

Welcome to the Index of Coniferaes

Foreword

The University is fortunate in possessing a valuable collection of trees on its main estate. The trees are planted in the grounds of Streatham Hall which was presented in 1922 to the then University college of the South West by the late Alderman W. H. Reed of Exeter.

The Arboretum was begun by the original owner of Streatham Hall, R. Thornton West, who employed the firm of Veitches of Exeter and London to plant a very remarkable collection of trees. The collection is being added to as suitable material becomes available and the development of the Estate is being so planned as not to destroy the existing trees.

The present document deals with the Conifer species in the collection and gives brief notes which may be of interest to visitors. It makes no pretence of being more than a catalogue.

The University welcomes interested visitors and a plan of the relevant portion of the Estate is given to indicate the location of the specimens.

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The letters P, S, etc., refer to the section of the Estate in which the trees are growing. (Bot. indicates that the specimens are in the garden of the Department of Botany.) Here's a [plan](#) of the estate.

The Coniferae are divided into five families - each of which is represented by one or more genera in the collection.

Pinaceae includes the genera:

- [Pinus](#)
- [Cedrus](#)
- [Larix](#)
- [Pseudolarix](#)
- [Abies](#)
- [Picea](#)
- [Tsuga](#)
- [Pseudotsuga](#)

Taxodiaceae includes the genera:

- [Taxodium](#)
- [Metasequoia](#)
- [Sequoia](#)
- [Cryptomeria](#)
- [Sciadopitys](#)
- [Athrotaxis](#)
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Cupressaceae includes the genera:

- [Cupressus](#)
- [Chaemocypris](#)
- [Thuja](#)
- [Libocedrus](#)
- [Juniperus](#)

Araucariaceae includes the genera:

- [Araucaria](#)

Taxaceae includes the genera:

- [Taxus](#)
- [Torreya](#)
- [Podocarpus](#)
- [Prumnopitys](#)

- [Cephalotaxus](#)

The family PINACEAE

This most important family, which is by far the largest in number of species, consists mainly of trees, all native in the Northern Hemisphere. The branched are characteristically whorled. The leaves are linear, spirally arranged and usually evergreen (but *Larix* and *Pseudolarix* deciduous). The strobili (cones) are unisexual: the plants monoecious. The scales of the staminate strobilus have two or more pollen sacs on the lower surface and the pollen grains are usually winged. The ovulate strobilus consists of two distinct kinds of scales spirally arranged, the ovuliferous scales, each bearing two ovules on its upper surface, and the smaller bract scales. The ripe cones are woody and the seeds are winged.

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- [Pinus](#)
- [Cedrus](#)
- [Larix](#)
- [Pseudolarix](#)
- [Abies](#)
- [Picea](#)
- [Tsuga](#)
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The genus *Pinus* - the Pines

A genus of c. 80 species. Trees all evergreen, usually with spreading crowns, though often pyramidal. The branches are of two kinds, long shoots of unlimited growth and short (or spur) shoots of limited growth. These bear the 2, 3 or 5 needle-shaped foliage leaves which have a basal investment of scale leaves. The whole short shoot falls after a few years, leaving the long shoot naked. Staminate cones may replace the spur shoots and ovulate cones the long shoots on the same tree (monoecious). The ovulate cones are woody with persistent scales and in some species remain on the tree for many years

(P)

Pinus ayacahuite, Ehrenberg
Mexican White Pine

A five-leaved pine, growing to 100 feet, this species is similar to *P. wallichiana* in foliage with slender drooping leaves. The basal scales of the very long cone are reflexed. Discovered in Mexico in 1836, its range extends from Guatemala to Mexico. In this country it makes a decorative tree in mild sheltered areas, but is liable to damage by very cold winds.

(P)

Pinus cembra, L.

Arolla Pine, Swiss Stone Pine

This five-leaved pine is indigenous to the Alps of Central Europe and Siberia, growing to 80 feet. Introduced by the Duke of Argyll in 1746. It forms a handsome tree but is of no timber value. The wingless seeds, known as pine kernels, are eaten in Switzerland and more extensively in Russia and Siberia. The testas yield an oil known as "Cedar Oil". The leaves, dark green and with smooth acute tips, are crowded on short horizontal branches.

Pinus cembroides, Zuccarini

Nut Pine, Three-leaved Nut Pine

A three-leaved pine growing to c. 20 feet, a native of Mexico, Arizona and California. Discovered in New Mexico in 1839. The nuts, together with those of the two-leaved *P. cembroides* var. *edulis* (Engelm) Voss, are eaten by the Indians of Mexico.

(P)

Pinus contorta, Loudon

Beach Pine, Shore Pine, Lodgepole Pine

A very hardy two-leaved pine attaining only c. 30 feet in cultivation. Native of the Pacific coast of North America from Alaska to California, and once used by Red Indians for their wigwams. Discovered by Douglas in 1825 and introduced about 1855. So far of little commercial significance in this country, but recently being planted on windswept moorlands by the Forestry Commission. The characteristic features are the short curiously twisted branches, the short twisted yellow-green leaves and the long buds with their yellow-brown scales encrusted with resin.

(P)

Pinus densitiora, Siebold & Zuccarini

Japanese Red Pine

A two-leaved pine growing to 120 feet, it is a valuable timber tree in Japan. It has a reddish bark not unlike that of *P. sylvestris*, from which it differs in its dull green leaves and glaucous young shoots. Deserves to be planted more often in large gardens. One of the pines commonly used for "dwarfing" (bonsai) in Japan.

(S)

Pinus flexilis, James

Limber Pine

A five-leaved pine from the eastern slopes of the Rocky Mountains, from Alberta to Texas. It grows to 70 feet in height. The grey-green leaves are densely crowded on the ends of short flexible branchlets. It was introduced

into this country by Jeffrey in 1851, but it has not been commonly planted because it is slow growing.

(P)

Pinus halepensis, Miller
Aleppo Pine, Jerusalem Pine

A two-leaved pine with grey-green leaves growing to about 60 feet. A species common in the countries bordering the Mediterranean, it was introduced into this country in 1683. It is markedly drought-resisting and valuable for hot dry regions where it is used as a wind-break and to check soil erosion. It is useful for planting in maritime localities. The resin is said to have been used in Egypt for the embalming of the dead.

(P)

Pinus jeffreyi, A. Murray
Jeffrey's Pine

A three-leaved pine native on the Western seaboard of the U.S.A. and grown occasionally for its ornamental long blue-green leaves. It has been recognised by some authorities as *P. ponderosa* var. *jeffreyi* (Vasey).

(P)

Pinus koraiensis, Siebold & Zuccarini
Korean Pine

A five-leaved pine of pyramidal habit, native to Japan and Korea, and growing to 90 feet in height. Introduced by J. G. Veitch in 1861. It is rather slow-growing. The tree resembles *P. cembra* but its leaves have blunter tips with minutely toothed margins.

(R)

Pinus montezumae, Lambert
Mexican Pine

A five-leaved pine, native in the mountains of Mexico where it grows up to 70 feet high. The leaves are blue-green and are very long (up to 12 inches); the leaf-sheaths are persistent and the buds large. The bark is thick and rough. It was introduced in 1839, but grows well only in good soil in the extreme South West of the country. The specimen above Reed Hall is supposed to be one of the finest in the country.

Pinus mugo, Turra (*P. montana*, Miller)
Mountain Pine

A two-leaved pine growing occasionally to 70 feet high. Native in the mountains of Central and Eastern Europe, this pine has a large number of varieties or geographical forms. It is used for cover and decorative planting and withstands wind and cold well. The typical tree is bushy in habit with ascending branches bearing crowded stout dark leaves.

(T)

Pinus muricata, D. Don
Bishop Pine

This hardy two-leaved pine, of the Californian coast round San Francisco Bay, grows to a height of 50 feet. The tree forms a compact flat-topped head with dense foliage. The leaves are rigid and yellowish-green. The buds are resinous and the prickly oblique cones are persistent, usually remaining in clusters on the branches for many years. In this it resembles *P. radiata* which has three leaves on the spur shoot and is rather less lanky. Like *P. radiata*, it can withstand the effects of sea-spray and makes an effective wind-break, though its timber value is small.

(A)

Pinus nigra, Arnold var. *austriaca*
Austrian Pine

The two-leaved Black Pine is a variable species of Southern Europe. This variety, which is a native of the Balkans and Austria, has a more branching habit, shorter stouter branches and straighter leaves than var. *calabrica*, the Corsican Pine. It is not planted for its timber, which is very knotty, but is sometimes used for shelter belts on poor or calcareous soils and near the sea.

(P)

Pinus parviflora, Siebold & Zuccarini
Japanese White Pine

This five-leaved pine, indigenous to Japan and the Kurile Islands, was introduced into England by J. G. Veitch in 1861. Though growing to a large size in Japan, it seldom reaches more than 30 feet in this country. The leaves with silvery lines of stomata on the inner surfaces persist for three years. The ovulate cones are characteristic and occur in whorls of three or four. The branches tend to grow horizontally. It is much used by the Japanese for "dwarfing".

(P)

Pinus pinaster, Aiton (*P. maritima* Du Roi)
Cluster Pine, Maritime Pine

This two-leaved pine, in its native habitat on the Mediterranean coast, attains 100 feet. Large forests in the Landes in the Bordeaux region have been planted to prevent soil erosion and to utilise derelict land. It yields turpentine, resin and timber. As the name implies it grows well in maritime conditions. It is used in the Scilly Isles, Dorset and parts of Norfolk as a shelter belt tree, but it does not succeed in heavy soils or in the colder parts of Britain. It has long tough leaves, large cones in clusters and a crooked habit.

(P)

Pinus pinea, L.
Umbrella Pine, Stone Pine

A two-leaved pine native in Southern Europe from Portugal to Asia Minor, it grows to a tree of 80 feet, but is normally much shorter. The crown is characteristically umbrella-shaped. The cones are large, rounded and symmetrical and the bud scales reflexed. It is not a particularly hardy tree and does not withstand severe frost. The large seeds yield the pine kernels, pignons or pidocchi of commerce, which have been much esteemed since Roman times.

(S)

Pinus ponderosa, Douglas
Western Yellow Pine

A three-leaved pine native to Western North America and growing there to 200 feet. It is a very valuable timber tree in America where it is extensively planted. Introduced into this country by Douglas in 1827, it does not appear to be of much use for timber here. The dark green leaves bear stomatal lines and the cone scales a recurved prickle.

(A)

Pinus radiata, D. Don (*P. insignis* Douglas)
Monterey Pine

A three-leaved pine native to Monterey, California, on the hilly South West coast. It grows extremely rapidly, has dense foliage, a spreading habit and ability to withstand exposure to strong sea winds. It is very much used for shelter belts and ornamental planting, especially in the warmer maritime counties of Britain. It is easily damaged by severe and prolonged frost. It is distinguished from all the other three-leaved pines by its slender bright-green leaves and large oblique persistent cones which resemble those of *P. muricata*.

(P)

Pinus rigida, Miller
Northern Pitch Pine

A three-leaved pine native in Eastern North America from New Brunswick to Georgia. The cones are characteristically clustered into quite large groups and are about one and a half inches long. The tree is easily recognisable by this feature and by the curious habit of developing short, usually short-lived, twigs or branch-lets on the trunk. It is one of the few pines which develop these shoots.

Pinus roxburghii, Sargent (*P. longifolia* Roxburgh)
Long-leaved Indian Pine

A two-leaved pine native of the outer ranges and lower valleys of the Himalaya. It is an important resin-bearing tree in the East and is much planted for timber in warm countries. Being a sub-tropical species it is quite unsuitable for planting in Britain except in the very mildest places and then only as an

ornamental tree. A specimen grown for some years in a sheltered place in these gardens was eventually killed during a very cold winter.

(P)

Pinus strobus, L.

Weymouth Pine, Eastern White Pine

This five-leaved pine, of the Eastern United States and Canada, is a most valuable timber tree in America. It was introduced in 1705 by Lord Weymouth to Longleat - hence its trivial name. It would probably have been a valuable timber and ornamental tree in this country if it were not so susceptible to attack by the Weymouth Pine Aphis (*Adelges strobi*) and the Pine Rust (*Cronartium ribicola*). The branches are horizontal and the leaves are bluish-green on their inner surface.

Pinus sylvestris, L.

Scots Pine

This two-leaved pine, our only British native species, is native in all Europe and North and West Asia and can attain a height of 100 feet. It has the widest distribution of any pine. The timber is valuable for many uses and is known commercially as "yellow deal". Distinguished from *P. densiflora* by its green young shoots and its glaucous twisted leaves. The characteristic red bark of its upper trunk and branches and its blue-green foliage make it an attractive ornamental tree.

(P)

Pinus taeda, L.

Loblolly Pine, Frankincense Pine

A three-leaved pine native in South and East United States from New Jersey to Texas, forming a valuable timber tree. It was introduced into this country in 1741, but is not tolerant of our climate. Its tendency to colonise derelict farmland in South Eastern North America has earned it the nickname of "the Old Field Pine".

(S)

Pinus wallichiana, A. B. Jackson (*P. excelsa* Wallich. ; *P. griffithii*

McClelland) Himalayan Blue Pine, Bhutan Pine

A very graceful quick-growing five-leaved pine growing to 180 feet in the Himalaya where it is indigenous. Introduced by Lambert in 1823. The leaves are very long and blue-green, and the cones slender, up to 10 inches in length, stalked and curved. It has large horizontal branches developing from the lower part of the trunk and graceful pendant foliage. It makes fine specimen trees. An oil is extracted from the roots which is used as an insect repellent by the coolies in the rice fields: A manna-like exudation of the leaves is eaten by the native peasantry.

The genus *Cedrus* - the Cedars

A genus of four closely related species. Branches of two kinds : long terminal shoots bearing scattered leaves and shorter spur shoots which bear tufts of leaves in short whorls. The spur shoots are persistent. The cones require two years to ripen and the cone scales break off leaving a persistent axis as in the genus *Abies*.

(T)

Cedrus atlantica, Manetti
Atlas Cedar

Native of the Atlas Mountain region where it grows to a height of 120 feet. Somewhat similar in habit to the Cedar of Lebanon. Distinguished from this and the Deodar by the more erect shoots. It was introduced into this country about 1845 and has been much used as an ornamental tree, though it has not proved very useful for forestry purposes. There are several varieties of which var. *glauca* is much esteemed for gardens.

(R)

Cedrus deodara, Loudon
The Deodar, Indian Cedar

Native to the Western Himalayas where it attains a height of 280 feet. The upper portion of the main stem tends to bend over when young. The ends of the branches are pendulous giving the tree a very graceful appearance. It is less hardy than the Atlas Cedar and while many fine specimens are found in the more sheltered regions in this country it is not so successful in more exposed places. It was introduced into this country in 1831 and some of the original trees planted in Fife still stand.

(Bot.) *Cedrus libani*, Barrelier
Cedar of Lebanon.

Native to Mount Lebanon and Asia Minor where it attains a height of 100 feet. Very similar to *Cedrus atlantica* from which it is distinguished by only minor differences. Introduced into this country about 1670, it became popular for its sacred associations and because of its beauty as a specimen tree. The branches in older specimens tend to grow horizontally, giving it a characteristic appearance. It is fairly hardy.

The genus *Larix* - the Larches

A genus of c. 10 species. Leaves deciduous, solitary or spirally arranged on long shoots or in dense whorls on lateral spur shoots. Cones erect, short-stalked ; cone scales thin and persistent.

(R)

Larix decidua, Miller
European Larch

Widely distributed in the mountain regions of Central Europe to North Russia and Siberia, the European Larch is a most valuable timber tree growing to a height of 150 feet. Introduced into this country in the late sixteenth or early seventeenth century, it was the most important of our timber trees. As an ornamental or specimen tree the larch is attractive on account of its soft green foliage, its purple cones in spring and its rich yellow leaves in autumn.

(S)

Larix leptolepis, Murray (L. kaempferi Sargent)
Japanese Larch

A smaller tree than decidua, and native to Japan. Introduced by J. G. Veitch in 1861, it is a useful ornamental and timber tree. It seems to be immune from the Larch Canker disease (*Trichoscyphella willkommii*) which has attacked the European Larch in cultivation. The Japanese Larch is now being planted in forests in much greater numbers than the European species. It is distinguished from the latter by its somewhat glaucous foliage, redder twigs and cone scales reflexed at the apex.

Pseudolarix amabilis, Relider
Golden Larch

Native to Eastern China this deciduous tree attains a height of 120 feet. It makes a handsome ornamental tree in this country into which it was introduced in 1853. It differs from members of the *Larix* group in bearing its staminate cones in groups, in the disintegration of its ovulate cones when ripe and in its wider leaves.

The genus *Pseudolarix*

A genus of c. 10 species. Leaves deciduous, solitary or spirally arranged on long shoots or in dense whorls on lateral spur shoots. Cones erect, short-stalked ; cone scales thin and persistent.

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The genus *Abies* - the Silver Firs

A genus of c. 40 species of evergreen trees of pyramidal habit. Only one type of branch - no spur shoots. Leaves linear, spirally arranged, slightly swollen and flattened at the base. Flat disc-like scars are left on the shoots when the leaves fall (cf. *Picea*). Trees Tnonoeciiois. Ovulate cones erect on branches, rather large ; the scales fall when the seeds are ripe, leaving the central axis of the cone on the tree (cf. *Picea*).

Abies alba, Miller (*A. pectinata* DC.)
European Silver Fir

An important timber tree of Europe. It was introduced about 1600 into this country and extensively planted, but owing to its susceptibility to attack by aphids and fungi it is not now much used. A specimen in Argyllshire, which is about 170 feet high and 21 feet in girth, is one of the tallest trees in Britain. Not now represented on the estate.

(A)

Abies amabilis, (Douglas) Forbes
Red Silver Fir

A native of North-Western America from British Columbia to Oregon, growing to 250 feet in height. It was introduced in 1830, but is not commonly grown in this country. It is not adapted to dry conditions and succeeds best in moist Highland valleys. It is characterised by its small resinous buds and the peculiar odour of the cut or bruised shoots which resembles that of a tangerine orange. Commonly suffers damage by aphid attack.

(S)

Abies cephalonica, Loudon
Grecian Fir

Native to the higher mountains of Greece where it attains a height of 100 feet. Introduced in 1824, it has no commercial value in this country. As an ornamental tree it is most successful in the moist soils of the cooler parts of this country.

(R)

Abies concolor, (Gordon) Engelmann
Colorado White Fir

Native in the mountains from Colorado to New Mexico. It can attain a height of 120 feet. First introduced into this country about 1873, it makes a good specimen tree in the West of England. The wood is odourless and is used for making lard and butter boxes. The buds are resinous, the leaves about 2 inches long, flattened and silvery-green. Cones about 4 inches long, oblong. Bark smooth with numerous resin blisters, grey on young stems.

(P)

Abies firma, Sieb. and Zucc.
Japanese Fir, Momi Fir

A native of Japan growing there to 150 feet, being the largest and most beautiful of the Japanese Firs. First introduced by J. G. Veitch in 1861. The tree is pyramidal in habit with horizontal pale brown branches and branchlets.

(A)

Abies forrestii, Craib (*A. delavayi* Franchet var. *forrestii* A. B. Jackson)
Forrest's Fir

A native of Yunnan, West China, growing to c. 60 feet. Introduced by Forrest in 1910. This is a distinct and beautiful fir, easily recognisable by its bright rusty red, corrugated young shoots which contrast strongly with the dark shining green foliage leaves, white on the under side. Leaves arranged more or less in lateral rows with a narrow V-shaped parting between them. It appears to grow well in the South-West of England.

(S)

Abies grandis, Lindley
Giant Fir

A native of the mountains of Western North America where it grows to a height of 300 feet. Introduced into this country in 1832 by Douglas. This tree grows rapidly in the British Isles and is used as an ornamental specimen and in commercial plantations. The buds are ovoid and resinous, the leaves distinctly in two rows, those on the upper side of the shoot being much shorter than those on the lower side.

(A)

Abies magnifica, A. Murray
Red Fir

A native of the mountains of Oregon and California where it grows to a height of 200 feet. Introduced by Jeffrey in 1851. It is distinguished by its narrow conical habit, glaucous foliage and the peculiar curve of the leaves on the upper side of the shoot. It grows best in the cooler and moister part of the country, especially in the Highland valleys of Scotland. It does not thrive particularly well in the South of England.

(T)

Abies nobilis, Lindley
Noble Fir

A native of Oregon, Washington and California where it grows to a height of 200 feet in extensive forests on the mountain sides. Introduced by Douglas in 1830, it grows well in the cooler, moister parts of the country, especially in Scotland. It is liable to attack by the aphid *Adelges* in the milder Southern counties of England. The cones (6 to 10 inches) are the largest of the genus.

(S)

Abies nordmanniana, Spach
Caucasian Fir

A native of the Caucasus, Greece and Asia Minor where it attains a height of 200 feet. Introduced about 1848. It grows well in this country, but like *A. nobilis* is liable to aphid attack.

(P)

Abies numidica, de Lannoy
Algerian Fir

A native of the mountains of Algeria where it is known to grow to a height of 70 feet. Introduced in 1862, it is still relatively uncommon in this country. A characteristic feature of this fir is its short stout leaves usually more or less vertically arranged on the upper surface of the shoot

(R)

Abies pinsapo, Boissier
Spanish Fir

Native and confined to the mountainous regions of Granada, growing on limestone. Introduced into this country in 1839. It is a stocky tree, especially when young as its branchlets are arranged most symmetrically. The leaves are short, blunt and rigid, projecting all round the twigs, and the tree might be mistaken for a spruce. The leaves are said to be used as a soap substitute among the Spanish peasantry.

(R)

Abies venusta, (Douglas) K. Koch
Bristle-cone Fir. Santa Lucia Fir

Native and confined to the Santa Lucia Mountains of California, this tree is now believed to be almost extinct in the wild state. It was introduced in 1853. This beautiful, pyramidal, long-leafed fir with closely set branches which often sweep the ground is one of the most ornamental of the genus. It is not very resistant to frost and does best in the milder parts of the country. The specimen on the terrace behind Reed Hall is one of the finest in the country.

The genus *Picea* - the Spruces

A genus of c. 40 species. Trees all evergreen, characteristically pyramidal in shape. Leaves linear, flat or angular, and spirally arranged. Persistent peg-like scars are left when the leaves fall (cf. *Abies*). Trees monoecious. Ovulate cones pendulous with persistent scales (cf. *Abies*). The seeds are winged.

(P)

Picea Abies, Karsten (*P. excelsa* Link.)
Common Spruce, Norway Spruce

Native of parts of Central and Northern Europe, growing to 120 feet. Not native in this country, but was introduced before 1548. Provides much of the "white deal" of commerce. Occasionally used as an ornamental tree especially in poor soil, but an important forest tree for timber. This spruce is the traditional Christmas tree in this country. The leaves are normally arranged in two rows more or less horizontally on the branches.

(A)

Picea breweriana, Watson
Brewer's Weeping Spruce

A tree growing to 100 feet in its native state, in the Siskiyou Mountains of California and Oregon. Introduced into Britain in 1879. This, with *A. venitsta*, must be one of the rarest conifers in the wild state now in existence. Small groups occur at 7,000 feet in its native area. Brewer's Spruce may be recognised by its slender pendulous branches, its hairy shoots and its leaves convex on both sides. An elegant and hardy tree, but rather slow-growing.

(R)

Picea engelmanni, Engelmann
Engelmann's Spruce

Native along the whole range of the Rocky Mountains where it grows to a height of 100 feet, this spruce was introduced into this country in 1864. The species does well in cultivation and the glaucous variety is very popular. The branches which persist well down the trunk are pendulous and the foliage dark bluish-green. The tree is of little commercial value in this country, but is planted for protection and at high altitudes in Switzerland.

(P)

Picea glauca, (Moench) Voss (*P. alba* Link.)
White Spruce

This species is widely distributed in Canada and the North United States from Labrador to Alaska. It grows to a height of 100 feet. Thought to have been introduced in this country in 1700 and first planted in Switzerland in 1759. It withstands cold better than the Common Spruce, but does not grow to so great a size. The foliage is bluish and has a disagreeable smell when braised. The timber is much used for the manufacture of wood-pulp.

(S)

Picea jezoënsis, Carrière var. *hondoensis* (Mayr) Rehder
Hondo Spruce

This tree which grows to a height of 100 feet is native to North- East Asia and Central Japan. It was introduced in 1860 into this country by Veitch. It is of no

commercial value, but is decorative and reported to be more hardy than the type *P. jezoënsis* (Sieb. & Zucc.) Carr.

(R)

Picea Mariana, (Miller) Britton *et al.* (*P. nigra* (Ait.) Link.)
Black Spruce

This tree grows extensively over much of Canada and reaches the northerly limit of tree growth there. Usually a small tree of lanky habit, it may attain 60 feet in height. It is used as a source of wood-pulp and has no value as a decorative tree.

(A)

Picea omorika, Bolle
Serbian Spruce

A native of South-East Europe, especially common along the river Dvina. Introduced into Kew in 1889, it succeeds there better than any other Spruce. It is valuable as an ornamental tree, having a narrow pyramidal habit with flattened leaves which are lustrous dark green below. It is very hardy and is often planted in frost hollows when other species fail.

(R)

Picea polita, Carrière
Tiger-tail Spruce

A tall tree in its native Japan it grows very slowly in cultivation in this country, forming a small tree with a very stiff habit of considerable beauty. It was introduced into this country by J. G. Veitch in 1861. The stiff lustrous green leaves bear a sharp point at their tips. Of all the Spruces, this species is the last to recommence growth in the spring.

(S)

Picea pungens, Engelmann
Colorado Spruce

Native to Colorado, Utah and Wyoming, where it grows to a height of 150 feet. Discovered in 1872, it was introduced into this country some years later. The glaucous forms of the species are those most usually grown for ornamental purposes in this country. The growth habit is narrow and pyramidal with beautiful bluish-green, or glaucous, foliage.

(P)

Picea sitchensis, Carrière
Sitka Spruce

A large tree growing to 200 feet in Western North America from Alaska to California. Introduced into this country by Douglas in 1831. Very hardy, it is usually planted for forestry purposes and has greatly extended the area of afforestation. It is a very suitable tree for moist habitats. The wood, strong and

light, is one of the most valuable of the spruce timbers.

(R)

Picea smithiana, Boissier (*P. moyinda* Link.)
Western Himalayan Spruce

A large tree, native of the West Himalaya where it grows up to 200 feet in height. Introduced into Scotland in 1818 by a Dr. Govan who gave seeds to the Earl of Hopetoun whose gardener was called Smith. It has graceful pendulous branches bearing long lax leaves and is a most ornamental tree especially when young. It grows well in damp conditions, but is liable to damage by pests and late spring frosts.

The genus Tsuga - the Hemlocks

A genus of c. 10 species. Leaves flattened, usually arranged in two ranks and attached by short, decurrent stalks. Cones about one inch long, ovoid or oblong, borne in large numbers at the ends of branchlets.

Tsuga canadensis, Carrière
Eastern Hemlock

Native to Eastern North America and one of the hardiest of ornamental trees, attaining 100 feet. Introduced into this country in 1736. It has a pyramidal habit often rather broad-based with horizontal slender branches and pendulous branchlets. The leaves are lustrous dark green and have two white stomatal lines on the lower sides. Not used for timber planting, it is grown as a decorative tree in this country.

(P)

Tsuga diversifolia, Masters
Japanese Hemlock

A graceful small tree growing up to 80 feet in its native Japan. Introduced into this country in 1861, it has a pyramidal habit with horizontal or slightly ascending branches. The branchlets are reddish brown and slightly pendulous. The leaves are arranged usually in three ranks and are linear-oblong, notched at the apex, lustrous dark green above, and with two silver stomatal bands below

(A)

Tsuga heterophylla, Sargent
Western Hemlock

Native to the Western North America from California to Alaska and growing to a height of 200 feet. Introduced into this country in 1851. It grows well in the moister parts of the country and forms a large pyramidal ornamental tree with a slender tapered top. It is much used for wood-pulp in America and merits consideration as a timber tree in this country. It withstands shade well.

(T)

Tsuga mertensiana, Carrière (T. Pattoniana Sene.)
Mountain Hemlock

Native to Western North America from California to Alaska and growing to a height of 100 feet. Introduced into this country in 1854, it makes an attractive tree with a dense branch system and shapely habit, but unfortunately grows very slowly. The leaves are somewhat grey-green and the lines of stomata not very conspicuous, but present on both sides of the leaf.

The genus Pseudotsuga - the Douglas Firs

This genus of c. 7 species may be distinguished from *Abies* by its narrower and softer leaves, Beech-like buds and pendulous mature cones with persistent seed-scales beneath which trident-like bracts protrude. The leaves give off a pleasant resinous perfume when bruised.

Pseudotsuga glauca, Mayr
Colorado Douglas Fir

This tree, native of the Rocky Mountains, is considered by some to be a variety of *P. taxifolia*, by others to merit specific rank ; it differs in its reflexed cone bracts and in its glaucous foliage, which has a different smell. Introduced into this country about 1844. It is often planted for ornamental purposes, but not as a timber tree because it grows so slowly.

(R)

Pseudotsuga taxitolia, Britton (*P. douglasii* Carrière)
Douglas Fir

The Douglas Fir, “the monarch of the Pacific North-West forests”, is one of the great timber trees of the world. It is widely distributed from the Santa Lucia mountains northward and furnishes the “Oregon Pine” of commerce. It may attain in its native habitat a height of 250 feet. It was once very extensively planted in this country though in recent years, because it was found to be very susceptible to attack by the aphid *Adelges cooleyi*, it has not been so extensively planted in forests as the Sitka Spruce.

The family TAXODIACEAE

This family of 10 genera consists of only c.15 species of trees, each of which has generally only a restricted distribution in the world. The leaves are spirally arranged and either linear, awl-shaped or scale-like. The foliage is evergreen, except in some species (eg. the short leafy shoots of *Taxodium* and *Metasequoia* being deciduous). Pollen grains not winged. In this family the ovuliferous and the bract scales of the ovulate strobili are more or less united. The ripe cones are woody and rather small.

Taxodiaceae includes the genera:

- [Taxodium](#)
- [Metasequoia](#)
- [Sequoia](#)
- [Cryptomeria](#)
- [Sciadopitys](#)
- [Athrotaxis](#)
- [Cunninghamia](#)

The genus *Taxodium*

A genus of two species. Deciduous trees, shedding the spur shoots with the leaves in autumn. Leaves alternate. Staminate strobili have a catkin-like appearance. Ovulate cones globular with thick, woody, peltate scales.

(S)

Taxodium distichum, Richards
Swamp Cypress

Native in Eastern United States from Delaware to Florida where it grows in swamps and at stream-sides reaching a height of 150 feet. In very wet habitats its roots develop upright protuberances known as “Cypress knees” which are believed to serve a ventilating function. Introduced into this country about 1640, it is one of the most beautiful of the conifers, especially as isolated specimen trees. The leaves, delicate pale green in spring, turn to a golden-orange colour before falling in autumn.

The genus *Metasequoia*

Monotypic genus. Deciduous tree, not unlike *Taxodium*, with long and short shoots. The leaves, which are opposite, and the short shoots are shed.

(B)

Metasequoia glyptostroboides, Hu & Chen
Dawn Redwood

Native in Szechan, China, where it grows to a height of over 100 feet. First discovered in 1945, and seed, collected in 1947, germinated in this country in 1948. Similar conifers were well-known as fossils in Mesozoic rocks and until the discovery of *Metasequoia* were believed to have been extinct for many million years. The seedlings in many parts of this country are growing well. The bark of young trees is reddish, and of old trees dark grey, fissured and peeling. The cones (not yet produced on cultivated trees) are said to be small, pendulous and with decussate scales.

The genus Sequoia - the Redwoods

Evergreen trees growing to a great size: the two species associated in this genus are quite distinct from other conifers and from each other. The leaves are flat in a two-ranked arrangement in one species (*S. sempervirens*), and awl-shaped and spirally arranged in the other. Cones globular, pendulous with persistent woody scales. Bark thick, soft and fibrous.

(R)

Sequoia gigantea, Decaisne (*S. wellingtonia* Seemann)
Wellingtonia, Big Tree

Sometimes assigned to the genus *Sequoiadendron* Buchholz to emphasize its marked difference from the next species. Native in a restricted region on the western slopes of the Sierra Nevada where it reaches a height of over 300 feet and girth of 90 feet. These are amongst the largest and oldest living things in the world, individuals of over 4,000 years being recorded. Introduced into this country in 1853, it has been easily grown as a specimen tree and planted in avenues. It is hardy only in the milder districts of this country. The timber is soft and useless.

(R)

Sequoia sempervirens, Endlicher
Californian Redwood

Native to North California and Southern Oregon where it attains a height of over 300 feet. It yields a most valuable timber. Introduced into this country in 1846, it has been much grown in the milder areas as specimen trees in parks and gardens. This tree has a remarkable habit of developing suckers at its base, a form of vegetative reproduction unusual in conifers.

The genus Cryptomeria

A monotypic genus. Evergreen pyramidal trees with leaves awl-shaped, spreading, spirally arranged in five ranks. Cones globular; scales with spine-like processes at the apex. Both sexes; f cones on the same tree.

(T)

Cryptomeria japonica, D. Don
Japanese Cedar

Native to China and Japan where it attains a height of 120 feet and is a valuable timber tree. Introduced into this country in 1842. The bark is reddish brown and peels off in long shreds. The leaves are deep green, linear, spirally arranged, decurrent and compressed laterally. The ovulate cones often show proliferations at the apex.

(P)

Cryptomeria japonica var. **elegans**, Masters

Apparently a variety of the above introduced by Messrs. Veitch in 1861. It has a much more bushy habit and retains the juvenile form of foliage which is larger, softer and more slender than that of the type.

The genus Sciadopitys

A monotypic genus - an evergreen tree with scale leaves and glossy-green fused pairs of leaves arranged in definite whorls and giving the tree a distinctive appearance -- hence its name.

Sciadopitys verticillata, Siebold & Zuccarini

Umbrella Pine

Tree native to Japan where it attains a height of over 100 feet. Has a marked pyramidal habit especially when young. The fused leaves are unusual and characteristic and there is some speculation as to their true nature. The tree is not particularly hardy in this country if exposed to cold winds.

The genus Athrotaxis

A small genus of evergreen trees, Dative to Tasmania. Leaves small, spirally arranged. Trees monoecious. Staminate strobili like catkins.

(R)

Athrotaxis selaginoides, D. Don

King William Pine

Native to the Western Mountains in Tasmania where it attains a height of 100 feet. Introduced into this country in 1857, it is hardy only in the milder parts and does not grow very large. Leaves longer than those of other species of the genus, awl-shaped and with sharp points, keeled and with bands of white stomata on upper side.

The genus Cunninghamia

A genus of two species. Evergreen trees. Leaves flat, spirally arranged and persistent up to five years. Staminate strobili terminal and umbellate. Ovulate cones globular, Scales persistent, three seeds to each scale.

(R)

Cunninghamia lanceolata, Hooker (*C. sinensis* R. Brown)
Chinese Fir

Native to Central and Southern China where it grows to a height of 150 feet. The timber is esteemed in China as being the most useful, after bamboo, for all kinds of woodwork. Introduced into this country in 1804, it is hardy only in the milder districts and even there requires a sunny, sheltered position.

The family CUPRESSACEAE

This family of trees and shrubs (consisting of 16 genera and over 100 species) is widely distributed, but mainly in the Southern Hemisphere. The evergreen foliage may consist of two kinds, juvenile leaves, which are awl-shaped and usually in whorls of three or four, and adult ones, which are decussate, scale-like and closely appressed to the stem: the adult foliage is never developed in some species and varieties (the latter often still labelled *Retinospora*). The pollen grains of the staminate cones are not winged. In this family the ovuliferous and the bract scales of the ovulate cones are fused together. The ripe cones are usually woody, but may be fleshy and berry-like (cf. *Juniperus*).

Cupressaceae includes the genera:

- [Cupressus](#)
- [Chaemocyparis](#)
- [Thuja](#)
- [Libocedrus](#)
- [Juniperus](#)

The genus *Cupressus* - the Cypresses

A genus of c. 20 species. Leaves persistent, scale-like (often awl-shaped on juvenile or vigorous shoots), decussate in four uniform ranks, or with the lateral pairs boat-shaped and the facial pairs flattened. Irregularly disposed four-angled branch-lets or sprays and branchlets flattened. Cones, which are more or less globular and with peltate scales, mature at the end of their second season (cf. *Thuja*). Some of the species have been ascribed to another closely related genus, *Chamaecyparis*.

Cupressus arizonica, Greene Arizona Cypress

Native to Arizona and northern Mexico where it attains a height of 50 feet. Discovered in 1880 and introduced into this country in 1882. It has slightly glaucous leaves and is a useful ornamental plant though not very hardy and unlikely to survive except in the milder parts of the country.

Cupressus goveniana, Gordon Californian Cypress

Native to Californian highlands where it may attain a height of 50 feet. Introduced into this country in 1848, it is successful only in the mildest places. Closely resembles *C. macrocarpa*, from which it differs in its fragrant foliage. Short tripinnate branched system and small cones.

(R)

Cupressus (chamaecyparis) lawsoniana, Murray
Lawson Cypress

This tree is native to the mountains of South-West Oregon and North-West California where it attains a height of 200 feet and is a valuable timber tree. Introduced into this country in 1854, it has been much planted as a decorative tree and has given rise to a prodigious number of garden varieties. The staminate cones are red. It will grow in almost any soil and is completely hardy. Varieties of *C. lawsoniana* growing on the University Estate include: **Erecta viridis**, **filiformis**, **fraseri** and **wisselii**.

(M)

Cupressus macrocarpa, Hartweg
Monterey Cypress

A tree native to the Monterey region of California and growing to a height of 90 feet. Introduced into this country in 1838, it has been extensively planted especially in the South and South-West of England as an ornamental tree or as a windbreak. It has, most unhappily, become popular as a hedge plant in suburban gardens. Its natural habit is pyramidal and if trimmed frequently it may become unsightly with dying branches.

(S)

Cupressus (chamaecyparis) nootkatensis, Lambert
Yellow Cypress

Native in West America from Alaska to Oregon, it attains a height of 120 feet. Introduced into this country in 1853, it does well even in poor soils. The foliage is somewhat coarser and a duller green than that of *C. lawsoniana* and has an unpleasant smell. The leaves are in four rows and each cone scale has a triangular pointed boss. The staminate cones are yellow. Its symmetrical habit makes it a useful decorative tree and the timber, being water-resistant, is valuable in boat-building.

(T)

Cupressus (chamaecyparis) obtusa, K. Koch
Hinoki Cypress

Native to South and Central Japan, where it grows to a height of 120 feet, it is one of that country's most valuable trees, the timber being used for panelling and lacquer-ware. Introduced into this country in 1861 by J. G. Veitch it is a useful though slow-growing ornamental tree. In Japan it is used for "dwarfing" purposes. It is the sacred tree of the Shinto faith and is grown in the vicinity of temples.

(R)

Cupressus (chamaecyparis) pisifera, K. Koch
Sawara Cypress

This Cypress, a native of Japan where it may grow to a height of 100 feet, shows considerable variation. Introduced into this country in 1861 by J. G. Veitch, it has been planted as an ornamental tree. It is grown in temple grounds in Japan. Many of its numerous varieties are characterised by the retention for an indefinite period of the juvenile foliage. Varieties growing on the University Estate include filifera, plumose and squarrosa.

(R)

Cupressus sempervirens, L.

Mediterranean Cypress

Native in South-East Europe, Asia Minor and Persia, this tree attains a height of 120 feet or more and is the Cypress of the ancients. It was in past times much used as timber; the doors of St. Peter's Cathedral in Rome, made of this wood, lasted for eleven hundred years and were found to be sound on removal. The wood is fragrant and very durable. Introduced into this country probably in the sixteenth century it has proved to be hardy only in the milder districts.

R)

Cupressus (chamaecyparis) thyoides, L.

White Cypress

Native in Eastern North America from Maine to North Florida and growing in swampy ground, it may reach a height of 70 feet. Introduced into this country in 1736, it was formerly more frequently planted. It has little timber or ornamental value. Its characteristic bluish-green foliage consists of minute, glandular, scale-like leaves.

(R)

Cupressus torulosa, D. Don

Himalayan Cypress

Native to the Western Himalayas, it attains a height of 150 feet. Introduced into this country in 1824, it grows well as a graceful tree in the milder areas of the South and West.

The genus Thuja - the Arbor-vitae

A genus of six species. Leaves scale-like, decussate, lateral pairs keeled, facial pairs flattened. Cones, ovoid-oblong with 8 to 12 thin leathery to woody scales, maturing in one season (cf. *Cupressus*). Branchlets flattened.

(T)

Thuja dolabrata, L. (*Thujopsis dolabrata* Sieb. & Zucc.)

Hiba

Native in Japan where it grows to a height of 80 feet and is a valuable timber tree. Introduced into this country in 1853, it has proved a useful ornamental shrub in the milder and moister parts. It does well in the South-West peninsula

and is one of our most effective evergreen shrubs. The plant has a broad pyramidal habit with ascending branches. The flat branchlets are spread horizontally. Leaves opposite, curved, acute, lustrous dark green and with conspicuous white stomatal patches beneath.

(A)

Thuja occidentalis, L.
American Arbo-vitae

Native to Eastern North America from Nova Scotia to Virginia where it attains a height of 60 feet. One of the earliest, if not the first American tree to be introduced into Europe as it was brought back by the members of the Cartier expedition which discovered the St. Lawrence River. It is widely distributed in its native habitats where it forms dense forests in swampy regions. Introduced in 1596 in this country, where it does not grow very large. It has been widely planted as an ornamental tree, as a windbreak and as a hedge plant. It has a pyramidal habit: its dark green foliage has conspicuous glands on the leaves of the main axis and a peppermint smell.

(A)

Thuja orientalis, L. (*Biota orientalis* End.)
Chinese Arbor-vitae

Indigenous in North and West China where it grows to 40 feet, it forms a tree with erect branches quite distinct among the *Thujas*. Introduced into this country c. 1740, it has been much planted though it is liable to damage on exposed sites. The cones are ovoid, nearly one inch long, glaucous at first, and with six to eight woody scales, each with a hooked tip. Its foliage has only a faint aroma.

(A)

Thuja plicata, D. Don
Western Arbor-vitae

Native in Western North America, especially in the region of British Columbia, Oregon and Washington, where it attains a height of 200 feet and is a valuable timber tree. Its light-weight timber is known as Western Red Cedar and is much used commercially. Its wood is durable when in contact with the soil and is also much used for roof shingles. Introduced by Messrs. Veitch in 1853, it has been very widely planted both as an ornamental tree and for hedges. Its natural habit is markedly pyramidal and the buttressed trunk has ascending branches at the base. The aromatic leaves are bright green on the upper side and with white lines on the lower, The erect cones are rather narrow with up to ten woody scales.

The genus Libocedrus

A genus of nine species. Leaves scale-like, oblong ovate, decussate. Cones, oblong with six leathery scales, mature in one season. Branchlets flattened.

(M)

Libocedrus deeurrens, Torrey
Incense Cedar

Native of Oregon and California along the slopes of the Cascade and Sierra Nevada ranges, where it attains a height of 150 feet. Introduced into this country by Jeffrey in 1853, it has a narrow columnar habit and is rather slow growing. Its foliage is dark green and bark reddish. Its distinctive spire-like habit makes it a useful ornamental tree, but its fragrant wood is of little timber value.

The genus Juniperus - the Junipers

A genus of c. 40 species. Trees and shrubs of this genus bear two types of leaves, the juvenile type being awl-shaped and the adult appressed scale-like. In some species both types of foliage are present and in others only one type. The berry-like ovulate cones are red-brown, blue or blue-black in colour.

(S)

Juniperus californica, Carrière
Californian juniper

Native in the coastal mountains of California where it grows to a height of 40 feet. Introduced into this country in 1853 by Veitch's of Exeter. The leaves, usually in threes, are closely appressed, short and thick and are glandular on the lower surface. The reddish brown "berry" is covered with a glaucous bloom.

(R)

Juniperus chinensis, L.
Chinese juniper

Native to Northern China and Japan where it grows to a height of 60 feet. Introduced into this country in 1804, it is now the commonest juniper in cultivation. It bears both types of foliage and its habit is pyramidal with ascending branches. The "berry" is brown and very glaucous.

Juniperus communis, L.
Common juniper

This juniper has a very wide range of distribution in the Northern Hemisphere. It is one of our three indigenous conifers and occurs in a wide range of habitats and in at least two forms. It bears long subulate leaves in whorls of three and glaucous blue "berries". The latter were used for flavouring gin and in the smoking of hams.

(R)

Juniperus phoenica, L.
Phoenician juniper

Indigenous over a wide area in the Mediterranean region where it grows in dry situations on rocky hills. Introduced into this country in 1683, it is rarely cultivated as it survives only in the milder districts. An essential oil is distilled from its wood.

(R)

Juniperus virginiana, L.

Pencil or Red Cedar

Native in the Eastern and Central United States and Eastern Canada, where it grows to a height of 100 feet. Introduced into this country about the middle of the 17th century, it is the largest of the junipers in cultivation. Usually the tree has a pyramidal habit and two or three main stems. It bears foliage of both types. Cedar-wood oil is obtained by distillation of the wood of this species and it is the most valuable of all known woods for the manufacture of "lead"-pencil casings.

The family ARAUCARIACEAE

A family of only two genera, *Araucaria* and *Agathis*, with all the species indigenous south of the equator. Trees dioecious or monoecious. The ovate cones are composed of very numerous ovuliferous scales, which are spirally arranged and each bear only one ovule. The bract scales are fused to the ovuliferous scales. The ripe cones disintegrate on the tree, the wingless seeds and the scales falling to the ground.

Araucariaceae includes the genera:

- [Araucaria](#)

The genus *Araucaria*

A genus of c. 12 species of evergreen trees, pyramidal or rounded in form. Leaves lance- or awl-shaped, spirally arranged. Ovulate cones globular.

(R)

Araucaria araucana, K. Koch
Chile Pine, Monkey Puzzle

Native to Chile and Patagonia, attaining a height of 100 feet. The seeds are eaten in those countries. Although introduced into this country in 1795, it was not widely planted as an ornamental and avenue tree until 50 years later. The large staminate and ovulate cones are usually, though not always, borne on different trees. It is the only *Araucaria* hardy in this country and grows best in the milder parts. The common name "Monkey Puzzle" is said to have originated in Cornwall.

(B)

Araucaria excelsa, R. Brown
Norfolk Island Pine

A native of Norfolk Island where it attains 200 feet, this plant is not hardy in this country, but is commonly grown as a pot plant for decorative purposes. The leaves are awl-shaped and much smaller than those of the preceding species. It was introduced into this country in 1793.

The family TAXACEAE

A family of eleven genera of evergreen trees or shrubs with a widespread distribution. The staminate and ovulate strobili are usually borne on different plants. The ovulate strobilus is normally one-seeded, and does not develop woody scales when ripe. The dry or fleshy seed is more or less surrounded by a fleshy aril or by a succulent scale, or is borne on a fleshy receptacle or swollen stalk.

Taxaceae includes the genera:

- [Taxus](#)
- [Torreya](#)
- [Podocarpus](#)
- [Prumnopitys](#)
- [Cephalotaxus](#)

The genus *Taxus* - the Yews

Small trees with a widespread head of branches. Leaves in two ranks. Staminate strobili with peltate sporophylls. Seeds solitary, surrounded by a fleshy cup-like scarlet aril, ripening in one season. Plants usually unisexual. This genus may be regarded as consisting of a large number of varieties of one species or of a number of very closely related species. One of the only three conifers native in Britain.

(A)

***Taxus baccata*, L.**

English Yew

Native to the British Isles, Europe, North Africa and West Asia, attaining a height of 60 feet. Grows in a wide range of habitats from chalky soil and limestone to peat and heavy loams. Much used for hedges and in topiary work as it tolerates frequent trimming. Very long-lived and some specimens are reputed to exceed the age of 1,000 years. The timber is very durable, but is not available in great quantity. The wood was once much used for making archers' bows. All parts are very poisonous, except the red fleshy aril; Yews should not be planted where their living or dead leaves can be eaten by livestock.

(S)

***Taxus baccata* var. *adpressa*, Carrière**

Short-leaved English Yew

A variety with a distinct spreading habit and very short leaves, said to have been raised as a seedling at Chester in 1838.

***Taxus baccata* var. *aurea*, Carrière**

Golden Yew

A shrub of compact habit, much grown for its foliage, the leaves very golden when young, turning to green at maturity.

Taxus baccata var. **fastigiata**, Loudon
Irish Yew

A variety with erect branches and columnar habit. It was originally found by a farmer in Fermanagh in 1780. After the Earl of Enniskillen made cuttings available to nurserymen in 1867, it has been much propagated vegetatively.

The genus **Torreya**

A small genus of evergreen trees with linear leaves arranged in two rows. Leaves with sharp points, midrib not showing on upper side. Seed surrounded by thin fleshy aril, olive-like, and ripening in two seasons.

(P)

Torreya californica, Torrey
Californian Nutmeg

Native to California where it attains a height of 70 feet. Introduced into this country in 1851, it makes a handsome small tree in the milder districts. The wood and the foliage are aromatic. There is a single stem with horizontal branches pendulous at the ends. The specimens in these grounds are considered to be among the finest in the country.

The genus **Podocarpus**

A large genus of c. 65 species. Shrubby evergreen trees native to Australasia, Asia, South America and East Africa; they are hardy only in the milder parts of this country. Leaves variable. Ovulate and staminate strobili usually on different trees, the latter in tufted spikes.

(P)

Podocarpus alpinus, R. Brown

Native in mountains of Victoria and Tasmania where it forms a low straggling densely branched bush. Introduced into this country in 1825. Leaves crowded, straight or sickle-shaped, pointed. Useful in its native habitat for the prevention of soil erosion.

Podocarpus macrophyllus, D. Don (*P. chinensis* Endl.)
Kusamaki

Native in China and Japan where it grows to a height of 50 feet. Branches strong and horizontal; branchlets dense. The leaves are spirally arranged, up to five inches long and half an inch wide, bright green above, glaucous beneath, thick, and leathery.

(R)

Podocarpus salignus, D. Don (*P. chilinus* Richard)

Endemic to the Andes of Chile where it grows into a tree up to 60 feet in height. Introduced into this country in 1853, it usually forms a pyramidal shrub. Leaves up to three inches long, dark bluish-green above. Staminate strobili slender, drooping in small clusters.

(B)

Podocarpus totara, D. Don

Totara

Native of New Zealand where it grows to a height of 100 feet and is an important timber tree. Leaves about one inch long in two ranks. Staminate strobili axillary. Seed solitary on fleshy crimson receptacle.

The genus Prumnopitys

A monotypic genus closely allied to Podocarpus. Foliage evergreen with Yew-like character. Staminate strobili branched. Seeds in a loose spike, olive-like, with axis not fleshy.

(P)

Prumnopitys elegans, Philippi (*Podocarpus andinus* Poeppig)

Plum-fruited Yew

Native of Andes of South Chile, where it grows to a height of 80 feet. Introduced into this country in 1860 by Messrs. Veitch. Leaves linear with glaucous strip on either side of the midrib on abaxial surface. The seeds are fleshy like olives. Can be used as a hedge-plant in milder parts of the country as a substitute for yew.

The genus Cephalotaxus - the Plum Yews

A small genus of shrubby plants, with linear leaves in a two-ranked arrangement. Mid-rib prominent. Staminate sporophylls crowded. Seed long-stalked, fleshy, olive-like, maturing in a single season.

(R)

Cephalotaxus drupacea, Sieb. and Zucc.

Cow's-tail Pine, Japanese Plum Yew

A shrub native to China and Japan where it may attain a height of 30 feet. It has characteristic short, half-erect leaves in two rows. Grows in the open or in partial shade and is hardy in this country into which it was introduced in 1844.

(M)

Cephalotaxus fortunei, Hooker
Chinese Plum Yew or Pine

Native of North China where it grows into a small tree. Introduced into this country in 1848, it is grown as a shrub or low screen plant. The leaves, in two rows, are longer and held more horizontally than in the former species.

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The Plan

M=; T=; R=; S=; P=; A=;

