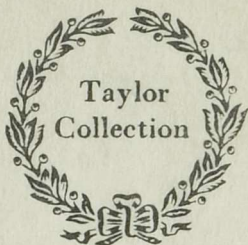


The Forest.

NS
TAYLOR, JEFF
FOREST...
1831

A59a(6)
C.2



Christina Duff Stewart

37131 048 638 985

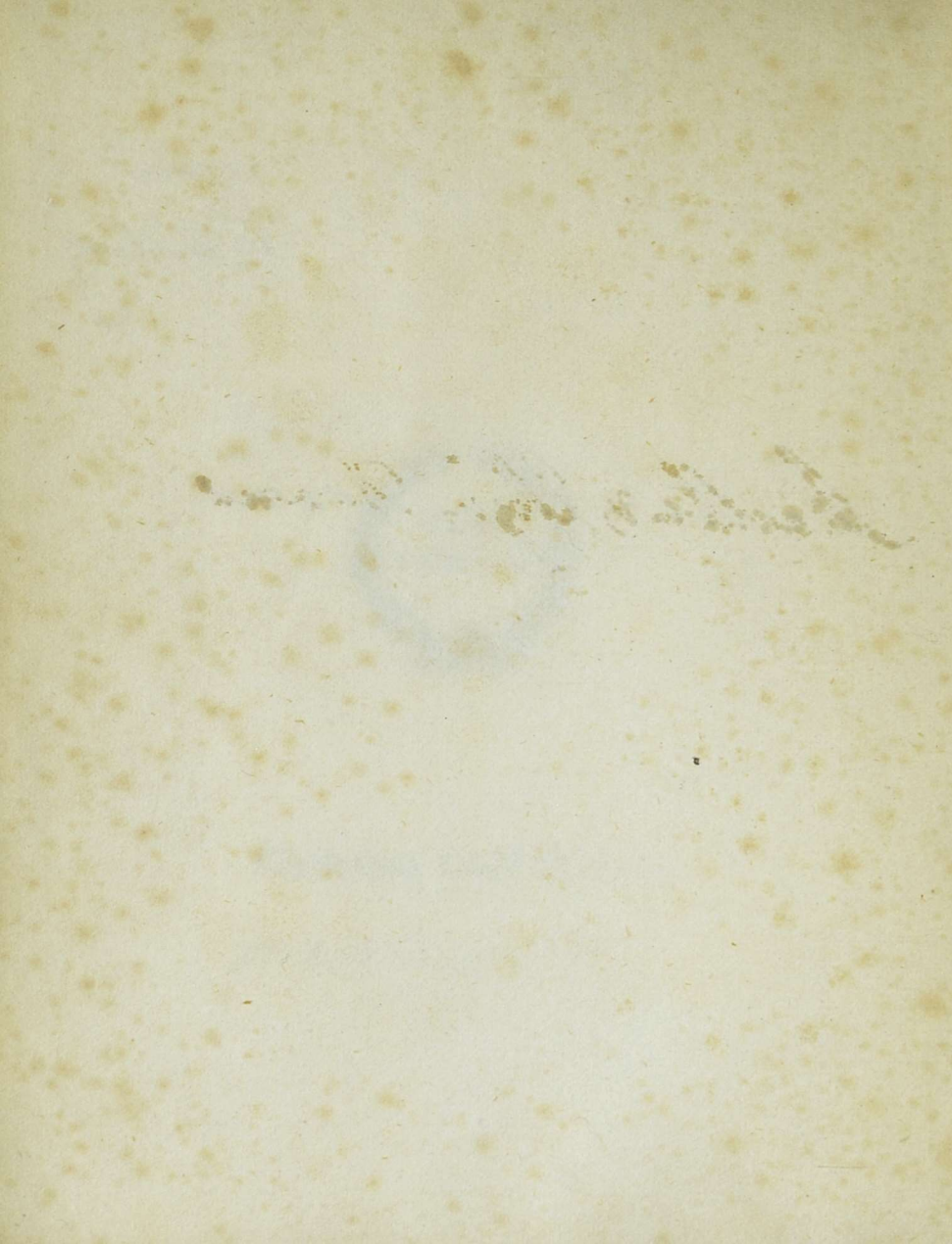
not in
Stewart

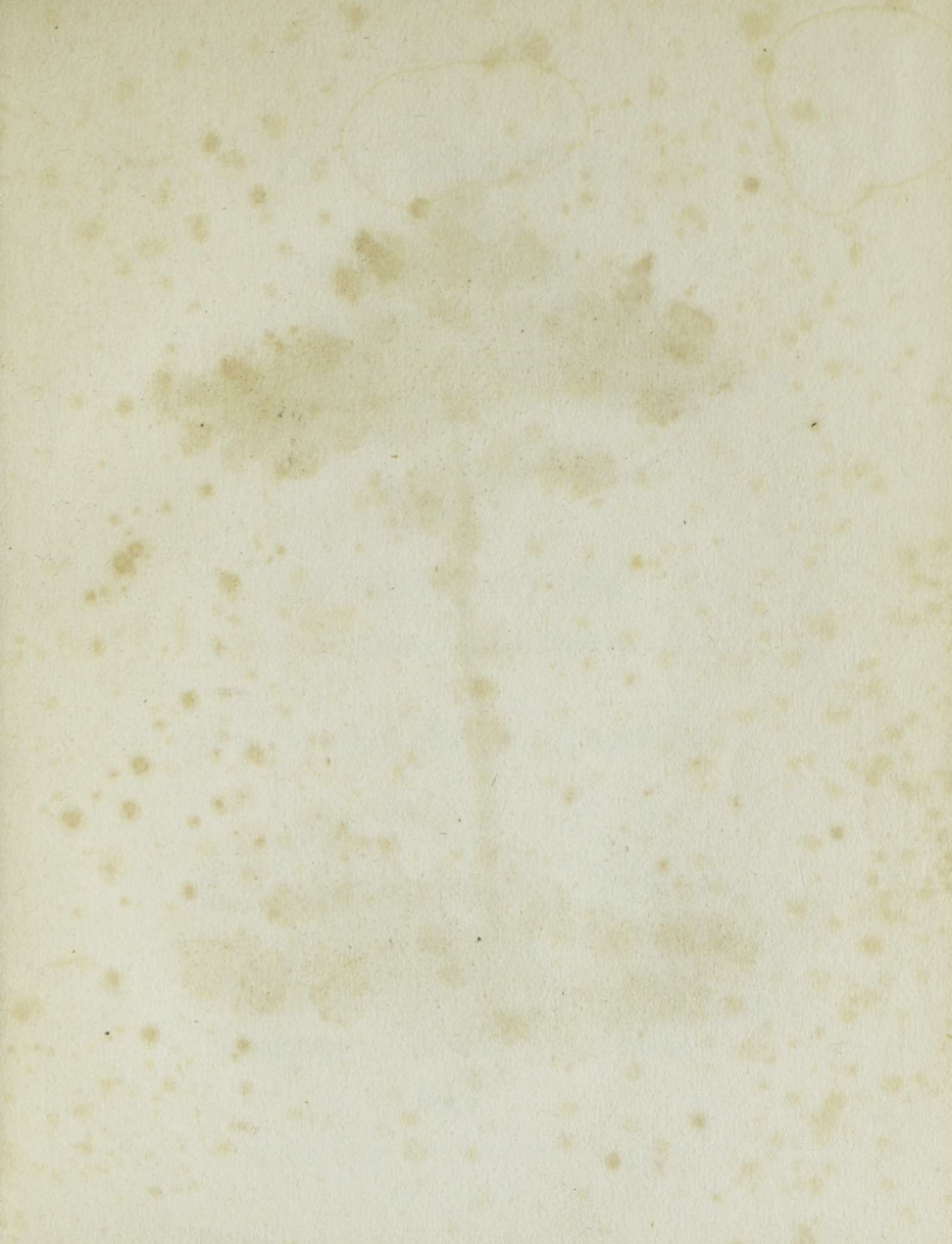
A59a

Scott

— a remnant of
(b) binding

Matthew & Eliza Downs







Pine

THE FOREST;

OR,

RAMBLES IN THE WOODLAND.

BY

JEFFERYS TAYLOR,

AUTHOR OF "PARLOUR COMMENTARIES," &c.

WITH TWENTY-SIX ILLUSTRATIONS.

LONDON:

JOHN HARRIS,

CORNER OF ST. PAUL'S CHURCH-YARD.

1831.

LONDON :
PRINTED BY SAMUEL BENTLEY,
Dorset Street, Fleet Street.

THE LITTLE LIBRARY,

Comprising, in a Series of small Volumes, uniformly printed,
A FAMILIAR INTRODUCTION TO VARIOUS BRANCHES
OF USEFUL KNOWLEDGE.

I.

THE MINE; by the late Rev. ISAAC TAYLOR, of Ongar. With 16 Engravings, and a Mineralogical Table. Square 16mo. neatly bound in coloured cloth, lettered, price 3s. 6d. Second Edition. Extract from the CONTENTS.—Ancient Coal Mine.—Gold Mines.—Anglesea Mines.—Black Damp.—Black Lead.—Blast Furnace.—Blasting Mines.—Boring for Coal.—Brazil Diamonds.—Bristol Stones.—Cannel Coal.—Captain of a Mine.—Caron Foundries.—Choke Damp.—Cinnabar.—Coining Tin.—Copper; its various Mines.—Sir H. Davy's Safety Lamp.—Descending into Mines of Copper, Coal, Iron, Salt, and Silver.—Diamonds.—Finding Mines.—Draining Mines.—Dress for a Mine.—Explosion of Coal, Galena, Gas.—Fuller's Earth.—Gold in various parts of the World.—Lead.—Mercury.—History of Mines.—Mineral Cabinet.—Mines in Cornwall.—Pactolus.—Phœnicians trading for Tin.—Pig Iron.—Plumbago.—Quantities of Coal sent to London.—Rail Roads.—Retorts.—Roasting Ore.—Smelting Furnace.—Stamping Mills.—Steam Engine.—Stream of Sparks.—Sulphur.—Women Coal Bearers.—Zinc, &c. &c.

II.

THE SHIP: with Sixteen Engravings on Steel. By the late Rev. ISAAC TAYLOR, of Ongar, Essex, Author of "Scenes in Europe," "The Mine," &c.

The following is a brief enumeration of the subjects noticed in this book:—

Noah's Ark.—Floats on the Rhine.—Egyptian Pottery Float.—Indian Paddle Canoes.—Boats, Barges, and Lighters.—Sailing Canoes.—Chinese Junks.—The Nautilus.—Ancient Vessels.—Roman Galleys.—British Coracles.—Cæsar's Fleet.—A Fire Ship.—A Cutter.—A Gun-boat.—A Bomb-ketch.—A Frigate.—A Man-of-War, with its Long-boat, Barge, Pinnace, Cutter, and Yawl.—A Turkish Galley.—A Venetian Galleas.—A French Galley.—A Zebec, Polacre, and Tartan.—A Snow, Bilander, Schooner, and Dogger.—A Sloop, Hoy, and Smack.—An East-Indiaman.—A Portuguese Carrack.—A Spanish Galleon.—A Canal Boat.—A Wherry, and Pleasure Boat.—Lord Mayor's State Barge.—Venetian Gondola.—The Doge's Bucentaur.—A Man-of-War, with descriptive references.—A Section of a Man-of-War.—The Dock Yard.—The Ship Launch.

SHORTLY WILL BE PUBLISHED,

III.

THE GARDEN; containing every necessary Instruction for Young Persons to lay out and manage their own Gardens, &c. With many illustrative cuts.

THE FOREST.

INTRODUCTION.

NATURE is beautiful in any season; she varies in her costume, but is at all times lovely, or at least interesting; whether we trace the broad valley, climb the steep hill, or wander through the gathering shadows of the pathless wood.

The Spring pleases all ages; perhaps, to such as are advanced in years, that revival, which age can never hope for, is, on that account, to them peculiarly delightful. Yet the

vivid greens, the corn-growing lands, must delight all who have eyes, whatever their years may be. The primrose, peeping from beneath the heaps of withered leaves, which have all the winter sheltered it, and repaying their kindness by decorating with its knots of pale petals the brown ruin, is sure to suit the taste and feelings of old and young; whilst the warbling of the feathered choir, from the broken notes of the twittering wren, to the full and more continuous tune of the blackbird and the thrush, draw our attention now this way and now that; and the busy bee, by its ceaseless humming, proclaims its honourable industry, and calls upon the indolent to follow so good an example.

The Summer ripens every beauty, and presents it—no longer, indeed, with the charms of childhood, but—with the more satisfactory ful-

ness of youth hasting to maturity. The leaves are perfectly grown; the tints are firmer and darker greens; and the whole form and stature of every tree and every bush is complete. The blossoms of the May-bush have sparkled, and are beginning to be replaced by the reddening and scarcely less abundant berries.

A stroll in Autumn is invited by the rich glowing tints, which everywhere burnish the landscape. Call it decay, if you please, but acknowledge, at the same time, that Nature is yet admirable; more beauteous and grand in her declining magnificence, than art in the most costly and splendid displays, which human pomp and pageantry can exhibit. From the dwarf nut-bush, with its brown treasures, to the stately oak, dotted with clustering acorns, all is fruitfulness. The crimson bunches of the hawthorn, and the scarlet berries of the

dog-rose, with the blue-bloomed sloe and the prolific blackberry, shew that the flowering season is indeed over, but that more substantial blessings have succeeded. Stores of winter food are thus provided for the birds, when the corn seeds are all picked up, and when the insect tribes have retired to their hidden recesses, or lie not less secure in their aureliæ envelopements. The gossamer lingers and throws its fine and wavy lines across our path; frail, and almost viewless threads, they impede no more than do the shades in which they lie unseen, or the sunbeams in which anon they glisten.

And Winter, stern and severe as its character is, has an elegance and beauty peculiar to itself. Many an evergreen dots the wood with its dark foliage; the brown leaves of the ilex oak, shew but sad remains of former orna-

mental attire; yet the verdant moss and the enlivening ivy remain on the giant form of the gnarled oak, and invest the less rugged structure of the tall and feathering elm, and the more delicate aspen. Should the snow cover with its spotless mantle the broad mead, it will elegantly ornament the trees, encrusting their stouter branches; festooning along the hedge rows, or hanging in full drapery, as it drifts through them and hangs over the bank. If, instead of the overwhelming snow storm, we are presented only with the hoar-frost, can any thing be more beautifully rich than its filagree operations? The firmness and dryness which the frost gives to the ground, renders walking safer and more pleasant than in some of the milder but more humid seasons. The cold too shuts up in a torpid state many of the reptile race; they sleep, unwilling and un-

able to appear in an atmosphere so benumbing and unkind as this.

I was roused from my reverie by the appearance of two genteel lads, who, I suppose, had observed me. I saw in their countenances a wish to ask me a question or two; and as I am never better pleased than when young persons are desirous of instruction, I quickly informed them, by a bland countenance and gentle tone of voice, that I was ready to enter into conversation with them, if such were their desire.

“What a large forest this is, Sir!” said the younger of the two; “we have walked in it some miles, and are quite tired.”

I was seated on the mossy stump of an oak, a sapling of which had started from the root, and, emulous of its parent's honours, had spread

its umbrageous branches far around, forming a pleasant shade. I invited the youths to sit down, one on each hand. We were acquainted presently.

“Now, my young friends,” said I, “as to the size of the forest, I believe it greatly exceeds in extent the distance which you have probably walked this morning. I understand that this **NEW FOREST**, as it is called, is reckoned twenty miles long from Godshill to the sea; and you may travel about fifteen miles across it.”

“I am surprised,” said the eldest, whose name I found was Frederick, “that they let so much fine land lie waste. Was it always as wild and rough as it is at present?”

“No. It was once well peopled; had in it many flourishing towns and quiet villages, and

thirty-six parish churches, with cultivated fields and farms.”

“Indeed! How were they all so completely ruined? Was it fire, or a flood, or the plague, that killed the people, and destroyed the buildings?”

“It was neither fire nor flood, nor was it pestilence; but that which is often more to be dreaded than these: it was wanton ruthless despotism. William the Norman, who, from his defeating the English king Harold, is commonly called *the Conqueror*,—was fond of hunting, almost to madness. This spot, unfortunately for its peaceful inhabitants, appeared to him suited to such royal amusement. He, therefore, expelled the people, thinking nothing of their sufferings. He demolished the farms and the villages; the churches and the convents. He made the whole a wilder-

ness, and appointed persons to take care that it continued so, with orders to nourish up the wild animals fit for the chase; making very severe laws against such as should, by hunting or any other means, presume to kill his deer, or imitate his own pastime."

"But," said one of my hearers timidly, "can kings always do as that king did?"

"At that time," said I, "there were very few kings who could not do that, and worse, when they pleased; but now, even in what are called absolute monarchies, it could scarcely be done. England has, for a long time, enjoyed the government of *the laws*, which, and only which, the king has power to execute. If the sovereign were now to desire the indulgence of such a whim, his only way would be to buy the property of the persons to whom it might belong, and thus induce them

to remove by money. The most powerful man in the land cannot enter the cottage of the poorest person without his consent; unless, indeed, that poor man happen to be a criminal or a debtor. When, for any public work, such as a canal or a bridge, private estates are wanted, an Act of Parliament must be procured, and their full value must be paid; and when even a forest or a wilderness is to be enclosed for cultivation, the same process must be gone through."

"And were there, in the reign of this William the Norman, no poachers, who would hunt his game, in spite of his laws?" inquired Harry.

"There were persons, certainly, who stole his deer; but it was at the peril of having their eyes put out, a limb cut off, or of being hanged upon the spot. The forest laws were

extremely severe, and became the most common sources of dispute between the king and his nobles; for they were as fond of hunting as he was. Charters had been forced from several kings to prevent maiming and death for such trespasses; and *Magna Charta* at length settled the laws on a better plan than before.—Pray, my young friends, will you tell me something about *Magna Charta*?"

They readily replied, that it was obtained at Runnimede, where King John was forced to sign it.

I am always pleased when I find in the young not only these principal points of knowledge, but also a facility in communicating what they do know. It is true, indeed, that nothing is more offensive than that self-sufficient ostentation, by which some youngsters push themselves into every question, to give

their OPINION,—before it is asked or wished. On the other hand, there scarcely can be a greater hinderance to a youth's taking his place respectably in society, than that needless and foolish timidity, which prevents his making proper use of the information with which his mind, by the skill of his instructors and his own diligence, has been perhaps adequately stored. Thus, a lad sometimes appears what he is not—ignorant or stupid,—because he is abashed and ashamed to speak even before his friends.

I then asked another question. “Pray, is there any thing concerning *this* forest in particular, which you remember to have read in the History of England?”

“I think,” said Frederick, after a moment's pause, “that William Rufus was killed in it.”

“You are right. William Rufus was the

son of William the Norman, who first made the forest. He was as fond of hunting as his father, and had been busily engaged in his sport during the day. Towards evening, he and Sir Walter Tyrrel were separated from the company. William, perceiving a stag coming towards them, let fly his arrow and wounded, but did not kill, the animal. Tyrrel at that moment saw another, and shot at it; but the arrow, missing the deer, glanced from a tree, and struck the king to the heart. Tyrrel, alarmed at the event, clapped spurs to his horse, nor stopped till he got to the sea-side, where he went immediately on board a vessel, and made his way to the Holy Land, to fight the Saracens. Perhaps, it was only to escape the vengeance likely to attend his unhappy deed; or else, according to the superstition of the times, he might hope to expiate the crime of

killing the king accidentally, by what was then esteemed a good work of the most illustrious kind, that of killing, by all the means which the most determined purpose could command, as many Saracens or Mohammedan infidels as he could.

“The oak, against which the arrow struck, became interesting, and was suffered to stand till it died of old age. In the year 1745, a triangular stone monument was erected on the spot where the accident occurred, to keep it still in remembrance.”

“But,” said Frederick, reverting to his previous inquiry, “I am yet unable to see why so much land is still allowed to lie waste.”

“You seem to think,” said I, “that its present produce is worth nothing. It is true, that this forest occupies ninety thousand acres; that this would make more than five

hundred respectable farms, and so on. But then we must look elsewhere, and perhaps in vain, for a sufficiency of oak timber to build our national navy. You see what fine trees are growing up all round, of all ages and sizes. If these be taken proper care of, the older trees may be cut down as they become fit for use, and thus a constant supply of excellent timber is secured for the defence of our important little island: you would not have that neglected, surely?"

"But besides that," said Harry, "we want wood, I suppose, to build houses, and faggots to burn in them. It would not, I think, be very wise to grow nothing but food, and so have no fires to cook it with, or houses to eat it in."

"And yet, Sir," said Frederick, turning to me, "you spoke of making a forest of this

part of the country, as an exceedingly cruel and mischievous act. I suppose, after all, that though timber is worth much, corn and cattle are worth more."

"It would," said I, "be cruel and mischievous, in a high degree, to drive people from their houses and lands by mere force, to make the finest and most productive forest that ever was heard of; how much worse to do it, merely to secure a place for the amusement of a few! As to the question, whether the produce of a forest, or of farms, is the most valuable, that must depend upon circumstances, with which we cannot at present be sufficiently acquainted to form a judgment. I am inclined to think though, that now, a thousand acres of fine wood land would yield more to its possessor than the same extent of meadows and corn fields."



Oak.

THE OAK.

WE had made a sort of bargain to meet again. I had not been long on my mossy seat, before I heard their voices; and, at a turn, formed by a cluster of trees and bushy underwood, I saw them approach with each of them a sister on his arm, and following them a somewhat elderly lady, whom I soon found to be the relative with whom the young party resided. She presently stepped forward, and, after a moment occupied by an anxious and penetrating survey, in a lady-like manner she thanked me for my previous instructions to those whom I now found to be her nephews.

“I trust,” added she, “they were not troublesome with their questions: the inquisitiveness of youth, even in matters of proper and needful information, is, I know, sometimes annoying.”

I rose, and begged her and the young ladies to take my seat; replying, that I never felt it troublesome to answer inquiries dictated by that laudable curiosity which gives young persons a constant appetite for knowledge. “Your juvenile party, Madam,” said I, “have much to learn, and have, the youngest of them, only a few years to learn it in; I shall be most happy to assist them, whilst I remain in the country, by affording hints respecting subjects connected with *The Forest*, as occasional opportunities here may present themselves.”

Looking at the young ladies with, I suppose, rather a fatherly smile, she was pleased to say

that they also would be obliged by being permitted to listen to the conversation.

“I am glad, Madam,” said I, “not only that my auditory is enlarged, but that you agree with me in thinking that general knowledge and literary and scientific information should not be confined to the sons of a family. Such is the opinion and practice of my esteemed friend, Mr. Longhurst, at whose house I am spending a few weeks of this delightful weather.”

“Mr. Longhurst, of Ashfield, I presume,” said she, with evident satisfaction. “I have recently had the happiness of an introduction to the very amiable and intelligent family residing there, and regret that distance renders our visits unfrequent.”

By this fortunate coincidence, we soon be-

came known and introduced respectively by name; nor was the circumstance mentioned at Ashfield, without a day being fixed for an invitation to Mrs. Heathfield and her sister's family. Our woodland excursions were now regularly appointed, and attended more numerous; and my own were not the only stores of knowledge drawn upon for the benefit of the younger individuals of the party. Mr. Longhurst was a well-educated, intelligent man; one who had evidently been always observant of things around him, and had a strong taste for the appearances and incidents of nature. He had read much and travelled; and thus, by the help of a pretty good memory, he made himself a valuable instructor and a very interesting companion.

However, he was not present on this occasion; and, therefore, I supplied what hints I

could myself, on the subjects in hand, as proposed.

“One of our first inquiries should be,” said I, “concerning the different sorts of trees, and how we are to distinguish one species from another. My best way will be to lead you to some good specimens of each, which we may probably find within a moderate distance.”

“Now one of you young gentlemen, perhaps, will oblige us by pointing out an OAK tree.”

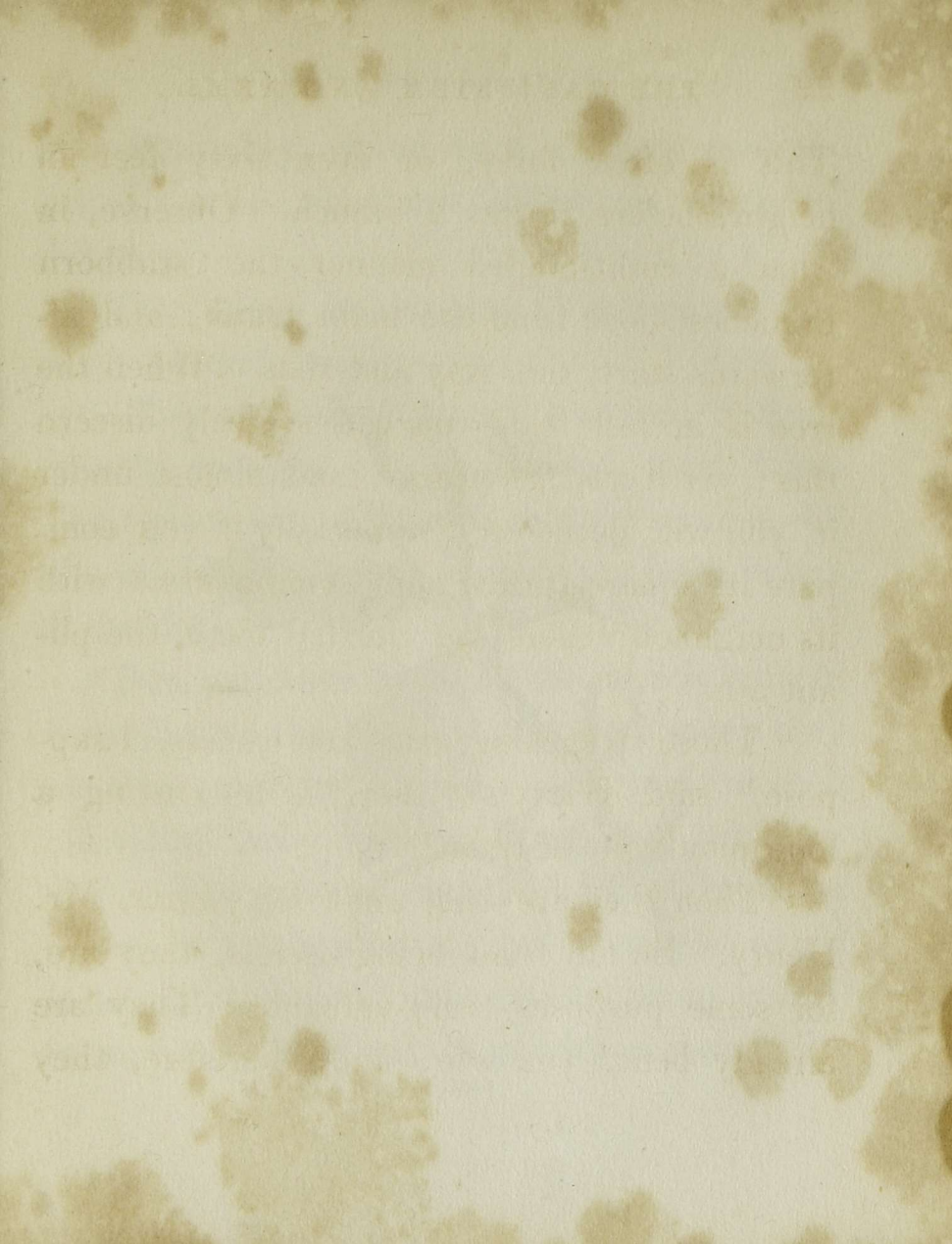
“There is one!” and, “Is not that one?” and, “I will bring an oak branch;” were the ready replies.

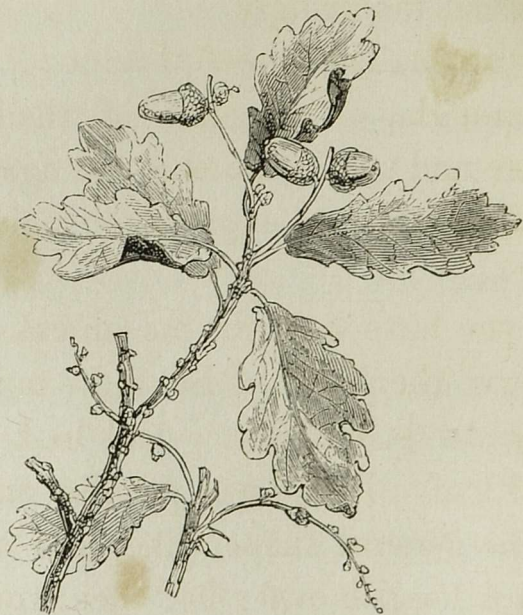
“Now observe the general grandeur of the tree. See to how considerable a height it grows straight. The farther this straightness continues in the stem, or what is called the *stick*, or *butt*, the more valuable is the timber.

This is often forty, or even sixty feet in height, before it has a branch. Observe, in what a right-angled manner the stubborn branches shoot from the main trunk; and afterwards start, this way and that. When the tree is in full leaf, you can scarcely discern this; yet if you go nearer, and almost under it, you will perceive it, especially if you compare its square-turned and akimbo arms with its neighbour there, on the left hand, the pliant ash."

"Those straggling arms are useless, I suppose," said Harry: "there is no cutting a long plank out of them."

"Then they are only unfit for *planks*, Mr. Henry. So far from being useless, they are, for some purposes, very valuable. They are already bent, you see; and, therefore, they





OAK.

suit admirably where bent timbers are required, as in what are called *the knees*, in shipping."

"The knees in shipping?" responded one of my hearers, inquiringly.

"They are called *knees*," I added; "significantly enough, on account of their form. Their place and use in the ship are against the ribs, or side timbers, to support the main beams of the deck.

"But you have brought me an oak branch. Now observe the leaves. See how much they seem to grow in bunches. And look at each individual leaf. Its form is peculiar and beautiful. The general shape, like that of many others, is a longish oval; but then, you see, it is deeply scalloped; the outline being turned in and out, as if cut thus with scissars. By

this, you may tell an oak leaf at once from any other."

"I will take a bunch home," said Frederick, "and draw it; or, at least, take the outline of some of the leaves, that I may know it again. I can run my pencil round the edge, as it lies flat on the paper; and that must be like it in size and shape."

"That is certainly one way to impress this specific modicum of knowledge on your mind, so that Time, that plunderer of the memory, shall not deprive you of it."

We had walked during this conversation, until, perceiving a fine grove of oaks growing beautifully together, I called the attention of my auditory to the grand mass.

"Well might the Druids be fond of groves of oak! How noble the external appearance;

how deep the shade, when we penetrate those gloomy recesses! Such solitude and solemn gloom have certainly a tendency to inspire seriousness."

"Who were the Druids," inquired Harriet; "did they ever live in this Forest?"

"No, my dear. This Forest was made, as I told your brothers, by William the Norman, or Conqueror, many ages after the Druids had ceased. They were the priests and magistrates of the original inhabitants of this island. Julius Cæsar, when he first came here, found the Britons entirely under their influence; and when the Romans had obtained power here, they turned out the Druids. Their last retreat was the island of Anglesea, then called Mona. There Paulinus, the Roman general, slew multitudes of the priests; burnt their

groves, and put a final stop to their influence. The whole brotherhood, with their system of worship and religion, perished quickly."

"Did the Druids love the oak," said Harry, "because they lived upon the acorns? I have heard that, anciently, men ate them. I think they must have been very hungry first. I have tried them often, but never could swallow them."

"I don't wonder at that much, my young friend," said I; "several things should be taken into consideration to explain the matter. One thing, which does wonders, is *necessity*, another is *use*. Now, I suppose, that if your parents could have procured no other nourishment for you than acorns, you would have eaten them, and have long since forgotten that they were unpalatable. You have heard,

perhaps, the story of the young Greenlander who was brought to Denmark, clothed, and lodged, and fed as they are there, with niceties, compared with Greenland fare. These things he *endured* so long as nothing else came in his way. But once meeting with a can of whale oil, he took a long draught, and said, ‘How I wish I were in my own country, where I could get as much of this as I pleased!’”

“Oh, what a pity he did not stay there,” said Amelia, “and then we should never have heard of so unpleasant a meal.”

I begged pardon for naming the incident; and was, I believe, speedily forgiven. I then, however, took the liberty to say that, after all, there was a wonderful distinction between those customs of men, which shewed a prefer-

ence for the use of food, clothing, or dwellings, coarse, awkward, and rude, and those more important predilections of the mind for things morally vile or unworthy. "It were better," I said, "to take our choice of dining or starving with a Laplander, than have the body fed, as it commonly is in civilized countries, whilst the understanding is either poisoned with improper notions, or suffered to become weak and utterly diseased by being deprived altogether of the means of mental subsistence."

"Look there! Look there!" said Amelia. "What beautiful animal is that springing from tree to tree over our heads, and now looking at us so hard?"

We each turned our eyes to the spot, and soon discovered that most expert of all agile performers, a wood-squirrel, which had, it

seems, been just gathering acorns for his winter store. He seemed rather displeased at our presence, and, in a half angry manner, as if he would frighten us away, he every now and then stared, murmured, and flung himself about, to our great amusement.

“ But,” I resumed, “ we were inquiring whether acorns were eatables or not. I fancy little scug was indignant at hearing the standing repast of himself and friends thus spoken of. Besides custom, which does so much to make us not only patient, but pleased, with many otherwise disagreeable things,—*climate* must be taken into the account. We have chestnut trees in England,—of the Spanish kind, I mean,—but the fruit does not ripen well here, nor acquire its proper and native flavour. So we import those of Spanish growth, to roast for our desserts. But there are va-

rieties of the oak tree even in England, and many sorts abroad, which bear a fruit with a pleasant taste like a nut. And these acorns, which at present are so astringent and rough, when boiled or soaked in water, lose much of their peculiarity in that respect, and become, as I am told, eatable, and even agreeable."

"Some of these trees," observed Mrs. Heathfield, "have attained a great size; can any judgment be formed of their age?"

"Their size," I said, "bespeaks certainly considerable age; but their exact period cannot perhaps be ascertained till they are cut down. Then, if we examine carefully the end formed by the saw, we shall find the surface to be composed of circles one within another, from the bark to the centre. As it is known that each circle is one year's growth of the tree,

counting their number will give the term of its duration."

"I thought," said Harry, "that wood was wood, and all alike through the timber: I do not remember to have noticed these circles."

"But others have, whose eyes have been no better than yours," I replied. "However, something besides eyes seems needful to constitute an accurate observer of nature. It appears that the sap-vessels, just under the bark, which are in a soft, spongy state during the summer, harden in the winter, and become firm wood. In the next spring, fresh sap rises in another circle of vessels, pushing the bark outwards; and, in its turn, changes into the close-grained proper wood of the tree. Thus the whole is enlarged, and these annular

and annual additions are in general clearly discernible.”

“ One thing, Sir,” said Harry, “ I have observed ; but I do not quite understand it : in looking at the end of a piece of timber, or the arm of a tree newly cut, the parts within two or three inches round the edge look whitish, whilst that towards the middle is much darker.”

“ The whiter part is a younger and softer wood ; and because the juices of the tree abound therein the most, workmen call it the *sap*. The dark part is the *heart*, and is, in fact, the only part fit for use, where good timber is required. In the branches therefore, when the heart is often only an inch or two in diameter, very little wood worth sawing is found. They are, however, used whole, or in quarters, for fences and other purposes. Con-

cerning the age of trees in this forest, we have the testimony of Mr. Evelyn, in his *Sylva*; that he had, in some cases, counted three or four hundred concentric rings, each ring marking a year's growth."

"Three or four hundred years!" said Frederick; "then it is not worth one's while to begin planting; we can never hope to see them of any size worth speaking of; and as to making money of them, that is quite out of the question."

"If we are to think of, and labour, only for ourselves, Frederick, many things are scarcely worth while. But it is well to do something for those who are to succeed us; as, certainly, we are all much indebted to those who lived before we did, and who acted on other principles than merely selfish ones. Whilst a gentleman of landed property derives thou-

sands of pounds from the disinterested forethought of his ancestors, in planting and preserving young trees upon his estate, it will not cost him as many shillings to plant and preserve others, that the estate may continue to be as productive when he has done with it."

Mrs. Heathfield was remarking the size of some of these trees; and no wonder, for they are noble specimens. "Yet we have accounts of some far exceeding them in size. One in Dennington Park, called *the King's Oak*, was fifty feet high before it threw out a branch, and the lower part, when squared for sale, measured five feet across. One, in Shropshire, was yet larger, being nine feet in diameter; and the branches covered a space of almost a hundred and fifty feet. One, at Norbury, was in girth forty-five feet, which, you know, gives a diameter of about fifteen; so that when it

lay on the ground, men on horseback could not see each other, when they had placed themselves on opposite sides of it. There was one, in Gloucestershire, which, at the lower part, was fifty-four feet in circumference; the principal branches had decayed long; the inside was hollow, and, being covered over, formed a room sixteen feet in diameter. But perhaps the largest on record, at least in Britain, was one, which grew in Dorsetshire; its girth was sixty-eight feet, and the hollow within was used as an ale-house; being an apartment sixteen feet long and twenty feet high."

"And what is the *Boscobel Oak*?" said Frederick. "I have read of that, in the English History."

"Boscobel is in Staffordshire. At the house so called, Charles II. took shelter, when fleeing

from the victorious Cromwell, after the decisive battle of Worcester. There was a large oak near it, which Charles ascended, until its spreading branches veiled him from the eyes of his eager pursuers. The tree has long perished utterly.—Mr. Gilpin mentions one, at Oxford, called *Alfred's oak*, which must also have died long ago.”

“Has the oak two sorts of fruit?” asked Amelia. “I have seen acorns upon it frequently; and have often heard of *oak apples*.”

I perceived that several of the auditory could smile at this apparent absurdity; but, on waiting a due time, I found that none of them could correct it. Mrs. Heathfield observed, that oak apples were a disease on the oak, caused by the wound of an insect.

“That insect,” I added, “pierces the young wood, and leaves its eggs in the wound. This

occasions a stagnation, or stoppage, in the sap, and, at the same time, an increased action in the vessels, which causes the juices to flow there in greater abundance; so that the bark swells out, as you have seen, in a globular shape, and sometimes to the size of an egg. This forms a residence for the young maggot, and also supplies it with nourishment. When fully grown, the sagacious inhabitant pierces itself an opening from within, and obtains its needful liberty; you, or any one, may have the apple then; it needs that food and lodging no longer. Those which grow in foreign countries are called *galls*, and are of great importance in commerce: they are used by dyers; and writing-ink, if good, is made with them."

"An acorn is a pretty thing in shape," said Harriet; "although I am not more fond of the taste than other folks. The cups are so

very round, regular, and neat, that I have been pleased to see them set out on a large flat shell for dolly's tea-things. Dolly did not, I am sure, know that they were not real china, but sat to them very contentedly, with me, in the corner under the hawthorn bush."

"And now," I said, "before we leave the oak, we ought to note and remind ourselves of its principal uses and peculiarities. It is perhaps, we may say, the best *timber* that is known. Other timber may be harder; some more difficult to bend; and other sorts less liable to be broken across; but none contains all these qualities together as does the oak. As its growth is extremely slow, so the period is long, indeed, which reduces the wood itself to decay. It bears the changing seasons better, and remains longer undecayed in the ground, than any other. But the *bark* of the oak is an

article now of almost as much importance as the timber. When steeped, by a proper process, in pits, with the hides of animals, it has the chemical property which changes those raw and unpleasant skins into the smooth, durable commodity called *leather*; and, though there are some few other trees whose barks have the power in a slight degree, oak bark alone is really serviceable to that end. When the bark is done with by the tanners, it is formed into small cakes, called *turfs* for fuel, or is used by gardeners for hot-beds, for the growth of pines and other tropical plants. The *leaves* and *saw-dust* of this tree are used much in dying; and extracts from them become valuable medicines.

“ We may as well mention here, perhaps, that the best charcoal is made from the *branches* of the oak, although most other

woods will make it.—Now, can any one tell me how this article is made; or inform me of its principal properties, or uses?”

Frederick observed, that it was nothing but *burnt wood*, and that its chief use, as he supposed, was to enable the old women to roast chestnuts in a tin kettle, for boys to buy and eat, in frosty weather.

I admitted that charcoal was wood burned to a certain degree, and that it was employed occasionally in the way he had mentioned. “But,” I continued, “I am afraid that the burning of charcoal must be a poor business, if it is not made use of for other purposes.” I therefore added the following particulars to his stock of knowledge on this subject.

“Charcoal is made by subjecting wood to the action of fire; but so covered up in sand, or earth, that, though it burns in a slumbering

sort of way, it does not consume. It is impossible to procure a substance resembling charcoal by burning wood in the open air; which if any one should doubt, let him try the experiment.

“Charcoal is not liable to decay by age, even when placed in the earth. It was customary for the ancients to *char* the outside of all timbers that were to be inserted in the ground, or put in water for a continuance. It may be preserved for any length of time; and in the tombs of many ancient nations, entire pieces of charcoal are frequently found. But this substance is chiefly used and required in the composition of gunpowder. The quantity thus consumed, and especially in the time of war, is immense; and it is doubtful whether all the old women, who ever roasted chestnuts, consumed a hundredth part of the quantity

which government has made use of in a month. But, besides the great use of it as an ingredient in gunpowder, it is wanted, on many occasions, in the polite and mechanical arts. Painters draw their outlines with it; and some of their colours are composed of it. It is the best thing known as a polisher for copper and brass plates. When refined, it forms an excellent tooth-powder: it corrects, when properly applied, the ill-odours of train oil; nay, more animal substances, such as large joints of meat, which have become so stale as to be quite unfit for food, may, by charcoal, be restored, and rendered perfectly fresh and wholesome."

"O dear! how little I knew about charcoal," said Frederick. And most of my hearers admitted that these particulars were new also to them.

“It has many and important uses,” I replied, “with which we ought to be acquainted; but we ought also to know its dangers. Charcoal, when burned in a close room, will speedily suffocate those who are confined with it; especially sleepers. Many have in this way, unhappily, lost their lives.”

DIFFERENT SORTS OF TIMBER TREES.

As Mr. Longhurst had travelled, and seen many of those trees abroad, of which others of us had only been able to obtain representations and descriptions, I was requested still to lead the conversation respecting *British* timber trees; the account of *foreign* woods being reserved for him.

“There are,” I said, when we next met, “about twenty-five different sorts of timber trees grown in Britain, for the varied occasions of man. These are the Oak, the Ash, the Aspen, the Elm, the Beech, the Lime, the Chestnut, the Walnut, the Sycamore, the Poplar, the Plane, the Maple, the Hornbeam, the Pine, the Larch, the Spruce Fir, the Lancewood, the Holly, the Box, the Yew, the Willow, the common and weeping Mountain Ash, the Birch, the Hazel, and the Alder.”

“How beautiful,” observed Mr. Longhurst, “and how accurately adapted, not only to man’s necessities, but to his comforts and luxuries, is this store of materials, which the Creator has provided! It would have been doing much to have supplied us with Oak, with Iron, and with one sort of Stone; but God, having given to man the inclination and the power to

find out 'witty inventions,' and endued his hand and head with skill to execute them. He has also provided an almost endless variety of substances, with infinitely varied properties, on which that invention, that skill and ability, might be exercised, to produce the multiplied blessings of civilized life."

"And I think," said Mrs. Heathfield, "that those persons err greatly, who, losing sight of this grand display of Almighty power and beneficence, and, forgetting the purpose for which the ability given to man must have been designed, would leave all unemployed, and condemn, as some well-meaning persons do, many of the useful, and nearly all the polite arts."

"I am happy to believe," said Mr. L. "that sentiments of this sort are fast wearing out amongst us. I hope that the contrary extreme, an excessive cultivation of these arts and those

luxurious habits, by which powerful empires have been ruined, may not overthrow old England in like manner.”

“It were better,” said I, “to content ourselves with the food, furniture, and apparel, of an ancient Briton, than to lower ourselves into a dependence on luxuries for our happiness; a certain sign that the ruin of moral feeling, and, of course, of real happiness, is at hand. But, perhaps, some of our youthful hearers may have failed to see the connection between a subject of this sort, and the description of timber trees which we have in hand.”

“I think,” said Mr. Longhurst, “that they will be able to perceive something of it, as we proceed in our inquiries concerning the nature and uses of those substances. Let us hear, Sir, a few particulars respecting those you have named.”



Ashe

THE ASH.

“THE ASH,” I proceeded to remark, “is one of our most elegant forest trees. It has not the grandeur of the oak; its beauties being rather those of slender gracefulness and airy attitude and form. The leaves are in pairs, long and narrow in their form, and serrated at the edge.”

“*Serrated!* What does that mean?” inquired Mr. Longhurst, looking at the lads.

Silence ensued.

“What is the Latin for a saw?” demanded Mr. L. After a short pause, and a little whispering amongst the young folks, Harry gave the word *serra*.

“Now,” said Mr. Longhurst, “I think my previous question will not appear a hard one.

What does the word *serrated* mean, when applied to the edge of a leaf?"

"I know now," said Harry; "it means *notched*, like a saw."

"And, in fact," said Mr. Longhurst, "as your common Latin had furnished you with the word *serra*, you knew before; but your knowledge was not, by quick application, so ready as it might have been. As most leaves are so formed, *serrated* is a word of frequent use in botany.

"The timber of the ash, unlike that of other trees, has the advantage of being nearly as good when young, as when old: it is hard, tough, and so very elastic, that it may readily be bent round in a circle: hence coopers are glad to avail themselves of it for the hoops of their tubs and barrels. It is also called *the husbandman's tree*, nothing being equal to it for agricultural implements; for poles, ladders, and

long handles, and for purposes which require strength, length, and flexibility, with comparative lightness. Ship builders also use it much; and when, about the root, or *stool*, as it is called, the timber has become knotty and variegated in its grain, it is in request by mechanics for cabinet work on the continent. I believe that ash is useful at almost any growth, from the yard and half twig employed in the correction of naughty boys"—

“*Order! Order!*” whispered Frederick, colouring at the allusion.

I begged pardon; and continued by observing that the thinnings of plantations, and the suckers that spring up from the roots of young trees, or from the stools of those that have been felled, are excellent for the purpose I had mentioned, namely, hoops, hop-poles, and such things.

“I believe,” said Mr. Longhurst, “that, in

the northern parts of Lancashire, where grass is scarce, the small farmers frequently cut off the tops of ash trees, to feed their cows with the leaves and tender twigs."

"I have heard," said Mrs. Heathfield, "that the leaves of ash trees have been used for a less commendable purpose than that,—to mix with those of tea, to defraud, and perhaps to injure the health of those who consume that article."

"That practice," I observed, "has long been forbidden by act of parliament, and, I should hope, is not now much in the usage of dealers; for, although these leaves are certainly not poisonous, they are an injurious substitute for tea. The bark of the ash is sometimes employed in the tanning of calf-skins, and also in dying. As fuel, it is remarkable, that the wood of this tree will burn nearly as well in its green state as when dry.



THE MOUNTAIN ASH.

THE MOUNTAIN ASH.

“THE MOUNTAIN ASH is quite a different tree. Its leaves, indeed, are shaped somewhat like those of the other, and the wood is pretty tough and flexible, but it is soft, and soon decays. It is a slow-growing tree, and never becomes large. Its white flowers, and bright red berries, make it rather an ornamental tree in a shrubbery. It is a beautiful object on the hills of the north, intermingled as it is, and breaking the solemn gloom of the dark pines and waving birch.—But we should now speak of a far more stately and important tree.

THE ELM.

THE ELM has lofty dignity, combined with elegance. It rises to a greater height than English trees in general do. Its foliage, though the leaves are small, is ample, yet it hangs lightly on the aspiring branches, and forms a fine subject for the painter and landscape engraver. It is the first considerable tree, which introduces a bright and cheerful green in spring; but, before this, its boughs are darkened with innumerable flowers of a dusky hue, which indeed are often as full as the foliage.

“ Elm timber is valuable for a vast variety of purposes; but, as it grows quicker and is inferior in quality to oak, it bears a much lower



Elm.

price. It is chiefly employed for weather boards to out-buildings, waggons, carts, mill-wheels, water-pipes, furniture called *Windsor chairs*, and for coffins, because it is peculiarly durable in moist situations. It burns slowly; and as it splits with difficulty, it receives nails and iron-work with advantage. Some writers tell us that bread and beer, in times of scarcity, have been made from the inner bark of this tree."

"A time of scarcity indeed!" said Mr. Longhurst.

"It is better known and valued—the bark I mean—as a medicine; an excellent decoction is obtained from it, which is useful in many complaints."

"Speaking of the Elm," said Mr. Longhurst, "reminds me, as it is a tree which bears transplanting, perhaps, better than any other,

of some surprising schemes, which have been executed by enterprising men in that way.— Ladies and Gentlemen, did you ever hear of *transplanting a forest?*”

A wondering negative was the reply.

“The thing has been done, and to a very considerable extent,” said Mr. Longhurst. “So long ago as the time when Theophrastus, the ancient Greek writer on rural economy, lived, the Greeks were in the habit of removing full-grown trees, when it was their pleasure so to do. The Romans moved elms twenty feet high to their vineyards, as supports for their vines: so says Pliny; and Seneca, I think, tells us, that an entire orchard of full-grown trees was removed near the villa of Scipio Africanus; and that, in a year or two, they bore fruit as well as ever. I fancy this practice was afterwards neglected for ages as impracticable, or useless; but we hear of it

again in more modern times. Count Maurice, of Nassau, instead of walking into a wood, made a wood walk into his garden, in 1636. This was in Brazil, where he was then governor. The place being naturally as destitute of trees and shrubs, at least near his palace, as was the roof of that building, he boldly transplanted seven hundred cocoa-nut trees, some of them fifty feet high; and of course, having done this, he found no difficulty in adding as large a number of lesser fruit trees and shrubs, as he pleased. The trees were seventy or eighty years old, and had to be carried four miles by land and water; but skill and perseverance overcome every obstacle. But I shall be happy now, if Mr. B. will proceed."

I remarked, in addition, that the most noted of these transplanners was Louis XIV. who removed an entire forest, the Bois de Boulogne, from Versailles to its present site, a distance

of more than seven miles. The great transplanting machine employed on these occasions, remained at Versailles, till probably about the time of the French Revolution."

One of the young ladies observed, that she had found difficulty in removing only a few lilacs and roses to a border across the path, and that many of them had died.

"The roots," replied Mr. Longhurst, "were probably too much cut and exposed; perhaps nearly all the thread-like fibres, by which plants subsist, were torn away."

"Any tree," I said, "would travel round the world, with as little damage or danger as it encounters in standing still, if the finer roots and the earth about the roots remained undisturbed. Old Evelyn says that he has moved elms as big as his body, by engines, without injury to any part of the tree."



Beech

THE BEECH.

“THE next tree on my list, I see, is the BEECH. Inferior in elegance and stateliness to the elm, this tree, however, is by no means without beauty. The leaves are about the size, and not much unlike, those of the common elm, and they frequently remain on the tree in a brown decayed state during the greater part of the winter, although properly *deciduous*.”

I made a short pause at this word, and Harry, perceiving my expectation, obliged me by saying, that *deciduous plants* are those which *shed their leaves*, unlike evergreens, which retain them.

“ The wood of the beech is close-grained, brittle, and hard ; capable of being manufactured with the utmost neatness, and therefore much used by turners, cabinet-makers, and others. Carpenters’ tools are commonly handled with this wood. The fruit is a kind of nut, enclosed in a prickly husk, and is called *beech mast*.”

“ Mast,” said Mr. Longhurst, “ is a word applied generally to the fruit of the oak, beech, and chestnut. Johnson derives it from the Saxon *mæst*, and I think that the Germans had it probably from the Latin *mastico*, to masticate, or chew. Beech-mast is somewhat more palatable than horse-chestnuts or acorns ; but is not very wholesome, if eaten in too great quantities. When dried and powdered, I have seen it, in the Grecian islands, made into very tolerable bread ; and the inhabitants



PAGE 60.

BEECH.

of Scio were once enabled to sustain a memorable siege, by the beech mast which their island supplied. It has been roasted as a substitute for coffee. When pressed, the nuts yield an excellent oil, for the lamp or the table. It is used by the lower classes in Silesia, instead of butter; and the cakes, which remain after pressure, are far from being despicable food, for man or beast. The leaves, in some countries, are collected and used, instead of feathers, for beds: so, you see, a beech tree has many uses."

"Indeed it has," said Frederick. "I suppose the timber will build a man a house; the roots and branches supply him with firing; the fruit gives him coffee for breakfast, cakes for supper, and oil to light him to his chamber, where he has beech wood for a bedstead, and beech leaves for a bed!"

“ Well remembered, Frederick,” said I. “ Bedstead, bedding, house, coal, candle, and victuals, go far towards what, in some countries, are called *necessaries* ; in others, *luxuries*, or *comforts*.”

THE PINE, OR FIR.

WE now walked into Mr. Longhurst's plantations ; and, after some desultory conversation on the trees which met the eye singly, we came to a very fine grove of FIRS.

“ Here,” I said, “ we see a small patch of that dark shaggy coat, with which Nature has clothed, as with a circling garment, the bleak and frozen regions that surround the arctic

line. A very large portion of the superficial space of this our globe is thus enveloped. Of these PINES, or FIRS, therefore, unmixed with other trees, there are far more extensive forests, than of any kind of wood besides. The north of Europe, of America, and of Asia, are mantled in this same black shroud, from the temperate latitudes to the shining borders of the polar seas, where dwarf birch, the last shrub that lives, makes a sort of final edging to the vegetation of the earth."

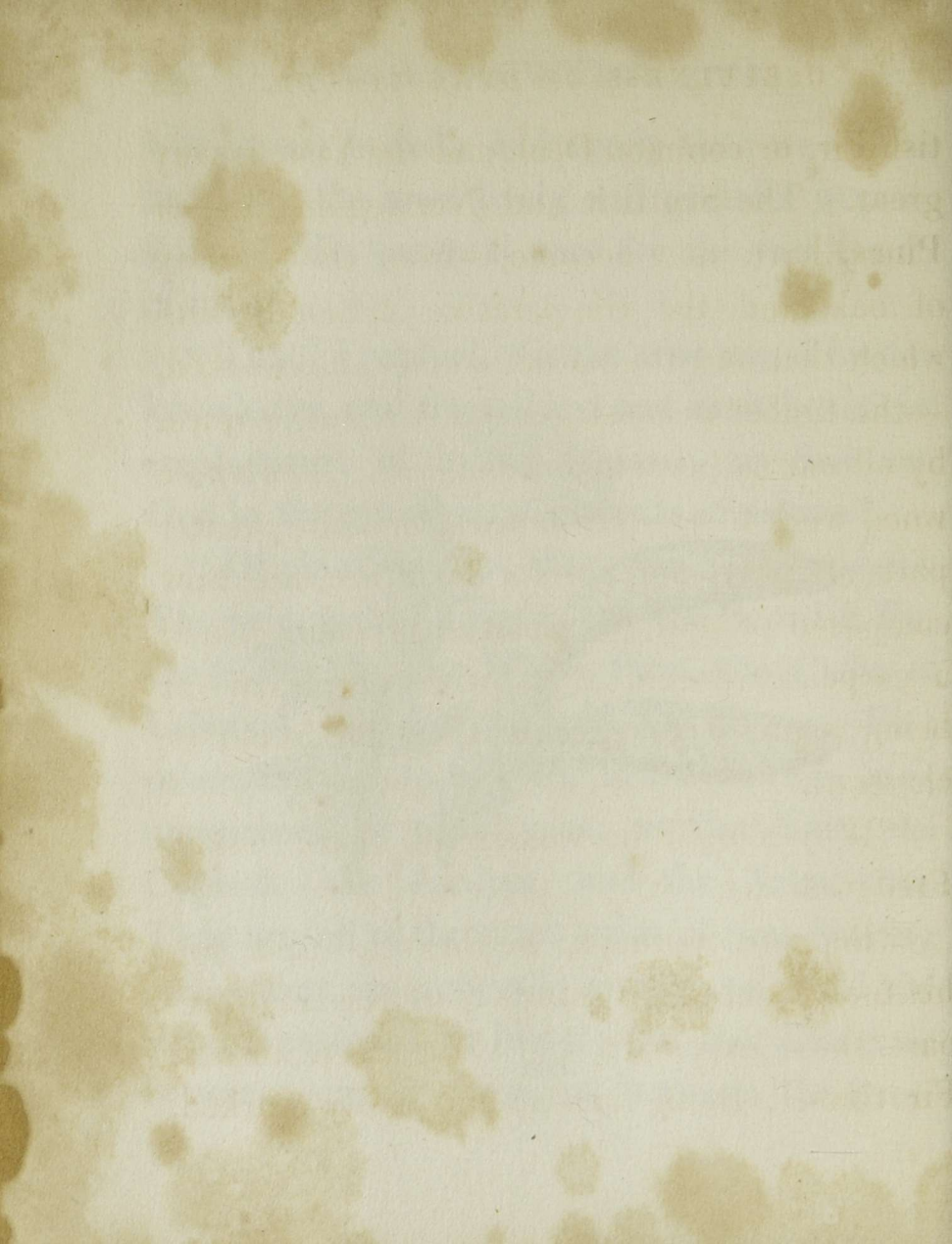
"When we consider," said Mr. Longhurst, "that the wood of these pines is the most combustible timber that grows; the fullest of juices, which feed the taper and the hearth; and when we consider farther, that these forests extend beyond the very regions 'where life itself goes out,' the immediate agency and influence of Divine wisdom, power, and goodness,

will appear in full ; and surely then we cannot but have the most lively and grateful impressions of His parental care for the vast family of man."

" This," I replied, " is the true use of human knowledge, and the noblest and most beneficial employment of human reason ; to find out God in the grand arrangements of nature."

" Of pines, or firs, there are many species. The principal, I believe, are, the Scottish Fir, the Silver Fir, the White Pine, the Cedar of Lebanon, the Larch, and the Spruce Fir ; others are said to be *allied* to the pines in their appearance or their uses ; as the Yew, the Cypress, the Juniper, and the Arbor-vitæ. They are all of the same order of cone-bearing trees ; they are generally evergreens ; and the wood is resinous, or bitter ; but the difference between some of them, as between the Scot-





tish Fir, or common Deal, and the Yew, is very great. The Scottish and Norwegian Firs, or Pines, have now become,—from the scarcity of oak, and the comparative difficulty with which that and the harder woods are worked,—the timber in most general use and request by all our carpenters and builders. The whole wood work of modern houses, and the greater part of plain and useful furniture, are now composed of *deal*, as a matter of course; and a carpenter would stare with perplexity at being required to execute the same in oak or chestnut.”

“Why should he wonder at that?” asked Frederick.

“Because, perhaps, neither his cash nor his tools would hold out to purchase and prepare those expensive and stubborn materials. Fir timber, though cheap and easily worked,

possesses great strength and durability ; and, though liable to split, sometimes disastrously, as every bungling nail-driver knows, it is capable of being worked with the utmost neatness and even elegance."

"There is another purpose," added Mr. Longhurst, "to which pine timber is applied, and I scarcely know what other trees could supply its place : I mean the masts of ships."

"I should have noticed," I rejoined, "that the structure of the pine is that of a straight undivided stem, from the root to the topmost twig ; and the tree thus often attains the surprising altitude of two hundred feet ! Here then is a mast ready *built*, and certainly no tree of the forest can shew a spire so tall, so straight, so strong, and, at the same time, so *light* as this."

"I am thinking," said Mr. Longhurst, "that

our navy is indebted to the pine for something of almost as much consequence as this. What can it be?"

I was obliged to reply myself to this question. "Tar and pitch are the paint, glue, and puttey, of a vessel. Without these, the cordage would soon decay, and water would quickly enter at innumerable chinks. This leads us to notice substances extracted from the pine; these are turpentine, tar, pitch, and resin.

"A pine tree is a sort of cask of turpentine, which may be tapped in any of the summer months; and that useful liquid will flow out, and continue to exude, for a long time, abundantly. Tar is obtained by burning the roots, or other parts of the tree, in a sort of pit, well covered over; at the bottom, there is a hole, and under drains, from which the tar is re-

ceived into barrels, for sale. When the tar is boiled, so as to free it from watery and other fluid parts, that which remains is called *pitch*. Norway, as it yields the best pine timber, produces also the best of these extracts. Turpentine, when reduced to dryness, leaves *resin*; but, when violently stirred, as it boils with water, it forms *white* or *yellow resin*."

One of the lads had strayed away a little during these observations, and was seen busily employed in endeavouring to obtain a practical demonstration of the facts advanced, by boring a hole, with a carpenter's auger, in one of the firs of the plantation.

"That will do, Frederick," said Mr. Longhurst: "and I had rather the operation had been postponed, until a decree of the present assembly, in which I possess a casting vote, had been obtained."

“ I am sorry if I have done any harm, Sir,” said Frederick; “ but I think the tree will not die from the loss of its turpentine. I do not see any.”

“ You expected then,” said Mr. L. “ a full stream, as big as the hole you have made, to start from the tree, like beer from a spigot?— Now, think a little. A barrel is a *hollow* thing, which being *filled* with a fluid, and nothing else, naturally loses it in a continued stream. But do not you know that the bark you have pierced contains hard timber, as well as sap; which sap is contained in minute capillary or hair-like vessels, or pores, which extend up and down the trunk? These, therefore, must have time to empty themselves; and you will see, if you examine this tree to-morrow, that a considerable quantity of sap, or turpentine, has flowed out, which otherwise would have gone

—as, indeed, I could have wished it—to the support of the leaves and branches.”

I remarked that our English firs are by no means so succulent, or juicy, as those of the North; and that the one just now pierced was not a tenth part the size of the tree from which turpentine was there obtained.

“I should like to hear,” said Mrs. Longhurst, “in what way these immense trees are conveyed to the sea side: they do not all grow, I suppose, on the very coast?”

Harry appeared impatient to answer this question, by saying that machines, called *timber carriages*, were used.

“In this country, they are, undoubtedly, used,” said I; “and we shall be glad, on a future occasion, to hear exactly how these are used and constructed; but I fear that one of those vehicles would make more haste than

good speed down the sides of a Norwegian mountain, supposing it could, by any process, be drawn up it."

"I will endeavour," said Mr. Longhurst, "to explain the modes of conveyance adopted, which I have myself seen. Pine forests are not usually so low and level as this small plantation of mine. The sides of rugged hills, and the brow of many a giddy precipice, are clothed with the finest fir timber. On the southern shores of the Baltic, indeed, the river Memel conveys, without much difficulty, the timber there produced, to the sea, as the bed of that river, and the surrounding country, are free from any particular declivities. But, not long ago, the largest pines of the Norwegian mountains were committed to the torrents, which rush through their ravines. Dashing down the cataracts of Trolhætta, they were fre-

quently shivered to atoms by the concussions of their unguided and inevitable descent; and the damage done to some of the finest trees by this method was such, that, at length, saw-mills were erected, to divide the trees into planks of a more manageable size.

“But, on the Rhine, another plan is adopted. Several thousand trees are tied together, in the form of a raft, sixty or seventy feet broad, and nearly one thousand in length. The rowers and workmen sometimes amount to seven or eight hundred. Poultry, pigs, and all sorts of provisions and conveniences, are taken on board the principal raft. Many smaller rafts are commonly tied to the greater, to have the benefit of its pilotage. The guidance of this enormous floating island of timber is, indeed, a business of no small anxiety and difficulty, owing to the abrupt windings,

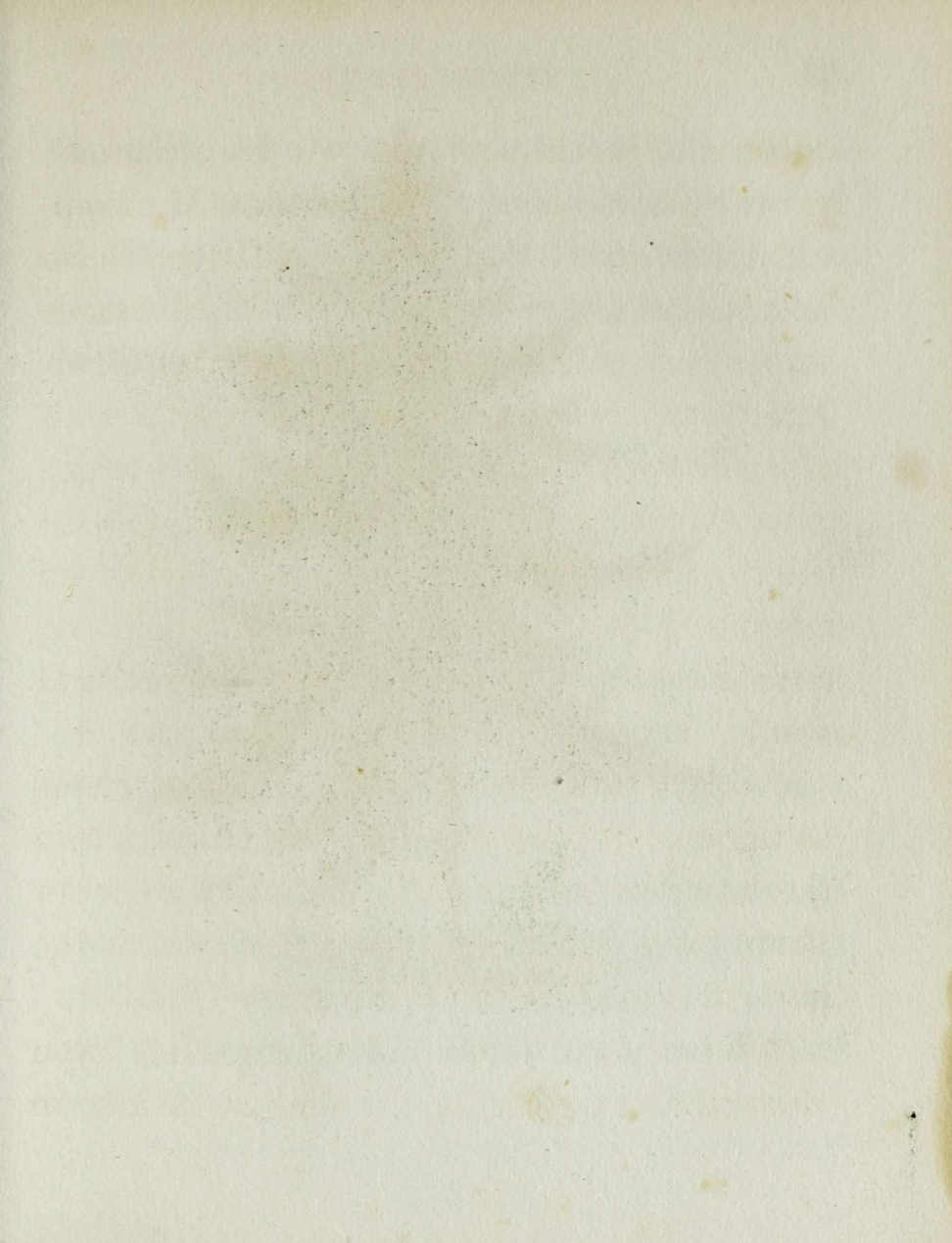
the rocks, and the shallows, of the river. Thus they make their way to Holland, generally with little damage: but the money needful to undertake the construction of a raft of this sort is said to be about 35,000*l.* sterling.

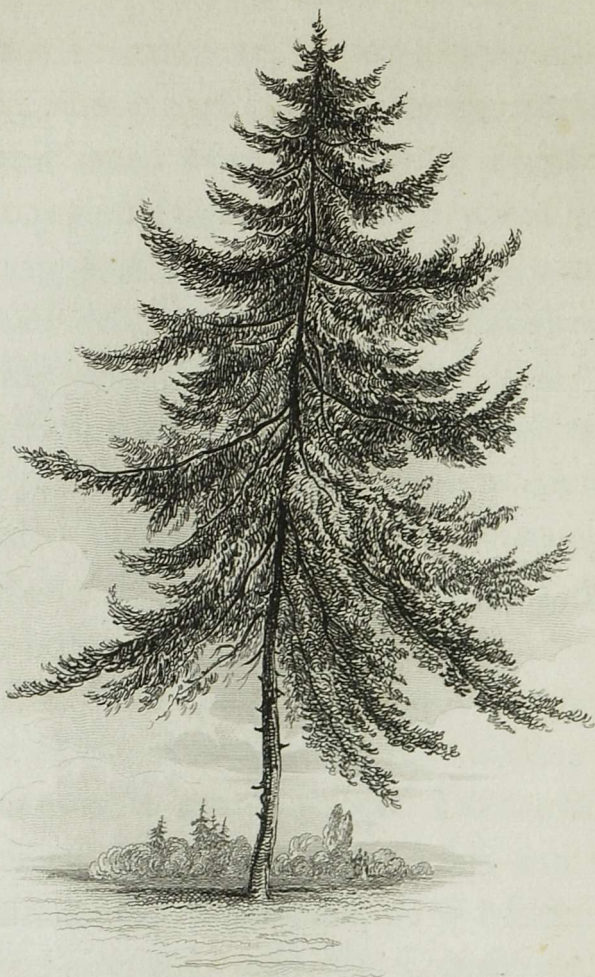
“ But the most astonishing method of transporting timber, that I ever heard of, was that by the slide of Alpnach, in Switzerland. A bold speculator entertained the daring idea of conveying the pines from the top of Mount Pilatus to the Lake of Lucerne, a distance of nearly nine miles, by means of an inclined plane, or sloping wooden road, extending the whole way! The slide consisted of a trough, or gutter, formed of twenty-five thousand pines; it was six feet broad, and from three to six feet in depth: its length was forty-four thousand English feet. This had to be brought over the summits of rocks, or along their

sides, or under ground, or over deep chasms ; but the perseverance of the designer, M. Rupp, triumphed over what most men would have called impossibilities ; nor was it much longer than a year and a half before it was completed. The trees descended from their heights with a rapidity almost inconceivable. The larger pines, which were about one hundred feet in length, performed the nine miles in about six minutes ! Young Gentlemen, how would you have liked a ride on one of those long-backed wooden horses ?”

“ O Sir,” said Harry, “ it makes me tremble to think of it. I remember once sliding down the banisters in our hall, and I thought then that I went faster than when I fell out of the hay-loft into the straw-yard, at the farm.”

“ When you fell,” said Mr. Longhurst, “ you were not conscious of the descent at all ; in





Larch.

the other case, you knew more of the matter than was agreeable ; but half a mile on one of M. Rupp's *diligences* would have served you with all the travelling you would need in your lifetime."

THE LARCH.

"Is this a fir tree?" asked Amelia. "It appears like one, at a distance, and yet its branches droop downwards ; and I think it loses its leaves in the winter."

"This," I said, "is a LARCH ; and a remarkably fine specimen it is, for English growth ; although, I perceive, it has passed its prime, and the leading shoot at the top is bent, if not broken."

“I have reason to think,” said Mr. Longhurst, “that this tree was planted by no less a personage than King James I. This garden, we know, formed part of his favourite domain, which he enclosed with a wall ten miles in extent: about five hundred yards of it still form the boundary of this estate; and a milestone inserted in it, shews us the date, 1621. The mount, pond, and opposite moat, would scarcely have been executed by any one not possessed, like the builder of the wall, of royal enterprise and resources; and the trees all bear an appearance of some two hundred years standing. This solitary and stately larch, dropping its graceful, feathery branches into the water, which it seems to love, is a favourite object with me. I only fear that some of those strong westerly winds, which have already given it a leaning attitude, will, one day, send

it into the water beneath. I believe it is from this tree that the commodity called Venice turpentine is procured by incision; I do *not*, however, wish the matter to be proved by an operation."

The young operator looked a solemn acquiescence in the injunction.

I then proceeded to state a few particulars, respecting the uses of larch.

"As oak and chestnut were the timber usually employed for grand buildings in Britain, in former ages; so larch, on the continent, was, and is still, most in request. Of this almost incorruptible wood, the Gothic halls and castles of Italy and Germany, and the ancient châteaux of France, were almost always constructed,—I mean those inner parts, where wood was needful. The colour is a pale cedar red; sometimes elegantly varied. It is capa-

ble of a high finish, and carves well. No insect will touch it for food or residence, on account of its bitter, resinous flavour; and it is said that it resists water for ages, as also fire itself for a long time.* On panels of larch, the pictures of the best Flemish and Italian masters are painted; and to this, their preservation is, no doubt, greatly owing.

“It is a remarkable fact, indeed,” said Mr. Longhurst, “that buildings constructed of this wood ages ago, exhibit no symptoms of decay: this I know to be the case, by actual inspection of many noted continental struc-

* On this subject, however, doctors disagree surprisingly. Under the article *LARCH*, in *Useful Knowledge*, by the Rev. W. Bingley, it is said that the very *combustible* nature of this wood renders it unfit for building purposes; whilst, in the treatise on timber trees, in *Entertaining Knowledge*, it is stated that larch is nearly proof not only against water, but against fire!



Cedar.

tures.—In St. Petersburg, the chief use of larch is for the Russian navy, which is built, I understand, almost entirely of it. The Muscovites have also the art of making fine white gloves from the inner bark.”

THE CEDAR.

IT happened that a small CEDAR OF LEBANON occupied a clump near the end of the shrubbery; and Mr. Longhurst, having seen many magnificent specimens abroad, gratified the party by a little account of this majestic and interesting tree.

“We have spoken,” said he, “of oak, chestnut, and larch, as the timber employed chiefly in Europe, during the middle ages. But the

cedar was the tree selected by the earliest architects, for the most sacred and magnificent of their buildings. Of Solomon's temple, which was built more than two thousand years before the time of Christ, it is said, that 'the cedar of the house within was carved with knops, and flowers; all was of cedar; there was no stone seen.' Ancient shipping, also, was frequently built of this timber. No doubt that the qualities of strength and durability, coupled with the advantage of readily yielding to the tool, were the reasons which induced the early builders to select it. It was also then, in many parts, the most plentiful and the largest timber that could be procured. But now, I believe, even in their native soils, they are scarcely more abundant than in England. The mountains of Lebanon have still a few cedars, and these are of great size, thirty-six feet, or more, in circumference.

“There is a peculiar character and air, in the masses of foliage which belong to this tree—a sort of flaky structure: the branches having a flattish form, and these lying in a level direction over each other, give it an appearance which none can mistake, when they have once seen it. When it has attained its full size, and is in its prime, it is indeed the most majestic of trees.”

“Is this the wood of which pencils are made?” asked Harriet.

“No, my dear. That is the RED CEDAR, a species of Juniper, which grows in North America and the West Indies. On account of its powerful odour, and its property of resisting the attacks of insects, it was used, some years ago, for drawers and cabinets. It is much softer than the cedar of Lebanon, and is by no means so valuable a tree.—Mr. Burton, what other pines have you on your list?”

THE SPRUCE FIR.

“ OF those which are strictly pines,” I said, “ I shall only mention one more,—the Norway SPRUCE FIR. This tree is said to be the loftiest of the pine tribe in Europe. The timber, called *white deal*, is remarkably free from knots and blemishes, and is therefore much used for musical instruments; but it is by no means sufficiently durable for buildings. The turpentine produced by the spruce fir, when boiled and cleansed, forms the substance called *Burgundy pitch*. Spruce beer is prepared from the tender twigs.”



Yew.

THE YEW.

“ Now, as to the *distant relations* of the pine family, we must introduce one or two of them. The YEW tree, formerly very plentiful in England, and very celebrated also in its foliage, which consists of slender needle-shaped leaves, resembles not a little the firs; and, like them too, it bears the sort of fruit called *cones*; but, in other respects, it is very different; as in the shape and structure of the tree, the nature of the wood, and the manner of its growth. It sheds its bark every year, but retains its leaves. The berries, about the size of a small nut, are formed of the most delicate wax-like materials, and contain a transparent glairy fluid, like the white of an

egg. They have a sweetish inoffensive taste, and are said to be harmless; but I should rather advise their being avoided as food. The leaves are highly poisonous: and it is said, too, that rain dripping from the branches, and even the air in the vicinity of the yew, will prove injurious. But the wood of the yew is sufficiently valuable to compensate for much worse qualities than these. It is almost impenetrably hard, and most beautifully rich in its colour and veins. But it was not so much its beauty, as its other and more important qualities of toughness and elasticity, which rendered it famous in history."

"The yew tree famous in history?" repeated Frederick, with much surprise.

"Famous in this way, Frederick: before the use of fire-arms, it was in constant request for bows; in the use of which, I am sure you

know, that English archers, or bowmen, were particularly skilful and celebrated. By a law, made in the reign of Edward IV. every Englishman was directed to have a bow of his own height, made, if possible, of yew, or of wych-hazel—a sort of elm,—of ash, or awburne, which we now call laburnum. The Englishman then prided himself more in the use of the bow than in any thing else; and he would bend one of a size and strength that others could not manage at all. The arrow called the *cloth-yard* was the weapon, discharged from the yew bow, that gained so many of those battles which Englishmen have to talk of. At Crecy, Azincourt, and Poitiers, the bows and cross-bows of our ancient countrymen did wonders. I remember that Froissart, the very entertaining historian of those times, speaking of the battle of Crecy, says,

‘ There were of the Genoese cross-bows about fifteen thousand, but they were so *dog-weary* of marching that day six leagues, with those same timber cross-bows, that they said they had more need of rest than of battle. However, at length they approached and made a great push and cry, to abash the English, but these stood and stirred not for all that. Then the Genoese made another leap and a fell cry, and stepped forward; but still the English moved not a foot. Then the third time they leaped and cried; and, coming within bow-shot, shot fiercely with their cross-bows. Then slipt forth the English archers, and let fly their arrows, so wholly and so thick, that it seemed like snow.’ The Genoese, in fact, and the French, whom they were hired to serve, had vastly the worst of it, as you know was the case in this battle; and so it

was in many others, wherein the excellence of the weapon, and the courage, skill, and strength of those who used it, were superior to, and triumphant over, their most formidable enemies."

"Were bows and arrows thrown aside," said Harry, "as soon as gunpowder was invented?"

"No," I replied. "They continued to be the favourite weapon for more than a hundred years afterwards; indeed, the guns first made were so clumsy and dangerous to handle, and so little serviceable, that they often scared, or wounded, those whom they were intended to befriend.

"But a word or two more of the yew-tree itself. It has often attained a vast magnitude in Britain. One, quite hollow, in Perthshire, measured fifty-six feet in circumference; one,

in Kent, sixty feet; and another, at Hedsor, in Buckinghamshire, upwards of eighty feet in girth! When, however, these prodigious trees have perished, it does not seem likely that there should be a succession of them; for, notwithstanding the vast strength and durability of the timber, the slowness of its growth discourages even the most patient planter."

"How well do I remember," said Mrs. Longhurst, "my grandfather's yew-tree wonders, at Cliphurst House. There was a yew-hedge, one hundred yards long, and, I suppose, six feet thick, and about a man's height, which was so smoothly shorn and so solid, that I have seen lions, bears, dogs, and horses, standing on the top of it, and apparently ignorant that it was not the solid earth!

"You are not more astonished," continued Mrs. Longhurst, who saw that wonder and

curiosity were lifting the brows of all the young party,—“certainly not more surprised, though less alarmed, than I was on the evening when I first beheld that sight. It was towards the dusk, in Autumn. The place was quite strange to me, as it was my first visit; my aunt, then herself a girl, took me into the garden, and shewed me those forms, distinctly enough seen in the moonlight to alarm me. She foolishly tried to make a regular fright of the appearance, which those shapes presented, and assured me that they were, indeed, most strange and awful creatures. What they stood there for, she could not exactly tell; but, she added, ‘I really think to-night that they will have something to do with *you*, (yew.)’ I entreated her to take me in; but she insisted on leading me nearer, that we might see if they began to move, and listen if they breathed

hard, which was a sure sign they would be stirring soon. The next morning explained all: these were yew-trees, cut, as was then the fashion, in the shapes of animals. They would, of course, only move when the wind shook them; and, I suppose, she could only hear them breathe as the wind whistled through them.

“ The practice of clipping yew-trees into those fantastic shapes was at one time common in every gentleman’s garden and fore-court; but better sense and taste have long caused it to be discontinued; excepting here and there in a church-yard. The Romans, it appears, were pleased with the same folly.—Mr. Burton, have you any thing to say respecting the Cypress?”

THE CYPRESS.

“THIS tree,” I replied, “is an evergreen; and, I suppose, on this account, and because of the imperishable nature of the wood, it has been, in many nations, considered as an emblem of immortality, and therefore commonly planted over the graves of the dead, and carried in funereal processions. It is said to last as long as stone itself; and I have read that the doors of St. Peter’s Church, at Rome, which had been formed of this material in the time of the Great Constantine, were not at all injured by time, when taken down, eleven hundred years afterwards, by Pope Eugenius, to be replaced by gates of brass.”

“The Greeks, I believe,” said Mr. Long-

hurst, "buried the remains of their heroes in coffins of cypress; and the chests in which Egyptian mummies are found are generally of this wood."

THE DOUGLAS AND LAMBERT PINES.

"I BELIEVE," continued Mr. Longhurst, "we have taken some notice of the most noted and useful of the pine family. I have, however, read of, but not seen, two other sorts, the Douglas and the Lambert pines, which may as well be referred to; as, I suppose, if they were natives of Europe, they would be undoubted kings of the forest. Mr. David Douglas was sent out by a Philosophical So-

ciety of London, to discover and describe new plants on the west coast of North America. He returned about three years ago, and brought with him a valuable addition to our knowledge of the vegetable kingdom. Amongst his discoveries were two new sorts of pine. That called after his name,—the DOUGLAS PINE,—grows to the height of two hundred and thirty feet, and is more than fifty feet in circumference at the base. It has a rough spongy bark, in some places one inch thick, in others twelve inches. The LAMBERT PINE was found in North California, and is a most majestic tree. Mr. Douglas was so fortunate as to find one, which had been blown down, and which, therefore, he could accurately measure. It was two hundred and fifteen feet in length, fifty-eight feet round at three feet from the bottom, and seventeen feet round at the height

of one hundred and thirty-four feet; this is thought to be the largest mass of timber that was ever measured by man."

Our walk having now brought us round the whole extent of Mr. Longhurst's grounds, we returned to the house, and spent the evening in that agreeable way in which intelligent and well-informed persons, excluding the trifles and miseries of gossiping mischievous intercourse, know well how to pass with advantage even the hours of leisure and relaxation.

WOODLAND SCENERY.

OUR next meeting was, by appointment, at Mrs. Heathfield's. To her estate appertained, by the terms of a recent enclosure, about twenty acres of wild forest land; this being her share in the general distribution. She was not tempted by any notion of gain, nor by the love of change, to reduce any part of this beautiful property to a bare expanse, for the purposes of common agriculture. The expectations of many, who had, with high hopes of immediate profits, thus proceeded on their allotments, had been, as she well knew, wofully disappointed: but, had the case been otherwise, her own ample means, and her prevailing taste for the natural beauties of woodland scenery, would

have secured this spot from the levelling operations of the axe and the mattock.

Amid the simple glades, and the embowering shades of this miniature forest, we wandered and talked with great delight. We suffered the excursive and talkative propensities of our young friends to expand themselves a little, before we gave the conversation a more regular and instructive turn. When, however, being somewhat weary with their scrambling expedition through the thickets, they began to seat themselves on a fallen trunk, I plucked a twig from an old walnut stump, which I unexpectedly found at hand, and thus proceeded.



Walnut.

THE WALNUT TREE.

“ WALNUT TREE was the wood which supplied, not our more remote ancestors of the middle ages, but those who lived from one hundred to three hundred years back, with materials for all their most valuable household furniture. It is tough and strong; beautifully streaked and veined; admitting of a fine polish; and is obtained in very large boards. In many parts of Europe, where their distance from the sea, or their poverty, will not permit the people to purchase mahogany, this is still *the cabinet-makers' tree*, as in England it used to be called.

“ Amongst fruit-trees, the lofty athletic walnut, contending victoriously with the blast that prostrates the apple-tree and the pear, is

a noble and majestic tree. It often attains the size of a middling oak, and the fine structure of its massy trunk, with its bold and stubborn branches, give it all the characteristics of a considerable timber-tree. It is too scarce and valuable to be used in the construction of any thing but furniture and somewhat costly implements. During the war, the consumption of walnut trees for gun-stocks was so great, that they were much thinned, and it is not likely they will be replaced. There is no wood, I believe, that resists the shock of a discharged barrel like this; and many hundred pounds were given, twenty or thirty years ago, for any thing like a good tree. Now, I should think, that the demand for this timber is but small; and I should judge it more profitable to allow the tree to stand as a fruit bearer, than to place it over a saw-pit.

“ The uses of the fruit are—”

“ To eat, certainly,” added Harry.

“ And to pickle,” said Amelia.

“ From the nut, or kernel, too,” I continued, “ a fine and useful oil is prepared, which is serviceable in the arts, and sometimes for food.”

“ It would, I think, be better for the poor trees,” said Mrs. Heathfield, “ if they bore no fruit at all, for the process of castigation, which they undergo, to make them yield it to their rapacious and merciless owners, is most severe, and, I should think, highly injurious to them.”

“ And yet,” I said, “ it is commonly believed by the country people, that this — *bashing*, as they call it, — bastinadoing of the branches, improves the fruitfulness of the walnut. I am not able, from knowledge, to give an opinion upon the subject; but, I think it possible, that the removal, by beating, of the shoots on which

the fruit of the year hangs, may cause the production of others, which might otherwise not be supplied at all."

"A most laborious and dangerous employment it is," said Mr. Longhurst, "to stand on ladders fifty rounds high, and sway long poles backwards and forwards at arm's-length; and this for hours together. I should forget the taste of walnuts, if I were to eat none until I had procured myself a bushel in this way. Chestnuts, I believe, are not deemed worth this trouble."

"Sweet chestnuts," I replied, "are often suffered to descend of themselves, and are gathered from the ground daily as they fall; but where the crop of a tree is destined for ready sale, the same method is adopted as with walnuts. Indeed, as these trees extend far beyond the reach of ladders, the fruit cannot be gathered by hand, like apples and pears."



Spanish Chestnut.

Pub^d Dec^r 1830. by J. Harris. S^t Pauls Church Y^t

THE CHESTNUT.

THE CHESTNUT,—sweet or Spanish chestnut, —is a very fine and serviceable timber-tree ; and formerly, as we have heard, it was in much request, on account of its strength and durability, for the most costly and substantial buildings. It is said to bear the changes from wet to dry better even than oak, and to have shewn no symptoms of decay in buildings which have been erected many centuries. Its leaf—bring me one, if you please, Mr. Frederick,—is slightly, but very regularly, scolloped at the edge, and has small prickles at the points between : its colour is a dark glossy green.”

Frederick soon returned with five leaves, spreading from one stalk, like the fingers of a man's glove.

“ Here are several leaves,” said he ; “ but they are light green, very much wrinkled ; and the edge seems to be formed differently from what you have described, Sir.”

“ Differently, indeed,” I replied ; “ and they are from a very different tree, the *horse-chestnut* ; perhaps we shall not find a specimen of the *sweet chestnut* here. As to bulk, this tree equals any that are known. The most remarkable one in the world is that on Mount *Ætna*. Perhaps Mr. Longhurst has seen it.”

“ I have not visited *Ætna*,” replied Mr. L. ; “ but I knew a gentleman who had ; and he owned, with regard to the *Castagno de Cento Cavalli*, or *Chestnut of the Hundred Horses*, that he was abundantly disappointed on being shewn what appeared to be five large trees growing together. His guides, with whom he remonstrated on the imposition, protested that



PAGE 101.

CHESTNUT.

they once formed one tree, the interior having been filled up then with solid timber. This account is confirmed, by those who assert, that they have dug far enough beneath them, to find a solid mass, filling the whole space. These portions, then, stand in a sort of circle, which measures upwards of two hundred feet in circumference!"

"Granting," I observed, "that some doubt may fairly rest on this supposed instance of bulk in a single tree, there are others, well known, in our own island, which are sufficiently surprising. The great chestnut at Tortsworth, in Gloucestershire, measured nearly sixty feet round. This tree was known as a boundary mark, in the reign of King John: its age is, with reason, supposed to exceed one thousand years, and it still continues to produce fruit.

"Much of the fruit of the chestnut is con-

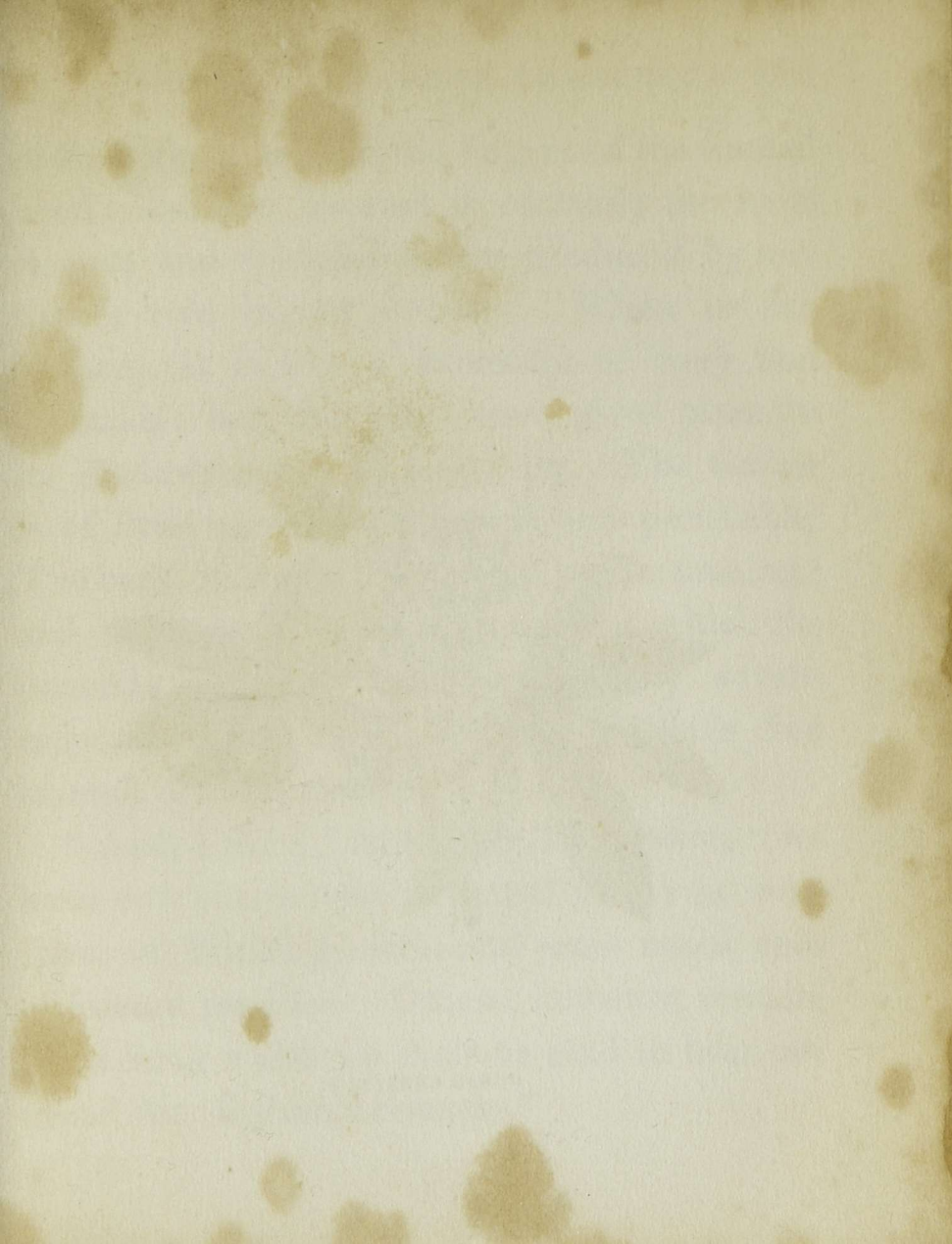
sumed by the poorer classes of people on the continent, particularly those of Spain and Italy. When dried and powdered, persons are not long in choosing between cakes made of them and starvation. The chestnuts usually eaten at desserts are imported from France and Spain. Those produced by British trees are not so fine; nevertheless, they are eaten, and bear a price in the market."

THE HORSE CHESTNUT.

“THE HORSE CHESTNUT, so called, because the Turks grind the nuts and mix them with corn for their steeds, is a stately and ornamental tree; it gives the deepest and most solemn shade of any with which we are acquainted. It bears five or seven leaves on one



Horse Chestnut.





HORSE CHESTNUT.

stalk, spread out like the fingers of the human hand; and the blossom is certainly the most elegant and splendid flower produced by any timber tree in our country. When in full blossom, it is like a mountain of ivory and emeralds; but this effect soon gives place to its shadowy depth of colouring. The timber is of little service; being soft and perishable. The bark, it is said, is of some use in tanning; and the nuts have a soapy quality, which the peasants in some countries employ advantageously; and now, I think, we have had enough of chestnuts."

"And, I think," added Mr. Longhurst, "we have now noticed the principal trees; at least those of British growth, and some noted ones of foreign produce. Others, however, remain, concerning which we shall be glad to hear our friend Mr. Burton's remarks."

THE POPLAR.

“ WE have four sorts of POPLAR ; all of which have their uses and peculiarities. These are the Abele, or great White Poplar ; the Aspen, or Trembling Poplar ; the Black Poplar ; and the Lombardy, Turin, or Italian Poplar.

“ The ABELE is a beautiful and rather curious tree. The leaves have a silvery down on the under side, which shew elegantly when agitated by the wind. The seeds of the tree are clothed, or winged, with a considerable quantity of very fine and white down, which, in April or May, sometimes fills neighbouring houses with flue, as though all the beds had been beaten to pieces. I cannot help thinking, that this substance, resembling cotton, as



Able or White Poplar.

it does, might be spun and woven for the same purposes ; but I have never heard of its having been tried. The wood of the tree is white and soft, and useful for turnery ware.

“ The ASPEN is chiefly remarkable on account of its quivering trembling leaves, which hang on a stalk so long and slender, that the slightest breeze sets them almost spinning. The bark is of a shining silvery hue. The wood resembles that of the other poplars.

“ The BLACK POPLAR, I believe, is only so called, because it is not quite so white as those just mentioned. In other respects, it differs, I suppose, but little from them.

“ The LOMBARDY, or ITALIAN POPLAR, is that elegant spiry tree, which so much ornaments our plantations.”

“ How many there are,” said Mr. Longhurst, “ who have not taste enough to admire

‘the leafy colonnade,’ formed by this tall and beautiful structure of nature. Many regard it as an unsightly incumbrance, worthy only of the axe and the flame.”

“I confess,” said Mrs. Longhurst, “I never think much of their taste for ornamental culture, who speak of, and criticise the works of nature, as they would those of man. When the Creator gave that singular form to the Poplar, it was a variety, upon which, amongst an infinite number of others, He pronounced the incontrovertible judgment—‘very good;’ and, I think, that mind is best taught, which is best pleased with things thus divinely formed and commended.”

“It does not, however, follow,” I said, “that every production of nature is equally elegant. This can no more be said, than that all are equally useful. The beauty, nevertheless, and

the utility may be apparent enough in some circumstances, and to some persons, which may be quite undiscernible in other cases. If all liked and disliked, required and were annoyed, by the same things, we should not have nearly enough of the good sort, and should be tormented to misery by the bad. By the infinite diversities of tastes, occasions, and materials, there is generally great abundance in the provisions of nature, and but very little waste. The timber of the tall poplar is white and soft, like the others; and as it shrinks but little when sawed into boards, it is frequently used for floors with advantage."

THE WILLOW.

“THE WILLOW is a tree beautiful in appearance, and considerably more useful in the arts of life. There are many species. The principal are, the Osier, the White Willow, and the Weeping Willow.

“OSIERS are willows of a smaller growth than the others. Of the extremely tough and pliant twigs of this shrub, wicker baskets are chiefly made; and I know not exactly what we should do without them. The consumption, for this purpose, of osiers is so great, that plantations of them are exceedingly profitable to their owners. In low marshy places, or by the sides of rivers, osiers occupy many thousands of acres. They are cut about once in three



Weeping Willow.

years; the old stumps sending out fresh shoots as often as they thus are trimmed.

“The **WHITE WILLOW** grows to a considerable size, near water-courses. When the wind turns up the leaves, their white and silvery under sides present a beautiful and singular appearance. The twigs of this tree are also used for baskets. The timber is useful for rough hedge carpentry.

“The **WEEPING WILLOW** is, perhaps, the most elegant tree we have; but it thrives well only on the very water's edge; and thus it is, that its perpendicular and streaming foliage, seeking, as it were, to dip in the clear flood, and reflected accurately in it, forms a strikingly interesting object. It is a native of warmer climates; but succeeds very well in England. There are few ornamental grounds, possessing water, which are not decorated with the weeping willow.”

Mrs. Heathfield asked, if I thought the anecdote of Pope's willow was to be relied on.

I said it was probable; and, I believed, was generally received, as follows: "The poet received a basket of figs from Turkey; and, perceiving that a twig of the hamper had a bud upon it, he stuck it in his garden; in a few years, he had a magnificent drooping willow; from which, it is said, all our trees of that kind have proceeded. This tree was cut down, a few years ago; and it could have been wished, that some other employment had been obtained for the too busy operator."

"I believe," said Mrs. Longhurst, "that the best charcoal is made from the willow. In India, there is a particular *caste*, or rank, of the natives, who live entirely in the woods, and gain their subsistence by burning charcoal. The other inhabitants, however, who are very

particular in such matters, never have any personal dealings with them, though, in an indirect way, they purchase their commodities. The woodmen bring down their loads of charcoal to certain spots, and the buyers afterwards come and carry it away, leaving, in place of it, rice, clothing, and iron tools, as settled by custom."

"That method of proceeding," I remarked, "would scarcely do here. The goods and the charcoal, I am afraid, would find other customers than those properly concerned in the treaty, unless well watched and guarded."

THE THORN ACACIA.

“WHAT pretty tree is that,” said Amelia, “which stands before the front of Mrs. Heathfield’s house? It has leaves very much like a laburnum, and the flowers are not unlike, but they are white instead of yellow.”

“I remember it,” said Harry. “The bark looks like great cords, or ropes, tied up and down the tree. It is very easy to climb; but the small boughs have very sharp thorns.”

“It is a tree which we have omitted to notice,” I replied: “the THORN ACACIA. It is a species of laburnum; but grows to a much larger size. The wood is highly ornamental, and exceedingly hard and tough; but the tree is too little grown or known, to appear in the

common lists of timber trees. It has a pearly changing hue, and a peculiar smell, and resembles, in these respects, the fancy timber called *satin-wood*."

THE LIME TREE.

"HERE is the lopped trunk of a LIME TREE, Madam," said I to the owner of this wood. "I perceive you did not forbid the axe to enter this sylvan domain of yours; although, I suppose, you limit it to mere toppings."

"I see, indeed," said Mrs. Heathfield, "that some one has been busy here; but whether any of my own servants, I cannot tell. I had rather, however, that they went elsewhere for their wood; but I have great difficulty in

making them agree with my plans regarding this spot. ‘Ma’am,’ they say, ‘them trees in the wood is taking hurt; shan’t us take a few on ’em down?’”

“It is, indeed, not very easy to make woodcutters understand any other use or advantage in a grove, than that which the timber affords; and, it must be confessed, utility is the chief consideration in general; as, indeed, it is reasonable that it should be.

“Here is a twig of lime, springing from the root, which shews the broad and beautiful leaf of that which has been a handsome and shadowy tree. I do not see a sprig containing the blossom, which is remarkably elegant in its form, tender in its colour,—a light green,—and fragrant in its odour.

“The uses of the lime tree are many. The timber is delicately white, and much used for toys and other light wooden wares. It blunts

the tool but little, and therefore is sought for by leather-sellers and shoemakers for their cutting-boards. It is also called *the carver's tree*, as it stands better for small ornamental sculpture than any other. The fine carving, with which many of our ancient chambers and palaces are adorned, is formed generally out of the wood of this tree. The moulds, from which the iron fronts of ornamented stoves are cast, are usually cut in this wood.

“ The bark is an article of merchandise. By a particular process, it is formed into matting, in which hemp and flax, coming from the Baltic, are packed : this matting is afterwards obtained by upholsterers and gardeners for their respective uses.

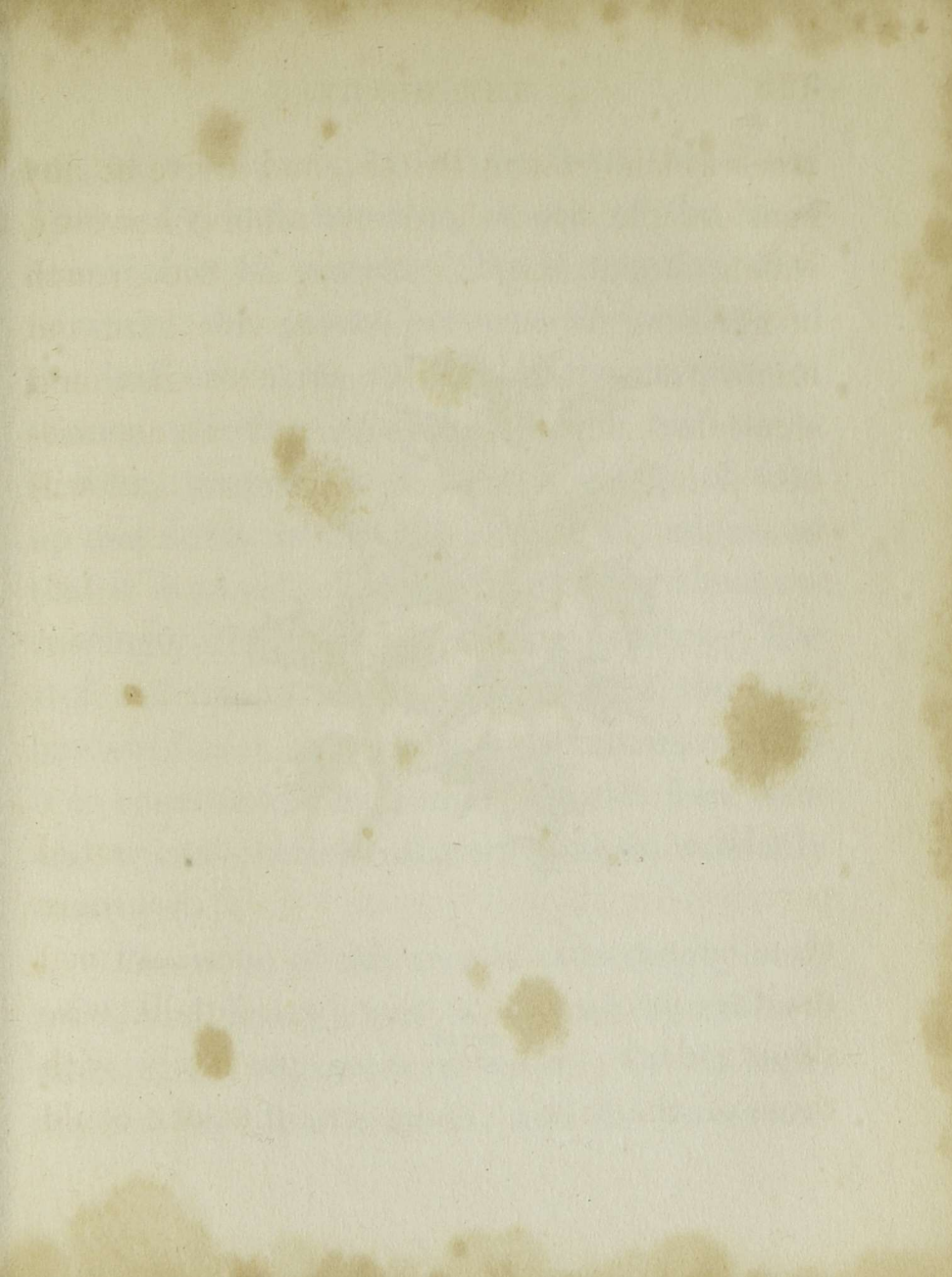
“ The largest lime tree I ever saw was in Norfolk ; it was ninety feet high, and forty-eight feet in circumference.

“ We have now noticed, I believe, all those

trees which grow in Britain, and arrive at any considerable size; there are others, however, which, though they do not exceed the growth of middling fruit trees, produce very hard and useful timber, and have particular uses, and a certain value. We shall, if I am not mistaken, find specimens of them here, and will take them as they come."

THE HOLLY.

"HERE is a very fine tree of HOLLY; but, I perceive, he shows off with a good deal more than belongs to him. The ivy has entwined itself so firmly round, and mingles its likewise shining dark green leaves so intimately with those of the tree it hangs on, that one could





PAGE 119.

HOLLY.

not, at a distance, know one from the other. The holly leaf, however, is one of the most remarkable in nature. By a singular contrivance, the points between the scollops of the leaf are made to answer the purpose of thorns, pointing every way. The leaf is, as it were, warped, as if by the action of fire, up and down, or in and out at the edges, so that it is armed, above and below, by those exceedingly sharp and penetrating needles. The stiff and almost horny substance of the leaf, hardened as it is at those extremities, enables it to resist or retaliate many injuries from men and animals, which otherwise might wantonly destroy it.

“The wood of this tree is exceedingly hard, solid, and heavy; and is worked by cabinet-makers, and engravers on wood. Of the bark, the best bird-lime is made; and the leaves and

berries afford food in winter to deer on the forest, and to birds. As an ornamental tree, it is highly esteemed, because it gives an appearance of lively green to our plantations in the severest winter; and its bright red berries, clustering around the branch, revive at times the pleasing ideas of fruitfulness, which frost and snow have nearly put out of our recollections. Some gather it in Christmas week, and decorate with it our churches and houses. Vast quantities of this beautiful tree are thus consumed every year."

THE ELDER.

“AND here,” said Mrs. Longhurst, “is the old ladies’ doctor’s shop!”

Our young friends looked wonderingly, expecting to see some woodland cottage, or, at least, a hut; but nothing besides an Elder bush could they see in the direction in which Mrs. L. continued to point.

“Most aptly,” I observed, “is the ELDER TREE so named. I scarcely know any complaint, but that of an empty pocket, which this Æsculapian* vegetable is not employed to cure.

“Of the wood, which is exceedingly hard,

* Æsculapius was an ancient physician of Greece, of whom many fables are told.

and capable of a high polish, many small articles are made; and it is the nearest to Box in appearance and in grain, of any wood we have. I suppose, I need not inform these young gentlemen, that, in the centre, there is a hollow, or tube, which contains a pith, very easily removed, and then that highly useful *pneumatic* engine, called a *pop-gun*, is almost completed!"

"Oh, Sir, now you are laughing at us."

"I beg pardon, if I gave the least ground for such a suspicion. Well then, we will *discharge* the pop-gun, and proceed. Ointments are made of the inner bark, and of the leaves. The flowers, those who like them may use as tea, or wash their faces with the decoction. The clusters of flowers, before they open, are made into pickles for boiled mutton; the berries are boiled into a treacly substance for sore throats and coughs; the branches will—let me see—will drive away flies!"

“ I suppose so, Sir,” said Harriet; “ and what branches will not do that ?”

“ I should rather say — that as insects cannot endure the smell of this shrub, fruit trees and other things that have been strongly whipped with boughs of elder, will not be attacked by them. Elder flowers impart an agreeable flavour to water and to vinegar, which some find refreshing and useful in hot weather. I suppose I need not add that a favourite winter cordial is made from the ripe berries, and called *elder wine*. The pith out of the young shoots is cut into balls for electrical experiments, and into toys for children. So now we will take leave of our *elder* friend, but not of our *youthful* companions.”

“ Thank you, Sir,” replied the favoured parties.

THE MAPLE.

“AND now, what have we here? A MAPLE BUSH, I think. The leaves, though smaller, are not much unlike those of the fig. It never grows to a considerable tree, and is chiefly planted in hedge-rows and in coppices. The wood, however, is curiously veined, and capable of being turned into cups and bowls, which are almost as transparent as horn. The ancients were particularly fond of rural utensils formed of this wood.”

“I have seen,” said Mr. Longhurst, “a variety of the maple, in North America, which grows to the height of 50 or 60 feet. It is cultivated there on account of the sweet juice which it yields, and which is made into sugar.



Lycamore.

It is therefore called the *sugar maple*. Very good wine and vinegar are also made from this tree.”

THE SYCAMORE.

“ WE ought now to mention,” I said, “ the SYCAMORE, another species of the maple, and a very beautiful tree. The word *Sycamore*, which means wild-fig, does not properly belong to it; for, though the leaves have some resemblance, they are totally different plants. Its Latin name, *acer pseudo plantanus*, the *false plane maple*, is more accurate as regards its appearance. This tree will grow close to the sea-side, and is little affected even by the dashing of the salt spray. Its growth is quick,

and it will continue increasing for two hundred years. A liquor, of a sugary kind, may be obtained also from this species of maple; and, I believe, in Scotland, the trees are tapped for that purpose."

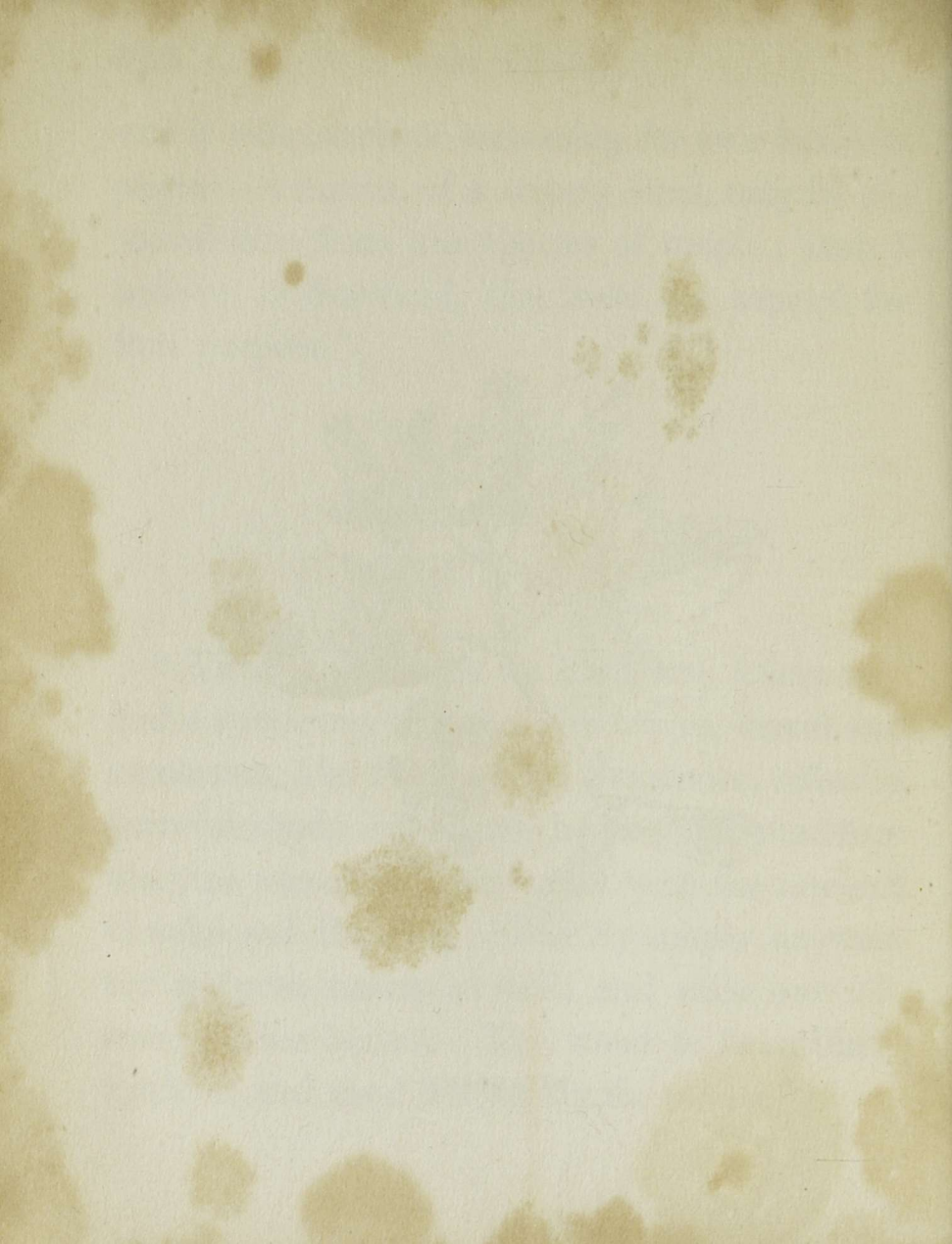
THE PLANE.

"THE PLANE TREE we shall not, I dare say, find a specimen of here. Its leaves, broad and numerous, like those of the Sycamore, afford a grateful shade in summer heats; and therefore the tree was a great favourite with the ancient Greeks and Romans. The Sycamore answers the purpose nearly as well, and suits our climate rather better. The wood is beautifully marked, and used frequently for tables."



PAGE 125.

SYCAMORE.





THE HAZEL.

THE HAZEL.

“AND what can this strange little tree be called?” said Mr. Longhurst.

“Dear Sir,” said Harriet, “it is a nut-bush!”

“Or HAZEL,” I added. “This never attains the bulk of a timber tree; but the wood it produces is nevertheless extremely useful. The first symptoms of returning activity in the trees of the forest, are shewn by the hazel, which hangs out its curious fruit-flowers, or *catkins*, as they are called, as early as the month of January. Its fruit-bearing buds, diminutive as they are, make a beautiful appearance to the observant eye, with their dots of bright crimson on the buds. The hazel is met with

in almost every part of this island, in most of our hedge-rows, and constituting the great mass of underwood in our forests and groves. They will, if let alone, shoot into poles twenty feet in length; but they are generally cut down sooner, to form walking-sticks, fishing-rods, stakes, hurdles, and such things; and also for burning into charcoal. Engravers and other artists, I believe, prefer this charcoal to any other. The nuts of the hazel are much sought for, by a diminutive set of people, called—

“Boys and girls, I suppose,” said Frederick.

“—Who prefer this employment,” I added, “to any other which their governors can appoint, although they are well supplied with food by them, at stated times, and at great cost.”

Our young friends smiled at the insinuation, but said nothing.

“ Nuts, however, are difficult of digestion ; and, when eaten immoderately, often cause alarming complaints.

“ Nut-oil is much used in the arts, and in medicine.

“ Nuts are a favourite food of squirrels, which lay them up in their winter hoards, and take care to pick out the best.”

“ Perhaps, Sir,” said Harriet, “ these are the diminutive people you spoke of just now ?”

“ Not exactly ; for the poor squirrels have none but themselves to supply them with food ; and nuts form the principal article of their diet.”

“ And besides,” said Harry, “ squirrels have no governors nor tutors.”

“ I hope,” said Mrs. Heathfield, rather gravely, “ that no one will suppose such to be the case with these young folks, either by

any thing wild in their conduct, or rude in their conversation.—Mr. Burton, I think the FILBERT is a shrub of this family; is it not?”

“It is, Madam, a variety of the common nut. It has a larger fruit, and the husk is longer considerably than that of the wood-nut.”

THE HORNBEAM.

“THIS *tree*, as we may well call it, with its fine straight trunk, and glossy green leaves, is a HORNBEAM. It bears flowers, like the hazel, called *catkins*, and a small nut, which, however, I believe, is useless. The wood is more esteemed on the continent than in this country. It is white, hard, and tough; and is used by

turners, mill-wrights, and the makers of tools and wooden ware. As it holds its leaves long, and bears clipping well, it makes an excellent hedge."

"I have seen," said Mr. Longhurst, "the high roads in Germany fenced, or guarded, for miles together, by a sort of living palisado of hornbeam. A parapet, or bank, of earth is first thrown up by the husbandman, with a ditch on each side; then he plants on this ridge a double row of sets, and afterwards bends and ties them together with straw, scraping off the bark where the twigs touch. In a little time, these grow to each other, and send forth shoots, which, being properly pruned, form a better fortification for rustic purposes than many an oak fence or brick wall."

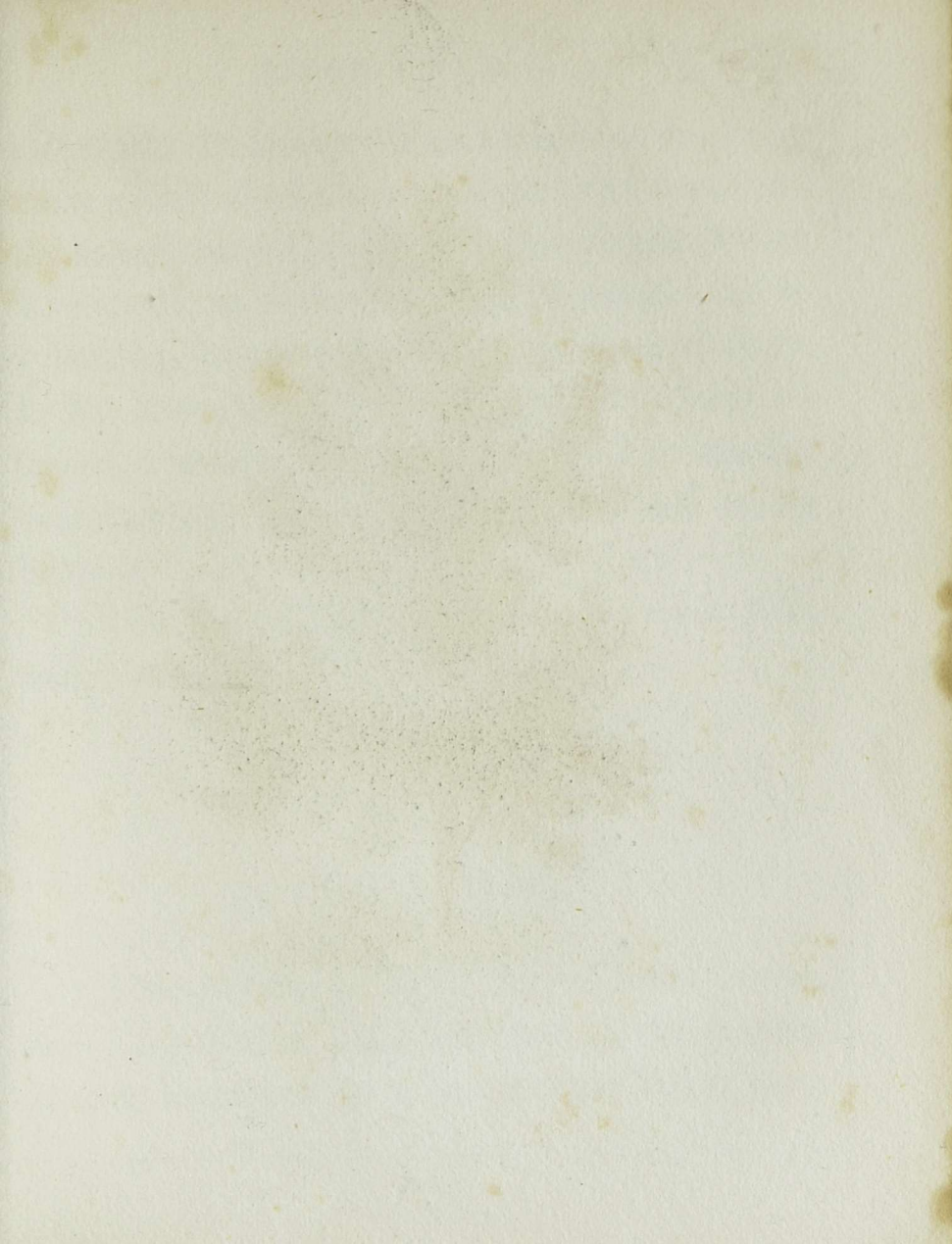
THE BIRCH.

“HERE is really a beautiful and elegant tree, although of rather humble growth. It is a BIRCH. This is the tree which, enduring the fiercest cold of any plant whatever, creeps up beyond the pines into the Polar regions. So short, however, is the summer there, that they can only at last attain a few inches' growth, and are therefore well called *dwarf birch*. They also cover, where nothing else can grow, the watery tracts called, in England, *marshes*; in Ireland, *bogs*; and in Scotland, *mosses*, or *peat mosses*.

“Birch shrubs also ascend the bleak sides of snowy mountain tops, and relieve the eye much, by their warmth of colouring, in those



Birch.





Alder.

inclement situations. The bark, you see, is almost white; the leaves are small and neat, and the boughs are finely divided into slender twigs. The wood, as timber, is of little value. It is, I believe, however, used for hoops and clogs. In the times of archery, to which we have referred, it was preferred for arrows. The smaller branches are used much for yard and stable brooms.

“The sap of the birch, I have been told, makes excellent wine.”

THE ALDER.

“THE ALDER, you see, has rounder leaves, and they feel a little clammy to the fingers. It may be reared to a large tree; but is com-

monly cut down, earlier in its growth, for poles. The wood is chiefly valuable for its property of continuing sound a long time under water."

THE BOX TREE.

“THE BOX TREE is scarcely now to be met with in England, except in gardens and shrubberies. Formerly, however, it was frequent; and Box-hill, in Surrey, takes its name from a profusion of these beautiful trees which, until lately, grew there. The box used for the edgings of walks in pleasure grounds is a variety, but it is impossible to make a tree of it.

“Box-wood is so exceedingly smooth, hard, and compact, and works and uses so well, that it almost takes the place of metals for many

purposes; foot rules, and other measures, on which figures are to be cut, are therefore made of this wood. Flutes also are turned in box; and engravers on wood prefer it to any other."

"And now," said Mr. Longhurst, "I think we have taken some notice of all timber trees of British growth. The wood of many others, grown for other purposes, is used, as is also that of various shrubs; but we cannot enter upon them at present."

"It is time," said Mrs. Heathfield, "to return: I think the hour of dinner is near."

"We must arrange, though, before we separate this evening," said Mr. Longhurst, "for another meeting, when the subjects connected with forests and trees can be farther inquired into."

FOREIGN TIMBER TREES.

VARIOUS circumstances prevented our assembling, as had been proposed; and it was more than two months before I found myself again in the company of the very intelligent individuals, to whom I had been so fortunately introduced.

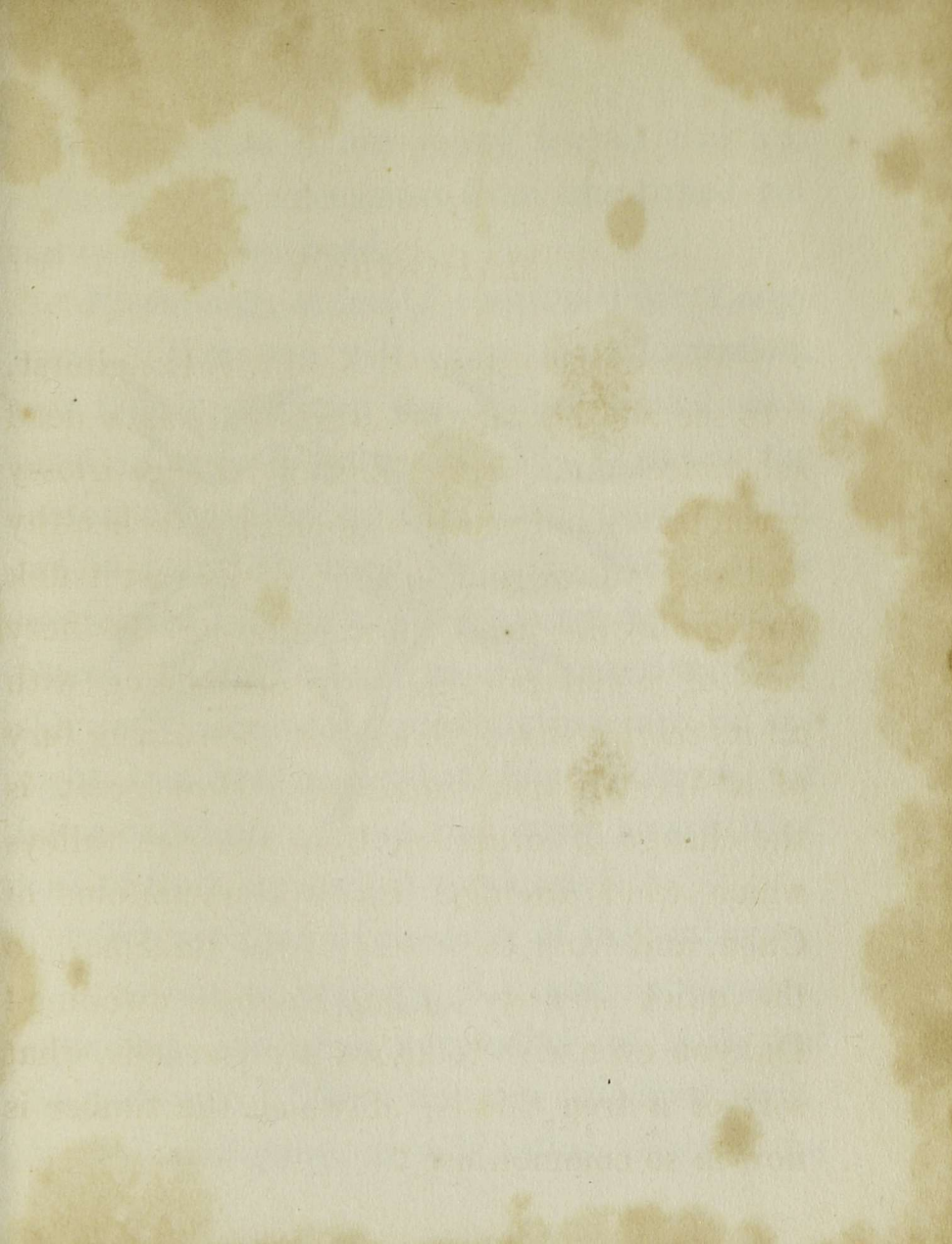
Some time was occupied, when we did meet, in conversing with our young friends, on the topics formerly explained to them. We wished to ascertain how far the knowledge imparted to them had served the proper purpose of abiding information; and, therefore, we in turn put many questions: and, I am happy to say, they were answered generally with readiness and accuracy.

“We must now, I suppose,” said Mr. Longhurst, “acquaint ourselves a little more with trees of foreign growth. We cannot do this, as before, by a woodland stroll, and thereby obtain, from actual inspection, the required knowledge. So we must do as well as we can, with the help of books, and of what little my own travels may add to their stores. We shall confine ourselves, at present, to those few — some five or six — which are most curious, the best known, or the most useful. We will begin with that of which, in England, we see the most within doors, although every foot of it is imported — what can it be?”

“MAHOGANY,” was the instant reply.

MAHOGANY.

“ WE are accustomed,” said Mr. Longhurst, “ to see and handle this article only as a dead substance, and rarely think of its once glossy green leaves and pearly blossoms; of its healthy and vigorous vegetable life; of its vast trunk and giant-like arms, now enduring the fiery rays of a vertical sun—now contending with all its mighty strength against the roaring fury of a West-Indian hurricane. How great is the change of situation, from the rich valleys which wind amongst the wild mountains of Cuba, and from the rocks of the Bahamas, to the quiet security of an English dwelling! Did you ever wish to know, my dear lads, what sort of a tree this is, of which the timber is now in so common use?”





PAGE 141.

MAHOGANY.

It seemed as if our young friends had not suffered much uneasiness from unsatisfied curiosity upon this head.

“ Presuming, at least,” continued Mr. Longhurst, “ that you will value the information, now that it is offered you, I have looked out a print of a mahogany branch. You see the leaves, or, as they are called in botany, *leaflets*, are in pairs, opposite to each other: these are termed *winged* leaves; having *leaflets* thus placed. The flowers, as you perceive, from this very accurate representation, are in upright bunches, somewhat like those of the horse-chestnut. I am not quite aware what sort of fruit, or seed, it produces.

“ We are then to conceive of the mahogany tree, as one of majestic size and appearance, equalling, and often surpassing, in bulk, the English oak. There are two principal sorts: *Spanish mahogany*, as it is called, which is the

best, is grown in those of the West-India Islands which are, or were, under the dominion of Spain. *Honduras wood*, which is not of so fine a colour, nor so hard, comes from the main land of America, and near the shores of the gulf from which it is named.

“ The British settlers in that part employ companies of negroes as woodmen, in the mahogany forests. The best informed of the number is called *the huntsman*; and it is his business to search for trees. In the month of August, he is despatched into the woods, where, piercing through the thickest parts, he ascends some lofty tree, and surveys the surrounding forest. He discerns the mahogany trees by their now reddish or *mahogany* hue, and, descending, directs his companions to the spot.

“ The operation of felling, topping, and carrying, I apprehend, we understand and

practise much better than do those poor negroes ; and, when we come to hear of the work in our woods, which Mr. Burton has kindly undertaken to speak of, we shall know what are the best and most usual methods employed. They float the mahogany trees on rafts to the sea-side, for conveyance to Europe.

“ I believe the profits of this business are considerable. Single logs have been sold for upwards of a thousand pounds. The body of the tree is the most valuable for parts where the solid wood is required ; but the knotty places on the branches afford that beautifully veined wood, which, cut into thin slices, called *veneers*, are used to face our most elegant furniture.”

“ And how long is it,” inquired Mrs. L. “ since our ancestors first learned to put mahogany instead of walnut-tree in their houses ?”

“ I think,” replied Mr. L., “ it was at the commencement only of the last century. It was, indeed, employed for the repair of *shipping*, by Sir Walter Raleigh, at Trinidad, in 1597; but it remained neglected until about the year 1724, when a gentleman had a few planks of it sent him by a brother, a West-India Captain. But the workmen to whom the timber was handed, to make it into doors for a house, rejected it, as too hard. A cabinet-maker was then employed to make a candle-box of it, and he also grumbled at the hardness of the material. When finished, however, the candle-box eclipsed in splendour all the other furniture; it became an object of curiosity and exhibition; and, afterwards, the wood was coveted and adopted by others, till it became a regular article of merchandise.”

THE CORK TREE.

“THE CORK TREE,” continued Mr. Longhurst, “to which I next call your attention, is of the oak family, and bears a kind of acorn, although its leaves much resemble those of the sweet chestnut.”

“But how very different from oak-wood!” exclaimed Harry. “Cork is softer than any wood I know!”

“Have you forgotten, my learned young Sir, that cork is only the *bark* of the tree which produces it?”

“I certainly did not think of that,” said Harry.

“The *Cork oak*,” continued Mr. Longhurst, “is not so large a tree as the common

oak. There are several sorts, some of which shed their leaves; but, I think, it is a broad-leaved evergreen sort, from which cork for use is chiefly obtained. This use of the bark was known to the ancient Greeks and Romans; they employed it for floats to their nets, for buoys to their anchors, and for stopping of bottles. And one, who was sent to swim through the Tiber, during the siege of Rome by the Gauls, had a life-preserver, or cork-jacket, under his clothes; so that even that invention, you see, is by no means modern.

“ This useful tree grows most abundantly in Spain, Portugal, and other southern parts of Europe. The cork is a sort of over-all, or great-coat, which the tree, in warm weather, can afford to part with; but as it does not get another before eight or ten years, the operation cannot be repeated till that time has expired. The inner bark, or under coat, it

does not spare at any time. If forcibly taken, the tree dies.”

“ Indeed,” said Amelia, “ I think it is very good to give away its clothing as it does.”

“ It appears,” said Mr. Longhurst, “ that it relieves and improves the tree, to take away this dead spongy covering, which has ceased, like the outside bark of most other trees, to perform any of the offices of vegetation.

“ The quantity of this substance imported into Great Britain, in a year, is prodigious, —I believe, about two thousand five hundred tons! One province in Spain, Catalonia, gains £250,000 annually by the trade. When stripped from the tree, it is slightly charred, or burned, on the outside; the cracks are artfully filled with soot and earth, heavy weights are placed upon it, to keep it flat; and it is afterwards packed in bales for the market.”

THE TEAK TREE.

“ THE TEAK TREE, of India, has been called the *East-Indian Oak*, not because it is a tree of that family ; but on account of the strength and durability of its timber, and its essential use in the construction of shipping. Since oak has become so scarce here, Government have paid great attention to the teak, of which there are immense forests in our Eastern dominions.

“ The teak possesses great majesty and beauty, as a tree. Its leaves are nearly two feet in length, and it has a beautiful flower, a little like the mahogany. ‘ On the banks of the river Irrawaddy, in the Birman country, the teak forests are unrivalled. They rise so

far above the jungle, or brush-wood, by which tropical forests are usually rendered impenetrable, that they seem almost as if one forest were upborne on gigantic pillars over the top of another.’”

THE PALM.

HARRIET, in turning over some landscapes of Eastern scenery, remarked the tall trees, with leaves only at the top; some of which were seen in almost every print.

“ They are PALM TREES, my dear,” said Mr. Longhurst; “ and of them we will now take some notice, as they well deserve our attention, and call for our admiration of that peculiar goodness, by which, as we before ob-

served, the Creator has exactly suited His gifts to the occasions and circumstances of those who receive them. The palm, or date-palm, rears its majestic and beneficent form in desert tracts of fierce heat, where all other trees leave the almost perishing traveller to his fate. That broad belt of burning sand, which stretches across Africa, from the Atlantic to the Indian Seas, is edged with such an abundance of this grateful tree, that the part, especially that between Barbary and the Desert, is called *Biledulgerid*, or the *Land of Dates*. The date-palm trees, and the tents of the wandering Arabs, are the only objects that catch the eye on the borders of the vast ocean of sand.

“ There is hardly any part of this tree which is not serviceable to man, either as a necessary or a luxury. It is by no means con-

fined to the margins of deserts, but is widely dispersed in the warmer climates. The palm trees mentioned in the Scriptures, and in other ancient writings, are always the date-palms of which we have been speaking.

“When a traveller espies a clump of palm trees, which he may do at a great distance, he knows, almost certainly, not only that there he shall find shade and fruit, but also a fountain of water at their feet.

“This,” said Mrs. Longhurst, “is beautifully expressed in the book of Exodus. ‘And they came to Elim, and there were threescore and ten palm trees and twelve wells of water.’

“And such,” continued Mr. L. “as the country and the palm trees were then, such they are now; and it is interesting to perceive the fidelity with which these ancient incidents of human life are referred to by the writers of

Scripture, by the likeness there is to the narratives of modern travellers in those parts; and the fact itself is not a little striking, that thousands of years make scarcely any difference in the country and people of the East, whilst one or two hundred years alters us so much, in these northern latitudes, that we are scarcely to be recognized, except from history, as the same nation:—but to the palm.

“ The tree grows with an upright stem, devoid of branch or bend, to the height of from sixty to one hundred feet, or more. It then sends forth a magnificent crown of leaves, somewhat resembling those of our fern. The main rib of the leaves is from eight to twelve feet in length, and the leaflets are from two to eight: these, however, are not more than one inch in width; and they are not unlike our great water flags. The flowers appear in

large bunches, or spikes, between the leaves. The trunk, I believe, is hardly considered to be timber, being full of interstices, or cracks, which are filled with pith. It is the pith of a sort of palm, which makes sago. The fruit, which we call dates, when ripened properly on their native soil, are esteemed delicious eating. Those sold at our shops are packed before they are ripe, and therefore we cannot judge well of their merits. They often form the only food of the traveller during journeys of many hundred miles. A rich syrup, a fine wine, and a kind of spirituous liquor, are made from the dates, or the sap of the tree. When it is intended to obtain the sap, the head, or crown, is cut off, and the top is scooped out like a basin. As the sap rises, it of course fills the cavity, at the rate of about a gallon a day, for the first two weeks. After that, the tree lan-

guishes, and eventually dies ; therefore, for this operation, they only select such trees as produce little or no fruit. — So much for palms.”

Harriet was now seen whispering to Mrs. Heathfield, who presently said that her young friend had some farther information to communicate on the same subject.

“ Most gladly will I be a hearer,” said Mr. Longhurst.

We all smiled to see how the arch little girl pursed her mouth up primly, and spoke as follows :

“ There is a great river,—the name is of no consequence, as I forget it, but it is somewhere in South America,—and the banks of it are covered with palm-trees of a certain sort : well, and those parts are apt sometimes to be covered with water when the river overflows ; and then they call it a flood, and a flood is an inundation.”

“Thank you, my learned little lady,” said I:—but her gravity was now nearly upset, and it was long before she could resume the thread of her discourse.

“So, these palm-trees being very high, their tops are never overflowed. And so it is, that these palm-trees, with their great bushy tops, look very droll, standing above the water. But that is not the most wonderful thing; for, when it grows dark, you may see these tree-tops blazing with fires!”

“Really!” said Mr. Longhurst; “what I have related comes to nothing, when compared with this.—Pray, madam, how, or by whom, are those fires kindled?”

“By a people, Sir,” she replied, “called—called—*Gua—Cua*,”—here she pulled a slip of paper from her pocket, and read “*Guanacos*. They have lived a long while in those wet countries; and when the floods come, they

run up into the high palm-trees, and live there."

"But how is it," I inquired, "that the branches are not burned by their fires?"

"Because," said the composed little narrator, "they burn them on the earth."

"O, Harriet!" exclaimed Frederick, "but you said, just now, they were up in the trees, and that the earth was covered with water!"

"Not that earth," replied the ready little girl, "which they take with them up into the trees. They hang mats between the branches, and in these they put their earth, and on that their fire. I suppose, too, that they take with them up stairs, something to burn."

—"And something to *eat*, I should think," said Frederick.

"Perhaps not," replied Harriet; "I rather think they eat the fruit of the tree, and some

parts of its bark and leaves; and that they drink the juice, or sap.”

To some farther questions, our little informant could give no reply; for her stock of knowledge, which had flowed out in such an ample and unexpected stream, ceased entirely, when she had named the source which had supplied her,—a small volume, lately published, in which these facts were stated in a very interesting manner. It appeared that this little matter had been planned by her and her sister some time, and that she had many times repeated to the latter the substance of what she had read, to make herself perfect in her performance. A little fluttered, and somewhat out of breath, she now seemed very glad that her self-appointed task was completed.

“I confess,” said Mr. Longhurst, “I am pleased at two things: First, that I have

gained from that young lady a very curious and interesting piece of information, which had escaped my memory, or my notice; and I am very glad to find that so clear and distinct an account can be given by her; as it shews that knowledge finds not only entrance, but a residence in her mind. I shall be glad, indeed, if all the things we have been talking about, when on the subject of Forest Trees, be as cleverly stored, and as ready for use, in every head that has heard them. I was going to say something about the Banian-tree, but perhaps I had better be a hearer still."

But no one uttered a word; so Mr. Longhurst proceeded.

THE BANIAN.

“ THE BANIAN is a species of the fig tree ; but the fruit is small, and of little value. It is, however, a tree more deserving of notice, on account of the curious manner of its growth, than perhaps any other that can be named. It is, in fact, not a tree, but a forest. It grows to a considerable height, and sends forth branches, like other trees ; but these branches, at length, send twigs downwards — as straight down as a line would hang. They lengthen until they touch and enter the earth, where they soon strike root ; and now the sap which had descended, whilst the nourishment proceeded from the branch above, ascends in greater quantity, and enables the tree to shoot

out others to a greater extent; which drop their shoots in turn; and, by this highly curious process, one tree becomes a very considerable grove, or forest in miniature, affording, in the hot climate of the East, the most grateful and convenient shade that is known. I do not remember any other vegetable that approaches to this kind of growth."

"The STRAWBERRY," I observed, "has some distant likeness to it; although a lowly herbageous plant. Its mode of extending itself—and it will do so over large plots of ground, if permitted—being to send forth arms, which have a bud at the end, and these, when removed to a sufficient distance from the parent plant, send forth roots, and a new plant is produced, which soon performs in the same way."

"And I had forgotten," said Mr. Longhurst, "the BLACK MANGROVE, which grows on

the shores of the West-India Islands. I think, however, that it in no case extends as does the banian. We will conclude our account of this tree with Milton's description, which, however, I presume, is at every tongue's end :

“ —Such, as at this day, to Indians known,
In Malabar, or Deccan, spreads her arms,
Branching so broad and long, that in the ground
The downward twigs take root, and daughters grow
About the mother tree, a pillared shade,
High over-arched, and echoing walks between :
There oft the Indian herdsman, shunning heat,
Shelters in cool, and tends his pasturing herds,
At loop-holes cut through thickest shade.”*

Our conversation on these subjects dropped for that evening ; and it was not until we met again at Mr. Longhurst's, that we had an opportunity of resuming it.

* Paradise Lost, book ix. l. 1102.

WORK IN THE WOODS.

As, in talking over these matters, we had generally been guided rather by objects that happened to lie before us, than by any regular and arranged plan, such as would be adopted in a book, we did not think it needful to continue any part of our subject longer than it seemed useful and interesting to the young people; and when any thing a little different from the matter in hand came in our way, we noticed it in the best manner we could; and we often found the attention relieved by so doing.

It chanced, as we were walking in the Forest, and before any regular conversation had commenced, that we came to a spot, where a number of men were busily employed in

falling a large tree; and we were led, from this incident, to turn our attention to the subject of WORK IN THE WOODS, and the MANAGEMENT OF TIMBER LOGS.

Some time before, the surveyors had been through the Forest, numbering and marking such trees as were supposed to be *ripe*, or, in plain language, best fitted for the purposes of timber. We observed the marks, and were almost grieved to see the principal beauties of the Forest thus condemned; knowing that their leafy honours would soon be laid low.

There was to be a considerable fall of timber this season; and a number of woodmen were engaged. For several days they had been at work, clearing the underwood away.

We took our station on one of these spots, where we could see the whole, without danger or alarm.

FALLING TIMBER.

WE had expected to see the whole tree cut down and fall at once, with all its branches on it; but we were told, that, although such a method was sometimes taken, when the mere timber was wanted for public uses; it was not a good mode, as many of those branches, called *top and top*, were sure to be split, and rendered unserviceable.

This tree had been sold for private use; and the purchaser was there, to see that all was done in the way most likely to prove beneficial to himself. Accordingly, two men ascended to the largest arms,—the lower arms first. These they carefully took off, either with the short chopper, which they call a *bill*, or with

a hand-saw. This branch, we observed, was first cut a little underneath, and then above, that it might not split and fall before it was cut through. By this care and skill, many valuable knees, and other shapes, of useful timber, were preserved entire.

As these preparatory operations occupied some time, our young friends began to be somewhat impatient; for the grand fall of the whole tree was the event they were longing for. When they saw it stripped, branch after branch, they feared that nothing worth looking at would be left for the last. They were amused, however, by a great hallooing amongst the workmen; for one of them had seated himself, by mistake, on the branch his companion was cutting; so that, had he not nimbly sprung to the neighbouring one, he must have fallen with it.

And now there arose a little difference of opinion between the master and his men. The latter wished to proceed against the tree itself, with axes ; he insisted upon the saw being used ; the reason was soon explained. The chips were the perquisite of the men, and they well knew that the axe would reduce a large portion of the timber to these chips, whilst the saw would give them nothing. The master, too, was quite aware of this, and calculated that perhaps a square foot of oak would be saved him by the saw. As he would not give up the point, they rather discontentedly obeyed ; and two of them, taking a *pit-saw*, with handles fixed at each end, set to work ; of course commencing on the contrary side to that towards which the tree leaned ; nevertheless, as they had done with the larger branches, they made a small beginning first at the part where the

saw would come through, to prevent the mischief of splitting the butt.

Whilst they were at work thus below, a man, seemingly quite unconcerned at their operations, climbed up, with a rope in his hand, as near as he could to the top of the tree; and having, as we understood, been a sailor in his younger days, he briskly descended by that rope; and offered, when half way down, for a pot of beer, to continue there half an hour; they working the mean time as briskly as they pleased; but the master said that he did not pay him to win wagers or to lose them; and found him a more safe employment below:—nor were any of us sorry for the turn he had given to the proposal.

Nothing shews the great strength of oak timber more than the process of sawing the trees down; for, as in the present instance,

the saw will go so far through, that scarcely an inch appears to hold the tree up, and yet it continues to stand. At length, a peculiar cracking was heard. Two men now took the rope's end as far off as it would let them, and pulled, gently swaying the tree backwards and forwards, whilst two more drove in wedges at the gash where the saw had entered, and thus relieved greatly the labour of the sawyers. At another loud crack, they suddenly desisted—we all stepped backwards. Three or four of the men now went to assist those at the rope, who took care to stand a little sideways of the fall. The head-man cried at each pull, “One—Two—Three”—that they might all act together. At the third cry, all bore with their whole strength. Now, a low bursting sort of noise succeeded—the mighty trunk swayed fairly over, and, with a thundering

crash, descended! The woodland ponies were now seen taking to their heels. Rooks, with loud cawing, left their nests in swarms, and we ourselves had involuntarily started behind a huge elm for protection.

After a momentary pause, we all stepped forward most courageously. The prostrate giant had uttered his last groan, and all fears from him were at an end. Our surprise, particularly that of the young persons, was great, at the unexpected bulk of the tree. Whilst standing, and deprived of its branches, it looked comparatively inconsiderable; but now, Frederick and Harry found that they could not see each other, when standing on different sides of the trunk, near the root. It was, in fact, more than five feet in diameter at the thickest part.

“ Oh Sir,” said Harry, “ see! it has made itself a grave to lie in!”

It was seen, indeed, that a projecting part of the tree had deeply entered the earth, which the proprietor said he was very glad to see; for, had the ground been sufficiently hard to resist this, the timber would undoubtedly have been split up the middle, and thus have made him a loser of many pounds.

“But why not dig the tree up by the roots?” said Harry.

“We call that *stocking it up*,” said Mr. Woodgate, the builder, who, seeing our curiosity, very obligingly satisfied us upon many points. “I did not buy the stock; and, if I had, I am not sure that the extra labour, which is great, of proceeding in that way, would have paid me. Here, the stumps and root are the perquisite of the *verderer*, or overlooker of the Forest. He perhaps will send men to take these up, or perhaps he will not;

for many of these *tables* are left to perish in the soil. When timber is sold by a landlord on a farm, these parts are usually the perquisite of the tenant. There are men called *wood-stockers*, or *splitters*, who make it their business to get up the roots and stumps of trees, that have been taken down. I think, if you wish to see them at work, young gentlemen, there is an opportunity, only a few paces off; for I hear gunpowder has been at work, instead of beetle and wedges."

WOOD STOCKING.

AN explosion had, indeed, that minute been heard; and had it not been for this, and the name of *gunpowder*, I question whether the

young gentlemen would have felt any desire to see the operation which had been referred to. However, they were now impatient to proceed thither; and, as Mr. Longhurst explained to the ladies, that the explosion *had* taken place, they were induced to follow, hoping perhaps as much that this process would *not* be repeated, as the young gentlemen wished it might.

A prodigious block of a tree was soon perceived, at which three or four men were busily employed. They had dug and cut a deep trench all round the stump, at some distance from it; and by working regularly and neatly through earth, wood, and stone, and then proceeding under the mass, they had apparently detached it from the soil. But this was not really the case, as one of the men confessed, to his sorrow. “ Four of us have been at this

two days," he said, "and we have not got at the *tap-root* yet."

"The tap-root," I explained, "is that which strikes perpendicularly down from the middle of the great root; and, in the shape of a tap, or spigot, often descends some feet. This, of course, is the most difficult to get at and to cut."

"Then, I suppose, they put gunpowder underneath, to blow it up?" said Frederick.

"No, no, Mister!" said Jack Heavem; "that wouldn't do no more good than lighting a pipe aneath it."

"Because, I suppose," said I, "it could obtain plenty of vent all round."

"Just so, Sir," said the man. "When we split 'em with powder, we bore into the solidest part we can find, and plug it up as tight as a post. We thought to have split this sheer

down in that way, and then we could have cut the tap-root a-two in a wink ; but, howsomever, the powder flew out at a crack, and only split off a bit as big as one could carry."

" And what are you going to do now ?" asked Mr. Longhurst.

" Take another penn'orth o' patience, Sir," said the woodman. " We must dig a little deeper, and cut the limb in two with the saw, if that be all."

SPLITTING OLD ROOTS.

ONE man now set to work with the spade and mattock for this purpose ; whilst others applied themselves to splitting off the sides of the block with wedges.

“The WEDGE,” said Mr. Longhurst, “is the first of the mechanical powers; and its effects, indeed, are surprising, as you will soon see.”

A wedge was then held, touching the wood, by one man, while another struck it rather gently with the wooden hammer, called a beetle. “Gently! gently!” cried the man with the wedge.

“I suppose,” said Harriet, “he is afraid that his hand will be hurt.”

“O, no, Miss,” said he; “but, if we hits too hard, the wedge won’t *draw*.”

I explained, that such was the extreme resistance of the wood against the smooth sides of the iron, that its tendency was to throw the wedge out, and that, if they struck it too hard at first, this was sure to be the case. The man, encouraged by the iron seeming to have a hold, now hit harder, when it jumped out,

and the operation was to be repeated. They now rubbed the sides of the wedge with chalk, and putting it in the same place, at length succeeded in driving it firmly in. Each man then took a beetle, and, with the greatest regularity and truth of aim, smote it alternately, till the wedge was fairly buried in the wood.

“ Oh !” said Frederick, laughing, “ now what is to be done ? Nobody can get the wedge out, I am sure ; and the wood is not in the least split !”

“ Let us see,” said Mr. Longhurst ; “ the men do not seem at all concerned about their wedge.”

They now took another wedge, and placing it as close as they could to the one already in, they drove the fresh one also completely down and level with the first. Not to make too long a story of it, however, it is sufficient to

say, that when they had thus driven four wedges down, the wood gaped widely, and a blow or two of the beetle against the part they aimed to remove, detached it entirely, and the wedges all at once jingled out.

“ You see,” said Mr. Longhurst, “ that skill and knowledge, as well as strength, are required even in the breaking up of the old stump of a tree. I dare say, that in an hour or two, this will be cracked into convenient pieces for the fire.”

“ It is like in less time than that, Sir,” said one of the men, touching his hat; “ more particular you please to give us a drop of drink.”

“ I thought that was coming,” said Mr. Longhurst, bestowing the needful shilling: “ There— Now tell us how much wood you think this will make, when split.”

“ Why, I reckon two good stacks, Sir.”

“ And how much is a stack ?”

“ A stack, Sir, is twelve foot long, and three foot over, and three foot high, and we lay 'em as squarish as we can.”

“ And as hollow as they will let you,” added Mr. Longhurst, aside. “ These men are vastly cunning in building those stacks, and will not only make two feet six go for a yard, but will construct you a very capacious log-house instead of a solid stack, unless they are well watched. I believe they have six or seven shillings a stack for their labour; and severe labour it certainly is.”

MEASURING TIMBER.

WE now returned to the fallen tree, and found Mr. Woodgate employed in examining and measuring the timber, whilst the men were farther lopping the branches which lay around.

We found that the *stick*, or stem of the tree, was forty-six feet five inches to the first arm stump; that its circumference at the bottom was nearly sixteen feet, and at the top about seven. Some of the limbs were praised by the builder for their shape and substance. Many of them were a foot in diameter, and would make nine inches when squared. We endeavoured to count the rings; but they became so confused towards the edge, that we

quite lost our reckoning: however, we counted one hundred and eighty-seven.

“ Now, Frederick,” said Mr. Longhurst, drawing out his watch, “ can you hear this tick ?”

Frederick scarcely could, for a breeze was just then stirring amongst the branches.

“ Go to the other end of this tree, and you will hear it better.” Frederick smiled.

“ Now lay your ear down as close as you can to the flat end.”

Mr. L. then placed the watch against the large end of the tree, being distant from Frederick’s ear about fifty feet.

“ O, dear! I can hear it now quite plainly, indeed!” said he. “ O, Harry, and Amelia, and Harriet, do come !”

They all did the same, and every one was surprised at this curious fact.

“ If that tree were ten times as long,” said I, “ I believe you would hear it just as well ; so easily and certainly is sound transmitted through many solid feet of timber.”

“ That reminds us,” said Mr. Longhurst, “ to find the contents of this trunk. How shall we set about it ?”

Mr. Woodgate obliged us by shewing the builder’s mode of rough-measurement. Taking his chalk-line, he ascertained the girth of the tree at about the middle ; then measuring with his rule the length, (the girth in the middle being sixteen feet,) he took one quarter of that (four feet), and so multiplied by four the length, forty-six feet, and found the result was one hundred and eighty-four *cubical feet*. “ But,” said he, “ we must make allowance here for bark and waste ; so we should say there are about one hundred and seventy-eight cubical

feet of real timber. We call forty solid feet of timber, just as the tree falls, *a load*; and fifty, if it be barked, hewn, and squared with the axe."

MAKING UP FAGGOTS.

IN another part of the Forest, we came to a scene a little different, but very busy. The men were forming the lesser parts of the tree into proper quantities and shapes for sale.

"The principal branches, or limbs, like those we have seen, are of value as timber, however bent or unsightly in their form.

"The smaller wood they call *timber-tops* and *brush-wood*. This is made up into faggots for the farmer's hearth and the oven."

“ How much rope it must take to tie it all up in bundles !” said one of the little ladies.

“ Or rather,” said Mr. L. “ none at all. See, there is not a bit of rope employed.”

“ Oh ! they tie it with sticks,” she replied. “ How can they double them and make knots ?”

I pointed to an old man, who was just then twisting several pliable long twigs of oak for the purpose. He laid this straight on the ground, and then placed across it an arm-full of the wood, which had been chopped into lengths of about five feet. All the smaller wood was put in the middle. When he had thus got as much as he thought proper for one faggot, he doubled the small end of the withie into a loop, which he twisted round a few times, to confine it ; then putting the stout end of the band through this loop, he drew it

as tight as he could, pressing the faggot with his knee, to make it compact and firm; then he doubled the stout end, and tucked it in amongst the branches: all was then sufficiently close and firm for conveyance to any place where they might be wanted.

The exact quantity, we found, was not very nicely attended to, all being guessed at by the wood-binder: but a faggot ought to weigh as much as a truss of hay, which is fifty-six pounds.

As for the chips, we saw them carefully gathered up, and packed into a little home-made donkey-cart, driven by an old woman, who appeared to have purchased them of the labourers. She, of course, intended to take them round to houses for sale. Her usual profits on these speculations she did not acquaint us with; perhaps she might gain eighteen-pence a cart-load for her trouble and the outlay of her *capital!*

CARRYING TIMBER.

MR. LONGHURST had learned of the good-natured builder, Mr. Woodgate, the day on which he purposed moving the timber-tree which we had seen cut down. On the morning of that day, we assembled at the spot, as agreed. We all felt more interested in these things, the more we attended to them and understood them; otherwise, perhaps, we should not have felt motives sufficiently strong to pay such frequent, and, as some would say, unseasonable visits to the Forest.

A lively discussion had taken place, at the breakfast-table, amongst the younger part of the family, respecting the way in which the tree in question could be moved away. Little,

however, could be thought of by any of them, for that purpose, but multitudes of men and horses.

“ It may be,” said Frederick to his brother, “ that they *cannot get* a hundred men and a hundred horses, to help them ; I only say, that that would be the best way, *if they could.*”

“ And *I* say,” replied Harry, “ that a steam-engine, *if* they could have one there, would lift it up in a moment. I think *that* would be the best way.”

But Mrs. Longhurst suggested, that it was not only to be *lifted up*, but *carried away*—so Harry’s thought was a bad one.

Amelia and Harriet both thought that it would be cut to pieces as it lay, and then it would be easy enough to carry the boards.

“ I think,” said Mr. Longhurst, “ that the best way for *us* will be to *move ourselves* to the spot, and see what is actually going forward.”

They all, therefore, set out, each sufficiently eager to see how the thing was really done; and each perhaps entertaining a distant hope that his or her plan would be, at last, the one nearest the truth. No doubt, it is very gratifying to be able to say — “There, you see, I was right! I told you how it would be!” It is better, however, when persons are less anxious to see their own opinions thus honoured. They are more likely to form a right judgment when they have no wish but to know the truth.

As they went along the narrow shady lane leading to the wood, they met a timber-truck, with three horses, conveying a pretty large tree in a way that had not occurred to the wisest of them. The heaviest end was chained up between two great wheels, whilst the other end trailed along the ground, and thus proceeded. They were obliged to stand up close to the hedge, as this passed by them.

“That,” I remarked “is called a *timber-drag*, or, in some places, a *whim*. You saw how the tree was slung to the axle of that machine, by strong iron chains, which passed round it several times. That sort of carriage is not employed to convey them to any great distance, but generally out of the way, to some more convenient place, either for lying or for being loaded.”

We came to the tree itself, just in time to see the operation; for, the debate having been as to the power by which it could be lifted on to the carriage, or how it could be moved at all, it was needful to see the very commencement of the business.

They were first surprised to see a couple of men move a large tree, seemingly with great ease to themselves, only by putting, each of them, a pole underneath it; as they raised

their end of the pole, the tree rolled along. Sometimes they placed a block under the pole, close to the tree, then depressed the end they held, and that really lifted up the heavy timber log. Harry soon saw, that one thousand men, if they had been there, could only have stood still looking at each other; and that as many as could conveniently have taken hold of the tree, could not yet lift it as those two men did by means of their poles.

Frederick was the first to ask an explanation of this wonder. “How can it be, that a thing like that can have so much power!”

“That,” I replied, “is the simplest of the mechanical powers, and is called a LEVER. You see that he placed the block, on which the pole pressed, as near the tree as he could; because—now attend—just so much as the part of the lever on this side the block is

longer than that beyond it, which goes under the tree, so much more power has the operator with it."

As my explanation seemed to want something to make it satisfactory to my hearers, I determined to call experiment to our aid. "There," said I, "lies an arm of the tree; see if you can lift up the thick end with your hands."

They tried; but could by no means stir it. I desired one of them, then, to take a light pole and a block to assist him. He did so; but accidentally placing the block under about the middle of the pole, he gained no power; he was still unable to move the load. His brother saw the mistake; and, moving the block, or *fulcrum*, as it is called, closer to the timber, they found it easy enough, by one of them bearing upon the end farthest from the work, to raise this log, as the workmen had

raised the larger one. The victory seemed as pleasing to them as the knowledge. Yet both of them said in a breath, "I shall think of that again."

Affairs of still greater interest, however, arrested our attention; for preparations were now making for lifting the tree, which had been the object of so many inquiries.

They saw there a machine composed of three long and stout beams, or legs, opened at one end, at the other joined by iron hooks and eyes. This was set up and made to expand widely over the butt end of the tree. A double cluster of pulleys, with a prodigious hook, hung from the top of this three-legged monster. This was lowered, so that the hook might take hold of the huge chain, with which the timber below was many times encircled. A long rope, which connected the two boxes

of pulleys, by passing in and out to each, was now fastened to one of the horses. When they led the animal forward, the under block of pulleys rose, and with it the huge butt end of the tree, high enough to permit that part to be hitched upon the timber-carriage, which creaked and groaned beneath the weight. By changing the situation of the chains, and bringing the carriage gradually under, it was at length made to sustain that prodigious mass, which, but for the application of the simple mechanical powers, must have lain and rotted where it fell.

The lads turned inquiring eyes towards us ; and I then said, that these PULLEYS were exactly on the same principle as those of the old-fashioned wind-up jacks, the weight of one of which I remembered to have seen hanging from Mrs. Heathfield's house. The mecha-

nical principles by which this astonishing force was gained, I did not attempt to explain, because they could not be understood, without a measure of mathematical knowledge, which it was impossible that, at their early age, they should possess.

We next examined the carriage, and found that it was composed of nothing more than two pair of very strong wheels, kept in their proper places by a very long and strong beam of oak-timber.

“ But what is the reason,” asked Frederick, “ that this beam projects out so far behind the wheels ?”

“ Because,” replied Mr. Woodgate, “ we sometimes have longer trees than this to move, in which case we bring the hind wheels farther back. The axletree is made moveable on purpose : so, you see, we lengthen or shorten the carriage, according to the extent of our load.”

Harry asked how many trees that one carriage would take away at once ?

“ We reckon,” said Mr. Woodgate, “ that five loads at a time are enough, if in separate trees ; but, in the case of a single tree, we must take it, let it weigh what it may ; but five loads of timber and five horses are quite enough for men, horses, and carriage to manage, and for the King’s high road to sustain.”

REMARKABLE APPLICATIONS OF TIMBER.

IN the evening, the conversation turned upon the mode in which timber had been applied in some remarkable cases.

“ Our modern buildings,” observed Mr. Longhurst, “ are not constructed so as to exhibit

scientific carpentry, or the grand strength and beauty of the timber. We cover the inside of our roofs with a plain or ornamented ceiling; and none but those who can go among the beams with a lantern can see of what the edifice is built, or how it is contrived.

“ Our elder architects went upon a different plan, and never considered a mighty but well-proportioned and well-arranged system of handsome timbers an unsightly object.”

Frederick observed, that the beams in the roof of their parish church were to be seen, and that they were curiously carved.

“ The labour,” I observed, “ bestowed in thus decorating the massy beams of ancient buildings was very great; and the skill, in many instances, surpassed that of modern workmen.”

“ I believe,” continued Mr. Longhurst, “ that Westminster Hall is as fine a display of the

science, skill, and taste of past ages, as any we have. It is, indeed, the largest roof of that construction any where to be found. The hall was first built by William Rufus, about seven hundred and thirty years ago. Large as it is, the King was not half satisfied with it, and called it a mere bed-chamber, in comparison of what he had wished to have. He, however, went no farther than the foundations in his intended building.

“ But the great hall was altered and enlarged by Richard II. who had the present roof constructed. It is formed of chestnut, which is not at all decayed. It is two hundred and seventy-five feet long and seventy-four feet wide! That King Richard is said to have feasted ten thousand persons under that roof; and some of those royal whims, I believe, by their expenses, led to the rebellion of Wat

Tyler, and perhaps at last to the dethronement and murder of the King?"

"And for what," said Amelia, "do they now use Westminster Hall?"

"For mere purposes of state," I replied—"such as coronations, and the trial of high personages, who may have done amiss."

"But," said Mr. Longhurst, "the Riding-House, at Moscow, built by the Grand Duke Paul, of Muscovy, afterwards Emperor of Russia, is certainly the most surprising roof of any kind that we ever heard of. It is of the modern construction, and ceiled; and quite unsupported by cross walls or pillars. I suppose it is a circular building. The length is one thousand nine hundred and twenty feet, and the span of the roof two hundred and thirty-five feet. The floor covers the vast extent of more than ten English acres!"

“ And how large are the largest ships ?” inquired Harry. “ I suppose they are made entirely of wood ?”

“ With here and there just a little bit of iron, or so,” said Mr. Longhurst, smiling. “ It is, however, true, that the bulk, substance, and body of every vessel is timber ; but the quantity of iron used in cramping those innumerable beams together is enormous.

“ A Mr. Wood, of Port Glasgow, constructed, I believe, the largest ships that ever were borne upon the ocean. His great ship, the Columbus, was three hundred feet long, more than fifty feet broad, and almost thirty feet deep. Her actual tonnage, or weight, that she would carry, was five thousand tons ! She came to England, with timber, about five years ago ; but went to pieces on her return.”

“ O, what a sad thing !” said Harriet. “ I

should have thought myself safer in that, than in any other."

"You would not have judged correctly, my dear," said Mr. L.; "there is a size and weight beyond which a structure will not hold together that floats, and is unequally supported."

"The Baron of Renfrew," I observed, "was a vessel of perhaps larger dimensions; and as that shared the same fate, the rage for building those immoderately large ships has died away."

"Buildings and shipping," said Mr. Longhurst, "certainly shew the use and strength of timber to great advantage; and so do some of the famous wooden bridges. Those near London, at Chelsea, and Putney, however, are only famous for their surpassing clumsiness, and the want of even common skill and science in their formation.

But the bridge at Schaffhausen, across the

Rhine, was an astonishing specimen of constructive ability in a man—Ulric Grubenman—who had had little or no education. The width of the river there was three hundred and sixty-four feet, and the bridge was thrown into the form of a single arch, although it had support from a pier in the centre. This bridge was destroyed by the French in 1799; but Ulric built several others, which are still standing.

“ Another remarkable instance, and perhaps the most so of any, of the employment of timber, was by a Mr. Rudyard, once a silk-mercantile, on Ludgate-hill. It was the lighthouse on the Eddystone rock, which stood there before the present stone one was built. An edifice of this sort had been previously erected on that spot by Mr. Winstanley; but he and his lighthouse were unfortunately washed from the spot during a dreadful storm, in 1703.

Rudyard built his sea tower entirely of wood, using layers of stone, merely as a weight to keep it steady. It was more than sixty feet high, and was so contrived, that there was little about it, of which the storm could lay hold. On the top of this was the lantern, an octagon, or eight-sided figure, which, with its burners, would give the needful ray to warn mariners of the hidden danger beneath. And this masterpiece of skill continued to brave the storms for nearly fifty years, when it was destroyed by a most surprising circumstance, which certainly had not entered into the expectations of the builder." Here Harry read us the account given by Mr. Smeaton, who built the present lighthouse.

"On the 22d of August, 1755, the workmen returned on shore, having finished all necessary repairs for that season. All appeared to be

right, excepting that a brick or two had been displaced from the kitchen fire-place by a late storm. But on the first of December, the building took fire, and was, before morning, a charred ruin on its foundation. How the fire originated, none can tell. One of the men, brought with the rest on shore by a boat, made off as soon as he was landed, and was never again heard of; but as it was but a chance that any on the spot could escape with their lives, it does not seem probable that the fire was wilful, unless the incendiary were indeed mad.

“ It appears that when the light-keeper went into the lantern to snuff the candles, he found the whole in a smoke, and a flame soon burst forth. He immediately endeavoured to alarm his companions; but they, being in bed and asleep, were not ready in coming to his assistance. The poor man did what he could in

throwing water, which his companions now brought up, on the burning cupola ; but this, of course, went on slowly. Mean time, the flames gained strength rapidly, and the poor man, though he made every exertion, could do little indeed against them. As this unhappy man was looking upwards, to see the effect of the water thrown, a torrent of melted lead suddenly poured down upon him, and made its way not only under his clothes, but down his throat ! He was ninety-four years of age, and died in about twelve days after the accident."

"That will do for our present purpose, Harry. We will now thank Mr. Burton for a few general remarks on subjects connected with trees, which some of us have not yet attended to at all."

I readily complied with the request, to the best of my ability ; although I knew that the

difficulty was considerable of conveying information of this sort to parties so young. But I relied much on the attention which I knew our little learners would bestow, as well as on their natural readiness and quickness of apprehension.

PARTS OF A TREE.

“ The parts of a tree, of which we take principal notice, are the root, the stem, the bark, the timber or wood, the leaves, the flowers, the fruit, and the juices or sap. A tree, like the body of an animal, is a vascular structure; that is, it consists of an almost infinite number of vessels for the transmission of juices, which supply with nourishment all the other parts.”

“ Only,” observed Mr. Longhurst, “ there is this difference, that the juices of trees proceed all one way, upwards, or towards the extremities; but the blood of animals returns continually to the heart, whence it set out—this we call *circulation*.”

“ A very needful distinction to remember,” I said. “ The ROOT of a tree supplies, we suppose, the principal part of the nourishment to the whole. It is, however, the small thread-like fibres, which draw those juices from the earth, and not all those stouter parts, which are principally of use to hold the tree in its place.”

“ The root,” said Mr. L. “ is called by botanists, *radix*; and you, young gentlemen, know well why.”

“ O, yes, Sir,” said they, “ we know as much of Latin as that.”

“ And,” I continued, “ the fibres, or root-

lets, are named radicles (*radiculæ*): these are renewed every year."

"The gardener was saying once," observed Harriet, "that he could make roots become branches, and branches roots; but he did not tell us how; he only looked very cunning."

"There are many plants," I said, "which may be so served; as gooseberries, currants, willows, vines, the ash, and many others. If you take a small branch of one of these, and bend it down, so as to cover it with earth, it will, in a few months, send forth roots into that earth, so that the branch may be quite separated, and it will not die; and you may also take a young shrub, of many sorts, and plant it root uppermost; it will, in time, grow and send forth buds from the roots, and roots from the branches."

Nearly all the young folks expressed their determination to adopt this *new* plan in their

own little gardens. Mr. Longhurst said he should not do so in his own garden; having found no inconvenience in gathering the fruit from the parts of the trees at present above ground.

“ We next come to the STEM. Trees and shrubs have generally a woody or solid substance proceeding from the root, and which commonly attains some height, before it divides into branches. It is this substance that forms the great provision of nature for necessary uses and the comfort of man. It is this *ligneous* or woody material which supplies him, as we all know, with timber and fuel. These trunks vary in magnitude, from the enormous trees we have before mentioned, to the dwarf alpine willow (*Salix herbacea*), of which, it is said, that half a dozen may be enclosed between two pages of a lady’s pocket-book, without touching each other.”

“ O, how I should like to have one of those pretty little trees !” exclaimed Amelia.

“ I am afraid,” rejoined I, “ that it would be too tender to bear being taken up and planted *roots uppermost* !”

“ It does not appear that so much sap is sent through the solid timber of the tree as through the BARK. This is always, by much, the most juicy, and it is from this part that turpentine, gum, resin, and other forms of the sap, are obtained from trees. There are very few trees which do not die, if the bark be stripped off all round ; but most of them will re-produce it, if only a small portion be left. As the tree grows, the inner bark slowly becomes timber, or sap-wood, the outer bark cracks and forms the rough coat, in which most trees are clothed, and a new inner bark is formed.”

“ Now as to the LEAVES, their use to the plant that bears them is not so evident ; but

it is now generally understood, that the air has upon them a chemical effect, needful to the life of the whole; for if all the leaves be picked off, the plant languishes, or dies. Their uses for man are too numerous to be named at present. The leaves of most trees, having lasted during the warm and genial season, die and drop off; not merely by their own weight, but by the action of the plant itself."

"But in hot countries," observed Mr. Longhurst, "this is not the case. The trees there do as evergreens with us, they lose their old leaves, only as new ones come; so there is no 'general fall of the leaf,' as in the colder climates."

"That is a curious thing, which I had never thought of," said Harry.

"It is, therefore," replied Mr. Longhurst, "the situation of the plant, rather than its own peculiar nature, which makes the change.

Those, which with us retain their leaves in the winter, are more hardy than the others, that is all."

As to FLOWERS, though some trees, as the chestnut, mahogany, and thorn acacia, have beautiful blossoms, many trees of the largest growth have none, properly so called. We will take some notice of the *parts* of a flower, and then we shall better understand the distinction. That which we commonly call *the flower* of a plant, as the four yellow leaves of the wall-flower, the bell of the campanula, the snowy cup of the white convolvulus, and the lily, are called the *corolla*, which, you know, means *little crown*. The leaves, which compose that corolla, are called the *petals*.

But these parts are not essential to the production of fruit or seeds, called fructification. The fig, the oak, and the beech, have a minute substitute for the flower; but they have no

corolla — no *petals*. Some very small plants have this again very large in proportion; as the dwarf-gentian, whose flower, in April, is bigger than the plant itself.”

“I suppose,” said Mr. Longhurst, “that the largest flower ever known was that discovered in Sumatra, a climbing plant, the bud of which is larger than a goose, measuring, when full-blown, three feet over, and weighing fifteen pounds!”

“That is, indeed, enormous! I think the largest flower with us is the sun-flower, which sometimes measures a foot or eighteen inches across; — but we are straying from the Forest.

“Nature having given us abundance of fruit on trees of smaller growth, has not furnished timber-trees in general with eatable fruit; their solid substance was chiefly intended for the use of man. There are exceptions, however, to this statement, as the walnut and sweet chestnut. Every tree, indeed, has its seed,

which, how small and insignificant soever it may appear, is still of more value than the pine-apple or the melon, because capable of producing the same sort of tree again."

SUBMERGED FORESTS.

"WE have now taken some notice, which I hope will be useful to us," said Mr. Longhurst, "of the Forests *above ground*—those which nature has provided for the use of man, and for the food and residence of beasts. Perhaps a word or two, in conclusion, respecting those beneath, which, by the same powerful agency, have been *destroyed*, may not be uninteresting."

"Forests *above ground!*" repeated Frederick. "Are there any below?"

"We shall hear. Forests are subject to

destruction from two causes—inundation and fire. Immense tracts of country, which have been overflowed, ages ago, by land-floods or by the sea, appear to have been once covered with mighty forests of pine and other trees. In Yorkshire, an extensive district, called Hatfield Chase, was nearly half of it annually drowned with water. This land was sold to one Vermuiden, a rich and enterprising Dutchman, who, at the expense of about 400,000*l.* drained it, and made it fit for pasturage. Deep in this long-soaked soil are found vast remains of every variety of timber native with us. Oaks of very large size, as black as ebony, and almost as hard as iron, were found, and sold for shipping timber. Many of these trees have the evident marks of human labour upon them; and not a few wedges and axe-heads have been there picked up.”

“ But, I think I have understood,” said

Mrs. Heathfield, "that coals are the remains of timber-forests changed, by the lapse of many ages, to the substance as we now find it."

"Such I believe to be the fact, Madam," said Mr. Longhurst. "Indeed, such things as nuts and acorns sometimes appear; and sprigs and branches of wood themselves reduced to coal."

"This leads us," I said, "to the other cause of destruction to Forests—*fire*. To this the pine-forests are most liable, from their very combustible nature."

"But who is to set them on fire?" demanded Harry.

"Lightning," I replied, "or the carelessness of men. The Laplanders and boatmen think nothing of making fires in the woods, and leaving them alight, by which miles of the finest pine-forests are continually destroyed."

"But," said Mr. Longhurst, "the fires amongst the American forests are the most

awfully terrific. A hundred miles of country were seen on fire at once, in the year 1825, on the north side of the Miramichi river. I suppose, that we Europeans can scarcely form an idea of such a spectacle as this. The roaring of the woods during this tremendous conflagration, resembled the incessant rolling of thunder. The expansion of air in the forest, by the intense heat, caused a rush of wind around, which amounted to a hurricane. If these fires occur much oftener, North America, vast as is its natural supply, will no longer export timber, as it has hitherto done; and we may then think more of the value of our smaller, but better protected British Forests."

I N D E X.

	Page		Page
A.		Birch	134
Abele	106	Boscobel Oak	35
Acorns	26	Bows and Bowmen	85
Age of Trees	30	Box	136
Alder	135	Butt, or Stick	21
Alpnach—Slide	73		
Application of Timber	94	C.	
Aspen	107	Catkins	129
Ash	47	Carriage of Timber	185
		Cedar of Lebanon	79
B.		——- Red	81
Baniam	159	Charcoal	40
Bark	208	Chestnut	101
Bashing	99	Cork Tree	145
Beech	59	Cypress	91

	Page		Page
D.		G.	
Dates	153	Growth of Trees	31
Deal Timber	65	Gun Stocks	98
Death of Rufus	13		
Douglas Pine	92	H.	
Drag, Timber	187	Hazel	129
		Heart of Timber	32
E.		Holly	118
Elm	54	Hornbeam	133
Elder	121	Horse Chestnut	104
		Husbandman's Tree	48
F.		I.	
Faggots	182	Indian Charcoal	113
Falling Timber	164		
Fir	62	K.	
Floats	72	King's Oak	34
Flowers, Largest	210	Knee, Timber	23
Forests, Buried	212		
——— On Fire	214	L.	
Foreign Timber	139	Lambert Pine	93
		Larch	75

	Page		Page
Leaves of Trees	209	Oak Galls	37
Lever	189	—— Timber	38
Lighthouses	201		
Lime Tree	115	P.	
		Palm Tree	149
M.		Pine	62
Mahogany	140	Pitch	68
Maple	124	Plane Tree	126
Mast (fruit of Trees)	60	Poplar	106
Masts of Ships	66	Pulley	191
Measuring Timber	179	R.	
Moscow, Riding House	197	Red Cedar	81
Mountain Ash	53	Resin	68
		Riding House	197
N.		Roots	205
New Forest	7	Rufus	8
		S.	
O.		Sap	32
Oak	17	Schaffhausen Bridge	200
—— Apples	36	Serrated Leaves	47
—— Bark	39		

	Page		Page
Shipping	191	Transplanting	56
Size of Trees	34	Turfs	39
Sound, by Timber	180	Turpentine	68
Splitting Roots	175		
Spruce Fir	82	W.	
Stem	207	Walnut	97
Stick, or Butt	21	Waste Lands	14
Stocking up	170	Wedge	175
Sycamore	125	Westminster Hall	196
		Willow	110
T.		——— Weeping	111
Tar	67	Woodstacks	178
Teak Tree	148	Work in Woods	162
Thorn Acacia	114		
Timber Carriage	193	Y.	
——— Floats	72	Yew	83

THE END.



