

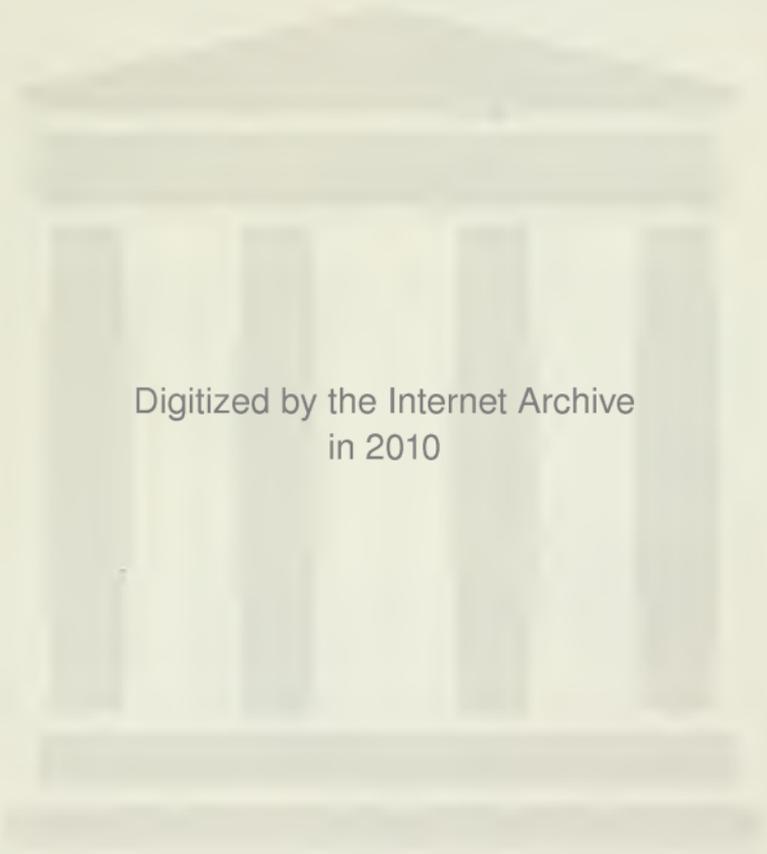
No. 36

Trees and Tree Drawing

EDWARD C. CLIFFORD, R.I., R.D.S.

SIXTH EDITION

LONDON :
GEORGE ROWNEY & CO., LTD.



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TREES
AND
TREE DRAWING

WRITTEN AND ILLUSTRATED

BY

EDWARD C. CLIFFORD, R.I., R.D.S.

SIXTH EDITION.

PUBLISHED BY

GEORGE ROWNEY AND COMPANY,
ARTISTS' COLOURMEN AND PENCIL MAKERS,
LONDON, W., ENGLAND.



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TREES AND TREE DRAWING

CHAPTER I.

INTRODUCTION.

THE student who would become a figure painter goes through a course of drawing from the life and devotes considerable time to the study of anatomy. The young landscape painter is apt to confine his studies, if he make any at all, to effects of light and colour and notes of composition. The anatomy and construction of the component parts of his subjects are often not seriously considered. He too often forgets that buildings and trees and rocks are formed upon fixed principles and governed by set laws in their relationship to each other. In almost all picture exhibitions examples may be found of houses of impossible architectural construction, rocks foreign to their surroundings, and trees which are unrecognizable, or growing under unnatural conditions. The figure painter knows that inaccuracies in drawing will be readily discovered and condemned ; the landscape painter is aware that a general ignorance of tree forms has hitherto permitted ill-drawn landscapes to pass muster. The former has brought the study of anatomy to his aid ; to the latter it is becoming more and more necessary to derive assistance from architecture, geology, and botany.

Here it is purposed to deal with trees only, and it should at once be pointed out that trees have an anatomy, individual and class characteristics, limits to their areas of growth and to their endurance of certain conditions and changes of appearance under the influences of season, situation, and climate. As the figure painter studies the nude that he may be able to paint the costumed figure, as he must know the figure within the clothes, so should the landscape painter study the naked tree in winter, that he may be able to paint it rightly in its summer dress of foliage. He must know the construction of the tree beneath the veiling leaves, or the tree is likely to be a mere anomaly.

One more comparison of the painter of figure subjects with the painter of landscape may be of use. The former does not people his rustic cottages with dainty ladies and fine gentlemen, or his palaces with ragged beggars; he does not make a group of foreign faces serve for a British crowd, or represent a Saxon hero as a negro; neither should the latter plant his wastes with exotics, his trim gardens with weather-beaten trees of the mountains, his British forests with foreign growths, nor make a Maidenhair tree the principal feature of a truly English scene. Nor must he use for background of a sixteenth-century incident a tree that was not introduced till the eighteenth.

In much of the landscape work produced in the earlier portions of the nineteenth century, trees, so called, were merely conventional symbols, and the masters of that time taught patent "foliage touches," that were

only mechanically multiplied to represent a "tree." In these conventions many painters and draughtsmen were so exceedingly dexterous and the general ignorance of tree form was so great, that their productions were accepted and admired. So much was this the case that an honest representation of a naturally growing tree would have been entirely rejected as bad art. Many influences have happily now changed all this. Much is due to Constable and to the pre-Raphaelite movement, and of late years the study of botany, which has taken a place in the curriculum of the schools, has made old conventional rendering of trees impossible of acceptance. And as knowledge of the vegetable world progressed, the artists enlarged the number of forms portrayed—the typical Oak and Elm and Pollard Willow could no longer form the limit, and the modern French school of landscape painting has done much to popularize the introduction of the lighter-foliaged trees, such as Poplars and Willows. It may be safely assumed that as time goes on the love of nature study will increase, producing increased knowledge of the visible forms of nature, and as a result more power of criticizing the painter's productions, so that the artist, without lessening his art in any way, must find it on a more scientific basis.

Landscape painters who sit down before a subject and paint directly from nature, if they put down exactly what they see, would, one would think, hardly go far wrong; yet they even, from want of knowledge of the ways of nature, sometimes fail to give the essentials. And it is generally admitted that the highest form of

landscape art cannot be produced by merely copying a given subject—it is a matter of composition, of selection, it necessitates many sketches and studies and much labour of elaboration in the studio. Here the painter has to draw largely upon his stores of knowledge, and guard against anachronisms and the erroneous juxtaposition of objects. He must be correct in his tree anatomy and character, he must know the requirements and the natural environment of the kind of tree he would introduce. A Silver Birch, however beautifully painted, must necessarily offend if it be placed where it could not possibly grow. Not many years ago in one of our exhibitions might have been seen a picture of a Beech wood, and amongst the Beeches, presumably to break the monotony of their heavy foliage, the artist had introduced some young Silver Birches, with their white bark and dainty leafage; so planting the tree which demands the most light under the tree that casts the densest shadow. Such mistakes, though not always, or perhaps often, so markedly wrong as this, are frequently to be met with. The angle at which a tree's branches grow from the stem is frequently wrongly stated; a tree with a deep root system is sometimes represented on a shallow soil, a valley-loving tree placed high on the hillside. All these errors are the more inexcusable in that there is almost always another tree that could be substituted to supply the mass needed for the composition, if only the artist knew. It must be admitted that no young tree will grow in the darkness of dense forest or in the shadow of a Beech wood. When a tree

has been felled, making a gap in the wood's roof, seedlings will spring up and make a sickly reach for the light, only to die as the open space of sky narrows and closes up, and a pathetic group of these dead saplings, cut off in their youth, may occasionally be seen, mere bare sticks falling into decay. But if the artist need a tree on shallow soil, he may choose from several having a shallow root system ; or, if he would have a tree on the mountain side, there are those natural to such a situation. If errors are to be avoided, it is absolutely necessary that an artist must not only study tree form but must also learn something of their habits and requirements.

Besides such knowledge being necessary to the landscape painter, it is equally necessary to the tree draughtsman. There is now a growing taste for tree drawings pure and simple, without the accompaniment of landscape or colour. Since the late Lord Leighton's drawing of a Lemon tree was first exhibited, the finely decorative structure of trees has been more and more appreciated ; since the first handbooks on trees appeared, the development of the taste for these beautiful growths has created a demand for drawings of them to hang upon our walls. To the collectors of such drawings accuracy of detail is of as much importance as delicacy of execution, and for the drawing of an individual tree to find a place in a collection of any worth it must possess the quality of absolute truth lovingly rendered. The old shibboleths no longer avail, the tree portrayed must have the characteristics of its kind ; while as a

work of art it must give pleasure to the connoisseur, it must no less satisfy the nature lover.

On the other hand, the botany necessary to the artist is fairly elementary ; the microscope need not be used, the cellular system, the complex questions of germination and fertilization need not be deeply gone into. If the study of the science prove so interesting that the student be led to continue it for its own sake, well and good ; but what it is imperative he should know are just those things that affect the outward appearance of a tree. If the anatomy of the commoner trees, with their habits and requirements, be mastered, the student will know enough to prevent his making such mistakes as have been mentioned in ordinary landscape work. To the acquirement of such knowledge it is the purpose of this little book to assist the student, but he is warned that it cannot be got entirely from books. To go to nature, study her, commune with her, is the only way to know her ; all a book can do is to point out the path of study and suggest the train of thought.

Some little knowledge of the classification of trees will be found of use, as it will the better enable the student to realize the various structures if he compare the differences of one family with another and the similarities of several belonging to one group. It will also help in a case of further research, which is often needful in these days of the painting of gardens, where so many foreign trees are being introduced and hybrids grown. And although the members of one family may at first sight seem quite dissimilar, it must be remem-

bered that they resemble each other in many essentials of growth. Thus in the Olive family the study of its peculiarities will help the student to understand the construction of the Ash, the Lilac, and the Privet, all commonly met with members of it. To the painter of many gardens this additional study is quite necessary, and though Latin names may seem useless to the artist, he will, if he learn them, find them the shortest, simplest method of expressing the nature of the trees, giving as they do the name of the family and individual in two words, and the more easily enable him to make further researches in the case of the less common trees now so generally planted in our woodlands as well as our gardens.

CHAPTER II.

ANATOMY AND STRUCTURE.

A TREE is a living being, feeding, digesting, breathing, transpiring, reproducing its kind, having power of holding itself erect and resisting the wind, of repairing injuries, and even, in a small degree, of moving certain of its parts.

It feeds by its roots and leaves, digests in its wonderful internal system, breathes through its bark, transpires by its leaves, and by flowering produces seeds, that scattered, often by elaborate means, become in time trees like itself that shall perpetuate the processes.

Trees always fighting against adverse conditions, suffering by many foes, have great powers of repairing injuries and of adapting themselves to circumstances. They can within limits largely alter their character and growth to enable them to live under conditions which are unfavourable to them, so much so indeed that though they still retain the essentials of their kind, they are without careful examination unrecognizable, as when the Spruce, so well known to us in the form of the Christmas tree, becomes in more northern latitudes a mere creeping plant, upon which one can walk as upon turf.

A tree consists of many parts, but of these the following are those that principally concern the artist :

1. The root.
2. The stem.
3. The branches.
4. The leaves.
5. The flowers.
6. The fruit.



Fig. 1.

1.—Little, perhaps, need be said of the root ; it is mostly out of sight in the earth ; yet it does affect the form of the stem in many trees and in some to a large extent. A root is either a main root, diving straight down into the earth and throwing out branches, or a lateral root, spreading out in the ground as the aerial

branches do above it. All trees of a certain age have a tendency to spread out at their junction with the earth's surface; but a tree with a strong main root and few lateral ones does so very little, while a tree with a strong lateral root system, like the Beech, shows a marked spreading at the base of the trunk, and in some cases, as in the Hornbeam, the form of the trunk itself is largely affected. Some roots, too, are so shallow as in mature age to show for some distance above the ground; and often in situations where the ground has been washed or worn away, large tangled masses of root may be exposed, which may form a picturesque feature in a hollow lane or on the bank of a watercourse.

The character of the root is of importance to the artist from the fact that to a large extent it limits the power of the tree to grow only under suitable conditions of soil and situation. The roots not only hold the tree in its place, but absorb food from the soil; they have therefore not only to grip the ground firmly enough to enable the tree to resist the wind, but have to search for and reach the right place from which they can procure water and food matter. A tree growing in sand must send its root deep down till it come to the necessary moisture, and if it be unable to do this, then it is incapable of living in such a situation. On shallow soil, it must, on the contrary, send its lateral roots far afield and at the right depth. Some roots, however, have a limited power of adapting themselves to conditions, as in the Scots Pine. Some roots have the power of sending up shoots or "suckers," and so gradually making

the tree the centre of a grove of young ones, and even, as one may say, of travelling considerable distances, as in the case of the Elm.

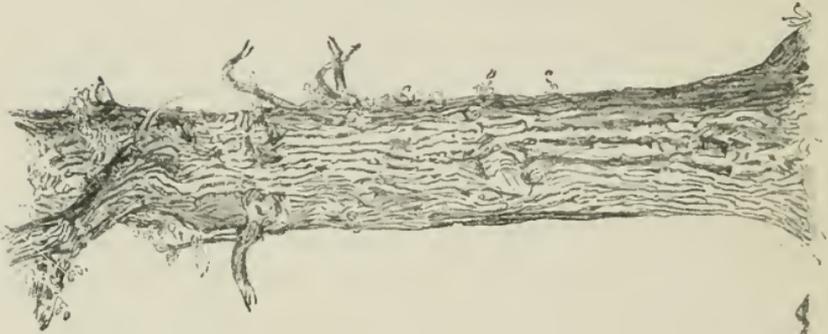
Some trees love to grow near water and in moist earth, but no British tree will grow in water or water-logged soil, as their roots need oxygen. There are some, however, that are able to endure occasional or even regular flooding, like the Willows, and there are some foreign trees occasionally seen in England that have the power of sending up ventilating branches from their roots—knee-roots as they are called.

Thus it is seen that the artist must not altogether ignore the tree's root, for though it is but seldom visible, it has a considerable influence on the tree.

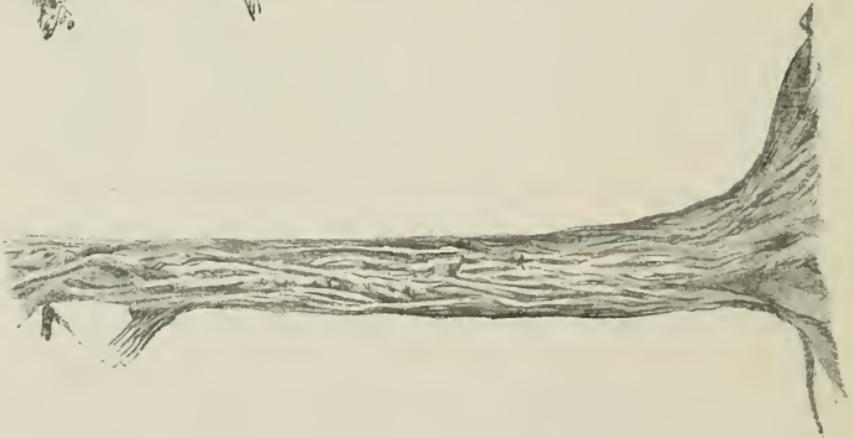
2.—Stems are "True" or "False." In the Conifers they are "True"—that is to say, the terminal shoot, often growing upwards during the summer season, rests during the winter, and resumes its upward growth again in the spring. In the dicotyledonous trees (including practically all our outdoor trees except the Conifers) the stems are "False"—the terminal bud after growing for a season dies, and the stem is continued the following spring by the highest lateral bud. The "True" stem, therefore, is one continuous piece of timber, while the "False" stem is a succession of branches strung end to end; and it will be found that in some trees, more especially when young, the effect of this difference is quite noticeable in the superior straightness of a "True" stem over the "False" stem, which shows, as it were, a slight hesitation in its growth, or which gets divided and lost.



BIRCH.

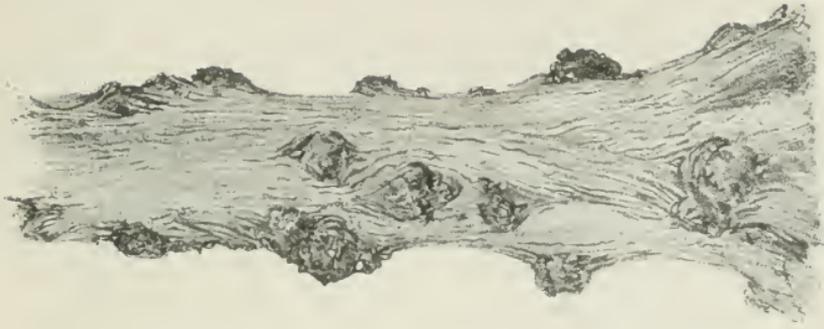


ELM.



HORNBEAM.

Fig. 2.



LIME.

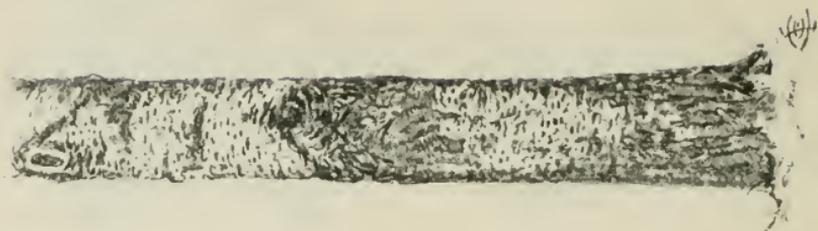


SWEET CHESTNUT.

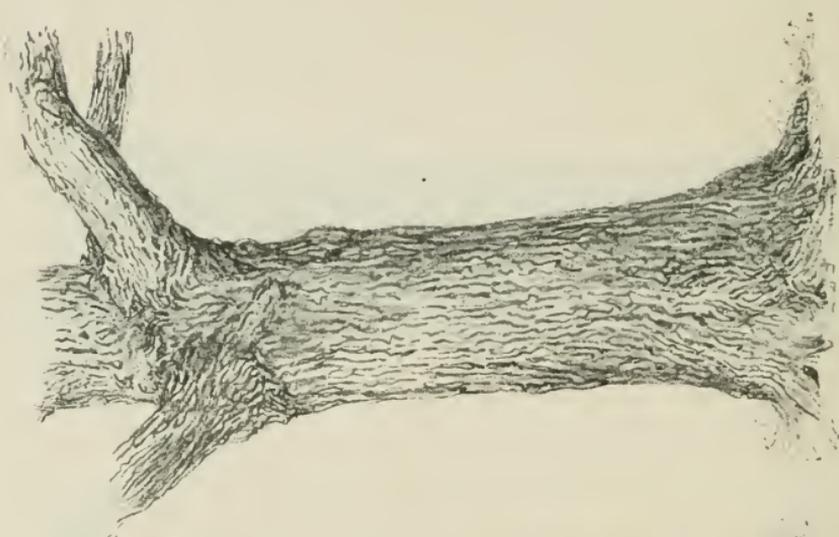


BEECH

Fig. 3.



GREY POPLAR.



OAK.



PLANE.

Fig. 4.

Passing from the outside, inwards, the stem of a tree consists of the outer dead bark, the inner living bark, the outer living wood, and the inner dead wood—the heart wood, as it is called. The outer dead bark mainly concerns the artist, but that bark is largely affected by the internal working of the tree as well as by outside influences. Trees breathe through their bark by means of little holes or lenticels, and while these lenticels are invisible on some trees, or minute spots on others, on some they are very noticeable, and largely affect the appearance of the bark, notably the horizontal lenticels of the Birch and Cherry.

The bark is affected also by the swelling of the tree, as may be seen easily by the opening vertical cracks in the bark of the Black Poplar towards autumn. Outwardly it is affected by light and shade. If a tree stem is much in shade, it needs but thin bark to protect it ; if it has to endure the strong rays of the sun, it needs either a thick bark as a shield, or a light coloured one to throw them off. Some light-enduring trees protect themselves with thick corky bark, adding to it each year from within, so of necessity causing and increasing fissures in the outer portions as the circumference of the tree gets larger. The character and direction of these fissures and corrugations vary very much in different trees, as in the Chestnut, Elm, &c. In some thin-barked trees, as the inner bark is produced the outer peals off, as in the Birch and Plane. Bark may be smooth on the young tree and get thick and corky as the tree gets older, as may be seen in some of the

Poplars and in the Birch, which has a white thin bark with rough dark places, and gets more thick bark as it gets on in years, more especially at the base of the stem.

Some tress, like the Lime and the Oak, have great power of sending out numerous shoots from the trunk, raising on the stem great bosses that spoil its symmetry. Others, like the Hornbeam, are often deeply divided owing to the influence of strong lateral roots. The Yew is also much divided, its trunk being often composed by the fusion with it of strong base shoots.

The stem changes its character with changed conditions. A tree that in the open carries its branches fairly low down the stem, in close forest becomes a tall straight pole with a comparatively small crown of branches and foliage at the top. But on that tall bare trunk are dormant buds, which, if the surrounding trees be felled, letting in the light, will develop and become branches. This power is great in some trees, like the Hornbeam, on which a bud that has remained dormant for over half a century will grow on the accession of light. On others, like many of the Conifers, the power is but small. This power and the power of creating new buds, which some trees have, applies to the stump of a fallen or felled tree; and though the artist may be quite right in putting young shoots growing on many kinds of old stems, he must not suggest their so growing on the stump of a Conifer, which dies when the whole of its top is cut off.

A tree has a main stem from which the branches grow. A bush has many stems. In a tree the strongest

shoots grow on the branches and become branches ; on a bush the strongest shoots grow from the base and become new stems. Thus a bush should never be drawn as a miniature tree in a natural landscape, though in cultivation, by continually cutting away all the base shoots but one, the gardener sometimes gives it that appearance.

3.—Branches are “ True ” or “ False ” in the same manner that has just been described in regard to stems ; they grow from the tree at varying angles and in varying numbers. In Conifers, such as the Spruce, they grow from the topmost whorl or circle of buds of the previous year’s growth, so that the age of the tree may be approximately reckoned by counting the whorls of branches. On dicotyledonous trees they may grow in pairs or be arranged spirally, but to all practical purposes they are irregularly placed, because of some developing more than others, and some dying and falling off. In the younger trees the method of branching is, of course, more regular and in keeping with the habit of the tree, they not having had so much time to suffer adversities ; so it is well for the student to study young trees, as from them the true methods of growth can be better learnt.

The current year’s shoot bears leaves, but no branches ; in the axils of the leaves are produced the buds for next year’s growth. These buds the following season develop into long shoots, or short shoots, or they remain dormant. In some trees, as has been said, the terminal bud of a shoot dies and the growth is continued the

next year by the highest lateral bud, but in some the terminal bud develops into flowers. A short shoot has short internodes, that is, short spaces between the more or less swollen places whence the leaves spring; it may produce leaves or flowers. A long shoot has long internodes and carries the foliage out into the light, as may be well seen in the long feathery shoots of the Beech.

From the artist's point of view the branches are the tree itself in winter, except with evergreens, and it is therefore essential for him to study them carefully; not only is it necessary to know the angle at which the main branches leave the stem, but the way the lesser branches are set upon them, and how they, again, produce smaller branches and final twigs. And by studying them in winter it will be easier to understand them in summer: how they thrust the foliage out or up, how they spread out fanwise, making flat masses, or by many reticulations cause the masses to be more globular, and how in weeping trees the branches tend upwards before they droop, it being only the mass of final twigs, or "spray," which hangs down.

4.—The leaf is the key to the texture of the foliated tree, and the foliage is necessarily of the greatest importance to the tree draughtsman, seeing that in summer little else is seen in most trees. It is therefore necessary for the artist to know the shape of the leaf of the tree he would represent, and some description of the main forms are now given. A simple leaf may be of various shapes—oval, oblong, heart-shaped, lanceolate, or needle-like; it may be toothed round the edge in

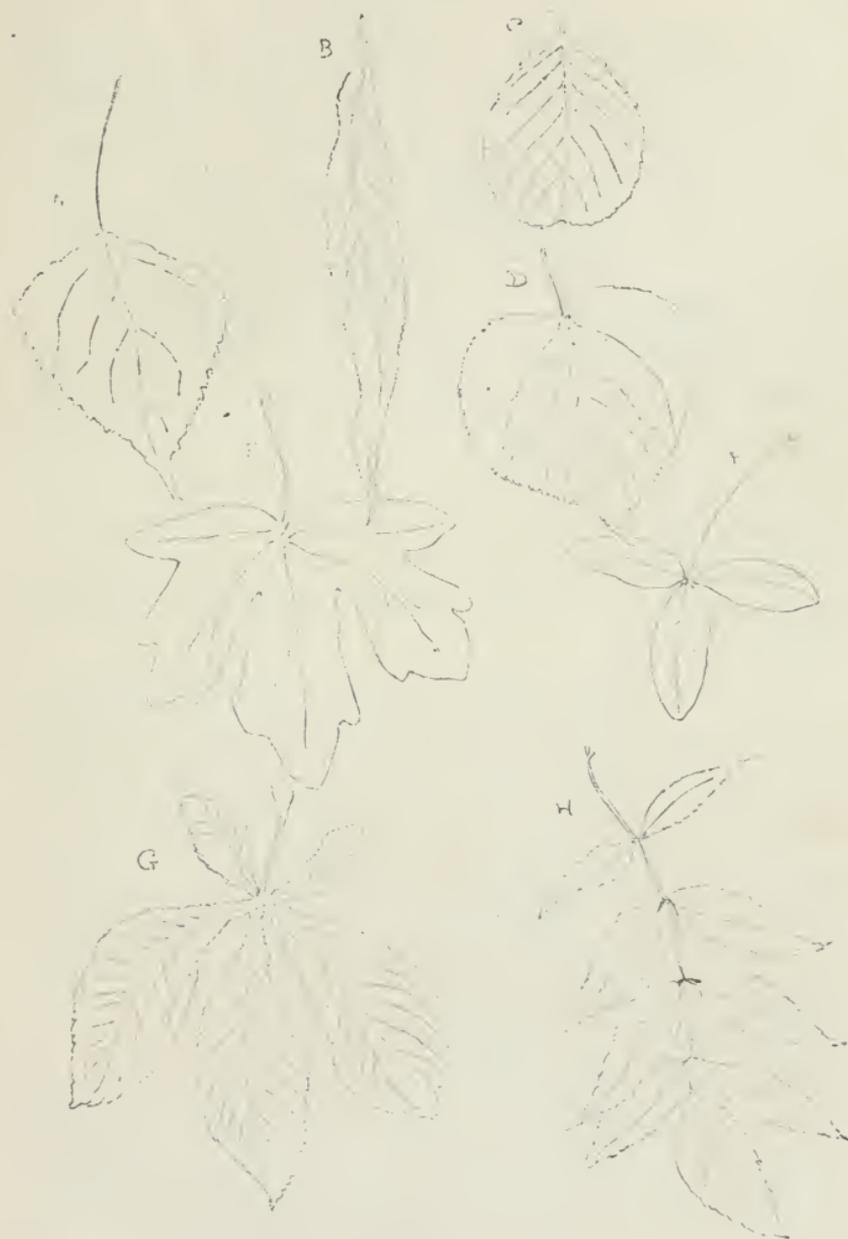


Fig. 5.

A. BLACK POPLAR.
 B. CRACK WILLOW.
 C. ALDER.

D. LIME.
 E. MAPLE.
 F. LABURNUM.

G. HORSE CHESTNUT.
 H. ASH.

various ways, mostly too small in detail to affect the appearance of the foliage as a mass ; and it may also be lobed with round or pointed divisions. A compound leaf is practically a number of simple leaves attached to a common leaf stalk, and they may be arranged in rows down the stalk or radiating from its uppermost end. The compound leaf may also be made up of groups arranged symmetrically upon the main and subordinate leaf stalks. Further mention of the form of leaves will be made in the notes on the different trees, but it cannot be too strongly impressed on the student that the shape and the size of the leaf largely affect the texture of the foliage, as the comparison of such extremes as the Horse Chestnut and the Cedar will definitely prove.

Leaves on long shoots are placed at greater intervals than those on short shoots, and trees like the Beech (see Fig. 7), which throw out numerous long shoots, with leaves spreading out horizontally on either side, have a waving, feathery appearance, which is not seen on the Oak (see Fig. 6), which has more short shoots, on which the buds towards the end only develop, making a cluster, and giving the tree a more tufted appearance.

The leaves of trees are either stalked or stalkless, and where it is present the character of the stalk is another element in the general character of the tree. For as a stalked leaf is more easily moved by the breeze than one without a stalk, so the longer the stalk the more movement it is capable of. Beyond this a stalk



Figs. 6 and 7.

like that found on some of the Poplars, flattened vertically for part of its length, allows the leaf a lateral motion and gives the tree a peculiar sparkle. This sparkle of a tree in a breeze is greatly enhanced where the leaf has a light underside, as in the White Poplar and some of the Willows. The whitening of trees under the influence of the wind is often found useful by artists, and the effect of a prevalent wind continually bending the twigs and foliage one way has been used to give a wild look to a landscape. This appearance of a tree, so often seen at the seaside, is not due only to the bending of the twigs, for that side of the tree facing the quarter whence the wind and strong air come will be found to have shorter shoots and sparser foliage. This is due to over-rapid transpiration of the exposed parts, preventing their growth.

Trees are either evergreen or deciduous, either they keep their leaves through the winter or they lose them in autumn and put out a fresh crop the following spring, and it will be noticed that the leaves of evergreens are of a thicker and more leathery nature than those of deciduous trees. By far the largest class of evergreen trees is the Pine family, whose leaves, being very narrow, are called needles, and grow mostly in bundles of two or more. As in the broad-leaved families there are often evergreens, so in the Pine family may be found some that are deciduous ; as there are evergreen Oaks, so the Conifers number in their ranks the deciduous Larch.

Leaves also vary under other influences. Holly, above the reach of cattle, changes its prickly leaves for spineless

ones, and Ivy where it grows free on its own branches has unlobed leaves, while those of the same plant where it clings to tree stem or wall are divided, to allow of light passing to the under ones.

5.—The flowers of our forest trees are mostly inconspicuous; being wind-fertilized, they have no need to put out advertisements for honey, or, indeed, to offer honey at all, for the sake of attracting insects to carry their pollen, and, being inconspicuous, are of little moment to the artist. Yet there are some which, though not conspicuous, do nevertheless, by their great number, affect the appearance of the tree; more especially is this the case with the large inflorescences of the Sweet Chestnut and the Sycamore. *The largest tree with conspicuous flowers common in England is the Horse Chestnut, though the Catalpa often becomes a large tree in this country. Then there are several trees of the Pea family whose flowers must be noted; the Robinia or False Acacia and the Laburnum are, perhaps, the commonest of them. Beyond these, there is a large group of the smaller trees belonging to the Rose family having beautiful flowers worthy of study; the wild fruit trees, Apples, Pears, Plums, and Cherries, the Hawthorn and the bushes, Wild Roses and Brambles. The Holly, too, is often almost covered with bunches of white blossom, as is also the Privet, and in the hedgerow we have the Guelder Rose, the Wayfaring trees, and the Elder. So that, as a rule, for flowers it is necessary to go to the smaller trees, and for these it is of no use to search in close forest, they must be sought

at the edge of the wood and in the hedges. Some trees have flowers that are both male and female, some separate male and female flowers, and some have the male and female flowers on different individuals.

6.—The remarks on the flowers of trees apply largely to their fruits. The most conspicuous fruits will be found on the smaller trees. Nevertheless, the fruits of forest trees are more visible than their flowers. A thick crop of acorns will give an Oak the appearance of being studded with points of light; the fruits of the Sweet Chestnut dots the tree with spiky globes; the winged seeds of the Hornbeam, and the keys of the Ash, the ripening Beech nuts, the white downy seeds of the Poplar are distinct features, as are the cones of the Conifers. Then, too, the female Yew is often studded all over with pink or orange “berries,” and the Spindle tree hung with delicate pink and scarlet fruits that are flower-like in form. Trees that have only male flowers, of course, bear no fruit.

The miniature apples of the Crab and the tiny plums of the Sloe, the little wild cherries and the Hawthorn berries, the crimson and black fruits of the Wayfaring tree, and the berries of the Guelder Rose are lovely features of the hedgerow that appeal as much by their colour as their form—in a wood a dark green foliaged Holly laden with scarlet berries certainly does—yet these little fruits are all beautiful in form and grouping. The little cones on the Larch and the Alder form some of the most decorative features of those highly decorative trees.

Besides the foliage, flowers, and fruits, the beauties of trees, there are other distinctive features to be noted which are—at least from the point of view of the forester and the gardener—defects. The parasite Mistletoe will sometimes be more in evidence than the foliage of the tree itself, and in winter will make a deciduous tree almost appear an evergreen. It grows on many of our broad-leaved trees, though very rarely upon Oak. In the drawing given of Lime trees may be seen near the top of the right-hand tree a small plant. The trees in Windsor Great Park are much infested with Mistletoe. On some trees those masses of little twigs known as witches' brooms are prevalent and are very conspicuous; they most affect Birches, Cherries, and Hornbeams. The Oak, which suffers from more insect pests than any other tree, is, especially when pollarded, often heavily laden with bunches of marble galls, and the foliage of the same tree is sometimes so covered with the little spangle galls as to appear red when the wind shows the underside of the leaves. The Oak apples are generally too few and the Currant galls too inconspicuous to affect the appearance of the tree. On decaying trees may often be found large and conspicuous fungi; but these show only when there is no foliage to hide them, as they are almost always on the stem where the branches start out.

Such, then, are the more salient features of trees to which the attention of the student should be directed, but beyond this he must consider their habits and distribution.

Some trees demand a great deal of light, whereas some will endure a large amount of shade, and these qualities almost always carry others with them. The typical light-demanding tree is the Birch, which casts but little shadow itself and grows rapidly upwards when young; its bark is very light in colour, throwing off the sun's rays, and where it is dark it becomes thick for protection against them. The typical shade-enduring tree is the Beech, which casts a dense shadow itself, grows upward but slowly when young, and has thin bark of dark colour. The student may generally feel certain that a tree having the qualities of the Birch as given above is a light-demanding tree that must be represented as growing in the open, and one having the qualities as given to the Beech is a shade-enduring tree, and may be represented in a more shady place.

Though having great powers of adaptation, trees yet demand a suitable soil if they are to flourish, and though they will live in a kind not natural to them they will never be at their best in it, but will be stunted and changed in appearance.

So, too, each tree has its own particular area and its own particular altitude in which it flourishes, and even at the extremes of such area and altitude will be found much deformed by its surrounding conditions.

All these points given in this chapter must be studied of trees in general, being the more salient features of the tree system as it affects the artist; it remains to give under the heading of the separate trees a few notes as to which are the principal features of each,

and how far each conforms to, or departs from, the general rules.

In a little book like this it is, of course, impossible to deal with anything like all the varieties or even all the familiar trees. Just a few of the commoner and more typical ones only can be given; but as far as the landscape painter is concerned, the commoner kinds are those which he will generally have to represent in English landscape, being those that most frequently grow wild in our woodlands; and it is to be hoped that the particulars given of types of families will the more readily enable the student to understand the less common members of those families when he comes across them.

The list of our native trees is but meagre, but we have many that, though not native, have become more typical of our scenery than their relatives that are actually indigenous. Thus the common Elm, though an introduced tree, is far better known than the Wych Elm, which is native to the soil; indeed, it has become one of the typical trees of England, and is very generally called the English Elm. The Romans began the work of adding new trees to our limited number, and their introductions have in many cases been of great value to the country. After them, perhaps, the greatest impetus the work received was in the seventeenth century, when Evelyn did so much for forestry, not only by the publication of his "Sylva," but by the study of, and addition to, the trees of the country. Since his time many new kinds have been intro-

duced, and many hybrids produced and established as permanencies, and the multiplication of kinds still progresses. It will be observed, however, that the majority of the new trees planted are but slight variations of those already known, and it is hoped that the types here given will supply the key to the knowledge of most of them. The main principles only have been given, as it is not necessary for the landscape painter to know all the plants that belong to one family, for their identification would need much more minute study, and, as in the case of the Willows, the overcoming of difficulties which even the botanists find appreciable.

CHAPTER III.

TREE DRAWING.

THE best medium for tree drawing, whether it be for studies only or for producing drawings to be kept as pictures, is undoubtedly the lead pencil. Some French masters have produced very beautiful pictures of trees in charcoal, but they are rather elaborated indoor productions than outdoor studies, and are, moreover, complete landscape compositions rather than drawings of trees for the tree's sake. Charcoal is at best a troublesome medium out of doors, being so easily damaged and so difficult to carry. Some beautiful drawings of trees have also been produced with pen and ink—by Alfred Parsons, for example, that master of plant form and of the pen—but, as a rule, they are hardly satisfactory as representing trees. The use of the pen necessitates too many conventions for the true rendering of stem and branch and foliage, and the line the pen makes is a line with sharp, hard edges; whereas the pencil line is far more sympathetic by reason of its soft edges, which make it more resemble the etched line. Chalk is out of the question for most tree work, as its point wears down so rapidly, causing a wide touch, and, also, it cannot be properly rubbed out.

On all counts it seems that the pencil has the advantage; it is sympathetic to the touch, makes a soft-edged

line, is easily effaced, has a wide range of tone, by the aid of the paper can make a flat tint without line, and, a thing not to be forgotten in these days of many publications, can be beautifully reproduced. Pencil, too, has an indefinable charm of its own in its sympathetic quality, and to preserve that charm should be the aim of the student. To this end he must strive for absolute directness, avoiding all alterations and rubbings out as far as may be, for all smearing and changing robs a drawing of its freshness. He should proceed from the beginning with certainty and precision.

The materials for pencil drawing are very simple, and have the additional advantage of being easily carried. A B pencil will do almost all that is required, but the student is advised to carry with him also an HB and some softer ones, say, BB and BBBB. These can be easily carried in a small pencil-case in the pocket; to carry pencils loose is very extravagant because of the amount lost in broken points. Be sure to use only round pencils; many flat and hexagon pencils are now sold, but the round ones only are suitable for tree drawing; for to draw a long line of the same thickness all through the pencil has to be very gradually turned in the fingers, and any angles on the wood will be found to interfere with this. The pencil draughtsman must always carry a penknife, and it must always be sharp—a blunt knife wastes the pencil and produces but a poor point—so that the student should provide himself with a small serviceable hone, not necessarily to take out with him, but to keep

handy at home, so that he may always keep a keen edge on his blade. A piece of soft white rubber completes the list of necessary tools, always remembering that this last is to be used as little as possible.

With regard to the paper to be worked upon, one kind may suit one person and another kind may suit some one else. The writer, after many trials and experiments, finds hot-pressed A.C.M. paper of 140 pounds to the ream the most suitable. It has a smooth surface with yet sufficient "tooth"; it is hard, taking a very light touch, yet bearing a heavy pressure, and it is thick. This last is an advantage if a sketching folio is used, and experience has proved this to be the most convenient appliance for the work. It will carry several pieces of paper and drawings without rubbing, any one of which can be slipped beneath the frame to be worked on in a moment. Except on a very small scale, the sketching folio is unsuitable for thin paper, which would not lie flat enough. A camp stool completes the tree draughtsman's equipment, and the whole of it may be had of Messrs. George Rowney & Co. at a small cost.

It is presumed that the student who makes use of this book is not an absolute beginner in drawing generally, though he may be so with regard to trees. He is, no doubt, able to make an accurate drawing of a single leaf—he should now proceed to make a careful study of a small spray having a few leaves upon it. If he has one tree more easily within reach than another, it would be well that the twig should be of

that kind, so that after he has carefully drawn it with all its details, he may readily pass to a study of a larger branch having more foliage, then to one of several branches, and finally one of the whole tree. The first spray should be drawn the size of nature, then as he takes in more, and moves farther from the tree, he will of necessity gradually reduce the scale. When the whole series is complete, the character of the leaves of the first twig should be recognizable in the rendering of the whole tree.

To go back to the beginning, in drawing the spray a light line should be drawn to indicate where the twig itself comes, and a slight indication of where each leaf is to be placed may be made by faint dots and strokes, but nothing should be put down so strongly that if found afterwards to be outside the boundary of the subject will necessitate the use of the rubber. This done, begin at the top left-hand corner and draw carefully, putting in all that may be seen, and gradually working downwards and towards the right. This is advisable because by so doing the working hand will not smear the work; but on no account let the student become a slave to any such rule, as hand-paper may be used if it is found more convenient, as it sometimes is, to draw the centre or some other part first. Try always to draw so that what is drawn is complete, and needing no return to it later to touch up, or tone down, or alter, as all retouching is apt to take away from the freshness of the work. In drawing the spray, keep the line light for the light edges, and use more pressure to accentuate

the darker. Put in also the principal darks, and mark delicately the veining. When the sprig is complete and the form of the leaves and their setting on to the stem is well learnt, go a little farther from the tree and try a branch, proceeding in the same way as with the twig. In this study, the drawing being on a smaller scale and the artist further from his subject, less detail is possible; nevertheless, put in all that is possible considering the scale. That which is left out has been learnt in the first study. The student knows what is there, though he cannot, perhaps, see it, and though he may not put in, he will find the knowledge a quite wonderful aid to keeping the character of the tree. It has been wisely said you cannot leave out correctly unless you know that which you leave out. The third study, that of a group of branches, again reduces the scale and the amount of detail, and the same mode of procedure should be adopted. Finally, in the study of the whole tree, the knowledge and experience gained in the earlier ones will enable the student to grasp at once the character of the growth and of the foliage, but here the subject has fresh points to investigate, the massing of the foliage and the grouping of the masses. The knowledge of the shape of the leaf and its setting on to the twig gained in the first lesson, and that of the method of branching learnt in the two following, should readily enable the student to grasp the arrangement of the masses of foliage and the shape of their edges. In addition to these studies, let the student make a careful shaded drawing of the trunk, striving after the texture

of the bark, the shape of the fissures, if any, and the rounding of the solid mass.

The more trees treated in this progressive manner the better, and if done carefully and sincerely, the student will find that not only does he thereby store up knowledge of the construction and growth of the trees dealt with, but that he also accumulates a collection of studies that will be invaluable to him afterwards as documents for reference.

For the drawing of the spray a fine point will be found advisable. The work need not therefore be light while it may be more delicate. For the next two drawings a fine point may also be used, and every effort should be made to copy all the forms that can be seen, even at some sacrifice of effect. In the earlier stages of this work it will be necessary for the student to remind himself that he is making these studies for the sake of accumulating facts—of storing up knowledge rather than making pictures. Later it will be found that these studies can be made artistic by the accentuation of certain details and the omission of others; at first the student is counselled not to think of this, but to put down everything, even if the result be little more than a diagram. It is necessary to learn grammar before attempting a poetic flight. After the facts have been realized, a selection of those facts may be made—but not before.

The same earnest study is necessary for the drawing of the whole tree, but in that, the foliage being reduced to so small a scale, it has become impossible

to draw it leaf for leaf. It has therefore to be represented by some generalizing touches or strokes, and here arises the great danger of developing a mechanical style.

The earlier masters of tree drawing were so wonderfully dexterous that they often lost themselves in sheer dexterity. They invented "styles" and "foliage touches"; one patent touch was to be used for one class of tree, another for another class, and they became so clever with these touches, and so enamoured of them, that the touch often became to them of more importance than the character of the tree. And as the touch came to be of a set pattern so did the tree. If they drew an Oak, it must be an old, partially decayed tree, not an Oak in its full glory and prime. The *old* Oak in their drawings was as frequent as the woman in a red cloak used to be in landscape painting. This slavery to style and touch and set pattern must be avoided at any cost, and it will be if the student will concentrate his faculties on representing the texture of the tree before him accurately as he sees it.

The actual shape of the leaf may be seen as it cuts against the sky on the margin of the tree, or where the edge of a light mass overlaps a dark one; here, then, the touch must be of the form of the leaf itself as it was learnt in the earlier drawings. But the leaves seen are in varied positions and one set touch cannot represent full view and side view, bent and straight. A varied touch is therefore absolutely necessary if the character of the foliage is to be preserved—in fact, they must be

drawn. It is the more important that these marginal leaves should be carefully drawn, as by them the leaves of generalized masses are suggested. That is to say, the spectator realizing the leaves of the margin, imagines those of the mass by suggestion.

Where the leaves strike dark against light they may be drawn, but where they strike light against dark they must be shown by drawing the spaces between and around them. The student will do well to give this point his fullest consideration, for in tree drawing it is largely the drawing of spaces, and so letting the leaves find themselves. Here, again, it will be readily understood that the spaces will be of all shapes and sizes, even in one tree, and that no conventional touch can draw them all.

Nevertheless, the leaves are impossible to number, and therefore to draw. The foliage, instead of a number of units, becomes a mass, and it is only by suggestion that it is possible to indicate that the masses are really leaves. The spaces between the masses in a well-covered tree are too many and too small to draw one by one, so these, too, can only be suggested. This being the case, some generalized "surface description" * is absolutely necessary, and it was this fact that caused the invention of the foliage touches. As has been pointed out, these became so mannered that one pattern came to be accepted as one tree, and another

* "Surface description," the registered phrase of the Royal Drawing Society, is used here as the most apt expression.



OAK LEAVES.



PRIVET LEAVES.

Figs. 8 and 9.

as another tree, regardless of the real character of the tree portrayed, and ignoring all accidentals, a state of things that could not have existed but for the general profound ignorance of tree form. A generalizing "surface description," then, must be used, but *it must be a "surface description" made for each drawing of each tree.*

In beginning a drawing of a tree, take a typical piece, copying as nearly as may be that which is seen, and it will be found that as from this piece the hand passes over the next it acquires a method of suggesting the forms by what, for want of a better word, may be called a kind of scribble. This "scribble" must be kept always intelligent, always a servant obedient to each fresh impression gathered by the eye. Never let it become a master, but subservient to the student's knowledge of construction, of the grouping of the leaves on the shoots, and the shape of the leaves themselves. With the attention concentrated on these forms, and on the forms of the masses, let the hand work as freely as possible, and it will be found that after a little while the latter will instinctively follow the working of the mind.

In commencing with a typical piece as suggested, the pencil should have a fine point, and as it wears down, the student will find that one stage is just suitable to the work in hand. To keep the point at this suitable thickness, let him slightly roll it in his fingers; it will be found that by this means the point can be kept in the requisite state for a con-

siderable time. Directly, however, the point no longer responds in the same way, it should be cut, as naturally a thicker point cannot continue the same strokes in the "surface description" that have been made by a finer one.

In the case of large-leaved trees a finer point is generally needed, as the larger leaves need more definite suggestion of their form, whereas the difference of one small-leaved tree from another lies more in the character of the grouping of the leaves than of the leaves themselves.

Light shows form and shadow hides it, but form is best seen in the half tones. The masses of light may often have to be left white, that is, without any markings upon it to indicate foliage. The dark masses may have to be flat shading without detail, but where the dark masses meet the light, and in all the parts in half tone, the foliage must be suggested. Care must, of course, be taken that the masses of light and dark be neither too large nor too empty, and it must always be borne in mind that the way in which flat surfaces, whether of light or dark, come to represent foliage is by the accuracy of their outlines, or, in other words, by the way in which the dark breaks into the edge of the light or the light into the edge of a dark mass.

Here comes in again that important point made farther back—*the spaces between the leaves are to be drawn rather than the leaves themselves*. On a grey day a tree will show much the same amount of detail all over, or, at least, the detail will be much more evenly

distributed on the surface of the tree than is the case on a day of bright sunshine. The same evenness of detail may, however, be found on a sunny day on some of the light-foliaged trees, more especially if the sun be directly behind the artist. For instance, the Black Poplar will sometimes seem to hold the light in a wonderful way without a single dark of any depth. When this evenness of texture exists, care must be taken not to allow the drawing to become flat; the darks and lights may be somewhat accentuated, and the main masses insisted on, while some of the detail within them may be omitted.

When possible, a sunlight effect of broad masses of light and shade should be chosen, as the strong contrasts allow of bold treatment, and the variety caused by the light reflected from the variously turned upper surfaces of the leaves makes it possible to put more sparkle into the drawing. In the tree in sunshine the effect is there to be copied; in a grey effect, it has to be created by sufficient exaggeration of light and dark, of detail and empty space.

To return to our typical piece, drawn as an absolute likeness, it is done before the hand has found the method of description of the surface of the particular tree, and before the pencil-point has reached its state of best expression of that method; therefore it is likely to be a little tight and hard, a little tentative, and lacking the certainty of the later work. For this reason it should be placed where it can most conveniently be lost in its surroundings, or it may be done on a separate

piece of paper, provided it be of exactly the same kind. The unsympathetic quality of this first piece is due not only to the searching for method and suitable pencil-point, but to the fact that the student had not then got into touch with his subject.

Feeling enters largely into tree drawing, as into all other forms of art, and sometimes it will be possible to get the right methods at once, at others only after several attempts. On one day the tree grows rapidly and sympathetically under the hand, on another slowly and with a bitter struggle; at one time mind and hand seize instinctively on all the essentials, at another all is labour and slow-paced progression. Sheer hard work and keen concentration are always necessary, but there are days when the harness fits easily and others when it galls, and therefore the stages of progress are sure to be unequal; but the student need not feel discouraged, for by perseverance the happy hours will soon far outnumber the hours of struggle.

In summer, in full-foliaged trees, the branches are sometimes quite unseen. When this is the case it is always worth while to walk under the tree and look up at the branching, provided, of course, that the tree permits of doing so. The grouping of the foliage masses will always be better understood if the angle at which the main branches spring from the stem, and how they divide and subdivide, be known, for it is always easier to draw what is understood than what is merely seen. In some trees short portions of the branches are seen in places through the screen of foliage, and it may be

thought that in such a case it is not necessary to study the growth of the whole branch. This is a mistake ; the portions seen are parts of a whole, and must be so drawn as to suggest that they join the other portions, or the stem, in a manner consistent with the natural growth of the tree.

The limited size of this manual makes it impossible to give both the summer and winter aspect of the trees represented ; they have been drawn in their summer garb. The student is, however, strongly urged to study the naked trees for himself, that he may thoroughly understand their construction. He should proceed in the manner suggested for the foliage, drawing first a small twig life size, then a branch, then a portion of the tree, then the whole tree, and, in addition, a study of the stem. He will also find it of great use to draw a branch in several positions, from the side, from above and below, and foreshortened in a position directly pointing at him. He should study the angles of growth, the placing of the buds, and the texture of the bark. In drawing a branch, a fine line has to mark each side of it, and the utmost care and patience is needed in drawing the little branches as they cross each other. When a light branch crosses in front of a dark one, its path has to be left clear ; the dark must not be allowed to break through its outline. When a dark one crosses a light one, it is a much simpler matter, as it may be simply drawn through. It must be always remembered that in pencil work all lights must be left, as they cannot be taken out afterwards. If a mistake is

made, no attempt to remedy it with the rubber should be made, but the whole passage should be taken out and re-drawn. When the branches are too small to allow of their being drawn with a double outline, and so have to be drawn by one solid line, the stroke should always be commenced at the tip of the branch, letting the thickening of the pencil-point graduate the thickening of the branch. This thickening can be regulated to a nicety by the turning of the pencil in the fingers.

The student must always bear in mind the limitations of his material and keep within them, and he must never forget that tree drawing demands keen concentration, patience, and hard work.

CHAPTER IV.

THE TREES OF BRITAIN.

It has been pointed out that though the list of native trees is but a small one, there are many introduced kinds that are more or less common in our scenery. There are also many others that are grown in our gardens, a knowledge of which is becoming more and more necessary, as the cult of garden painting increases. It is palpably impossible in a small handbook to deal with all or even a large proportion of these. It must suffice to give some particulars of the more usually met with kinds, and a bare mention of a few others that are already a good deal planted, leaving out altogether numbers that are less common.

The vegetable kingdom is divided into four sub-kingdoms by the botanists, in one of which, that of the flowering, seed-bearing plants, all our trees are included. This sub-kingdom is again divided into two divisions, that of the fruit-bearing plants, in which are found all our trees, except those that are popularly known as Firs; and that of the naked seed-bearing plants, in which are found these latter, including the Yew. Both these divisions are again subdivided into classes and orders and families. The botanical definition of these subdivisions need not trouble the artist. It may be roughly

stated that some twenty odd families contain all our trees and shrubs of any size.

Of the fruit-bearing families are the following :—

1. The Lime family (*Tiliaceæ*) includes three kinds of Lime, differing chiefly in the size of their leaves, two of which are possibly indigenous.

2. The Holly (*Aquifoliaceæ*) is a native.

3. The Spindle tree family (*Celastraceæ*) includes the Spindle tree, a shrub found in our hedges, and the evergreens *Euonymus*, so common in gardens.

4. The Buckthorn family (*Rhamnaceæ*) includes our two Buckthorns.

5. The Maple family (*Aceraceæ*), which includes not only the Maple and Sycamore, but many cultivated trees and shrubs commonly planted in our gardens.

6. The Horse Chestnut (*Hippocastanaceæ*), with white or pink flowers.

7. The Pea family (*Leguminosæ*), to which belong the Locust tree, the Laburnum, the Wistaria, and all the peas and vetches of meadow, hedgerow, and garden.

8. The Rose family (*Rosaceæ*), to which belong not only the Strawberry and many a lowly flower, but numerous small trees and shrubs common in our woodlands that form essential items of many foregrounds. The Roses and Brambles and fruit trees, Spireas and Laurel, the Hawthorn and the Rowan are all included.

9. The Ivy (*Araliaceæ*), sometimes a bush but almost always a climber, figures largely in the hedgerow, and whose dark masses of foliage, high up in the bare trees, form a conspicuous feature in winter.

10. The Dogwood family (*Cornaceæ*) includes many shrubs of our gardens, besides the common hedgerow bush of that name.

11. The Honeysuckle family (*Caprifoliaceæ*) must be noted, not only for the Honeysuckles, but for the Elder, the Wayfaring tree, and the Guelder Rose, all of which are common.

12. The Heath family (*Ericaceæ*). Though the Heaths are too small shrubs for our present subject, the Arbutus, a member of this family, must be noted.

13. The Olive family (*Oleaceæ*) embraces the Ash tree and the Manna Ash, as well as the Lilac and the Privet.

14. The Nettle family (*Urticaceæ*) includes the Fig and the Hop and the Nettles, but boasts also of the Elms.

15. The Box (*Buxaceæ*), a native tree.

16. The Plane (*Platanaceæ*), of three kinds.

17. The Walnut (*Juglandaceæ*) has many foreign cousins cultivated in gardens.

18. The Mast-bearing family (*Cupuliferae*), the most important group of all, including, as it does, the Chestnut, the Oak, the Beech, the Hornbeam, the Birch, the Alder, and the Hazel, with all their varieties.

19. The Willow family (*Salicaceæ*), in which are included both the Poplars and the Willows.

Of the naked seed-bearing families are:—

1. The Pine family (*Pinaceæ*), in which are the natives the Scots Pine and the Juniper, and the many foreign Conifers.

2. The Yew (*Taxaceæ*), which has a family to itself. The Maidenhair tree (*Gingkoaceæ*) may also be referred to, as it is being more planted now, and is one of the most interesting trees grown.

These families contain, then, the trees and shrubs a knowledge of which will be found most useful to the artist. Some are, of course, of far greater importance than others, and of the most important it is proposed to deal with some detail. Departing from the order in which botanists place the plants under notice, and while recognizing that no arbitrary division of them can make them into groups that have no overlapping peculiarities, it will be convenient here to take them in three classes :—

Trees with conspicuous flowers, that is to say, trees that might be preferably painted in the flowering season ;

Deciduous trees with inconspicuous flowers ; and
Evergreens.

It may be mentioned that the illustrations given are of trees chosen to illustrate their characteristics, and not either as perfect specimens of their kind, or as eminently picturesque examples.

THE HORSE CHESTNUT (*Æsculus Hippocastanum*).

It was once said that the reason the Horse Chestnut has been so little painted is because it does not lend itself to the ordinary methods of the landscape painter but needs drawing, and it is quite true that its stiff



HORSE CHESTNUT.

upright spikes of flower must be very carefully indicated if the character of the tree is to be preserved, and its leaves are too large and too easily recognizable to permit of their being massed in the way smaller leaves may be treated.

There seems some doubt as to when this tree was first grown in England, but it was probably introduced from Asia Minor about 1550. It is rather a tree of the park than of the wilder woodlands, and is only planted for ornamental purposes, its timber and fruit being of little or no use.

The stem grows fairly straight to a good height, diminishing noticeably where it throws out a large limb. The bark is smooth when young, becoming in age furrowed and somewhat scaly. It has sometimes young shoots starting from the base of the trunk.

Although the branching of the final twigs is horizontal, the tree in winter has a rather clumsy appearance from the way in which the main branches, after first rising, dip considerably and then turn upwards. A noticeable feature in winter is the number of large buds which catch the light, being protected by balsam-coated scales.

The leaf (see Fig. 5) consists of from three to nine leaflets, radiating from the end of the leaf stalk. The leaflets are broader towards the end. The largest is that in a line with the stalk; the smallest are the two turned back towards the tree. The long leaf stalks thrust the leaves well out to the light, spreading them horizontally, though when young they droop, looking like a half-closed parasol. The leaves are arranged in

pairs, forming four rows on the branch, those springing from the underside being generally largest.

The flowers, which are many, branch from an upright stalk; they are irregular, white with pink spots, and the inflorescence springs from the terminal bud of the branch.

The fruit—the well-known “conker” of the school-boy—needs no description. The prickly globes may be seen, but can hardly be called conspicuous features of the tree.

A good specimen will grow to a height of sixty feet, with an oval pyramidal mass of foliage and flower.

There are several cultivated varieties, having red, purple, or double flowers.

The example drawn shows how the branches will grow right down to the ground where there are no cattle.

THE LOCUST TREE AND THE LABURNUM.

The Locust tree, or False Acacia (*Robinia Pseud-acacia*), and the Laburnum (*Laburnum vulgare*) belong to a subdivision, *Papilionaceæ*, of the large family *Leguminosæ*, another subdivision of which includes the Judas tree, sometimes found in gardens, and yet another of which the Acacia and the Mimosa are members.

The Locust tree was introduced early in the seventeenth century, though it was much more freely planted about 1820. It is of a light, graceful growth, with long, slender branches, long, narrow compound

leaves, having sometimes as many as twelve pairs of opposite leaflets with a final one, and pendant flowers resembling those of the Laburnum, but white. The seed-pods hang down from the twigs right through the winter, and, when plentiful, form a noticeable feature of the tree when bare of leaves. The stem, which in old trees has very rough and corrugated bark, has a great power of sending up shoots from its base. The tree attains sometimes the height of eighty feet. When old, the ends of the upper branches, especially near towns, are apt to project dead and leafless from the main mass of foliage.

The Laburnum is a much smaller tree, and is seldom seen outside the park or garden, for though it seeds freely, and readily germinates, it is said that the young plants are in the open always eaten by rabbits, who are very fond of its bark. Its general height is from fifteen to thirty feet. The branches go upwards, but often bend and droop at their ends. Its growth is described as "fountain-like," because from the middle of the branches shoots go straight up to again bend down like a squirt of water. The leaf (see Fig. 5) is a compound one, having three leaflets radiating from the end of the leaf stalk. The flowers are pea-shaped, and grow in pendant clusters, many branching from a common flower stalk. The bark is smooth.

THE WILD FRUIT TREES AND THE HAWTHORN.

The Rose family is a large one, and only a few of its members can be dealt with. Of the subdivisions,

Prunæ includes the Plums and Cherries ; Rubeæ, the Brambles ; Roseæ, the Roses ; Pyrus, the Pears, Rowan and Service trees ; and Cratægus, the Hawthorn.

The commonest of the Prunæ is the Sloe or Blackthorn (*Prunus spinosa*), a native wild plum, one of the best known features of our hedgerows, where in March numbers of white blossoms on the black barked twigs appear, notwithstanding frosts and cold winds. It is but a small tree, with a mass of small branches growing at a wide angle, and therefore crossing and re-crossing each other, and many spines. The leaves, which come out after the flowers, are simple, and the fruits, which cluster round the branches, are miniature dark plums, having a beautiful grey bloom. In Cornwall, where it is very plentiful, the stem and branches are often much covered with lichen.

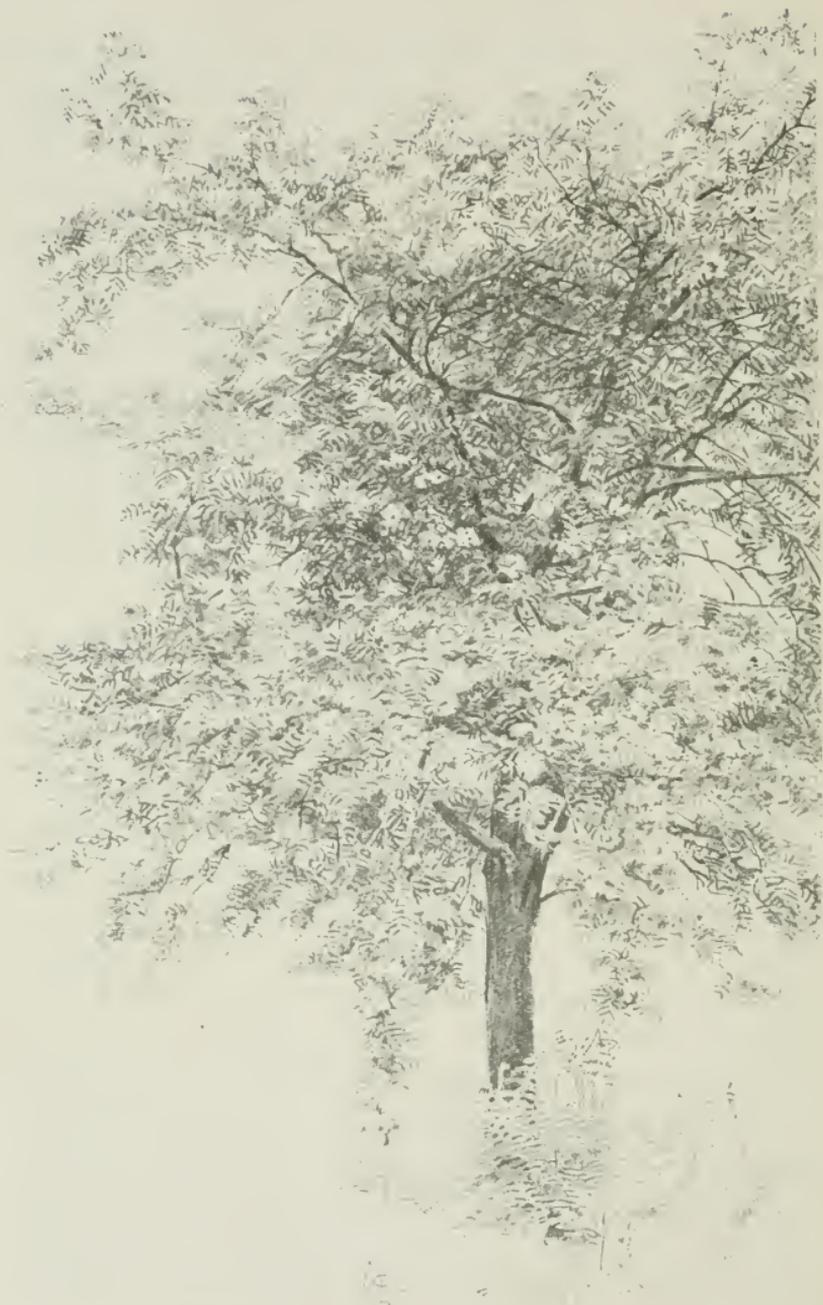
The Bullace (*Prunus institia*) has brown bark, straight branches, and fewer spines. The petals of the flowers are broader, and the plums are a good deal larger, and may be either black or yellow. This is also a native, and fairly common in some parts of the country.

The Wild Plum (*Prunus domestica*) is the tree from which the orchard plums are derived. It is not so common, but is found in the hedgerows, where it may be known by its larger fruit and by being spineless.

Of the Wild Cherries the Gean (*Prunus avium*) is the largest, growing to a height of nearly seventy feet, and when in the open becomes a fine tree, almost covered as it sometimes is with bunches of drooping

white blossom. Its branches are mostly short and stout, with an upward tendency. It is a native tree. The stem has smooth bark, showing horizontal lenticels. When it gets old the bark at its base becomes thick and rugged, with longitudinal furrows, which, dividing up panels, as it were, of horizontally lined smooth bark, gives the tree stem a somewhat artificial appearance. The Wild Cherry is more subject to the disease known as witches' brooms than any tree, except the Birch, which it also resembles in its lenticels and thin peeling bark. The leaves are simple and drooping, the flowers white with five rather papery petals, and have long stalks. The fruit is either black or red, and very glossy.

The Bird Cherry (*Prunus padus*) is a smaller tree, also a native, which grows only to between ten and twenty feet. Its leaves are more elliptic, its flowers, which are much smaller, hang by their stalks from a common stalk, making the inflorescence a spike of flower, more especially when, as is sometimes the case, it stands erect. In the spring, when the leaves are still in their pale, vernal green, and the dark branches are hung with white blossoms, this tree has a very pretty and highly decorative appearance. There are other forms of Cherry cultivated, with pink and double flowers, and some that are mere bushes throwing up many suckers from their roots. The Garden evergreen Laurel and the Portugal Laurel are members of the Cherry group, while the Almond, which is so generally known, also belongs to the *Prunus* division.



ROWAN.

The most frequently met with member of the *Pyrus* group is the Crab Apple (*Pyrus malus*), the tree whose masses of pink blossom beautify our hedges in the spring. It sometimes becomes a tree of thirty feet in height, with spreading branches that make the head so large that it is often wider than the tree is high. Its often crooked stem is covered with brown bark, and in winter the head is a tangled mass of twigs. Its flowers are pink, an inch in diameter, and its fruits are miniature apples. It is a native wild tree, though doubtless many in our hedges may be escapes from cultivation.

The Wild Pear (*Pyrus communis*) is less common than the Crab, and is only to be found in the southern half of Britain. It grows to a height of from twenty to sixty feet, and is more pyramidal in form, having generally a definite stem running up through it nearly to the top. The simple leaves are variable, as in the Wild Apple. The flowers are white, and the fruits are miniature pears. It grows well in groups on dry plains.

The Rowan or Mountain Ash (*Pyrus aucuparia*) reaches a height of from ten to thirty feet. It is a native whose natural place is on the hillside, growing in Scotland at a height of 2,600 feet, but it seems to be very indifferent to place and soil. It has a straight stem, and smooth grey bark showing horizontal lenticels. Its branches have an upward tendency. Its compound leaves have some six pairs of leaflets, with an odd terminal one, and its inflorescences are flat-topped bunches of tiny cream-coloured flowers, which open in May or June, and are followed by clusters of scarlet fruit.

The example drawn shows the drooping nature of some of the branch ends, which under the weight of fruit in September will bend still more.

The Service tree (*Pyrus sorbus*) is not a native, nor is it very common, but it grows well in Cornwall and Worcestershire. It resembles the Rowan a good deal, but has larger flowers and fruit, the latter being greenish-brown in colour, and its leaflets are broader.

The White Beam (*Pyrus aria*) is indigenous, and is an erect, graceful tree that grows to a height of forty feet. The bark is smooth. The branches have a strong upward tendency. The leaves are broadly oval in shape, strongly ribbed, with a dusty appearance, and light cottony undersides. Its flowers are white in dense clusters, and its fruit is scarlet. It frequently varies in its form, sometimes having more the character of a bush.

The wild Service tree (*Pyrus torminalis*) is another native, growing wild as far north as Lancashire. It differs from the others of the group by having deeply lobed leaves.

The Medlar (*Pyrus germanica*) is a doubtful native, but it was cultivated here before 1596, and grows wild in the hedges of south and central England. It is a much-branched tree, like so many of its relatives, and has spines. It grows to from ten to twenty feet high. It has large simple leaves and solitary white flowers. Its brown fruit is well-known.

Almost all our cultivated fruit trees belong to the Prunus or Pyrus groups, and, of course, cultivation

alters their appearance to a large extent, almost always increasing the size of the fruit, and doing away with the defensive spines of the wild tree.



HAWTHORN.

The third group that concerns us is the *Cratægus*, which is represented by the well-known indigenous Hawthorn (*Cratægus oxyacantha*), whose masses of

white scented blossom are so conspicuous a feature of our hedges and commons in May and June, and whose fruit is ruddy in autumn. Its rugged trunk and tangled mass of twigs and spine sometimes are allowed to become a tree of some thirty feet high, but is found broken or cut into all kinds of forms, and perhaps more often than any as a hedge plant. One peculiarity must be noted: the stipules, or little leaflets, that grow at the foot of the leaf stalk are large, are shaped like a leaf, and do not fall off as in so many other trees; they are quite noticeable enough to be indicated in a drawing of any size.

There are red and pink and double varieties cultivated, and the Glastonbury Thorn has a peculiarly rugged growth. The drawing given is of a specimen having rather pendant branches.

There are several other flowering trees and shrubs that remain to be mentioned. The Spindle tree (*Euonymus europæus*) will be drawn and painted more for its fruit than its flowers, for while the latter are small and of a greenish white, and so not conspicuous, the former are one of the autumn glories of the woodland and hedgerow. A well-laden Spindle tree is a thing of great beauty: the purplish pink fruits gradually open into four divisions, showing within the brilliant orange berries, and make a colour note like nothing else, more especially when, as is often the case, the leaves have already fallen. The growth of the tree is also curious—branches, twigs, and leaves all grow in pairs. It is a native of Britain, but rarer in Scotland and

Ireland than in England, and though it is often a mere hedgerow bush, will grow into a tree up to twenty feet high, with a straight stem covered with smooth grey bark, which after a few years becomes furrowed longitudinally. It is the only indigenous representative of its family, but its relative, the evergreen *Euonymus* (*Euonymus japonica*), is found in almost all town gardens, and in southern England is often trained right up the houses.

The two Buckthorns lend themselves well to drawing, being of a quaint and decorative character. They are both natives, and are found in the hedges. The Alder Buckthorn (*Rhamnus frangula*) is hardly a thorn, for it has no spines. It is generally of bush-like habit, while the Common Buckthorn (*Rhamnus catharticus*) is armed, and is sometimes found as a tree twenty feet high. The shoots of both are straight; the Common Buckthorn somewhat resembles the Blackthorn, but that the leaves are more bunched at the end of the twigs. In both the small greenish-white flowers grow in the axils of the leaves, and both they and the succeeding berries have a curious appearance from their position.

One of the commonest shrubs in our hedges is the Dogwood (*Cornus sanguinea*), usually a bush. It will occasionally become a small tree of six to fifteen feet. Its straight shoots with opposite leaves topped with bunches of opaque white flowers in June, and with bluish-purple berries in September, make it a most useful plant to the artist.

The Elder (*Sambucus nigra*) is, perhaps, one of the best known of our trees, affecting as it does the way-side rather than the hedge. Its large flattened cymes of creamy scented blossom, its purple berries and its compound leaves are its principal features, but its grey corky bark should be noted. It is found all over England, seldom reaching higher than twenty to thirty feet. Its habit of growth is curious: it is a weeping tree, the branches, after reaching upwards, bend over and droop, and it sends up strong shoots from its base after the manner of a bush.

Belonging to the same family are the two Viburnums—the Wayfaring tree (*Viburnum lantana*) and the Guelder Rose (*Viburnum opulus*).

The Wayfaring tree is a shrub with broad, simple leaves that have a whitish, dusty appearance, rounded head of white flowers and fruit, that first resemble coral beads and afterwards become like beads of jet. It is wild south of Yorkshire, and fairly common, being at its best on chalky ground.

The Guelder Rose, though also found in the hedge-row, will grow in the copse. Its leaves are lobed and paired, and its fruit bunches of translucent red berries. The flowers are in rounded heads, like the Wayfaring tree, but have this peculiarity, that while the inner ones are small and insignificant, but fertile, the outer ring are large and sterile, being merely advertisements to attract the insects to the inner ones. This gives the inflorescence an appearance of being merely a ring. In the Guelder Rose, or Snowball tree of the

garden, the inner fertile flowers have been cultivated out of existence, and the whole head consists of a globe of white, sterile flowers, so that it cannot bear fruit.

The Arbutus, or Strawberry tree (*Arbutus unedo*), is indigenous in Ireland, and is a good deal planted in England. It seldom exceeds ten to twelve feet in height. Its twisted stem, with its reddish, scaling bark, often assumes a beautiful bloom of waxy character. Its leaves, large and leathery, give the impression of forming rosettes. The flowers are pendant sprays of creamy coloured bells, and may be seen upon the tree at the same time as the crimson globular fruit, as this latter takes more than a year to ripen.

There are three kinds of Lime tree (*Tilia platyphyllos*), of which two are possibly indigenous, while the third, which is the Common Lime, is believed to be an introduced tree. From an artist's point of view, the main differences between them are in the size of the leaf. The small-leaved tree does not attain so great a size as the others; the large-leaved kind has rougher bark, while the Common Lime, having leaves of intermediate size, is the beautiful tree of our parks, and also the much clipped and trained tree of our gardens.

The bark of the stem (see Fig. 3) is rough and corrugated, and is often entirely hidden by a mass of shoots from its lower portion, which form large bosses on the trunk, as may be plainly seen when they are cut. Its branches are long and tapering, having a sharp upward tendency. Its foliage (see Fig. 5)



LIME TREE.

forms beautiful broken masses of pale green, not as stiff as the Sycamore, but less defined, more feathery, and holding more light. The flower, when at its best, gives a pale golden colour to the tree, but is not conspicuous. Its seeds, two or three little pea-like nuts at the end of a thin pendant stalk, which latter grows from a leaf-like bract, often hang on the tree late into the winter.

The Lime grows best in good loam, and reaches a height of eighty to ninety feet, and lives to an age approaching five hundred years. The two trees drawn are fairly old, and show some signs of the wear of time, more especially the one on the right.

There are many members of the Maple family grown in this country, the greater number being garden plants, of which the commonest are the Norway Maple, which has bunches of greenish-white flowers showing while the tree is yet bare of leaves, and the Box Elder, noticeable for its irregular compound leaves, which are often variegated. But the two most grown trees of the family are the Common Maple and the Sycamore.

The Common Maple (*Acer campestre*) is a native tree, very commonly found as a bush in the hedgerow, but also as a tree of twenty-five to thirty-five feet. Its bark is scaly, and it is rough when young, getting smoother afterwards. Its branches spread a good deal, and the twigs multiply greatly at a small distance from the outline of the tree. The leaves (see Fig. 5) are simple, but deeply lobed, with several blunt points. The



MAPLE.

flowers are inconspicuous. The winged seeds in pairs are only noticeable enough for a decorative draughtsman. It is found as far north as Durham, and also in Ireland. The foliage forms rounded masses fairly strongly defined, as may be seen in the tree illustrated.

The Sycamore (*Acer pseudo-platanus*) is not a native tree, but was introduced in the fifteenth century, so that it may be safely introduced into historical pictures, the incident of which dates back as far as the middle of the sixteenth century. Its stem is covered with grey bark, which flakes off in small patches, showing the lighter coloured bark beneath, but not to the extent a Plane does. The lobed five-pointed leaves are larger and darker in colour than those of the Maple. Its large pendant bunches of flowers are noticeable features, though green, and later its winged seeds are so also. The Sycamore grows to a height of sixty feet. Its branches leave the stem at an acute angle, but bend and twist a great deal, the lower ones often drooping somewhat. The foliage assumes rounded forms, the masses being strongly defined. Though in winter it is not one of our handsomest trees, in summer it is often very shapely and dignified.

The Ash (*Fraxinus excelsior*), the "Queen of the Woods," is one of our most graceful native trees. It grows to the height of a hundred feet. Its stem is covered by a beautiful grey bark. Its branches, long and tapering as they are, are apt to be broken in line by short, sharp curves; their final twigs are somewhat few and thick, and the buds are dead black. The leaves (see Fig. 5)



SYCAMORE.



ASH.

are compound, having four pairs of opposite leaflets and a final one, and the foliage generally has a light, feathery character; the flowers are inconspicuous, but the bunches of keys or winged seeds are often quite a marked feature of the tree in late summer, a heavily laden tree sometimes losing all its foliage. The root system of the Ash is deep and large, and it is therefore limited to deep soil. It favours the north and east sides of hills, and grows at an altitude of 1,350 feet in Yorkshire. Little will grow beneath its drip, and its fibrous roots, by draining the soil, will starve other trees growing near it. Its foliage comes late and goes early. The Ash of the copse and hedgerow throws up remarkably strong shoots from the stump, which are straighter and thicker than almost any other tree commonly found in such situations.

The Ash has garden relatives in the Privet and the Lilac.

The Nettle family claims as members of it two large trees, the Common Elm and the Wych Elm.

The Common Elm (*Ulmus campestris*) has become known as the English Elm, and is almost typical of English pastoral scenery, but it is not a native. It was introduced by the Romans, so has had time to get acclimatized, but even now, it seldom, if ever, produces fertile seeds. It makes up for this by its very great power of throwing up suckers. It will grow at a considerable altitude, but prefers valleys. It becomes often a tree of great size, sometimes reaching a height of one hundred and twenty feet. Its stem (see Fig. 2)



ELM.

is covered with rough bark. Its great branches ascend at a sharp angle, and the twigs multiply considerably at their outward extremity, making its winter outline fairly distinct. The leaves are small, rough, and simple, the foliage forming large solid clumps and masses. The flowers coming before the leaves give the tree a glow of crimson in the early spring, though individually they are quite small, and the flat seeds are inconspicuous.

The Wych Elm (*Ulmus montana*), notwithstanding its name, does not affect mountains more than the Common Elm. It is a native tree, growing to a height of one hundred and ten feet; is generally broader in the crown, and has more spreading branches than its relative. It also differs from the latter in having larger leaves and more pendant growth, which two characteristics are noticeably exaggerated in the cultivated Weeping Elm. The foliage masses are less solid, and in some trees very much smaller.

Many Elms with "silver," "gold," and variegated foliage are cultivated in gardens.

The Plane is pre-eminently the tree of towns. Its way of shedding its bark as the new bark forms beneath, and the easily washed leaves, enable it to bear the infliction of soot and dust better than any other tree.

The London Plane (*Platanus acerifolia*) is a variety of the Oriental Plane, and is the commonest kind in this country; though it has been known for 200 years, its origin is unrecorded. Its stem (see Fig. 4) is covered



WYCH ELM.



PLANE.

with thin bark which flakes off freely. Its branches have a strong upward tendency. Its leaves are very large and are lobed. Its flowers are round spiked balls on a long pendant stalk, and its fruits, which answer the same description, but that the balls are larger, form a very decorative feature of the tree in winter.

The Oriental Plane itself has more subdivided and more sharply pointed lobes to its leaves, and but rarely bears more than one seed-ball on a stalk. The masses of foliage are much broken in appearance, and have a flashing character, due to the light being caught by the large flat leaves.

The Occidental Plane is not very frequently met with.

The Walnut (*Juglans regia*), the only representative of its family common in this country, was probably introduced here in the middle of the fifteenth century. Its stem is covered with bark of a cool grey colour, its corrugations assuming a beautiful net-like character, though in old trees becoming very rugged. The branches shoot upwards from a soon divided stem, and are long and tapering, with many bends. The leaf is compound, with some four pairs of opposite leaflets and a final one, and is of considerable size. The flowers are inconspicuous, the male being in green catkins and the female a little bunch of two or three tiny flowers; a plentiful crop of nuts is naturally a visible feature in September. The tree has a wide crown, the masses of whose foliage are of somewhat broken character.

The great Mast-bearing family includes almost all of our great forest trees, and is consequently the most important of all groups to the painter of forest scenery, and to the tree draughtsman. It will be well here to reiterate the fact that a tree in dense forest is very different from the same tree in the open, for the reason that the semi-darkness of the close-growing wood causes the trees to stretch upwards to the light and to lose all their lower branches—they become, in fact, high poles with leafy crests. In this work the tree is considered growing in the open, but it must be remembered that in forest they undergo the change indicated by cause of the changed conditions.

The tree that has become almost a symbol of England, the tree whose timber, built into ships, was for centuries the country's main defence, and which was therefore the tree of greatest consequence, shall be taken first. The tree, the Oak (*Quercus robur*), enjoys a very wide area, of which the British Isles are but a portion. In its northern limits, or in bleak, exposed places, it is but a dwarf, but in favourable situations it becomes a giant, being one of the greatest and longest-lived of all the denizens of our woods. It grows to its greatest height in close forest, with a tall, straight baulk of timber, which in the open is replaced by a somewhat short, thick stem, from which spread at right angles its mighty limbs, often making its crown as wide as the height of the tree.

The stem (see Fig. 4) is coated with thick, rough bark, and it spreads out at its base to its lateral roots, as



OAK.

it spreads out above to its aerial branches. The root system is both deep and massive ; the enormous strength of its great descending lateral roots enable it to withstand the strain of the gale on its vast head of foliage. Most trees compromise with weight and wind, by either sending their branches upward or letting them droop, but the Oak often seems to scorn all risk, and sends its branches out horizontally, regardless of strain. From the failure of the leading bud an Oak branch is often found to bend sharply off to right or left, making the "elbows" so much sought by shipbuilders: this is more especially noticeable in the hedgerow Oaks. The Oak leaf is simple, but deeply lobed. The foliage grows in tufts (see Fig. 6) rather than long sprays from the buds, being clustered closer together towards the end of the twig. The flowers are inconspicuous, little affecting the appearance of the tree, though a heavy crop of male catkins when full out are quite a noticeable feature. When the tree is bearing a large quantity of acorns it has the appearance of being studded with little points of light, considerably altering its surface texture. The Oak will live in various soils and situations, but grows best in deep sandy loam. There are three varieties of the Common Oak: the pedunculate, which has stalks to its acorns, but not to its leaves; the sessile which has stalks to its leaves, but not to its acorns; and the intermediate "Durmast," which has short stalks to both leaves and acorns. The first is most usual in England, the second in Wales, and the third is only found in a few localities. The fact of



OAK.

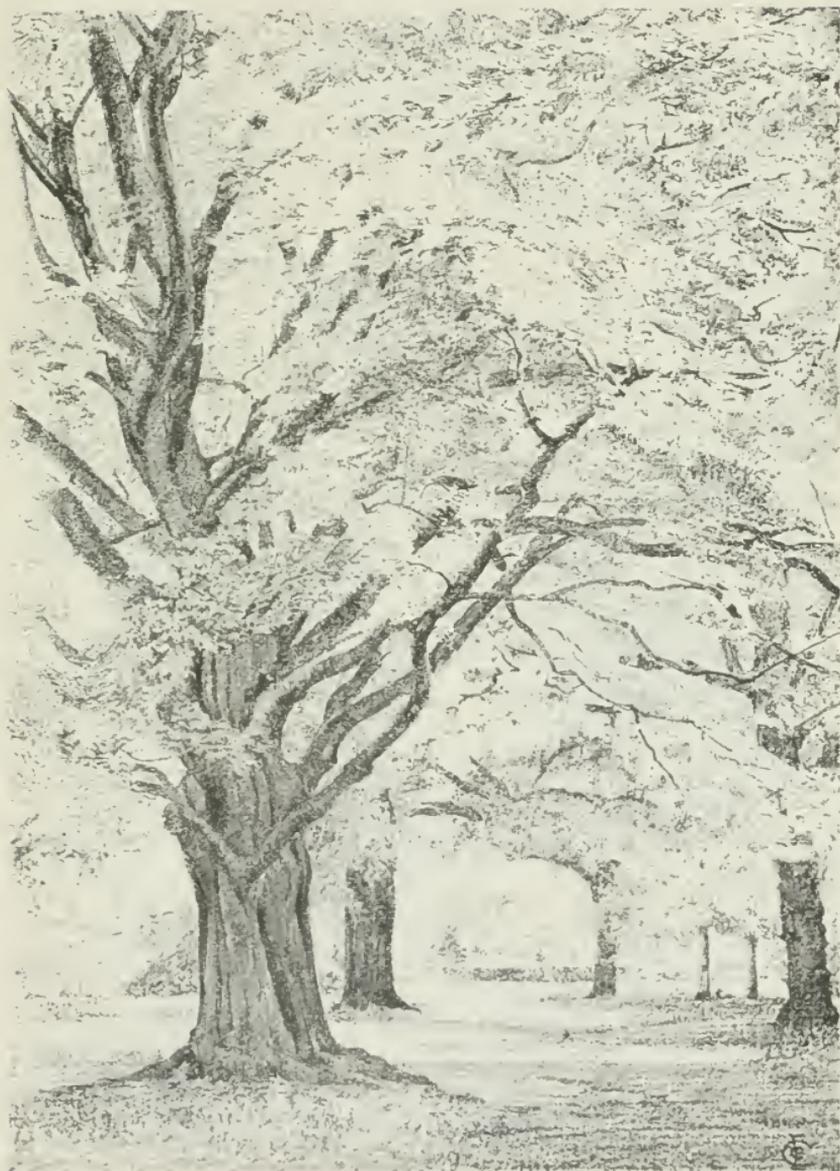
having stalks to the leaves makes the foliage more easily stirred by the wind, a feature to be noted by the painter. The pedunculate form is found more in the moister lowland soil, and loses its leaves before winter, whereas the sessile Oak grows higher on the hillsides, and will often keep its leaves, which are thicker, right through to the following spring.

The Oak develops a second crop of shoots in one season, so that it is not wrong to represent a tree with young leaves at midsummer, and in some cases where the tree has been stripped of its foliage by the larvæ of certain moths, as sometimes happens, it will the same season put on an entirely new vesture of foliage, and have once more the appearance of spring.

The Oak is more attacked by insects than any other tree, and of these the gall insects affect its appearance in varying degree, as described in Chapter 11.

Several other kinds of Oak are grown, the most important of which is the Turkey Oak, which has a spiny acorn cup and sharper points to the lobes of the leaf. Some varieties of Oak have foliage that takes a crimson hue late in the summer, and there is also a Scarlet Oak.

There is, besides these, the Holm, or Holly Oak (*Quercus ilex*), an evergreen form that is fairly common. It has small, shiny, simple leaves of dark green, and little, long-shaped acorns, and from its short stem and large head has frequently the appearance of a vast bush. The Cork Oak is also an evergreen, but not much met with in this country.



BEECH.



BEECH.

The Beech (*Fagus sylvatica*) is, perhaps, the next most important tree of this group, it being native, very common in our landscape, and growing in most places where the Oak grows, though it has not quite so wide an area. It is very commonly planted as a nurse tree for the Oak, but it is well known that if it be not cut in time, but is left to grow with the Oaks, the wood will soon become pure Beech. There are two reasons for this. Nothing will grow in the shade of the Beech, and the Beech roots being shallow and spreading, absorb all the moisture and food of the soil before it can sink to the deeper roots of the Oak. The stem of the Beech (see Fig. 3) is covered with smooth grey bark; it spreads out towards its base to its shallow lateral roots (see Fig. 1), and in the open branches fairly low down. Its branches have an upward tendency, though the ends of them may droop slightly, especially the lower branches, which, if there be no cattle or other animal to injure them, will lie upon the earth. The branches are long and thin, very thin for their length, and are round, having a snake-like appearance. The leaves (see Fig. 7) are simple, and grow along the twigs in feathery sprays rather than in tufts, like in the Oak. The flowers are inconspicuous, as are also the fruits; the empty husks of these latter will, however, often be conspicuous when the leaves have fallen.

The Beech is the typical shade-enduring tree. It grows upwards but slowly in its early years. It has thin bark of dark colour, and it casts a shadow so dense



HORNBEAM.

as to make it practically impossible for anything to live beneath it.

The Purple Beech is a well-known garden variety that has foliage ranging from the colour of copper to that of claret.

The illustrations are taken, one from some distance, the other from almost under the tree.

The Hornbeam (*Carpinus betulus*) from some slight superficial resemblances is often popularly called Beech, but the artist will do well to note more carefully its peculiarities. It is indigenous, and grows much where Beech will grow, as far north as North Wales, though not quite so far up the hillside, preferring low ground and rich loam, where it will reach a height of some seventy feet. The stem (see Fig. 2) is covered by a dark coloured thin bark like the Beech, but is varied by flashes of lighter, silvery colour, and the trunk itself is much more divided, especially where it spreads out to its lateral roots. Its leaves are much the same shape as the leaves of the Beech, but more ribbed and not so glossy; they, too, are arranged on feathery twigs horizontally. The branches are long and thin, growing with an upward tendency, but with somewhat eccentric bends and quirks. The flowers are not conspicuous, though the males are in a fair-sized catkin, but the fruits are quite different to Beech-mast, and, indeed, unlike those of any other tree. They consist of bunches of single small nuts partly concealed each by three leaf-like bracts, and a fully laden tree, when the leaves are falling, sometimes assumes a golden hue in the sunshine,

from the colour of these growths, which are akin to the outer leafy covering of a filbert. The general appearance of the tree is a lighter version of that of the Beech ; its foliage in more or less horizontal strata like that tree, but without the outstanding sprays that break its outline, and generally in lighter and thinner layers.

It will be as well here to refer to the Hazel (*Corylus avellana*), which is a near relative of the Hornbeam. It is a native, generally a bush, though occasionally a tree of some thirty feet high. It has large simple leaves. Its bark is smooth and glossy brown, with horizontal lenticels. Its male flowers are in catkins, which are formed in the previous summer, remain closed till January, when they open and become what the children call "lambs' tails." They form a distinctly decorative feature of the leafless bush. The fruit, the well-known nut, is also, when plentiful, easily seen. The feature of the Hazel to be noted is its capacity for sending up strong straight shoots from its base.

Another nut-bearing member of the same group is the Sweet Chestnut (*Castanea sativa*), a tree which will attain a height of ninety feet. It is not indigenous, but was introduced by the Romans, so it may be painted as a background for any episode of English history. Its stem (see Fig. 3) is covered with thick bark having deep fissures, which latter almost always twist round the tree in the manner of a screw. In the open it branches fairly low down, even sometimes drooping its terminal twigs on to the ground. The leaves are

large, handsome, simple ones, strongly ribbed, and with sharply toothed edges. The flowers are as nearly conspicuous as any forest tree of this country, for a plentiful crop of male catkins, when fully opened, not only give the tree a golden hue, but quite change its surface texture. The fruit also is quite noticeable when plentiful, being spiny balls that are in strong contrast with the surface of the large leaves. The tree grows best in the south of England, and in deep, porous loam. Its general aspect in winter is a little clumsy, from its large branches ending rather suddenly in small twigs, but in summer it is one of the most beautiful trees, its somewhat tufted foliage forming irregular and broken masses.

The tree that is very generally considered the most graceful of all belongs also to this group. The Birch (*Betula alba*) is a native tree, having a wide area, which includes the length and breadth of these islands. It will grow at a great altitude, endure great heat and cold, live on dry heaths or marshy moors, but it must have plenty of light. The stem (see Fig. 2), which runs fairly straight to the top of the tree, is coated with thin peeling bark, with horizontal lenticels, and of a very light colour. Near the base, and in places higher up, are dark patches of thick corky bark, which spread as the tree gets older. The root system is weak and shallow, the leaves are simple, broad at the base and pointed at the end. The flowers are catkins, the male ones pendant, the female ones erect. The fruit, also in catkin form, remains hanging on the tree for months,



BIRCH.

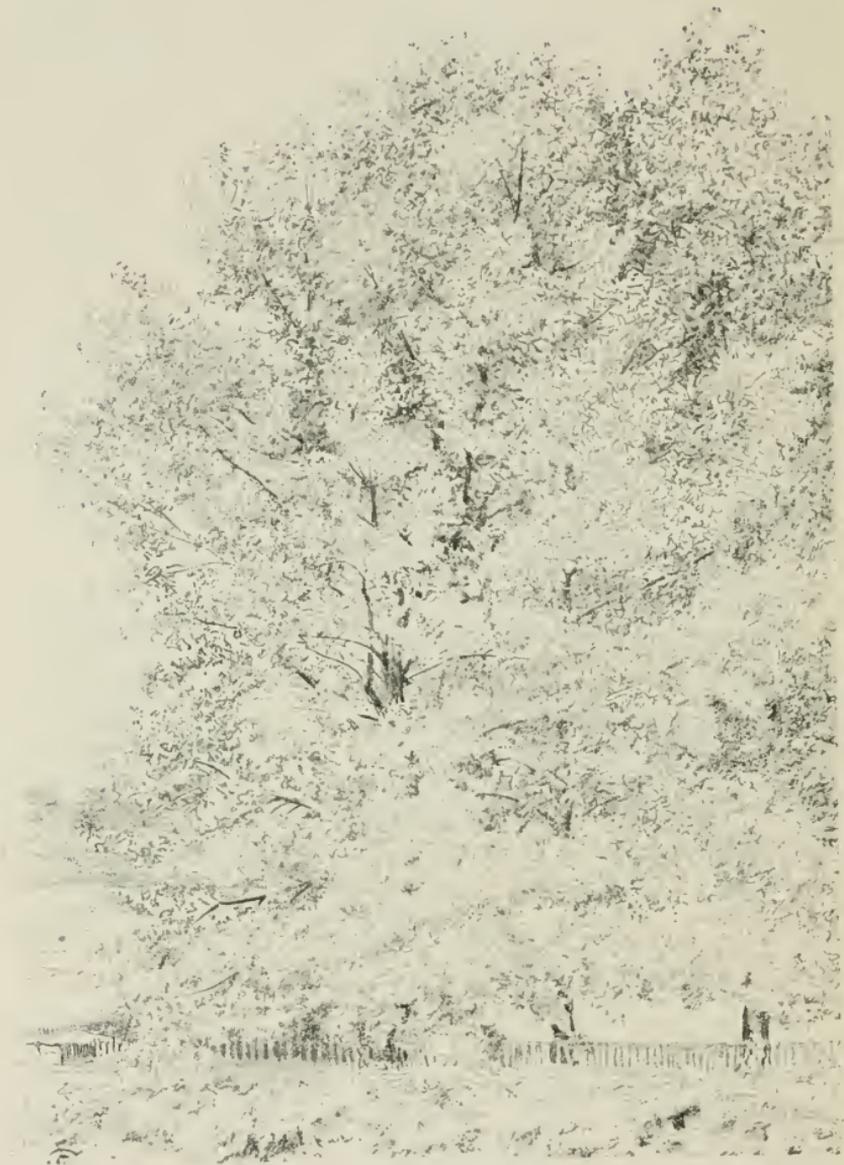
after its ripening in the late autumn. The whole appearance of the Birch is light and graceful, both in winter and summer. The drawing given is of a tree in the fullest of its summer foliage, when the leaves form pendant masses; but perhaps when the leaves turn yellow, and are sparsely scattered on the brown hanging twigs, and the fruit catkins are seen amongst them, then is the tree's most exquisite period.

The Birch has several varieties, the differences being mainly in the browner or whiter colour of the bark, of the angle of the leaves, whether held out horizontally or hanging down, and the course of the branches, whether running upwards as they start from the stem, or whether the ends droop, making it a "weeping" tree.

This tree is often much infested with the disease known as "witches' brooms," more so, in fact, than any other of our trees, though it is common on the Wild Cherry and the Hornbeam.

The Birch is the typical light-demanding tree. It grows upward with great rapidity in its early years. Its bark is light in colour, to throw off the heat of the sun, or where it is dark, is thick as a protection against it, and it casts but little shadow—in all these points differing strongly from the Beech and Hornbeam.

Considering that this tree being a native, and therefore has always been with us, and that it grows practically everywhere, it is curious that it was so long ignored by our landscape painters, though it is not surprising that having once been represented it became highly popular.



BLACK POPLAR.

One more tree of this group remains to be mentioned, the Alder (*Alnus glutinosa*), an indigenous tree common in lowlands as far north as Caithness. It likes the water-side, where it will grow to a height of from thirty to forty feet. Its stem is coated with rough, nearly black bark. Its leaves (see Fig. 5) are simple, oval, with the broader outer end slightly cleft and strongly ribbed. The flowers open in February or March, the male catkins having been formed during the preceding summer. The fruits resemble little cones. The main branches leave the stem at a wide angle and with crooked bends and curves, and the sudden ending of a thick branch in a number of thin twigs gives the tree a quaint appearance when stripped of its foliage, which is made still more striking by the hanging catkins and loose bunches of the little empty cones.

Very different to the Mast-bearing family is that group that has for its members the Poplars and Willows, being as a class more lightly foliaged and smaller trees, of shorter life, more rapid growth, and softer wood.

Of the Poplars, five are common in our woodlands, though not in our woods, and of the five, three are natives of this country.

The Black Poplar (*Populus nigra*) is not indigenous, but has been known in the country for some centuries, though the date of its introduction is unrecorded. It is the largest of the Poplars, but rarely exceeds one hundred feet in height. It has a deeply descending root system, and also shallow, horizontal roots that throw up

suckers. Its stem is clad with thick bark, furrowed longitudinally, and has the power of throwing out many shoots. Its branches are long and tapering, which throw off smaller branches and twigs at intervals, all having an upward tendency; and its leaves (see Fig. 5) are simple, wide at the base, and tapering to a rather elongated tip; they are joined to the twigs by long leaf stalks, flattened laterally, which allows them much freedom of movement from side to side.

The flowers of the Black Poplar are unisexual, each sex being upon a different tree. In the early spring, before the leaves appear, the male tree opens its crimson catkins, and, if plentiful, they give the tree a striking appearance, and as they drop off, having done their work, they colour the ground beneath. In like manner, when the female catkins have developed into fruit and ripened, in May or June, they open and scatter white downy seeds till all the ground beneath the tree is covered as with snow.

Being of rapid growth, having rough bark, and casting little shadow, it has the characteristics of a light-loving tree. Its general appearance, especially in sunshine, is light and sparkling. The large leaves, waving in the slightest breeze, reflect each its ray of light like a moving mirror, and, as may be seen in the illustration, it has no dense shadows by way of contrast, its very darks quivering with reflected light.

A variety of the Black Poplar is the Lombardy Poplar (*Populus fastigiata*), its rough-barked stem being almost hidden by its branches, which grow up parallel



to the main stem, having the most vertical branching of all deciduous trees. It was introduced into England in 1758, and it grows to a height of from one hundred to one hundred and fifty feet, preferring moist situations. As the trees introduced were apparently all males, it never produces fruit here.

The Aspen (*Populus tremula*) is a native tree. Its root system is shallow and spreading. Its stem is coated with smooth bark, which only becomes rough in its full-grown state. It will grow to a height of eighty feet, preferring moist, light soil, and be found as far north as Orkney. The leaves are smaller and rounder than those of the Black Poplar; they are on long stalks, but in place of the waving of the latter in a breeze, the movement is slighter, giving almost the appearance of shivering. Both the male and female catkins have a reddish appearance, but are smaller, and the female ones scatter their cottony seeds in less profusion than the Black Poplar. The general appearance of the tree is light and graceful in winter, while in summer the twigs seem to be bending under the foliage as if the masses were too heavy for them.

The White Poplar or Abele (*Populus alba*) differs very much from the foregoing in its bark, which is smooth and light in colour, and has horizontal lenticels, till it becomes rough in later life. It also varies very much in the leaf from the other Poplars, having leaves generally (though not always) lobed, and with white undersides, that change the light effect of the tree with every breeze. Its male catkins are large and of a

purple colour, while the female ones show yellow stigmas. Its fruits are cottony seeds. The Abele grows very rapidly, reaching in favourable soil the height of one hundred feet in forty years. Its branches grow strongly upwards till they curve towards their ends. The masses of foliage are broken and full of light.

The Grey Poplar (*Populus canescens*) is indigenous, but is believed to be a hybrid of the Aspen and the Abele. Its stem (see Fig. 4) resembles that of the latter, as do its leaves, though their undersides are greyer. It is believed to grow wild only in the south-east of England.

There are other Poplars occasionally met with, of which may be mentioned the Black Italian Poplar, which has the most rapid growth of all Poplars, and the Balsam Poplar, which is slender and has egg-shaped leaves.

Of Willows there are many, but for the artist the differences between them, that are often so slight as to puzzle botanists, need not greatly trouble him. For his purpose there are three main kinds, the Willows that grow upwards, the Weeping Willows, and the broader-leaved Willows. Like the Poplars, the Willows are diœcious, having each sex on a different tree. They are light-demanding trees, of rapid growth, and they generally favour the waterside or moist places. They all have simple leaves, flowers in catkins, and fluffy seeds.

Of the upright Willows the Crack Willow (*Salix fragilis*) attains the greatest size, as it will sometimes



WILLOW.

reach a height of nearly ninety feet. It is usually a tree of about forty feet, having a stem coated with rough furrowed bark, branches having an upward tendency, and ending in long yellow shoots. The leaves (see Fig. 5) are long and narrow, like a lance head, and the flowers open when the tree is in leaf, and are therefore not so conspicuous as they are in the Poplar. It is, as its name implies, very brittle, and is therefore not grown so much for basket-making as some other kinds, or, in other words, the artist will not so often find it in the pollarded form.

The White Willow (*Salix alba*) differs in having white undersides to its leaves, causing it to change in colour and tone in the breeze. Its twigs are more olive in colour.

The Weeping Willow (*Salix babylonica*) is a familiar tree of comparatively recent introduction. It much resembles the foregoing trees, except for the bending of the branches, and the pendant position of the long final shoots and the leaves. The Weeping Willow has often a much heavier look than the others; it has apparently denser foliage, which frequently entirely hides the branches; but some, as in the tree drawn, are divided more into clumps, between which are hollows, in which may be seen the form of its limbs.

The Sallow or Goat Willow (*Salix caprea*) will grow into a tree of some thirty feet in height, but is more often met with in the form of a bush. It differs considerably from the other Willows in having oval leaves of roughish texture, in flowering before the



WEeping WILLOW.

leaves open, and in the absence of those long shoots that are used by basket makers. The Sallow is more often found in the copse and even dry hedgerows than the narrow-leaved kinds, its flowers being quite a feature in some of our hedges, and it is much gathered about Palm Sunday by people who call it palm. The male catkin is golden with pollen-covered anthers when full out, the female is more slender and silvery.

The Larch (*Larix europæa*) belongs to the great Cone-bearing group, but is the only one of that group commonly met with in this country that is not evergreen. It is sometimes the embodiment of grace and elegance, while at others it is an example of the rugged and battered picturesque. Its stem is straight and continuous to its top, a true stem like all the Conifers; it is coated with thick dark grey and reddish bark, which is deeply fissured. Its root system is mainly lateral, causing the stem to splay at its base and enabling the tree to live on rocky ground by its power of sending down root branches at some distance from the tree itself, and its branches leave the tree at an obtuse angle. It is the tree with the most downward growing branches of any of our trees. Its leaves are "needles" growing in tufts. The male flower is yellow and the female purplish. They are placed on the downward-growing final twigs. The fruits are small cones, which, although growing on the twigs that hang straight down, always point upwards. The tree is not a native of England, but was introduced before 1628. The winters of this country are not long or severe



LARCH.

enough to make its timber of the best quality, so it is not so generally planted here as it might otherwise have been. It will, however, sometimes pass the height of one hundred feet, and, though a mountain tree, it grows on various soils and situations, provided always that it has plenty of light. It has all the character of a light-loving tree—thick bark, rapid growth when young, and thin foliage that casts but little shadow.

The general appearance of the Larch in winter is highly decorative, with its upright stem and downward tending branches, which, rising again towards their outer ends, are hung with long pendant twigs, studded with tiny cones; but it is in the early spring that it becomes the wonder of the woodlands, when it covers itself with a miraculous green mist of needles, a green so vivid as to have nothing that approaches it on the palette, but that can only be suggested by juxtaposition of other tints. It is much attacked by disease, and often loses branches and becomes more or less dilapidated, as may be seen in the accompanying drawing, but it is always picturesque, even when showing many scars.

The great Cone-bearing family, with the exception of the Larch, and some foreign trees rarely met with, are all evergreens. There are many of them grown in this country, but few natives; indeed, there are but two—the Scots Pine and the Juniper.

The Scots Pine (*Pinus sylvestris*) grows occasionally to one hundred and fifty feet, but usually does not quite reach one hundred feet. It has a wide area, and will grow at a great altitude, but in the extremes



SCOTS PINE.

becomes but a dwarf. Its stem is clothed with a reddish bark, which peels off in flakes, more especially on the upper portions of the branchless stem. Its root system consists of a deep descending main root, that branches laterally, so that it can live on sandy soil. The branches have an upward tendency and grow regularly, but in the trees usually met with the branching has lost its regularity, for the Scots Pine has many foes and but small power of repairing injury or replacing lost limbs and buds. The leaves are "needles," from one to two inches in length, arranged in pairs. The flowers are unisexual, the male being yellow and quite small; the female, which are also small, develop into pendant cones, generally in clusters of two or three.

The general appearance of the tree is rugged and strong, a straight stem crested with twisted branches and dark green masses of foliage, which take a grey tint as the light plays upon them. When the tree is in flower the yellow pollen from the male blossoms falls to the ground in large quantities, collecting in hollows, and noticeable to such an extent as to bring forth the letters which sometimes appear in the papers relating to showers of sulphur.

The other Conifers growing in England must be dealt with briefly. They resemble the Scots Pine and the Larch in their small power of repairing injury, but having perhaps fewer enemies, and being planted where there are fewer adverse circumstances, the specimens generally seen are more perfect in their growth and

more formal in their appearance, and they are, perhaps for these reasons, less favoured by the landscape painter. They differ from the foregoing Conifers in the length and grouping of their needles, the size and position of their cones, and the angle of branching.

The Silver Fir (*Abies pectinata*) has all its evergreen needles solitary, arranged spirally on the twigs, not in tufts. It is a large tree, rarely reaching a height of two hundred feet, and in the open its branches will remain intact almost to the ground. The Spruce (*Picea excelsa*) shares with the Silver Fir the arrangement of its needles, but its branches have a more upward tendency. Though its remains are found by geologists in the upper beds of the tertiary formation, it apparently must have died out in this country, for it was re-introduced about the fourteenth century. Its form when young is well known, owing to the number of young trees sold for Christmas trees. It preserves its pyramidal form for very many years in the open. The cones of the Spruce are pendant, but those of the Silver Fir are erect. The Douglas Fir (*Pseudotsuga douglasii*), another great tree, reaching in its American home a height of three hundred feet, also has its needles solitary and spirally arranged, whereas the Corsican Pine (*Pinus laricio*), whose needles are some three or four inches long, has them arranged in pairs, as has also the Cluster Pine (*Pinus pinaster*). The Weymouth Pine (*Pinus strobus*) also has long needles, but in bunches of five, and the short needles of the Cedars are in tufts of many. These varieties give different textures

to the trees.* Of their form the Cluster Pine is, perhaps, generally the most irregular, the others being of formal build, with a straight stem and more or less regular rings of branches.

The Cedars, of which three are fairly common, have distinctive form. The Cedar of Lebanon (*Cedrus libani*) is a flat-topped tree, with wide-spreading horizontal branches; the Deodar, or Himalayan Cedar (*Cedrus deodara*), has branches with a downward tendency, and often the final shoots pendant; and the Atlantic Cedar (*Cedrus atlantica*) has branches that have a sharp upward tendency. The cones of all three are erect and somewhat flat-topped.

The Juniper (*Juniperus communis*), our second native Conifer, is a shrub, occasionally a tree of twenty to thirty feet in height, and in many places has many shapes. It has reddish bark, narrow evergreen leaves, arranged on the branches in whorls of three; male and female blossoms usually on separate individuals, both tiny, and its fruits are little purple "berries."

Of our British Evergreens none is better known or a greater favourite than the Holly, with its glossy leaves and coral berries. The Holly (*Ilex aquifolium*) is found all through these islands. It reaches a height of from forty to fifty feet in favourable positions. Its stem is coated with smooth grey bark. Its branches have a slight upward tendency, and its leaves are glossy, thick, simple, and wavy. On the lower part of the tree the hard border of the leaf develops into spines, but above

the reach of cattle, where this protection is not needed, the leaf is a simple oval, without spines. The flowers of the Holly are small and white, but they are often so numerous clustered round the twigs as to be quite the feature of the tree. The fruits are the well-known berries, generally scarlet, though sometimes yellow. As may be judged from its bark and from the strong shadow it casts, it will endure a good deal of shade, and may be painted in a wood,

Another well-known evergreen is the Box (*Buxus sempervirens*); but it is known more as it is seen in gardens clipped into hedges and fantastical forms than as a small tree. It only grows wild in some few southern counties, and is seen at its best on Box Hill in Surrey. It seldom reaches more than twelve to eighteen feet in height. Its stem is covered with thin yellowish bark. The branches have an upward tendency, but at various angles. It is thickly branched, and the final twigs are often pendant. The leaves are small, oval, and leathery, and the flower and fruit small and inconspicuous.

A word may be said here of the Ivy (*Hedera helix*), the common climber, though its many forms cannot be enumerated. Its stem, which will grow to the great thickness of over ten inches in diameter, is coated with a bark that seems to possess in some degree the power of assuming the appearance of that of the tree it climbs upon. When slender, the stem throws out rows of rootlets, by which it fixes itself to its support, but as it gets stouter it no longer clings. Its leaves are deeply

lobed where it is growing against wall or tree, but above, on its free branches, they are of a simply pointed oval. Its flowers, which are balls of green blossoms, open in October. Its fruits are black berries of a curious urn shape. It is a very conspicuous object on a naked tree in winter, its masses of dark glossy foliage telling strongly against the sky

The Yew (*Taxus baccata*) is associated with churchyards, and owing to the poisonous character of its leaves is seldom allowed to grow in fields where cattle may be. It is found fairly plentifully in woods, and is much grown in gardens for hedges and ornament. Its stem, which is often much increased in size by shoots from its base which have in course of time fused with it, is covered with thin reddish flaking bark. Its branches, though starting from the trunk with an upward tendency, grow at many angles, and its leaves are like fir needles broadened and flattened. The male and female flowers are upon different individuals; the males, though inconspicuous little globes, are sometimes noticeable because of their number, and when ripe they burst and scatter their pollen in great quantity, making the ground beneath golden. The female tree has still smaller flowers, but in October may be studded all over with its dainty jewel-like berries of pink or orange.

The drawing used for a frontispiece represents the Yew in Selborne Churchyard, of which Gilbert White wrote some 150 years ago. It is a male tree, and though reckoned to be 1,300 years old, is still

full of vitality and flowers plentifully. It measures 25 feet 9 inches round the stem at three feet from the ground.

The Irish Yew, a native of Ireland but much planted in England, resembles the Common Yew except in the upward growth of the branches, which are practically perpendicular.



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FRANCO-BRITISH EXHIBITION, 1908, DIPLOMA OF HONOUR AND GOLD
MEDAL.
JAPAN-BRITISH EXHIBITION, 1910, GOLD MEDAL.
TURIN EXHIBITION, 1911, TWO DIPLOMAS OF HONOUR.



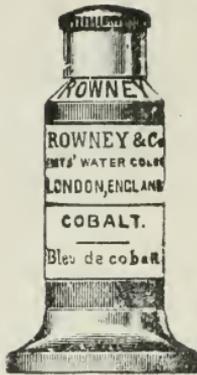
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Half Tube.



Whole Pan.



Half Pan.

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- | | | |
|--------------------|-------------------|-------------------|
| Antwerp Blue | Gamboge | Permanent Blue |
| Bistre | Hooker's Green, 1 | Prussian Blue |
| Blue Black | Hooker's Green, 2 | Prussian Green |
| Brown Ochre | Indian Red | Purple |
| Brown Pink | Italian Ochre | Raw Sienna |
| Burnt Sienna | Italian Pink | Raw Umber |
| Burnt Umber | Ivory Black | Red Lead |
| Charcoal Grey | Lamp Black | Roman Ochre |
| *Chinese White | Light Red | Sap Green |
| Chrome 1, Lemon | Magenta | Terra Vert |
| Chrome 2, Yellow | Mauve | Trans. Gold Ochre |
| Chrome 3, Orange | Naples Yellow | Transparent Umber |
| Chrome 4, ,, Deep | Neutral Tint | Vandyke Brown |
| Cologne Earth | New Blue | Venetian Red |
| Dragon's Blood | Olive Green | Yellow Lake |
| Emerald Green | Payne's Grey | Yellow Ochre |
| Flake White | Peach Black | Zinc Yellow |
| French Ultramarine | | |

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Alizarin Yellow
Azo Yellow
Black Lead
Brown Madder
Chinese Orange
Crimson Alizarin
Crimson Lake
Cyanine Blue
Geranium Lake
Indian Lake
Indigo

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Mars Yellow
Neutral Orange
Orange Vermilion
Purple Lake
Scarlet Alizarin
Scarlet Lake
Scarlet Vermilion
Sepia
Vermilion
Violet Alizarin
Warm Sepia

WHOLE PANS, 1s. 3d. each.
HALF ,, os. 8d. ,,

SERIES C.

Azure Cobalt
Cadmium, Pale
Cadmium, Yellow
Cadmium, Orange
Cadmium, Orange Deep
Cadmium, Red
Cobalt Blue
Cobalt Green, light
Cobalt Green, dark

WHOLE TUBES, 1s. 8d. each.
HALF ,, os. 10d. ,,

Cobalt Violet
Cœruleum
Indian Yellow
Lemon Yellow
Mars Orange
Opaque Oxide of Chromium
Trans. Oxide Chrom.
Violet Carmine
Viridian, or Veronese Green

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SERIES D.

Aureolin
Burnt Carmine
Carmine
Deep Madder
Extract Madder Carmine

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Madder Lake
Purple Madder
Rose Doré
Rose Madder

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SERIES E.

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 „ 3 Tube signifies a tube 3 inches long.
 „ 4 Tube, containing twice the quantity of No. 2.
 „ 8 Tube, " Double " or " Small Studio," containing four times the quantity of No. 2.
 „ 12 Tube, or " Large Studio," containing six times the quantity of No. 2.

See illustrations page 7.

SIZE OF TUBES.

NAME OF COLOUR.	No. 2	No. 3	No. 4		No. 8		No. 12.							
			s.	d.	Small Studio or Double s. d.	Studio or Treble s. d.								
SERIES A.														
Bitumen	}	s.	d.	}	Small Studio or Double s. d.	Studio or Treble s. d.						
Brown Ochre												
Burnt Sienna												
Burnt Umber												
Cologne Earth												
Flake White												
Indian Red												
Italian Ochre												
Ivory Black												
Lamp Black												
Light Red												
McGuilp							0	5	0	10	1	2
Raw Sienna, No. 1 Light.												
„ „ No. 2 Dark.												
Raw Umber												
Roman Ochre												
Silver White												
Sugar of Lead												
Vandyke Brown												
Venetian Red												
Verona Brown												
Yellow Ochre												
Zinc White												

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SIZE OF TUBES.

NAME OF COLOUR.	No. 2		No. 3		No. 4	No. 8		No. 12		
	s.	d.	s.	d.		Small Studio or Double	s.	d.	Studio or Treble	
SERIES B.										
Antwerp Blue	}							
Black Lead	}							
Blue Black	}							
Brown Pink	}							
Cappagh Brown	}							
Chrome Green, No. 1	}							
" " " 2	}							
" " " 3	}							
Chrome Lemon, No. 1	}							
" Yellow, " 2	}							
" Orange, " 3	0	5	..	1	1	1	6	
" Deep, " 4	}							
French Naples Yellow	}							
Naples Yellow, No. 1	}							
" " " 2	}							
" " " 3	}							
Neutral Tint	}							
Payne's Grey	}							
Prussian Blue	}							
Terra Vert	}							
Transparent Gold Ochre	}							
Transparent Umber	}							
Zinc Yellow	}							
SERIES C.										
Cinnabar Green, No. 1	}							
" " " 2	}							
" " " 3	}							
Crimson Lake	}							
Emerald Green	}							
French Ultramarine	}							
Gamboge	}							
Hooker's Green, No. 1	}							
" " " 2	}							
Indigo	0	5	..	1	6	2	3	
Italian Pink	}							
Magenta	}							
Mauve	}							
Olive Green	}							
Olive Lake	}							
Permanent Blue	}							
Purple Lake	}							
Sap Green	}							
Scarlet Lake	}							
Yellow Lake	}							
SERIES D.										
Alizarin Green	}							
Alizarin Yellow	0	6	..	1	9	2	6	
Azo Yellow	}							
Crimson Alizarin	}							

GEORGE ROWNEY & Co.'s ARTISTS' OIL COLOURS.

Continued.

SIZE OF TUBES.

NAME OF COLOUR.	No. 2		No. 3	No. 4	No. 8	No. 12							
	s.	d.				Small Studio or Double s. d.	Studio or Treble s. d.						
SERIES D—(continued).													
Geranium Lake	}	0 6	1 9	2	6						
Indian Lake													
Lapis Grey													
Madder Brown													
Rubens Madder													
Scarlet Alizarin													
Sepia													
Violet Alizarin													
SERIES E.													
Azure Cobalt	}												
Chinese Orange													
Cobalt													
Cobalt Green, Light													
" " Dark													
Cobalt Violet													
Deep Madder													
Indian Yellow													
Lemon Yellow													
Madder Lake													
Malachite								0 11	3 0	4	6
Mars Orange													
Opaque Oxide Chromium													
Purple Madder													
Rose Doré													
Rose Madder													
Transparent Oxide of Chromium													
Viridian													
Chinese Vermilion													
Orange Vermilion													
Scarlet Vermilion													
Vermilion													
SERIES F.													
Aureolin	}												
Cadmium, Pale													
" Yellow													
" Orange													
" Deep													
" Red	1 3	3 9	5	6							
Carmine	}												
Cœruleum													
Extract of Madder }													
Carmine													
Violet Carmine													
SERIES G.													
Ultra Ash	2	0						

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Illustrations of the sizes of the Tubes.

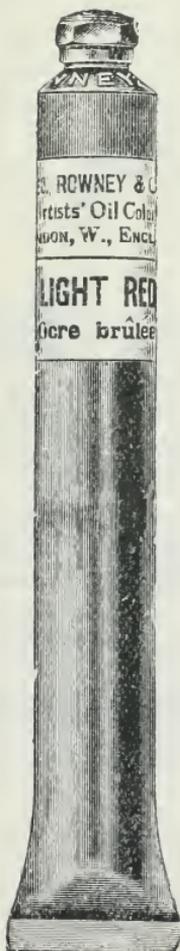
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No. 2.



No. 3



No. 4



No. 8



No. 12

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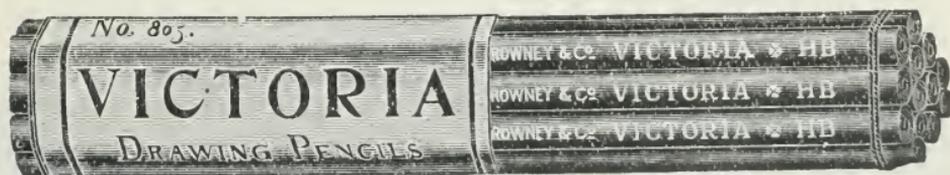
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BBB	Extra Soft and Black.
BBBB	Softer and very Black. Double Thick Lead.
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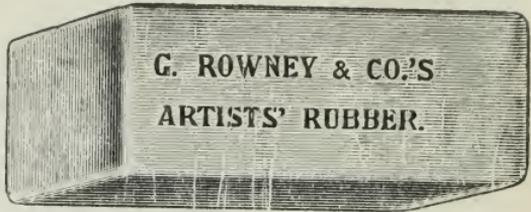
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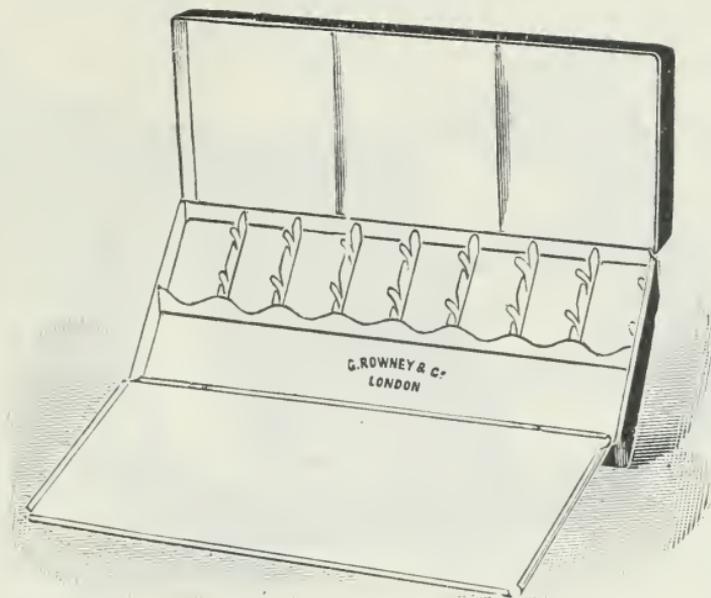
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10 " " " " " "	9	0	"	17	9
12 " " " " " "	10	0	"	1	1 0
14 " " " " " "	10	6	"	1	3 3
16 " " " " " "	11	0	"	1	7 0
18 " " " " " "	11	6	"	1	10 0
20 " " " " " "	12	6	"	1	12 6
24 " " " " " "	13	6	"	1	18 0

16 Whole and 10 Half-pan Box with Thumb Hole, 21s. empty.

CONTENTS OF BOXES.

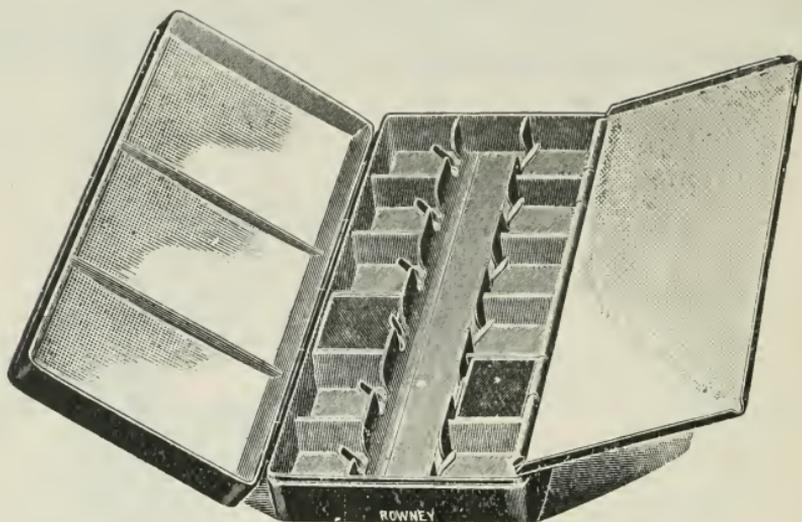
1 Gamboge	9 Ivory Black	17 Chrome No. 3
2 Yellow Ochre	10 Raw Sienna	18 Viridian
3 Light Red	11 Vermilion	19 Emerald Green
4 Cr. Alizarin	12 Madder Brown	20 Indian Red
5 Bt. Umber	13 Chrome No. 1	21 Lemon Yellow
6 French Ultra	14 Prussian Blue	22 Neutral Tint
7 Cobalt	15 Rose Madder	23 Sepia
8 Bt. Sienna	16 Indigo	24 Naples Yellow

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8	7	6	..	12	0
10	8	0	..	13	6
12	9	0	..	16	0
14	9	6	..	17	6
16	10	0	..	19	6
18	10	6	..	1	1 6
20	11	6	..	1	3 6
24	12	6	..	1	7 0

CONTENTS OF BOXES.*

1 Gamboge	9 Ivory Black	17 Chrome No. 3
2 Yellow Ochre	10 Raw Sienna	18 Viridian
3 Light Red	11 Vermilion	19 Emerald Green
4 Cr. Alizarin	12 Madder Brown	20 Indian Red
5 Bt. Umber	13 Chrome No. 1	21 Lemon Yellow
6 French Ultra	14 Prussian Blue	22 Neutral Tint
7 Cobalt	15 Rose Madder	23 Sepia
8 Bt. Sienna	16 Indigo	24 Naples Yellow

The 12 Half-pan Box contains the first 12 colours on the list, the 16 Half-pan Box the first 16 colours, and the 24 Half-pan Box the 24 colours as above.

*Any colour may be replaced by any other and the difference in price charged or allowed for.



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	Size.	Price per dozen Boards net.			
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Demy	... 18¼ in. ,, 14½ ...	6 0	8 6	12 0	17 0
Medium	... 20¾ in. ,, 16½ ...	8 6	12 0	17 0	— —
Royal	... 22¼ in. ,, 17½ ...	10 0	15 0	20 0	30 0
Imperial	... 28½ in. ,, 21 ...	18 0	27 0	36 0	54



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MILL (THICK) BOARDS
FOR ALL WASH AND LINE
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„ 4to.	14½ ,, 10¾ ,,	...	5 6	...	0 7
„ 8vo.	10¾ ,, 7¼ ,,	...	3 0	...	0 4
Royal,	22½ ,, 18 ,,	...	14 0	...	1 9
„ Half,	18 ,, 11¼ ,,	...	8 0	...	0 11
„ 4to.	11¼ ,, 9 ,,	...	4 0	...	0 5½

The Imperial sizes are kept in two surfaces: Smooth and Abraided.
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BLUE SHADE WHITE.

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„	„	thick „ 3 ply	5s. od. „

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“Kandahar” Waterproof Ink.

A superior solution of Carbon; when dry will stand colour washes. This ink is a more intense black than any in the market; flows freely, and leaves no sediment in the bottle.

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are made in the following Colours :—

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Brown	Indigo	Vermilion
Burnt Sienna	Lemon	Violet
Carmine	Orange	Viridian Tint
Cobalt Tint	Prussian Blue	White
	Yellow	

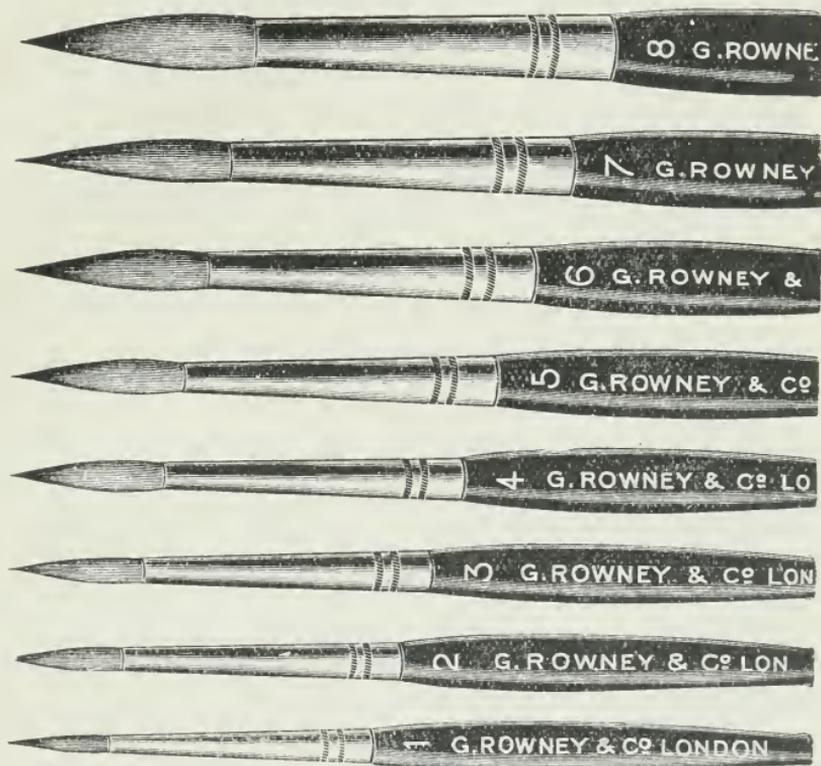
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3	10½		10	9	4 0	3 3
4	1 2	1 1	1 1	10	5 0	4 3
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