of the black spruce ; there are four kinds of spruce

that grow in America, and they are known by the names of black or double spruce, white or single spruce, hemlock spruce, and balm of Gilead. And first of the black.

"You remember, I hope, the difference in the form of the leaves by which you may always know pines from spruces?"

"Oh yes, Uncle Philip; the leaves of the pines are long, and always grow in pairs or in bunches of three or four, fastened together where they stick to the branches: and they almost always grow from the ends of the branches; but the leaves of the spruce are short, and grow equally all along the branches like the feathers on the sides of a quill."

"Very well, my dear; I am glad to find that you remember it, for this is an important distinction. The black spruce is a northern tree, and seems to prefer cold climates; in Canada and the Eastern States, and the northern parts of New-York, it is very common; it is said that in most of the forests in those parts of the country, the black spruces are equal in number to a third of all the other trees together: farther south it is scarce, and, indeed, is hardly ever seen except upon some cold spots among the Alleghany

Mountains. The leaves are of a dark green, almost black, and grow so thickly as to give the trees a very cheerless and gloomy appearance: they are about half an inch long, and grow all over the branches as close as they can stand together: the cones are small, generally about an inch long,—reddish, and always hanging down; they are composed of thin scales, which open in the fall and let out the seeds; the seeds have a sort of wing attached to them, and are so light that they are carried about by the winds.

"The height of the black spruce is from sixty to eighty feet, and the top forms a regular pyramid: the wood is white, strong, light, and not brittle, and is much employed for the yards and small spars of ships; it contains very little turpentine, and when burning snaps like the chestnut. Spruce-beer is made by boiling the young twigs in water, adding molasses or sugar, and leaving the liquid to ferment, or *work*, as the country people call it."

"But, Uncle Philip, how do they make spruce-beer in cities, where there are no spruce-trees: I know that a great deal of it is made

in New-York, and there are no spruce-trees about there, are there, sir?"

"No; but they have the essence of spruce, which is made by allowing the water in which young twigs of the spruce have been boiled to simmer over a fire until the greater part of it has boiled away, and what is left is thick like honey; this is very strong of the spruce, and being put up in bottles, will keep a long time, and in all climates; and it answers just as well for the beer as the fresh branches.

"The single spruce, or white spruce, as some call it, grows in the same situations as the black, but it is not so common anywhere."

"Uncle Philip, why is it called single spruce?"

"The only reason, I believe, is, that the leaves are not so close and numerous; but certainly, single is not a good term to express the difference; white is a better name, as the leaves are a great deal lighter; in fact, their colour is a very pale green, that looks much like white in contrast with the dark gloomy leaves of the black spruce. The white spruce is a smaller tree too; never more than fifty feet high, and the wood is not quite as good."

"And do they make spruce-beer from the branches of this kind too?"

"They might; but the leaves have a strong unpleasant smell, and therefore they are never used for beer except when the black spruce is not to be had. There is a good property, however, about the roots of the white spruce that makes up for the bad smell of its leaves; you remember what I told you about the great use made of the birch-bark by the Canadians?"

"Oh yes, Uncle Philip; for making canoes."

"Yes; and if you remember, I told you, too, that the sheets of bark were sewed together with the fibrous roots of the white spruce; do you know what *fibrous* means?"

"Yes, sir, I believe I do; I think it means something like threads; flax is fibrous, and so are silk and cotton."

"Ah, I see you understand it very well: now the fibres of the white spruce-roots are tough and strong, and by soaking the roots in water, they can be pulled apart so as to make very good stout thread. After the sheets of bark are sewed together, the seams are coated over with the turpentine or resinous

matter that is got from another kind of spruce,—that called the balm of Gilead; but when they cannot get that, they use the turpentine of the white spruce itself, which answers the purpose very well."

"Then the white spruce is not a useless tree, Uncle Philip."

"Oh no; very far from it; although the wood is none of the best.

"The hemlock spruce, like all the other kinds, flourishes only in cold climates, and is seldom found even as far south as New-York. It is a large tree, and grows slowly; the leaves are short and flat, very dark green, and only grow in two ranks; that is, one on each side of the branches: the cones are very small, about as large as the first joint of my little finger, and sharp-pointed. The wood of the hemlock is inferior to both the black and the white, but still it is considerably used where white pine is scarce; its greatest fault is in not splitting in straight lines, but always crooked; its most general use is for flooring. But still the hemlock is a very useful tree, on account of its bark, which is good for tanning."

"Is it better than oak-bark, Uncle Philip?"

"No, not better, nor quite as good; but it is thought to be the next best after oak-bark, and where oaks are scarce, the hemlock-bark is always used instead of it; I believe that tanners generally think that the two barks used together make better leather than either of them alone. You may always know when leather has been tanned with hemlock-bark by its deep red colour."

"Oh, then my shoes are made of that kind of leather, I suppose, Uncle Philip; for they stain my stockings dreadfully."

"I dare say they are; the colour of the oak-bark is neither as red, nor as apt to come out upon the stockings.

"The fourth and last kind of spruce, as I told you before, is called the balm of Gilead, and sometimes American silver fir; this last name is derived from a peculiarity in the leaves, which are bright-green on the upper side, and silvery white on the under."

"And the other name, balm of Gilead, I suppose is from the turpentine or resinous matter that is got from it?"

"Yes; but this turpentine is not got by boring holes in the trees, like that of the

pines, but collects of itself in little swellings on the trunk and branches; and is procured by breaking these swellings and receiving the turpentine in bottles; the turpentine of the balm of Gilead is a greenish fluid, about as thick as honey, and has a sharp, biting taste."

"It is used as a medicine, is it not, Uncle Philip?"

"Yes; but there is another balm of Gilead that is much better; it is got from a very different sort of plant that grows in Asia. The balm of Gilead that we are speaking of, is sometimes given in consumptions, but I believe it is not much esteemed by physicians. The wood is very light, and almost useless, partly because it wants strength, and partly on account of its small size; for the silver fir is but a little tree; but it is much the most beautiful of all the spruces, as well from its regular shape, as from the pleasing colour and variety of its foliage: its cones always grow pointing upwards, and they are much larger than any of the others; I have seen them five inches long; they are of a light purple colour.

"We come now to the cedars: these, you remember, have leaves covered with exceedingly small scales, instead of being smooth and shining like the leaves of the pines and spruces; and besides, they branch out in different directions, instead of being single, and growing regularly upon the branches as the others do. There are only four kinds of cedar in the United States, and one of those is by some botanists considered a cypress, from the shape of its cone. Perhaps I had better tell you about the cypress before we talk of the cedars, and then you will be able to understand the description better.

"The cypress is a southern tree; it is never seen farther north than Delaware, and from thence down to the southern extremity of the country it is constantly found in the swamps. In the Floridas and Louisiana it is a magnificent tree, often more than a hundred and twenty feet high, and from thirty to forty feet in circumference at the base; but this is not to be taken as the actual size of the trunk, for the cypress, like the large tupelo, has the strange peculiarity of swelling out to a monstrous size just above the ground, and the

real diameter of the trunk must always be taken at the height of five or six feet."

'Uncle Philip, I should think the wood-cutters would not like that; it must give them a great deal of trouble to cut through such a quantity of wood."

"That is very true, my boy; but they know how to manage it; they always build up a scaffold above the swelled part or base, so that they can cut where the proper size of the tree begins. There is a curious thing, too, about the roots; on those of the very large trees there are large swellings, sometimes as big round as a barrel, and quite hollow; the negroes make bee-hives of them. The cypress is not an ever-green; the leaves are small and very much like those of the white spruce, but not as close and numerous: after the summer they change from light green to a dull red, and soon after fall. Boiled in water they give a fine cinnamon colour, and are sometimes used for dying. The cones are hard and round, and about as large as a plum; the surface is curiously marked, and they contain a number of seeds with kernels in them. The wood is fine-grained, and of a

reddish colour; it is very strong and elastic, and is lighter and less filled with turpentine than that of the pines: but its greatest excellence is its durability; well seasoned, it lasts more than twice as long as any of the species of pine: it is considerably used in building, but much more extensively in making shingles, which will last forty years. Where it is plentiful, it is also much used for posts, and for water-pipes; it resists the decaying power of moisture better than almost any other wood. To give you an idea of the value of the cypress, I will tell you that the consumption of shingles made from its wood, has been calculated at more than a hundred millions every year; but I am sorry to say, that in consequence of this enormous consumption, the trees are becoming scarce.

"You will now be able to perceive the points of resemblance and difference between the cypress and the white cedar, which, as I said before, is sometimes considered as belonging to the same class. I must confess, however, that in my opinion it is quite distinct, for it is an ever-green. It is found chiefly in Virginia and the adjoining States, and only in wet grounds: in the Dismal

Swamp in Virginia it is more abundant than any other tree, except the cypress. Its height is about seventy feet, and the thickness of its trunk three or three and a half; it is straight and free from branches until within twenty feet of the top. When cut, it yields a yellow transparent turpentine that has a pleasant smell; but the quantity is very small. The leaves are quite different from those of the cypress, being, as I told you, composed of very small scales, and branching out in various directions like coral. The greatest point of resemblance is in the cones, which are shaped exactly like those of the cypress, but are a great deal smaller,—not much larger than a pea. The wood is light, soft, fine-grained, and easy to cut; you can try it for yourselves, however, for it is of cedar-wood that lead pencils are generally made; its colour is rosy, and it has a pleasant smell. It resists moisture remarkably well, and for this reason, as well as its lightness, it is much used for shingles. Vast quantities of it are also made into pails, and tubs, and churns. In New-Jersey the farmers prefer cedar-wood for the posts of their fences: these posts will last fifty or sixty years; and besides all this, it makes

good charcoal for gunpowder, and very excellent lampblack.

"There are two other kinds of cedar that grow in this country; with one of these, the red cedar, you are well acquainted, I dare say, for it grows almost everywhere, from Maine to Florida. Some call it juniper. You may know it by its little blue berries."

"Oh, then we do know it, Uncle Philip: robins and other birds feed on the berries in winter."

"Yes; and very glad they are to get them, when the ground is covered with snow, and all the other trees are quite bare. I suppose I need hardly tell you that this kind of cedar is very small; but I suspect that you do not know what is made of the berries."

"Made, Uncle Philip! I did not know that any thing was made of cedar-berries."

"It would be better if nothing *was* made from them; the article I mean is gin; one of those poisonous and destructive drinks that take away men's reason, and make them worse than the beasts. The wood is compact, fine-grained, and very light; it has a pleasant odour, too, like the white cedar, and is equally durable; but it is too small to be

made use of for any purposes of utility: in those parts of the country where it is found large enough, it is made into posts, which last an immense time, and small quantities of it are exported to England to be made into pencils. In the Southern States it is very often used for coffins.

"The third and last kind of cedar is also called white cedar in the northern parts of the United States and in Canada, where it grows; in the south it is almost unknown: botanists generally call it *arbor vitæ*, which means tree of life; this name is given to it on account of its durability. It is generally about fifty feet high, and a foot and a half thick: it grows very slowly. The leaves are evergreen, and much thicker and longer than those of the red cedar; when bruised, they give out a fine aromatic smell. The cones are very small,—not much larger than an apple-seed. The bark is smooth and white, and the wood soft and reddish: the trunk is seldom straight, and for this reason it is difficult to procure sticks suitable for building, but it is much esteemed notwithstanding, on account of its durability: I have seen a building in which the timbers were mostly of the *arbor vitæ*, and though it

had been built more than sixty years, they were perfectly sound. Its most general use, however, is for fencing; the posts last thirty-five or forty years, and the rails fifty or sixty. But even this is nothing to the durability of the cedars of Lebanon,—enormous trees that grow in Asia, the wood of which is said to endure for hundreds of years."

"Uncle Philip, I have read about the cedars of Lebanon in the Bible; was not Solomon's temple built of them?"

"Yes, partly. They must have been very plentiful in Solomon's time, but now they are scarce.

"There is yet one more tree that I must tell you of, and then we shall have gone through with the North American forests. It is very similar to the spruces in many particulars, but a distinct name is given to it; this name is larch: in the northern parts of the United States it is commonly called hackmatack, but larch is the most correct. It is found in Maine and Vermont, but it is most common still farther north,—in Canada and Nova Scotia. In the Middle States it is scarcely ever seen. It is a noble tree to look upon, with a straight slender trunk, nearly a

hundred feet high, and three feet in diameter: the leaves are shaped like those of the balm of Gilead, but they are collected in bunches, united at the root and spreading out at the other end, like the sticks of a fan; this arrangement of the leaves gives to the tree a singular and pleasing appearance. The cones are about the size of an acorn, and very abundant. The wood is better than that of any of the pines or spruces, uniting great strength with durability almost equal to that of the cypress: its only fault is its weight, which makes it unfit for masts. It is chiefly used for the knees and large timbers of vessels."

THE END.