



Springer



PLANTS PEOPLE
POSSIBILITIES

The Arboretum and Pinetum at Bicton

Author(s): W. J. Bean

Source: *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*, Vol. 1920, No. 8 (1920), pp. 268-275

Published by: Springer on behalf of Royal Botanic Gardens, Kew

Stable URL: <http://www.jstor.org/stable/4120231>

Accessed: 24-06-2016 20:13 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://about.jstor.org/terms>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Springer, Royal Botanic Gardens, Kew are collaborating with JSTOR to digitize, preserve and extend access to *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*

num, *Cerastium*, *Sanicula europaea*, *Sambucus*, *Veronica*, and *Populus euphratica*. To these might be added *Erica arborea*.

Guppy, who was the first to record *Arceuthobium Oxycedri* from the Azores ("Plants, Seeds and Currents in the West Indies and Azores," pp. 426-427) comes to the following conclusion: "It is thus likely that birds actively disseminate the species, carrying the seeds firmly adhering to their plumage. In this respect *Arceuthobium* resembles *Luzula* . . . and it is noteworthy that the two genera have a similar distribution."

The genus *Arceuthobium* has not been definitely recorded in the fossil state, but *Loranthacites succineus*, Conw., *Patzea Johniana*, Conw., and *P. Mengeana*, Conw., described and figured by Goepfert, Menge und Conwentz, *Flora des Bernsteins*, pp. 135-138, tab. xiii. ff. 6-20, could well represent the ancestors or relatives of our genus, though, since the structure of the fruit is unknown, nothing can be said definitely on this subject.

The following species of *Juniperus* have now been recorded as host-plants of *Arceuthobium Oxycedri*: *J. Oxycedrus*, *communis*, *rufescens*, *drupacea*, *Sabina*, *brevifolium* (Azores) and *procera* (Trop. Afr.).

XLIII.—THE ARBORETUM AND PINETUM AT BICTON.

W. J. BEAN.

Sixty to eighty years ago no garden in the south of England was more famous than that at Bicton. It owed its fame then chiefly to the excellent cultivation carried on there of orchids, stove and greenhouse plants, pine-apples and other indoor fruits, as well as to its flower gardening in the open air. At the present time the pilgrim to Bicton is attracted thither chiefly by its collection of conifers.

But the garden proper is full of charm. Largely formal in character, it has that serene dignity which comes with age to all such gardens designed at the outset on broad, adequate lines. There are no irritating trivialities here, unless one takes exception to a row of bay trees severely trimmed to low standards, each a naked stem surmounted by a bun-shaped top of branches. The garden is situated on a slope, and the lower section is an arrangement of water at different levels, canalised and in rectangular pools, with smooth perfect lawns between, the whole diversified by ancient Irish yews and some beautiful old leaden statuary. The garden is enclosed on each side of the slope by high walls clothed with vegetation, outside which lofty trees make a perfect frame for the whole.

The Bicton of early Victorian days was the home of Lord Rolle, an ardent patron of horticulture, to whom tree-lovers of our own time are indebted for the foundation of the magnificent Pinetum about 1841. Unhappily he died, comparatively young, in 1842, probably before the planting was completed, but the work he initiated was vigorously carried on by Lady Rolle, his

widow, who lived until 1885. At her death the property came to the late Hon. Mark Rolle, from whom it passed to Lord Clinton, the present owner.

In old accounts of Bicton, the collection of conifers and hardy trees and shrubs was said to occupy between thirty and forty acres. As some new ground has in late years been planted with conifers by Lord Clinton, the area is no doubt greater to-day. The arrangement is unusual and interesting. The collection of broad-leaved trees and shrubs occupies a comparatively narrow grassy belt surrounding one section of the park. This belt is enclosed on each side by an iron fence and is traversed by a gravel path, between which and the fence the trees and shrubs are planted on either side. The arrangement is one probably unique in a private garden in this country, and is particularly interesting to one with a Kew training, for it is purely botanical and the plants come in sequence in their genera and natural orders. Near the house a commencement is made with what, in 1840, were considered the "early" orders, such as *Magnoliaceae*, *Ternstroemiaceae*, etc.; passing on in succession through the *Leguminosae*, *Rosaceae*, etc., we come to the "later" ones, including such trees as elms, birches, planes, oaks and poplars, until finally, after traversing a roughly circular route for about $1\frac{1}{2}$ miles the Pinetum is reached. The *Coniferae* are not confined to a comparatively narrow belt, like the broad-leaved trees and shrubs, but occupy a widespread undulating and picturesque site, between the hills and hollows of which are pleasant winding walks. Leaving the Pinetum one reaches the formal garden previously alluded to, and the precincts of the house again.

The Arboretum, as distinct from the Pinetum, has not been maintained in late years, and many species originally planted there have no doubt disappeared. Nor is the soil apparently so good as that occupied by the conifers. So that whilst there are numbers of finely developed broad-leaved trees and shrubs well worth more study than I was able to give them in one visit, they have not the attraction that the magnificent firs, pines and spruces possess. In the Pinetum one walks amongst an assembly of trees 60 to over 100 ft. high, probably unrivalled in England in their combination of size and variety.

Pines.—Of the genus *Pinus* there is a particularly fine collection, although a considerable number of the older trees show signs of failing. Many of the names under which they are grown are no longer in vogue.

In the south-western maritime counties, *Pinus radiata* (*P. insignis*) is very often remarkable for its fine development, but there cannot be many so fine as one at Bicton. It is probably the same as one measured by Mr. Elwes in 1902, which was then 75 ft. high and about 15 ft. in girth; I made its finely rugged trunk to be now 18 ft. in girth. Not far from this tree is one of *P. contorta* (here grown under its synonym *P. Bolanderi*), a very healthy, shapely tree with a trunk 7 ft. 6 in. in girth. There are but few examples of the true pitch pine of the S.E. United States (*P. australis*) in this country, and the one in this

collection must be amongst the largest; it is an old, rugged specimen with the characteristic long leaves in conspicuous tufts at the ends of the branches, its trunk 4 ft. 4 in. in circumference. Of the sugar pine (*P. Lambertiana*), whose wonderful cones are sometimes 21 in. long, there is a fine tree 80 to 90 ft. high, its trunk girthing 9 ft. 4 in.; this tree occasionally bears cones. The Jack pine (*P. Banksiana*), although introduced nearly 120 years ago is not common in England in any great size; here is one over 30 ft. high, bearing many of its curious small cones tapered and curved at the end and retaining them on branches several years old. Of a series of forms of the white pine (*P. Strobus*), one of the most noteworthy is a tree of the var. *nivea* of slender, pyramidal form, its grey smooth trunk girthing 5 ft. The western representative of the white pine in North America is *P. monticola*, of which there is here a fine tree 80 to 90 ft. high with a trunk 6 to 7 ft. round. A specimen of *P. ponderosa*, although scarcely so impressive as the famous tree at Bayfordbury, in Hertfordshire, must be one of the finest in this country; I estimated its height to be about 90 ft., and its trunk measures 9 ft. 5 in. in circumference. One of the least imposing of pines is the Jersey, or scrub, pine (*P. virginiana* or *P. inops*), from the Eastern United States, and it is rarely planted now; at Bicton a tree of spreading habit and horizontal branching is 4 ft. 8 in. in girth of trunk.

Of the Mexican pines the most notable in this collection, perhaps, is *P. patula*. It is only in the south-western counties of England and in places with a similar climate that this species can be seen in really good condition, but there its long, slender, pendulous grey needles make it one of the most distinct of all pines; at Bicton there is a very good example over 50 ft. high dividing near the ground into two great limbs, beneath which the trunk measures 11 ft. 9 in. in girth. From Mexico also comes *P. Ayacahuite*, represented at Bicton by probably the finest tree in England; it is apparently over 70 ft. high, canopied with rich green foliage, its trunk girthing 10 ft. 2 in. A tree grown as *P. Don Pedri* is also *P. Ayacahuite*. A third Mexican pine is *P. Teocote*, bearing its long, stiff, spreading leaves in threes, a tree at Bicton is over 60 ft. high, its trunk 7 ft. in girth; this tree is extremely rare in cultivation. A commoner one, also Mexican, is *P. Hartwegii*, sometimes regarded as a short-leaved variety of *P. Montezumae*. Of two trees at Bicton one approaches 80 ft. in height and is about 6 ft. round the trunk. This is probably the hardiest of the Montezumae group of pines, and there is a good tree in Windsor Forest. Under the name of *P. Devoniana* there is a tree of the true *P. Montezumae* 25 ft. or so high.

Among European pines none is more interesting than a specimen of the Macedonian pine, *P. Peuke*, which is undoubtedly one of the best in Britain; it is 50 ft., or perhaps more, high, its trunk 5 ft. 1 in. in girth. Although closely allied of *P. excelsa* this pine is very distinct in its slender pyramidal habit and closer growth. *P. Laricio* is represented by a fine series of forms of that variable species, many of the trees being of very large size. Of

the maritime pine (*P. Pinaster*), I noted two trees of particular interest, one named var. *Hamiltonii* was 8 ft. 9 in., the other, var. *dictrilis*, 9 ft. 11 in. in girth of trunk. A pine called *P. altissima* belongs probably to *P. Pinaster* also.

Silver Firs.—No trees enjoy the soft, moist climate of the south-western counties more than the silver firs, and on the whole they are better developed at Bicton than the pines. For this country many of them are giants, and more than any other conifers they help to produce the deep shady masses of vegetation whose luxuriance is so impressive at Bicton. Of the American species the two finest are *Abies Lowiana* and *A. grandis*; a tree of the former has a trunk 10 ft. in girth, and I judged it to be between 80 and 90 ft. high; whilst of the latter, one is 10 ft. 6 in. in girth and perhaps 10 ft. higher than the *A. Lowiana*. One of the rarest of silver firs to be seen in fine condition in the British Isles is *A. amabilis* (it grows naturally to upwards of 200 ft.); at Bicton it is only 25 ft. high, but very healthy. *A. bracteata*, so remarkable for its long needle-pointed leaves, its large brown buds and formidably armed bracts, is represented by two trees, but neither is very healthy, although the larger one is perhaps 45 ft. high.

Of the Old World firs the finest at Bicton is a superb example of *A. cephalonica*, its trunk 16 ft. in girth; in the bulk of timber it contains this tree is probably unequalled amongst its kind in this country. The allied *A. Pinsapo*, most distinct of European firs and confined in a wild state to a comparatively small mountainous region in the south of Spain, is in good health, one tree being 14 ft. 6 in. in girth of trunk, its head of branches making a fine pyramid 55 ft. high. There are finer trees of *A. Pinsapo* in the country, but few that excel one of *A. Nordmanniana* at Bicton; it is in perfect health and probably 80 ft. high, its trunk 7 ft. 4 in. in circumference.

The interesting *A. numidica*, rare in cultivation and confined in a wild state to a small area on Mount Babor in Algeria, is represented here by a tree whose dimensions exceed those of any other tree I have seen recorded in this country; I estimated it at some 70 ft. in height and its trunk measured nearly 7 ft. round. Equally as rare as the Mt. Babor fir in cultivation is *A. cilicica*; here at Bicton is one over 50 ft. high and 4 ft. in girth. To us in the dry, hot Thames Valley, where the common silver fir (*A. pectinata*), can scarcely be kept alive, much more grown to any size, no tree at Bicton is more impressive. I measured one as carefully as I could, and made it about 125 ft. high.

Of Japanese firs, *A. brachyphylla* is 4 ft. 10 in. in girth or trunk and some 60 ft. high, its health superb; even finer is a magnificent *A. firma*, 65 ft. high and girthing 5 ft. 9 in.

The Himalayan *A. Pindrow* is about 40 ft. high.

Spruces.—Amongst the spruces (*Picea*), none is finer than two specimens of the Himalayan *Picea Morinda*—also known as *P. Smithiana*—so distinct among its kind for the long, weeping branchlets; the larger one in the Pinetum girths 8 ft. 1 in. and

is perhaps 80 ft. high, the other grows in the garden proper and is not so large, but is clothed with leafy branches to the base and forms a perfect pyramid. Perfect, too, in shape and in health is a splendid tree of *P. orientalis*, 6 ft. 1 in. in girth and probably 80 ft. high; this beautiful spruce is very hardy and one of the most thriving in the London district, and the shortness of its leaves (they are only $\frac{1}{4}$ to $\frac{1}{3}$ in. long), gives its branchlets a very characteristic and graceful appearance. Although introduced nearly sixty years ago, there do not seem to be any large trees of *P. polita* in this country, notwithstanding the fact that it is hardy, succeeds well in a small state and, in Japan, gets to be 70 to 80 ft. high; at Bicton there is a healthy tree 35 ft. high and 3 ft. in girth of stem.

Of the flat-leaved spruces the largest, of course, is *P. sitchensis*, one tree being 13 ft. 6 in. in girth of trunk and, therefore, one of the bulkiest in this country, but like so many other Sitka spruces in cultivation, the large quantities of grey, lifeless twigs towards the base of the tree spoil its appearance as a garden feature. The Japanese flat-leaved spruce known as *P. ajanensis* and *P. hon-doensis* (both now regarded by Mr. E. H. Wilson as synonymous with *P. jezoensis*), is represented by a healthy tree 50 ft. or so high. There are smaller trees of the Serbian *P. Omorica* and the Californian *P. Breweriana*.

Araucaria imbricata.—An avenue at Bicton, some 500 yards in length, is the most famous and impressive representation of this Chilean tree in the British Isles. It is formed by fifty trees, twenty-five on each side, and they stand 54 ft. apart in the rows. According to Veitch's "Manual of Coniferae" (Ed. i. p. 195), the avenue was planted in 1843-4 under the direction of Mr. James Veitch. The trees now average about 60 to 70 ft. in height and 7 to 8 ft. in the circumference of their boles. Most of them have lost their lower branches, but this does not detract from the general effect, and reveals the curious wrinkled, swollen base of the trunks.

Amongst junipers the most notable one I saw at Bicton was *Juniperus recurva*, a Himalayan species; this was about 40 ft. high, branching into several stems near the ground; being in fine health it shows the striking pendulous character of the branchlets very well; a smaller one is about 35 ft. high, and both bear fruit freely. Of about the same size is a tree of *J. flaccida*, but not so healthy. There are good plants of the dwarf *J. squamata* and *J. procumbens*; and a plant of the very rare *J. Wallichiana*, only 4 ft. high, but bearing fruit.

There is a very good collection of cypresses, and it has recently been increased considerably by Lord Clinton, who has added many varieties of *Cupressus Lawsoniana*, amongst which is the finest specimen I have seen of the curious variety *Wisselii*—a slender tapering tree about 30 ft. high. Of the more tender cypresses there are *C. torulosa*, a tall columnar tree with a trunk 4 ft. 7 in. in girth; several forms of *C. lusitanica*, one over 50 ft. high; *C. funebris*, perhaps 35 ft. high; and a small *C. cashmeriana*. On the garden lawn, there are fine specimens of *C. thyoides* and *C. sempervirens*.

On the lower part of the garden are two of the finest trees of *Libocedrus decurrens* in the country, making a pair of stately columns; one of them is over 8 ft. in girth of trunk and about 65 ft. high; Elwes mentions another one near the house which is even finer. In the Pinetum is a magnificent *Thuja plicata* (*T. gigantea*), its trunk clothed with rich brown bark and 13 ft. in girth; I estimated its height as between 90 and 100 ft. Even taller are some splendid Douglas firs in groups, one that I measured girthing 11 ft. A redwood (*Sequoia sempervirens*), has a similar girth. It is very unusual to find any but quite young trees of *Cunninghamia sinensis* looking really healthy, and a tree at Bicton, although 60 ft. high and 5 ft. round its bole (and, therefore, one of the biggest in England), is no exception.

To the lover of rare and interesting plants there is no tree at Bicton which will make a greater appeal than *Phyllocladus asplenifolia*. This curious conifer belongs to a genus allied to the yews, but distinguished by curious leaf-like organs of rhomboidal shape termed "phyllodes." Sir Joseph Hooker remarks of the species of *Phyllocladus* that they are remarkable for having "leaves of two forms, some minute and scale-like, others linear, seen only in young plants, but which in older are united into flat fan-shaped organs resembling simple leaves, which bear the inflorescence at their edges." (New Zealand Flora, p. 259.) The tree at Bicton is 32 ft. high, of slender pyramidal form, and in luxuriant foliage and perfect health. I do not know of any other tree in our islands equal to this; it would, itself alone, give distinction to any garden.

Of *Fitzroya patagonica*, from Chile, a not uncommon tree in the south-western counties, a very healthy and symmetrical specimen is 20 ft. high and 10 ft. wide at the base. Another Chilean conifer, *Prumnopitys elegans*, is represented by a tree which must be one of the finest in this country; I estimated it at 36 ft. in height, and the spread of its lower branches is 20 ft.; it was bearing its small male flowers in great numbers.

The Himalayan hemlock (*Tsuga Brunoniana*), is rarely seen in good condition in any but the warmer counties or specially favoured spots; a perfectly healthy tree here is 15 ft. high; and another is in the form of a rounded bush 25 ft. through.

A conifer of which Bicton has reason to be proud is the larger of two Deodars growing on the garden lawn; it is about 80 ft. high and its trunk 13½ ft. in circumference. In regard to the cubic contents of its timber, this is probably the finest tree in the British Isles. In habit it strongly resembles the Cedar of Lebanon, of which also there is a notable tree with a huge trunk 22 ft. 6 in. in girth.

The Arboretum.—The Pinetum at Bicton is so extensive and full of interest, and took up so much of my time, that an inspection of the non-coniferous trees and shrubs was necessarily rather hurried. A full day might profitably be spent with them.

A good deal of interest has in recent years been taken in the South American 'beeches' (*Nothofagus*). The oldest of them in this country is the evergreen *Nothofagus betuloides*, and there are

several fine examples in the south-west, but I have seen none to equal the one here. Its head of branches is over 50 ft. high and about 40 ft. in diameter, and its trunk, which branches low down, measures 9 ft. in girth 18 in. from the ground.

Near the greenhouses is a Black Italian poplar (*Populus serotina*), whose immense trunk is 18 ft. 2 in. in circumference; it is one of the largest in the kingdom. There are also some fine grey poplars (*P. canescens*), in the Arboretum.

At the lower part of the garden there is a remarkable lime tree with very slender, pendulous branches, some of which are 20 ft. in length, yet no thicker at any part than a man's finger. This character is most developed on the lower part of the tree, which is a lofty one with a trunk 14 ft. in girth.

In the collection of oaks founded 70 to 80 years ago there are now many notable specimens. Among evergreen species the rare *Quercus acuta* from Japan is a bush 12 ft. high and 18 ft. in diameter; it was introduced by Maries in 1878. Its ally, *Q. glabra*, also rare and Japanese, is 20 ft. high, 20 ft. through, with the main stem 2 ft. 2 in. in girth; both this and the *Q. acuta* are probably as large as any in the country. Of several forms of Holm oak (*Q. ilex*), the most striking is the big-leaved variety *latifolia*, with leaves $5\frac{1}{2}$ in. long and $2\frac{1}{2}$ in. wide; the tree itself has a trunk 10 ft. 10 in. in girth. Another variety here called "*Q. crassifolia*," but probably *Q. ilex* var. *Genabii*, has rounded leaves not so long as those of var. *latifolia*, but 3 in. wide. A fine Lucombe oak is 15 ft. in girth of trunk. Of the common oak there are many fine trees at Bicton; the noblest of them, which unfortunately collapsed some months ago, had a trunk 25 ft. 2 in. in girth at 3 ft. from the ground. There is also a fine specimen of the pendulous *Q. pedunculata*.

A snowdrop tree (*Halesia carolina*), of notable size has a trunk girthing 5 ft. Some interest has recently been taken in the living specimens of the tea plant (*Camellia Thea*), in this country (see "Gardeners' Chronicle," Aug. 18, 1917); there are at least three at Bicton which have long been grown in the open air, the largest a bush 8 ft. high and 12 ft. through. A camphor tree (*Cinnamomum Camphora*), is 35 ft. high.

Colletia cruciata is a remarkable shrub from Uruguay which assumes two distinct forms; one is armed—in fact, almost consists of—flat triangular spines $1\frac{1}{2}$ in. wide at the base; the other form has rather bodkin-shaped, comparatively slender spines $\frac{1}{2}$ to $1\frac{1}{2}$ in. long. The large-spined form was first raised at Bicton, and by Lindley was named *C. bictoniensis*. A bush there is now 25 ft. in diameter.

It would be possible to go on naming many other interesting trees and shrubs, such, for instance, as: *Acacia dealbata*, 30 ft. high and in perfect health; *Vaccinium ovatum*, 10 ft. high and 18 ft. in diameter, much the largest I have seen; the Himalayan *Euonymus pendulus*, 8 ft. high and in flower; *Illicium anisatum*, with fragrant leaves and wood and pale yellow flowers; the small leaved form of *Kalmia latifolia*, known as var. *myrtifolia*, 8 ft. high; *Pittosporum tenuifolium*, 30 ft. high; *Magnolia tripetala*,

an old but no longer common species, 28 ft. high and 5 ft. in girth of trunk; and a fine healthy tree of the newer Japanese *M. hypoleuca* over 30 ft. high.

There is a good collection of hardy bamboos on the lower, damper part of the garden, and it was interesting to see *Phyllostachys aurea* flowering, although not gratifying, since it portends the flowering and consequent death of the species throughout the country.

XLIV.—BOCCONIA AND MACLEAYA.

J. HUTCHINSON.

The genus *Bocconia* (*Papaveraceae*) was founded by Linnaeus* in 1737, the type species being *B. frutescens*† from the West Indies and Central America. Since then several species have been described, of which seven stand as being authentic in the Index Kewensis. These are natives of Central and South America, with the exception of two species, *B. cordata*, Willd., and *B. microcarpa*, Maxim., from North-Eastern Asia. Whilst the close affinity of the floras of North America and North-Eastern Asia has been well established, there is little, if any, connection between those of North-East Asia and South America, and the association of Papaveraceous plants of peculiar type from these two regions in the same genus, were it tenable, would be of considerable phytogeographical interest. That two very distinct genera are involved, however, is shown below.

In the Appendix (p. 218) to the Narrative of Denham and Clapperton (1826), Robert Brown makes the following observation: "Respecting *Bocconia cordata*, though it is so closely allied to *Bocconia* as to afford an excellent argument in favour of the hypothesis in question, it is still sufficiently different, especially in its polyspermous ovary, to constitute a distinct genus, to which I have given the name (*Macleaya cordata*) of my much valued friend, Alexander Macleay, Esq., Secretary of the Colony of New South Wales, whose merits as a general naturalist, a profound entomologist, and a practical botanist are well known." In spite of this trenchant remark, however, Bentham and Hooker considered *Macleaya* to be congeneric with *Bocconia*, although Endlicher‡ had in 1839 supported the views of Robert Brown, as did also subsequently Prantl§ and, lastly, Fedde.||

I give below the differences observable between these two genera, and a revision of the species of *Bocconia* so far as we know them at present.

* Linnaeus, Gen. ed. i. 32 (1837).

† Linnaeus, Sp. Pl. 505 (1753).

‡ Endlicher, Genera Plantarum, ii. 855 (1839).

§ Prantl in Engl. et Prantl. Natürlich. Pflanzenf. iii. 2, 140 (1889).

|| Fedde, Monogr. Papaveraceae, 216 (1909).