



***HERBERT SIR
MAXWELL***

***TREES:
A WOODLAND
NOTEBOOK***

Herbert Sir Maxwell

Trees: A Woodland Notebook

**Containing Observations on Certain British and Exotic
Trees**

EAN 8596547353423

DigiCat, 2022

Contact: DigiCat@okpublishing.info



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The Oak

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The literature of the oak far exceeds in volume that of any other tree, and there is abundant evidence to prove that from earliest times it was regarded not only with esteem for its timber, but with religious reverence. Popular names of trees are uncertain guides; the revisers of the Old Testament express a doubt whether the tree under which Jacob buried the strange gods which he took from his household (Genesis xxxv. 4) was really an oak, as it is rendered in the authorised version, or a terebinth; but there seems to be no question about the tree Homer had in his mind when he describes Zeus as giving his oracles from the oaks of Dodona (*Odyssey*, xiv. 328), for the Greeks held the oak sacred to their premier deity.

Pliny (A.D. 23-79), writing about a thousand years later than Homer, describes in detail the religious honour paid to the oak in Britain, and asserts that the Druids, as children of the oak, were so called from the Greek name for that tree, i.e. δρυς. We are able to check his statements in one particular from our own experience. He says that the Druids held the mistletoe as the most sacred of plants, provided it grew upon an oak, which it did very rarely. It is still so seldom to be seen on that tree that, although I have been on the lookout for an instance for many years, both in England and in Continental oak forests, I have never yet found one. Mr. Elwes, indeed, gives a list of twenty-three oaks in England reputed as bearing mistletoe; but he has

only succeeded in verifying two of these by personal inspection.[2]

That the early Celtic inhabitants of the British Isles set as high a value upon the timber of the oak as they did upon its mystic attributes, must be patent to any one who has explored their ancient lake dwellings. The framework of these artificial islands was made of massive oak beams morticed together; these remain as hard and sound as the day they were laid down in the water; while every other kind of wood used in the interior of the structure—ash, alder, pine, etc.—has been reduced to the consistency of soft cheese. Moreover, these people anticipated the Admiralty in using oak for shipbuilding. All the many canoes which have been discovered in connection with these islands (five were found in Dowalton Loch alone) have been "dug-outs" fashioned from trunks of oak thirty or forty feet long. If other and more easily worked timber was ever employed for this purpose, it has failed to withstand the tooth of time.



PEDUNCULATE OAK

The application of iron to shipbuilding and architecture has done much to dethrone the oak from its former pre-eminence, nor does its timber command the high prices of a hundred years ago. But it has no rival for dignity and durability, and very few equals in beauty, for domestic architecture and public buildings. Moreover, signs are not wanting that the supply of pitch pine and other cheap foreign substitutes for British oak is not inexhaustible; consumption is increasing hand over hand, and natural

forests are being stripped far faster than they can be regenerated. British oak, therefore, though it is under temporary commercial eclipse, can never fail of producing timber of the very highest quality, and, owing to its long span of vigorous life, the tree may be left standing in the forest for centuries without deteriorating.

Those who desire a quick return from their woodland will hardly be encouraged to plant oak from such a far-sighted consideration; but forestry must always be a business of deferred profits. If ash be esteemed commercially mature at seventy years, larch and Scots pine at eighty or ninety, oak cannot be reckoned ready for the axe at less age than one hundred and twenty, and it continues to improve up to two hundred years.

Even allowing for the fall in value of oak timber and bark in recent years, high prices may still be obtained for fine trees, whereof there would have been far more in Britain at this day but for the excessive drain upon our woodland resources for the Navy during the eighteenth and nineteenth centuries. In 1877 Messrs. Groom, of Hereford, paid £200 for a huge oak felled at Tyberton Park in Herefordshire. This grand tree stood 130 feet high, with a girth of 22 feet 8 inches at 5 feet from the ground. It was felled after being struck by lightning and badly damaged; but for which mishap the purchasers estimated its value would have been £300.

In Kyre Park, Worcestershire, there still stood in 1907 an oak 113 feet high, with a straight trunk of 90 feet, for which the owner had declined an offer of £100 a few years previously.

In certain parts of England, chiefly in the eastern counties, the timber of some oaks is found to have assumed a rich brown hue, instead of the normal pale fawn. The cause of this is obscure; some botanists consider it to be produced by a fungoid growth; others, that it is the combined effect of age and soil; but, whatever be the agent, the result is to enhance enormously the market value of such trees. American cabinetmakers first created a demand for it, as much as 10s. a cubic foot being readily obtained for the best quality. Unfortunately, brown oak has not yet been recognised as occurring north of the Trent.

Botanists are not agreed whether the oaks of Great Britain consist of a single species or of two. There are certainly two distinct races, as was recognised by Linnæus 150 years ago, when he classified them, probably correctly, as sub-species-the durmast or sessile-flowered oak (*Quercus robur sessiliflora*) and the pedunculate oak (*Q. robur pedunculata*). Roughly speaking, the native oaks of the eastern and southern parts of Great Britain are of the pedunculate race; those of the western parts and of Ireland are of the sessile-flowered type; but I have examined the old oaks in the Forest of Arden, Warwickshire, and found them to be durmast, while young trees, planted to replace blown ones, were all of the pedunculate kind. In the beautiful park of Knole, near Sevenoaks, there are hundreds of fine indigenous oaks, all pedunculate; but a splendid avenue, planted apparently 180 or 200 years ago, has been laid through them, and these trees are all durmast. I do not know of any place where the contrast between the two species may be so easily studied.

When grown in moderate shelter, the two kinds may be readily distinguished from each other by their habit of growth. Owing to the terminal bud on every shoot of the durmast oak being the strongest, the stem and branches are much straighter than those of the pedunculate oak, which puts its strength into lateral buds, giving the boughs that twisted, gnarled appearance so characteristic of much English woodland. In exposed situations, however, this distinction cannot be relied on, and one must examine the leaves and fruit as tests.

The durmast oak bears sessile flowers—that is, without foot stalks; the acorns, therefore, sit close to the shoot on which they are borne. On the other hand, the leaves are carried on footstalks clear of the twig. In the pedunculate oak these features are reversed, the flowers and acorns being stalked and the leaves stalkless. The leaves, also, which are more irregular in shape than those of the durmast, clasp the twig more or less closely with auricles or lobes. The durmast never has these auricles, but the other features mentioned are liable to be modified, when recourse must be had to a less uncertain detail, easily distinguished through an ordinary lens. The back of a mature leaf of the pedunculate oak is perfectly smooth, without a trace of down or pubescence; that of the durmast invariably carries some fine down, at least in the angles of the leaf-nerves.

It may seem that these differences are of no more than botanical interest; but they carry an important significance to the forester. The timber of the two species being of equal quality, it is of course desirable to plant that kind which produces the straightest timber. Undoubtedly in this respect

the durmast far surpasses the other. Unfortunately, owing to the durmast oak bearing acorns far less frequently than the pedunculate oak, British nurserymen have stocked the latter almost to the exclusion of the durmast, seed of which can only be obtained in favourable seasons, often at an interval of several years. Nevertheless, the superiority of the durmast, especially for Scotland and the north of England, is so great, that it is worth taking pains to secure it.



SESSILE OAK

The native oaks of the English lake district and of the shores of Loch Lomond are all of the durmast variety; when opportunity occurs of obtaining seed from these it should not be allowed to slip. Even in the south, durmast oak has proved its superiority to the other. Besides being far the handsomer tree, with richer foliage, it is generally immune from the attacks of that curse of English woodland, the caterpillar of the little moth, *Tortrix viridana*. "I have seen," says the Hon. Gerald Lascelles, Deputy Surveyor of the New

Forest, "I have seen a sessile oak standing out in brilliant foliage when every other oak in the wood around was as bare of leaf as in winter."

Most writers on forestry follow one another in describing durmast oak as suiting dry soils and pedunculate oak as preferring rich and moist soil. That is quite at variance with my observation. If the soil of Surrey, where the native oak is pedunculate, be compared with that of the English lake district and the west generally, where the durmast is indigenous, there can be little question which is the moister. The fact is the durmast, being the more vigorous tree, is able to thrive in a soil too dry and poor to support the pedunculate oak.

One word of counsel to planters on soil tending to dryness—never plant oak forest pure, but let beech be mixed with the oaks. The importance of this is well known to German foresters, who call beech the doctor of the forest. Its dense foliage prevents undue evaporation under parching winds and scorching sun, and its heavy leaf-fall in autumn creates the best kind of forest soil.

No clearer example can be given of the failure of ancient oaks, not from extreme age, but from the parching of the soil, than is presented in Sherwood Forest. The giant trunks that stand there singly or in scattered groups once supported a far loftier dome of foliage than they do now. The branches have died back through the vigour of the tree being sapped by excessive evaporation from the ground, consequent on the loss of forest canopy and undergrowth. Within Lord Manvers's park of Thoresby, formed long ago by enclosing part of the Forest, oaks of the same age as those

outside stand in close company with the fostering beech, and clothed with dense foliage to the very end of the branches. How often has one heard a forester, when a great oak goes "stag-headed," explain this as the result of the roots getting down to unsuitable subsoil; whereas the true reason is that an oak cannot fulfil his allotted span of years except when grown in close company of other trees.

As might be expected, the oak, as monarch of the primæval British forest, has contributed names to countless places, both in Celtic and Saxon speech; besides a few in Norman French, whereof Chenies, a parish in Bucks, may serve as an example. The Saxon *ac*, still current in the north, but supplanted in the south by the broader "oak," is easily detected in such names as Acton, Aikton, Ackworth, Akenham, in England; Aikrig, Aikenhead (sometimes disguised by an intrusive *t* as Aitkenhead) and Aiket, which is a contraction of the Saxon *ac widu*, oak-wood. Oakham, Oakford, Oakenshaw, Oakley, etc., speak for themselves. In old Gaelic the oak was *daur*, in modern Gaelic the genitive *dara* or *darach* is used, but in Manx and Welsh it remains *dar*. Deer, Darroch and Darra are Scottish place-names retaining respectively the old and new form of the word, the latter often appearing in composition, as in Kildarroch, i.e. *coill darach*, oak-wood. Still commoner is the derivative *doire*, originally *daire* (pronounced "derry"), signifying primarily an oak-wood, but later applied to woods in general. Hence the large class of names like Derry, Dirriemore, Derrynabrock, Derrynahinch, etc. St. Columba founded his monastery at a place called Daire-Calgaich in the year 546. Adamnan, writing a hundred years or so later,

glossed this name *Roboretum Calgachi*, Calgach's oak-wood. After this it became Derry-Columkille, the oak-wood of Colum of the Churches, until finally James VI. and I. granted a charter thereof to a London company of traders, and the place became, and remains, known as Londonderry.

The mightiest oak I have seen of late years, at all events the oak which impressed me most forcibly with its mightiness, is one of the pedunculate kind near the mansion-house of Panshanger, Lord Desborough's place in Herts. It is figured in Strutt's *Sylva Britannica*; when he measured it in 1822 the girth was 19 feet at 3 feet from the ground, and its cubic contents were estimated at 1,000 feet. Elwes measured it in 1905 and found the girth to be 21 feet 4 inches at 5 feet. Following him in 1913, but without being aware of his measurement, I made the girth to be 21 feet 6 inches. This tree, however, is not likely to increase much in girth, unless it grows burrs, for it is stag-headed and past its prime. In this fine park of Panshanger I found two or three other oaks with a circumference of 21 feet, but none so impressive and majestic as the one aforesaid.

"The oak," writes Mr. Elwes, "rarely attains in Scotland the size and vigour so commonly met with in England."[\[3\]](#) To that I make reply—"Give us time!" Scotland, her resources drained by three hundred years of all but incessant war which she had to wage in order to win and maintain her independence, became and remained a byword for poverty among the nations. Almost every shred of her woodland, once so vast, had been consumed before the end of the seventeenth century, so that Dr. Johnson was but drawing his bow a trifle too far when he vowed that in all his Scottish

travel he had only seen two trees big enough to hang a man on. Practically no oaks were planted in Scotland until many years after the Union of Parliaments in 1707 had inaugurated an era of peace and security for north country lairds. "Give us time!" I repeat, and we shall produce oaks in Scotland that no English magnate would be ashamed to have in his park. Probably the tallest, if not the bulkiest oak that I have seen north of the Tweed, stands close to the mansion house of Blairdrummond in Perthshire. Elwes made it 118 feet high in 1906, with a girth of 17 feet at 5 feet from the ground and a clean bole of 24 feet.

Irish woodland suffered as disastrously as Scottish from reckless felling, but there can be no doubt about the size and quality of the oaks that grew in Ireland in the past. The roof timbers of Westminster Hall were grown in Shillelagh Forest, Co. Wicklow. These trees, no doubt, were of the sessile-flowered race, but the forest has entirely disappeared; and the great oak-wood at Abbeylaxey, in Queen's County, is composed of pedunculate oaks.

Besides our British oak, there are between two and three hundred distinct species of *Quercus* in the Old and New Worlds, many of which are very beautiful trees, but not one whereof the timber approaches that of *Quercus robur* in quality. The foreign oak most commonly seen in these islands is the Turkey Oak (*Q. cerris*, Linn.), a native of southern Europe and Asia Minor, which grows to an immense size; it is invaluable as a shelter for more valuable growths, especially in maritime exposure, but for little else, as its timber, though very heavy, is said to be perishable, and certainly produces an excess of sap wood. "We shall say

little," wrote John Evelyn, "of the *Cerris* or *Ægilops*, goodly to look on, but for little else."[\[4\]](#)

The ilex, or holm oak (*Quercus ilex*) is another tree which nobody need think of planting for profit, seeing that it produces timber of little value except for firing; nevertheless, it is one of the most ornamental trees that can be grown. Planted in the open, and given some attention in its youth to keep it to a single leader, it develops into a stately-domed mass of evergreen foliage, quite distinct in character from any other tree that flourishes in the British Isles. It would be sombre, did the leaves not glitter delightfully in sunlight; and in cloudy weather the wind sweeps up their white undersides and sets them all a-twinkle.

Although a native of the Mediterranean region, it adapts itself thoroughly to our climate, being perfectly hardy in all but the coldest parts of our country, and ripening its acorns plentifully in districts near the coast. Indeed, it is doubtful whether in its native region many loftier specimens can be found than one at Rossanagh, in County Wicklow, which, when I saw it in 1905, was 80 feet high. The tallest recorded by Mr. Elwes stands in the garden of the Hotel Hassler at Naples, measuring, in 1910, 90 feet high and 12½ feet in girth.

We commonly follow Roman usage in calling this tree "ilex," nor is it easy to understand why Linnæus appropriated this name for the holly, because Pliny plainly distinguishes between them, writing of the holly as "aquifolium." In English vernacular this oak was known as the holm oak, which is a corruption of hollen oak—*i.e.* the

holly-like oak, because it is evergreen and the leaves of young plants are spined, though not so strongly as those of the holly.

Pliny has a great deal to say about this tree. He tells us that in the Vatican of Rome there was in his day an ilex older than the city, bearing a brazen plate inscribed with Etruscan characters, showing that it had been sacred of old. He also states that at Tivoli there were three holm oaks flourishing which were growing when Tivoli (Tibur) was founded centuries before Rome. Now, considering that Rome was founded about B.C. 750, and Pliny died about A.D. 115, it appears that the traditional age attributed to certain trees in his day was as liberal as it remains in ours. It would not be rash, however, to venerate the splendid ilexes in the grounds of the Villa Pamfili and the Villa Borghese at Rome as lineal descendants of the trees that Pliny loved.

In suitable districts near the sea the ilex is invaluable as shelter. Once established, it stands the roughest buffeting of storms without disfigurement. I am writing these notes within a hundred yards of an ilex at Ardgowan, on the Clyde. It is about 50 feet high, and stands isolated on a bare lawn, exposed to all the fury of tempests that come roaring up the firth, twisting its boughs in the most violent manner. Yet these are so tough as never to be broken, and the tree remains a model of symmetry and grace.

At Holkham, in Norfolk, there is a large grove of ilex, called the Obelisk Wood, the like of which for extent is not to be seen, I think, elsewhere. At Tregothnan, in Cornwall, also an immense number of ilexes have been planted in a long avenue beside the sea. It is remarkable—unique, probably—

but it is not an arrangement to be recommended for displaying the peculiar beauty of the trees, which consists in their massive foliage. The branches meet overhead, and as you drive along under them the effect is gloomy.

Very near of kin to the ilex is the cork oak (*Q. suber*), which grows all through the Spanish Peninsula and the Mediterranean region, except in those parts where limestone or chalk forms the soil. Of all the oak family, this comparatively humble member is of most importance to civilised life, for no efficient substitute has been devised for cork in some of the uses to which it is put. The annual consumption must be enormous; it is wonderful how the supply is maintained. Having no qualities to recommend it to the landscape gardener, the cork oak is only fit for growth in this country as a curiosity, and there only in the eastern and southern English counties. In the midland and northern districts it may exist, but cannot rightly thrive.

Many hybrids have been reared from the ilex. One of the choicest is Turner's oak (*Q. Turneri*), said to have originated in the Holloway Down Nursery, Essex, in 1795, as a cross between the ilex and the common English oak. It is of moderate stature, not greatly exceeding 50 feet, and is semi-evergreen, retaining its leaves, which are of a bright, rather light green, till February. The Lucombe oak (*Q. Lucombeana*) is also sub-evergreen, a hybrid between the ilex and the Turkey oak (*Q. cerris*), but is a much loftier tree than Turner's oak; the foliage inclines in colour to the ilex, but the leaves approach those of the Turkey oak in form, the under surfaces being clothed with white down. This variety was raised about 1765 by William Lucombe, of Exeter.

Another remarkable hybrid, apparently between *Q. ilex* and *Q. cerris*, is the Fulham oak, of which the finest example I have seen in Scotland grows on the banks of the Ayr, in the grounds of Auchencruive.

Although these hybrid oaks ripen acorns, they cannot be relied on to produce exact counterparts of their parents, the offspring of cross-bred seeds always tending to revert to one or other type in the cross.

Of the forty-seven North American species of oak enumerated by Sargent, none is to be desired by reason of the quality of its timber, which in every instance is inferior to that of our native species; but three, at least, have proved their value in this country as highly decorative trees, owing to the rich tints of the foliage in autumn. These are the red oak (*Q. rubra*), the scarlet oak (*Q. coccinea*) and the pin oak (*Q. palustris*). These are all trees of great stature, the pin oak having already exceeded 100 feet in height in England, presenting a gorgeous display when its leaves turn scarlet in the fall. In Scotland, however, the summer is not always warm enough to produce these fine colours; in wet, cold seasons the foliage remains green till the early frost blights it into brown.

Among oaks of the Old World, the Hungarian oak (*Q. conferta* syn. *pannonica*) and the Algerian oak (*Q. mirbeckii*) are the most ornamental, and have proved amenable to British conditions. As a curiosity, a sheltered corner may be found for the Japanese *Quercus acuta*, a small evergreen tree with large laurel-like leaves, quite hardy, but apt to be broken by snow. In the absence of flowers or acorns, it

would puzzle anyone to identify this tree as a member of the great clan of oaks.

The Beech

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Among all the trees of British woodland none excels the beech in grace, vigour, and hardihood. It is not indigenous to Scotland; indeed, it is only in recent years that it has been recognised as a true native of southern Britain, its remains having been identified in post-tertiary beds at Southampton, Cromer, and some other places in East Anglia. Previous to that discovery, botanists had accepted Julius Caesar's assurance that the tree he called "fagus" did not grow in Britain (*Bellum Gallicum*, v. 12). But popular names for plants are never to be relied on, and although it is certain that Pliny (*Nat. Hist.* xvi. 6) described the beech under the name "fagus," it seems equally clear that Virgil (*Georgics*, ii. 71) applied it to the sweet chestnut. The confusion arose, no doubt, from the application of a Greek word signifying food to two species of tree very different from each other, but each producing edible fruit.

Although the beech (*Fagus sylvatica*, Linn.) cannot be reckoned as an aboriginal native of Scotland, it is long since it received letters of naturalisation in that country, and has taken so kindly to the northern soil and climate that it may no longer be considered an alien. Indeed, it is in Scotland that the mightiest beech in the United Kingdom, perhaps in the world, is to be seen; not the loftiest, but one containing the largest amount of timber. This is the famous tree at

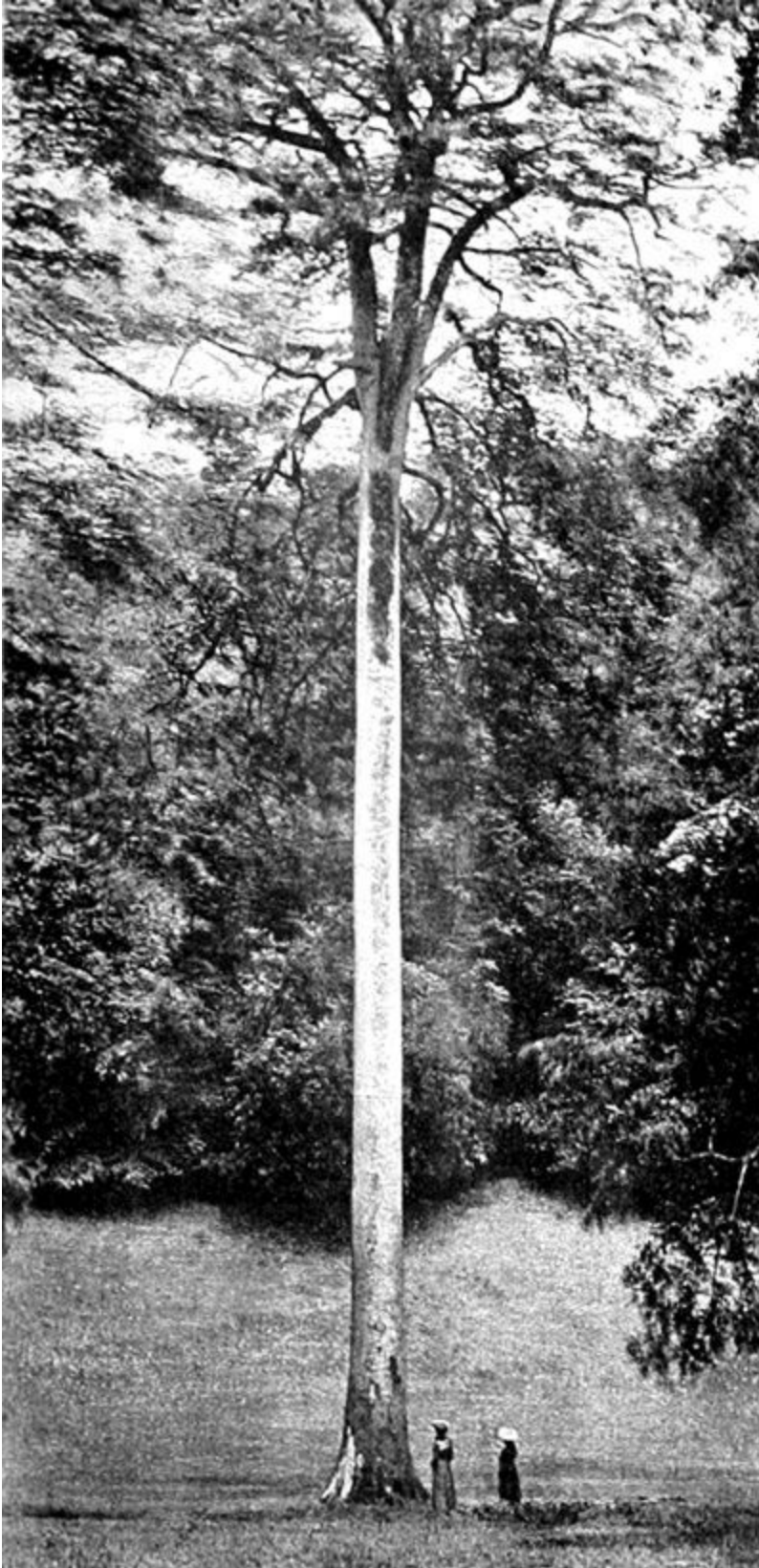
Newbattle Abbey, near Dalkeith. Eighty years ago the indefatigable John Loudon measured it, and found it to be 88 feet high. In 1906 the equally indefatigable Mr. H. J. Elwes took its dimensions, and ascertained them to be as follows:

		Ft.	Ins.
Height		105	0
Girth of bole,	at the ground	43	8
Do.,	at 1 foot up	37	0
Do.,	at 2½ feet up	27	8
Do.,	at 3 feet up	25	9 ½
Do.,	at 4 feet up	23	1 ½
Do.,	at 4½ feet up	21	11 ½
Do.,	at 5 feet up	20	3 ½
Do.,	at 6 feet up	19	7 ½

Truly an amazing edifice of sound timber; how long has it taken in the building? Normally, the beech is not long-lived compared with the oak, the yew, the Corsican pine, and some other trees grown in British woodland. Its "expectation of life" does not exceed 200 years. When it gets near that age it sometimes dies in a night, so to speak, expiring suddenly while apparently in full vigour. At other times it gets stag-headed, a sure sign of flagging vitality, and becomes infested with parasites, especially the felted beech-scale (*Cryptococcus fagi*), which administer the *coup de grâce*.

But the Newbattle beech is probably much more than 200 years old. Mr. Elwes estimates its age at 300 years. It has adopted a plan for prolonging its existence by allowing its great branches to droop to the ground, where seven of them have taken root, whence they have sprung up afresh and form a perfect grove still maintaining connection with the parent tree. Some of these subsidiary trees are already forty feet high and five feet in girth; and if, as is possible, they continue to contribute to the nourishment of their parent, the life of the original stem may be prolonged indefinitely.

There are at least three other beeches in Scotland taller than the Newbattle monster—namely, at Hopetoun House, at Blairdrummond, and at Methven Castle; but all of these must yield the palm to the Queen Beech at Ashridge Park, Hertfordshire. Mr. Elwes measured this tree in 1903, and "made it as nearly as possible to be 135 feet high (certainly over 130), and this is the greatest height I know any deciduous tree, except the elm, to have attained in Great Britain. Its girth was 12 feet 3 inches, and its bole straight and branchless for about 80 feet, so that its contents must be about 400 cubic feet to the first limb."[\[5\]](#) It may be noted in passing that elsewhere in his book Mr. Elwes has recorded certain deciduous trees even taller than the Queen Beech. For instance, on page 365 he mentions larches at Croft Castle, Herefordshire, 150 feet high; on page 873 he records having measured an ash at Cobham Hall, Kent, 143 feet high, and on page 1820 the height of the black Italian poplar at Albury Park, Surrey, is estimated at 150 feet.



ASHRIDGE

QUEEN BEECH AT

REPRODUCED BY PERMISSION FROM *The Gardeners' Chronicle*

Beech timber is not held in high repute in the United Kingdom generally, being hard, brittle and perishable under weather exposure, although it is extremely durable under water. I have examined some of the beechen logs which were laid to strengthen the foundations of Winchester Cathedral in the extremely wet peat and shifty gravel which seam the site. For seven hundred years these logs have lain in the ground, faithfully fulfilling the function assigned to them of supporting the Lady Chapel erected by Bishop Godfrey de Lucy in the last few years of his life (he died in 1204), yet they are still perfectly hard and sound, having acquired with age a peculiar wan pearly hue.

In the north we reckon beechen slabs to be the best material for drain-tile soles in wet land. The timber is put to higher purpose in Buckinghamshire, where the extensive beech forests about High Wycombe and Newport Pagnell afford one of the few examples of systematic wood-craft in England. The trees are regularly grown and felled in rotation to supply the chairmaking industry, clean timber commanding, as it stands, a price of 1s. to 1s. 6d. a cubic foot. It has been asserted that the very name Buckingham is derived from the Anglo-Saxon *boc*, a beech; but it appears in the *Winchester Chronicle* as Buccingham, which indicates its origin in a family named Buccing, descended from an ancestor or chief called Bucca, the Buck. Howbeit, we are incessantly, though unconsciously, using the Anglo-Saxon *boc*, for it was smooth tablets or panels of beech that formed the primitive "book." In like manner crept in the term "leaves" of a book, because the foliage of *papyrus* preceded paper, which is the same word.

The beech is distinguished for three qualities beyond every other native of British woodland. First, by its abundant leaf-fall it promotes the formation of forest *humus*—the rich vegetable soil so essential to vigorous tree growth—more speedily and effectively than any other tree. Secondly, it bears shade better than any other broad-leaved tree; indeed, the only trees of any kind that approach it in this respect are the hornbeam and the silver fir. These two qualities make the beech best of all trees for under-planting; for, while the young beeches nourish the older trees by their leaf-fall and by checking evaporation from the soil, they are themselves preparing as a successional crop for the time when the old trees are ripe for felling. The third distinguishing quality of the beech is its unrivalled merit as firewood. None other throws out so much heat or burns so steadily; though it is a curious fact that the hornbeam, belonging to a different genus from the beech, mimics it in its foliage, is nearly as patient of overhead shade, produces timber closely resembling that of beech in appearance and quality, and, as fuel, yields very nearly as much heat.

Besides the felted beech louse, *Cryptococcus fagi*, referred to above, the beech is liable to be attacked when young by the deadly fungus *Nectria ditissima*. The trees affected should be felled and burnt so soon as the canker characteristic of that plague manifests itself, for they never can recover. The singular disease called "beech-snap," which causes the stem to break off abruptly at 15 or 20 feet from the ground, is attributable to the fungus *Polyporus adustus*, though *Nectria* is generally present also on the trees affected.

The common beech has sported into many varieties. Those most commonly planted are the purple and copper beeches, which are far from being the same, as many people seem to think they are. A well-grown purple beech, such as that near the south-west corner of Osterley House, Isleworth (to name one out of very many fine specimens which exist in the United Kingdom), is a truly magnificent object, the rich, but subdued, depth of colour showing in charming contrast with other foliage, yet so soft as never to jar with it. This variety is said to have originated in a forest in the canton of Zurich, where, according to the legend, five brothers fought, three of whom fell, and from the soil where each lay grew a purple-leaved beech.

As for the copper beech, had I the chance of stopping the supply, I should not hesitate to do so, for the foliage, as I think, has a disagreeable metallic hue that consorts well with nothing else. Before purchasing young purple beeches, it is prudent to visit the nursery when they are in leaf, or you may be served with copper beeches, and not discover the mistake till it is too late. The mast or seed of both purple and copper beeches yield a large proportion of seedlings in the parental livery; but no beech, green or purple, bears mast till it is at least forty years old.

The fern-leaved beech is no improvement on the type, and grows with the ungraceful pose of a grafted plant; but the weeping beech, which also has to be propagated by grafts, sometimes develops into an object of great beauty.

Of three or four exotic species of beech in the Northern Hemisphere there is but one, the American beech (*F. ferruginea*), which would be a gain to ornamental planting in