Trochodendron aralioides, the Tree of the Year 2009, one of four specimens at Exbury that were planted by Sir Lionel Rothschild in the 1930s. It is a hardy evergreen shrub or small tree, to 20 or 25m.

Tree of the Year : *Trochodendron aralioides*

SUSYN ANDREWS *Honorary Research Associate, RBG Kew*
– with contributions from John Anderson, Koen Camelbeke, Mary Forrest, Martin Gardner, Sabina Knees, Roy Lancaster, Seamus O'Brien, John Phillips and Anne Rieber – writes about this rarely seen, fascinating plant from Japan and Taiwan.

"Lush and tropical in appearance, it looks, when not in flower, like one of the New Zealand schefflera but lacking their tenderness."
(Hogan 2008)

Introduction

The generic name *Trochodendron*, derived from the Greek *trochus*, a wheel and *dendron*, a tree, literally means wheel-tree from the manner in which the stamens radiate like the spokes of a wheel, as well as the spreading leaves on the branches. As for the specific epithet, it is named for its resemblance, *-oides*, to the genus *Aralia*, probably for its habit and inflorescence (Walker 1976).

According to Smith (1945), Japan was closed to European botanists until well into the nineteenth century. Thus much of its flora received no botanical names until the publication of *Flora Japonica* (1835-1870) by P.F. von Siebold and J.G. Zuccarini. Volume I was published in 20 parts between 1835-1841; *T. aralioides* was described and illustrated in parts 8-9, 1839, not 1838 as is usually stated (Stafleu & Cowan 1985, Akiyama 2006), (see pl. 39 opposite).

Ever since it was first described, *Trochodendron* has been of intense interest. The genus was placed firstly in the Magnoliaceae, then the Winteraceae, followed by the Ternstroemiaceae, until K. Prantl put it in the Trochodendraceae in 1888. He recognised within the family the following genera: *Cercidiphyllum*, *Euptelea* and *Trochodendron* and in 1891, *Tetracentron*. The genus *Eucommia* was added to the family by Dr D. Oliver in 1895 (Andrews 2009).

In 1897, H. Harms published his morphological study of the Trochodendraceae. He pointed out that the wood in *Trochodendron, Tetracentron* and *Drimys* lacked vessels. *Tetracentron* was kept in the Magnoliaceae, while retaining the other genera in the Trochodendraceae.

By 1900, P. van Tieghem recognised that *Trochodendron, Tetracentron* and *Drimys* were distinctive from all other angiosperms by the absence of vessels in their wood and so he put them in their own respective families, as well as creating a new subclass for them. He also pointed out that the other genera within the family were unrelated and so he proposed the family names of Eucommiaceae for *Eucommia*, Cercidiphyllaceae for *Cercidiphyllum* and Eupteleaceae for *Euptelea* (Smith 1945, Andrews 1998, Hsu 2004, Andrews 2009).

The lack of vessel elements in wood has formerly been considered an early derived character, hence the placement of these two genera at the base of the angiosperms in the former classification. The Angiosperm Phylogeny

Trochodendron aralioides was described and illustrated in *Flora Japonica*, published in 1839.

Group (APG) has, however, shown them to occur early in the Eudicots, not the Magnoliids, thus suggesting the absence of vessel elements is a secondarily evolved character.

In its latest update APG III (Angiosperm Phylogeny Group 2009), a number


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Top left, two growing buds, the red one is of Japanese origin while the paler green comes from Taiwan. Both are growing at the Plantentuin, Gent.
Top right and ***above left*** and ***right*** are inflorescences at Exbury.

of formerly unplaced families have been put into suggested new orders. Among these is the Trochodendrales, which contains the Trochodendraceae, now comprising *Trochodendron* and *Tetracentron*. This family is in a grade between a clade that includes Proteaceae and Platanaceae on the one side and Buxaceae on the other.

***Trochodendron aralioides* Sieb. & Zucc.**
(*T. longifolium* Maxim., *T. aralioides* var. *longifolium* Maxim., *T. aralioides* f. *longifolium* (Maxim.) Ohwi)
Common names: yamaguruma, nagaba-no-yamaguruma, kun lan shu, wheel tree, wheel-stamen tree, birdlime tree, parasol tree, Japanese birdlime tree, ka-tang-lai.

photograph © Koen Camelbeke

photograph © John Anderson

photograph © John Anderson

Top left, infructescences from Herkenrode (ex Hilliers) and ***right***, from Exbury.
Above left, foliage from Exbury.

Evergreen, glabrous tree or shrub to 20-25m. **Bark** pale grey, lenticellate, roughening with age. **Branches** stout, spreading to a wide vase shape; branchlets a shiny olive-green or mustard-yellow. **Terminal bud** to 2.1cm x 8mm, scales papery, pale tan or pale green with red-flushed apices, imbricate. **Leaves** crowded at the ends of branches, 5-12(-15) x 2-7cm, almost whorled, broadly ovate to elliptic, to oblanceolate or broadly so, leathery, dark lustrous green above, paler below, veins 5-7, base cuneate to broadly so, margins entire, crenate in upper half, apex acuminate to cuspidate; **petiole** 2-7cm long, stout. **Flowers** bisexual, regular or slightly asymmetric, apple-green or yellowish-green, 1-2cm in diam., appearing April-June, on upright raceme-like structures (reduced panicles) with a terminal flower and often branching further down (Endress 1993), 5-13cm long, with 10-20/30

flowers. **Perianth** (sepals/calyx and petals/corolla) absent. **Stamens** 40-70, 3.5-7mm, spreading or reflexed in ¾ whorls, falling early; anthers 1.2-1.7mm long, yellowish-brown. **Carpels** 6-11, free in a ring, the whole ovary obovoid, 2-2.5mm, ovules 16-24 per carpel. **Style** persistant, 0.5-2mm long. **Fruits** a ring of coalesced (united), many-seeded follicles, 7-10mm in diam., pale green to dark grey or brown, October-November, 7-10 seeds per follicle. **Seeds** 3-6mm long, black, spindle-shaped.

2n = 38, 40 (Akiyama 2006)

Native to **Japan** (Honshu – southwards from Yamagata Pref., Shikoku, Kyushu, Ryukyu Islands); **Taiwan**.

A.C. Smith (1945) in commenting on its distribution in Japan quoted from Professor Charles Sprague Sargent, the first director of the Arnold Arboretum:

> "Trochodendron... is certainly not an inhabitant of the alpine forests or of Hokkaido, as stated in some works on the Japanese flora, although, perhaps, it occurs in northern Hondo at the sea-level, as it is hardy in the gardens of Nikko at an elevation of 2,000 feet above the ocean. Trochodendron aralioides is often cultivated by the Japanese and fine specimens of this tree are found scattered through public and private gardens in Tokyo and Yokohama." (Sargent 1894)

Smith also noted that there were no herbarium specimens or "authentic published records" to indicate that *T. aralioides* occurred in the wild north of 32°N. Philip von Siebold had collected his type material in the vicinity of Nagasaki.

In the Kew herbarium, the Japanese specimens show a variation of foliage from the usual broadly ovate to elliptic, as well as oblanceolate to broadly oblanceolate. Among these are two collections made by E.H. Wilson in February and May 1914, *E.H. Wilson* 6041 and 6629. Growing in temperate rainforests, *T. aralioides* occurs from *c.* 600-1700m alt.

Phillips & Rix (2002) mentioned that it forms large trees on Yakushima and that it grows as an epiphyte on the trunks of massive *Cryptomeria japonica* rooting some 3m above ground level. Apparently, the *Cryptomeria* leans one way, while the *Trochodendron* leans out the other way, thus providing a dual balancing act! Walker (1976) stated that it was rare in mountain forests. Roy Lancaster commented that he has seen *T. aralioides* growing in the forests of Honshu with leaves of a rich glossy green, never the yellowish-green sometimes seen in cultivation.

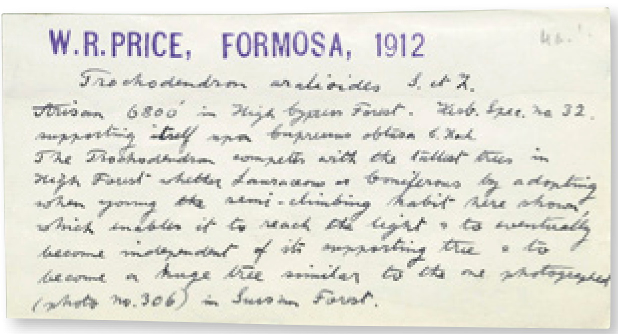
The RBG Kew team of Ray Townsend and Mark Bridger collected *SOKU* 81 on Shikoku Island, in the Tsurigi-san Mountain in lower temperate montane mixed forest at 1700m in October 1999. There were *c.* ten plants, half in fruit, growing in very shallow soil amongst granitic rocks, along with *Acer*

mono, *Rhododendron pentaphyllum*, *Parabenzoin trilobum*, *Idesia polycarpa*, *Stewartia serrata*, *Quercus crispula*, *Hydrangea paniculata*, *Weigela floribunda* and *Sasa borealis*. *SOKU* 81 was collected from a 4.5 x 2.5m shrub.

In Taiwan, *T. aralioides* is found in the broad-leaved evergreen forests of the central mountain ranges, between 2000 and 3000m and in the northern part from 500 to 1250m, where it still occurs in pure stands (Li & Chaw 1996).

William Robert Price (1886-1975) collected plants in Formosa (now Taiwan) in 1907 and 1912. Attached to the herbarium at Kew, he made three collections of *T. aralioides* (*W.R. Price* 32, 32 *bis*, 66) as well as taking some remarkable photographs.

ETOT 31 collected by the Kew team of Tony Kirkham and Mark Flanagan in October 1992 was found between Chiayang and Kur-mung-shan in Nantou County at 2200m. The 12 x 8m shrub was growing in coarse shaly-loam on steep slopes in open woodland along with *Castanopsis carlesii*, *Schima superba* and the occasional *Pinus taiwaniana*. It was

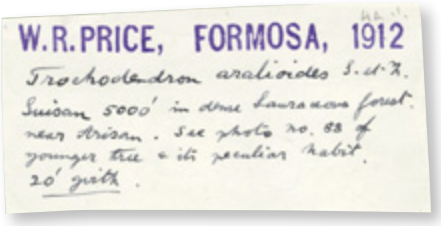


W.R.PRICE, FORMOSA, 1912

Trochodendron aralioides S. et Z.
Arisan 6800' in High Cypress Forest. Herb. Spec. no 32.
supporting itself upon Cupressus obtusa K. Koch
The Trochodendron competes with the tallest trees in
High Forest whether Lauraceous or Coniferous by adopting
when young the semi-climbing habit here shown
which enables it to reach the light & to eventually
become independent of its supporting tree & to
become a huge tree similar to the one photographed
(photo no. 306) in Suisan Forest.

Trochodendron aralioides in Taiwan, W.R. Price (1912)

W.R. Price standing in front of a huge and old specimen of *Trochodendron aralioides* in Taiwan (1912).



regenerating freely into recently disturbed areas.

Other collections on Taiwan were on Mt Yangming Shan at 840m in 1979 by an American team and the 1993 Edinburgh Taiwan Expedition collected n. 316 at Chi-Lan-Shan, Highway 100, among subtropical vegetation found growing under *Chamaecyparis formosensis* at 1250m, (see p. 46).

Records for Korea, however, are puzzling as *T. aralioides* is **not native** to Korea nor to Cheju-do (Quelpart Island). In spite of this, the following references all mention it–Hogan 2008, Mabberly 2008, Hillier & Coombes 2002, Phillips & Rix 2002, Jacobson 1996, Krüssmann 1986, Bean 1980, Ohwi 1965, Rehder 1940 and I am sure there are others!

Cultivars

'Curried Gold'

This was produced by Cistus Design Nursery, Sauvie Island, near Portland, Oregon. Grown from seed, this selection has "succulent golden stems", while the leaves remain a glossy green, avoiding the purple patches that often occur on the foliage (Hogan 2008), plus see p. 39.

***Trochodendron aralioides* in cultivation: Europe**

Bretschneider (1898) stated that the Russian botanist and plant collector Carl Johann Maximowicz (1827-1891) spent from September 1860 to February 1864 in Japan. During this time he introduced *T. aralioides* into cultivation and it arrived at the Imperial Botanic Garden,

St Petersburg in 1864, where it first flowered in 1876.

Maximowicz described a form of *T. aralioides* with longer leaves, as *T. longifolium* in 1865 but he reduced this to var. *longifolium* in 1871. Both are now considered synonyms of *T. aralioides*.

> "From 1860 to 1864 Maximowicz travelled in Japan and in 1866 he published his first paper on the plants of Japan. He soon accumulated the largest collection of Japanese plants that had ever been brought together – thanks in part to his many contacts – and became an astute scholar of the Japanese flora. ..... A complete set of his Japanese collections can only be found in Leningrad today." (Shetler 1967)

Although Hsu (2004) noted that Charles Maries (1850-1902) introduced *T. aralioides* into Britain, I have been unable to confirm this, as Maries did not mention the genus at all in his accounts of his trip in *The Garden*, nor is it listed under Maries or Veitch in Bretschneider (1898). Two members of the Veitch family travelled to Japan, e.g. John Gould Veitch (1860-1861) and James Herbert Veitch (1892). Maries worked for Messrs Veitch and was sent out by them to collect plants in Japan, Formosa (now Taiwan) and China from 1877 to 1879. During that time he visited Japan twice and Formosa briefly. James Harry Veitch (1906) in his monumental work on the family firm noted that it was "introduced to Coombe Wood", and Bean (1914) wrote "First introduced from Japan by Messrs Veitch ..." It is probable that the Veitch Nursery introduced *T. aralioides* into Britain, but who their source was remains a mystery!

It first flowered at their Coombe Wood Nursery, Kingston-upon-Thames in April 1894. On 24 April they sent flowering material to be exhibited at one of the spring meetings held by the RHS at The Drill Hall, James Street, Westminster. Under the heading, New or noteworthy plants, Dr Maxwell T. Masters (1894) vented his feelings concerning this plant!

> "At one of the spring meetings of the Royal Horticultural Society, Messrs. Veitch exhibited, as we believe for the first time, specimens of this remarkable hardy evergreen shrub. It is of unusual botanical interest and as shown, was decidedly attractive. It failed to receive any award from the Floral Committee, though it was, in our opinion, more worthy of such notice than a large proportion of the plants that are picked out for notice by that body. A Botanical Certificate – in the abstract, the most important of all awards – should have been given to it." (M.T.M. 1894)

Material was sent to Kew where J.D. Hooker (1894) wrote it up for *Bot. Mag.* It was illustrated by Matilda Smith and lithographed by John Nugent Fitch; the fruit was drawn from a herbarium specimen. Hooker noted that the bark and foliage were very aromatic, although Straley (1986) had not found the former so. In the Kew herbarium today is the original material for that plate; collected by *G. Nicholson s.n.* on 24 April 1894. He was the curator at Kew from 1886-1901 (Nicholson 1895). On the same sheet is a capsule containing an infructescence and inscribed "Coombe Wood Nursery, October 1897."

Trochodendron aralioides taken at Kew by A.B. Jackson

At the Third Annual Exhibition and Conference of British–grown Fruit held at Crystal Palace on 1-3 October 1896, Messrs Veitch produced a large exhibit in vases "of ornamental fruit and berried plants", including *T. aralioides* (Anon. 1896/7).

The earliest listing for *T. aralioides* in a Veitch catalogue that I have been able to find is in the December 1899 *Catalogue of Hardy Trees, Shrubs, ... cultivated at their Coombe Wood Nursery, Kingston Hill, Surrey*, where plants cost 5s or 7/6. In another catalogue with "after August 1902" added in pencil, there is a picture of a young plant at the Coombe Wood Nursery. In a later catalogue (No. 15) *Hardy Ornamental Trees and Shrubs* a photograph of the foliage is shown and described as a choice evergreen shrub and rapid grower.

> "In this country it is a handsome evergreen tree, which on more than one occasion has flowered and fruited freely." (Veitch 1903)

James Harry Veitch (1903) also showed the first photograph mentioned above and the young plant was then 2.1 x 1.8m at their nursery.

W.J. Bean (1914) mentioned that "the tree now at Kew is a handsome bush 10 feet high." Could this be the plant that he collected herbarium material

from in May 1920, which came from a plant in the old arboretum, east of the Orangery near the Temple of the Sun (which had been demolished by a falling Cedar of Lebanon in 1916)? William Dallimore, Keeper of Museums at Kew, collected a specimen from the same plant in September 1934. However, it was not mentioned by Brown (1977), so one presumes that it had died some time before, (photo by A.B. Jackson, opposite).

For a long time 1921-5101 was the best specimen that we had at Kew. Situated in the *Quercus ilex* bed near the Victoria Gate, it had come from P.D. Williams of St Keverne, Cornwall. The former Curator, George E. Brown noted it as "an unusually large plant" (Brown 1977). In 1994 it was 4 x 8m. but has since died. According to an old herbarium specimen, it was 2.1m high in May 1940. Now all we have are several collections of *ETOT* 31, two plants (1992-3955) are in the Evolution House (formerly the Australian House) by the Temperate House, looking somewhat unhappy. Another pair are growing in one of the woodland glade beds between the Cedar Vista and the Stable Yard. 1996-1985 has a double leader and was planted in 1996, while 1999-3952 is multi-stemmed and romping away (see pp. 45-46).

Kew's sister garden at Wakehurst Place, West Sussex has several interesting specimens. Sir Henry Price (1942) listed *T. aralioides* and as he planted up the Slips area, it is possible that 1969.30461 was one of his (C. Clennett *pers. comm.*). From herbarium specimens collected in May and December 1967, it was then 5.4 x 3m, with at least nine stems to 1.21m diameter; growing in open grassland, but was less leafy and the old leaves were not so healthy. It grew in a drier situation than the others. Today there are eight main branches (see p. 44).

1969-30460 is growing in the Specimen Beds below the Trans-Asian Heath Garden and in 1967 it was 5.4 x 4.5m. This is a very healthy plant growing in moist shade. Above the base it is divided into three main branches. 1969-30462 alas is no more, as it died in 1985. It thrived in the Specimen Beds below the Southern Hemisphere Garden. The 1967 herbarium specimens noted that it was 4.5 x 7.2m, with three main trunks from the base. This must have been a magnificent shrub as it was described as having extremely luxuriant foliage and was growing in fairly open grassland, in very moist conditions. On 24 May 1976, flowering material from this plant was given an Award of Merit by Floral Committee B sitting at the Chelsea Flower Show (Anon. 1976 and see p. 45). On 17 June 1980, material was shown by Lord Aberconway and the National Trust at Bodnant, North Wales, while Dr Jimmy Smart showed flowers and foliage from his plant at Marwood Hill, North Devon on 14 June 1983.

Younger accessions at Wakehurst Place include 1980.2401 from the Morris Arboretum, collected in Taiwan on Mt Yangming and 2000.100 *SOKU* 81 from Japan (see p. 32).

Phillips & Rix (2002) have some marvellous illustrations and noted that

photograph © Koen Camelbeke

Trochodendron aralioides #84721 ex Spinners Garden at the Arboretum Wespelaar in winter.

it is often grown as a curiosity in Europe and is a useful hardy evergreen. Hillier & Coombes (2002) pointed out that "during the severe winter of 1962/63 when most evergreens looked bedraggled, this species was unharmed and quite outstanding." They also mentioned that this plant is much prized by flower arrangers.

The mouth-watering plant lists from Crûg Farm Plants near Caernarfon, North Wales always provide a huge range of intriguing taxa. In their 2002 list, Bleddyn and Sue Wynn-Jones offered *T. aralioides* from Japan–*BSWJ* 6080 and from Taiwan–*BSWJ* 6727. By their 2005 list, *BSWJ* 1651 from Taiwan had been added and for the 2010 season C*WJ* 12357. *BSWJ* 6080 was collected in southern Japan in 1998. The first of their Taiwanese collections, *BSWJ* 1651 was found on the Wynn-Jones 2nd expedition to Taiwan in 1993, while *BSWJ* 6727 was from their visit in 1999, part of which Dan Hinkley accompanied them (see p. 39). C*WJ* 12357 was collected on the F. Colley & B. Wynn-Jones expedition in 2007, while *RWJ* 9845 was acquired on the Crûg Farm-Rickards expedition in 2003, both to Taiwan.

In one of the Order Beds at the University of Oxford Botanic Garden, three young plants (2008117.5) were planted in 2008. They came from Pan-Global Plants and are now about 101cm high. They suffered in the winter 2009-10, with the foliage turning brown and purple in places, but all are now showing plenty of terminal buds.

In the 2009-2010 *RHS Plant Finder*, the only separate entries under *T. aralioides* were *BSWJ* 1651 and 6727. The latest edition offers *CWJ* 12357 and *RWJ* 9845. It is offered by at least 30 other Plant Finder nurseries.

"*Trochodendron aralioides* **from Taiwan** has always been popular here differing substantially from its Japanese counterpart by its larger glossy leaves and faster

> growth. In that respect my collection CWJ 12357 should not differ from our previous collections apart from its apple green colourations."
>
> (Crûg Farm Plants 2010)

***Trochodendron aralioides* in cultivation: North America**

Jacobson (1996) mentioned that although *T. aralioides* was being sold to the public before 1954, it was still very rare. Straley (1986) noted that it was "rarely cultivated except by botanical gardens and avid plant enthusiasts." He went on to say that the flowers last for several weeks and that they and the dried fruits are used in flower arrangements.

The highly regarded and informative catalogues of Heronswood Nursery, based at Kingston, Washington State were leaders in their field and co-owner Dan Hinkley regards *T. aralioides* as "one of the most choice of sturdy evergreen trees that we can cultivate in the Pacific Northwest." In their 2003 catalogue, they listed *DJHT* 99031 which Dan had collected at 2134m on his 1999 field trip to Taiwan.

> "The evergreen Wheel Tree is relatively well known in more temperate climates of North America, successfully grown along the Pacific Coastal regions as well as the southeastern states. The forms currently under cultivation in the U.S. have originated from Japan though its range of hardiness extends throughout much of S. China. In the autumn of 1999, I collected seeds of this species from high elevations of Taiwan and the resultant seedlings have proven exceedingly more vigorous than its Japanese counterpart, leaping to 5ft. in only three years from seed." (D. Hinkley in Heronswood Nursery catalogue 2005)

Sean Hogan (2008) waxed lyrically about this plant. According to him, most plants in western North America have a tendency for their foliage to become mottled with maroon patches during the winter. Depending on your taste, this can be positive or negative! He says that it is completely hardy in Zones 8 and 7, showing very little damage at -23°C (-10°F) or even slightly lower. Although seen at its best in dappled shade; around the Vancouver, B.C. area and in high humidity south eastern North America, fine plants have been seen in nearly full sun. Hogan states that consistent moisture is necessary, otherwise the plants turn yellowish and look unkempt. Specimens from Taiwan appear to be more vigorous with a cleaner look.

Gerald Straley (1986) mentioned that there was an old plant (1959-0506C) in the rock garden at Longwood Gardens, Pa, which was probably near the northern hardiness limit for this taxon on the eastern seaboard. Tomasz Anisko, Curator of Plants at Longwood sent me details of their three largest specimens. All are multi-trunked and grow on a partially shaded slope among conifers and deciduous trees, (which replaced the long-removed rock garden). 1958-1822A was bought in from H.J. Hohman, Kingsville Nurseries in Maryland in 1958. This has seven trunks ranging from 30 to 78cm diameter, (see p. 45). 1959-0506 was collected in 1956 by John Creech in Yakushima Island, Japan, above Kosugidani at 4350m. There are two plants of this

accession, C and D. C has eight trunks, 33 to 60cm in diameter, while D has ten trunks measuring between 38 and 66cm, (see pp. 44-45).

Economic uses

Walker (1976) stated that in Japan the wood was used for timber and an adhesive resin. In Japan birdlime was made from the bark (Phillips & Rix 2002).

The Economic Botany Collections at RBG Kew holds two items related to *T. aralioides*. One is a mounted box showing all parts of the plant from W.H. Yamawaki, while the other is a box of loose fruits from the Japan Seed & Fruit Co. Both were exhibited at the Japan-British Exhibition, which was held in Shepherd's Bush, London in 1910.

Cultivation

According to John Anderson, *T. aralioides* once fully established will grow in any good soil that is not too chalky. They will also survive in dry or cool conditions and do particularly well in the moist, well-drained soil along the Gulf Stream corridor of the UK and Ireland.

Roy Lancaster noted that in cultivation, some individuals have yellowish-green foliage, which is usually caused by stress, such as drought or being exposed to cold winds.

At the Belgium Arboretum Wespelaar and at Herkenrode, Koen Camelbeke and Philippe de Spoelberch have found that *Trochodendron* grows best for them in heavy, rich, humid soil. It does not like a damp, poorly drained situation. Spring frosts can be a problem; they have seen leaf and branch damage or occasionally split bark. No plants, however, died of spring frosts. Young plants should be protected from exposure as they can die.

Propagation and pruning

Propagate by seed or by semi-hardwood cuttings in the autumn. According to Hogan (2008), *T. aralioides* is sometimes grown from seed but the best clones are those that are produced from slowly struck cuttings under mist during the winter months.

However, Fergus Garrett at Great Dixter comments that he finds cuttings difficult with a high failure rate. They have a much better success rate with sowing the seed in autumn using bottom heat and mist and it will germinate in spring like mustard and cress. They also layer to a great extent. Young plants from their fine specimen (see pp. 41, 45) are sold in their plant centre.

Koen Camelbeke finds that he gets his best results when the seed is collected very late in the season when the follicles are actually opening, e.g. in January. Marc Libert (Ghent) notes that the plants from Taiwan can be easily propagated from cuttings.

Has anyone ever found a self-sown seedling?

IDS members comments

There are four specimens at Exbury planted by Lionel de Rothschild during the 1930s. All are multi-stemmed and 9 to 10m in height, (see photos, pp. 27, 30 & 31). During the winter months their foliage is a mixture of bronze and green, while in summer it turns to a delightful apple green (J. Anderson *pers. comm.*). Foliage from one of these plants was exhibited to the RHS Woody Plant Committee in 7 October 2008.

At the same time material from a *c.* 25 year old shrub at Great Dixter, East Sussex was also shown. This had fine glossy green, rounded leaves with a distinctive paler green rim but the tree was said to resent drying out, (see p. 45). Two plants were sent there from Wakehurst Place in December 1983 to Christopher Lloyd and in January 1984 to Great Dixter. Both had been grown from seed presented by the Morris Arboretum ex Taiwan from Mt Yangming Shan (see p. 33).

John Phillips has a 3m specimen, which he planted 25 years ago in his garden near Devizes, Wiltshire. It flowers and fruits regularly and always attracts the notice of visitors.

In Wales, Ivor Stokes arranged for some material to be sent to me from the Singleton Botanical Gardens, Swansea. According to Alan Rudd, it is possible that this fine specimen dates back to the early 1920s but there is no proof or any idea of provenance. The leaves are up to 15cm long, very thick and glossy dark green above, never producing that yellowish look, (see p. 45).

There are also some fine examples in Scotland, especially along the west coast from Logan Botanic Garden to Inverewe, while the tallest specimen recorded in cultivation can be seen at Arduaine Garden, near Oban, Argyll (see p. 44 and pp. 42-43). Formerly owned by the Wright brothers, this estate is now part of the National Trust for Scotland. There is a picture of this plant in *Belgische Dendrol. Belge 2008* (2009) no. 94 by Dirk De Meyere.

In Ireland, *T. aralioides* is well represented. Forrest (1985) noted specimens at ten sites, namely Dunloe Castle and Rossdohan, Co. Kerry; Fernhill and the Talbot Botanic Garden, Co. Dublin; Fota and Ilnacullin (see p. 44), Co. Cork; Glenveagh Castle Gardens, Co. Donegal, where there are three fine plants (see pp. 44-45); Headford, Co. Meath; Mount Congreve, Co. Waterford and Mount Usher, Co. Wicklow (see p. 45). In Rowallane, Co. Down there is also a fine specimen (see p. 44). It is also planted in a number of private gardens.

At the Arboretum des Grandes Bruyères, south of Paris, Bernard de la Rochefoucauld planted several *T. aralioides* ten years ago and all are doing well.

Koen Camelbeke, Director of the Arboretum Wespelaar, and his colleagues in Belgium have provided a wealth of information on this taxon, as well as De Meyere (2004). Their tree database (BELTREES) mentions only two specimens as most taxa are usually multi-stemmed from the base. One is growing in a private collection in Uccle and is the tallest *Trochodendron* in Belgium. Unfortunately it is surrounded by other trees and will probably not

photograph © Philippe de Spoelberch

survive (see p. 44). The other is one of two plants at Hof ter Saksen, and is possibly the oldest Belgium introduction of a *Trochodendron* from Taiwan. It has been growing there since 1981, (see p. 45).

There are seven plants in total at the Arboretum Wespelaar and the neighbouring private garden of Herkenrode; the oldest and most spectacular was planted by Philippe de Spoelberch in 1973. #71007 came from Hilliers and is a vigorous grower, (see photo p. 31). It is planted beside a *Cryptomeria* as one would see in its native habitat (see p. 45). #84721 came from Spinners Garden, Hampshire in 1984 and was moved in 2006 to a more open and exposed site with somewhat chalky soil. The plant was somewhat traumatised afterwards but it has survived the very cold 2009-2010 winter, when temperatures went down to -19°C, (see photo p. 38)! Another interesting plant is #06177, which came from Plantentuin Ghent (2000-0131W). It was raised from wild collected seed from Yeakoou, Taiwan at 2355m. This plant has attractive glossy green foliage, unlike the duller even discoloured yellowish green leaves of the other accessions. However, it has not come through the recent very cold winter as well as the Japanese plants.

The oldest introductions of *Trochodendron* in Belgium appear to have come through Jelena de Belder at the Arboretum Kalmthout, in the 1960s. #1966.1307A is a really good specimen, which came from the Zwijnenburg nursery, Boskoop in 1966 and first flowered in 1980, (see p. 45). Its inflorescences are often used in Ikebana flower arrangements. #2004.0567A was bought from the Dutch nursery of Leo Terlow, (see p. 46). The other de Belder estate at Hemelrijk had three plants, 0000.4151A was of unknown source, 1978.1741A was acquired in 1978, while 0000.4150A was collected in Japan but all have since died (De Meyere 2004).

The Plantentuin Gent has one plant of Japanese origin and two from Taiwan. This botanic garden is the warmest in Belgium and so the latter pair (2000-0131 A and B) are thriving. They are vigorous, with dark green

Opposite and ***above***, the 17m specimen of *Trochodendron aralioides* at Arduaine Garden near Oban, showing typical multi-stemmed trunk.

somewhat glossy foliage and appear perfectly hardy. Their new bud scales are green. The typical Japanese plant (1996-0325) ex Kalmthout, is slower growing, with a denser habit, the leaves are dull yellowish-green, while the bud scales are reddish and attractive, (see photo p. 30).

The Nationale Plantentuin at Meise has two plants, both fully hardy and dating from 1983. 19832296 came from HBU Rostock and 19830049 is ex Hilliers, (see p. 45) and De Meyer (2004). Arboretum Bokrijk has ten *T. aralioides*; some from cultivated seed ex Wespelaar and others grown from seed collected in central Taiwan, Tahsuehshan at 2275m in 1983. Other plants are growing at the Arboretum Het Leen and in several private collections.

Anne Rieber has sent in information provided by Bjorn Moe, the chief information officer at the Arboretum and Botanical Garden, Milde, Bergen, western Norway. Surprisingly, *Trochodendron* has thrived there as western Norway has periods of frost during the winter months. They have over 70 specimens of *T. aralioides*, of which 50 have grown into small trees; the tallest are *c*. 6m in height. The oldest specimen (of unrecorded wild origin) was planted in 1974, while the majority are the result of two seed accessions obtained during the Nordic Arboretum Committee Expedition to Japan in

1976. *C*243 was collected by Find Günther Christensen on the Odaigahara plateau in southern Honshu at 1300m a.s.l., while *B*332 came from 1200m on Mt Hikosan on the island of Kyushu, gathered by Rune Bengtsson.

They have found that the best habitat for their juvenile plants is under the canopies of tall *Pinus sylvestris*. Viable seed is produced annually and they have a constant number of small plants. Seed from *C*243 and *B*332 have been offered in their *Index Seminum* in more recent years and seed lots have been distributed to many arboretae and botanic gardens all over the world.

LOCATION	ACC./ TREE NO.	HT. + SPREAD (m)	TRUNK DIAM. (cm) @ 1m	NOTES
Arduaine, Oban		17	52 @ 0.5 (1998)	
Westonbirt Arb., Glos.		14	25 (1993)	
Uccle, Belgium		12	47 (2009)	private res.
Bodnant, Wales		10.8	71 (1981)	
Univ. B. Colombia BG, Canada		10.6	(2003)	(Hsu 2004)
Ilnaculin, Co. Cork		10.5	1.05 @ 1.3 (2004)	
Exbury, Hants.		10	(2009)	pl. 1930s
Caerhays, Cornwall		9.9	76 @ 60 (1984)	
Seattle, WA		9.7	(1994)	pl. 1941, (Jacobson 1996)
East Bergholt Pl., Suffolk		9	83 @ 60 (1972)	
Wakehurst Pl., W. Sussex	1969.30461	9 x 8	0.5 (2010)	
Longwood, PA	1957-0506D	8.7 x 10.5	205 @ base (2008)	ex J. Creech, Japan 1956; 10 stems
Rowallane, Co. Down		8.5	82 @ 1.5 (2000)	
Glenveagh, Co. Donegal	A	8	52 @ 1.5 (2004)	largest of 4 stems
RBG Kew	1921.5101	8 x 4	(1994)	RIP, ex PD Williams
South Lodge, Sussex		7.9	114 (1985)	

LOCATION	ACC./ TREE NO.	HT. + SPREAD (m)	TRUNK DIAM. (cm) @ 1m	NOTES
Embley Park, Hants.		7.5	45 (1971)	
Longwood, PA	1958-1822A	7.5 x 10	134 @ base (2008)	ex H. Hohman 1958, 7 stems
Wakehurst Pl., W. Sussex	1969.30460	7.5 x 8	0.6 (2010)	
Trelissick, Cornwall		c.7.5 x 4.8	25 (2009)	pl. 1975
Wakehurst Pl., W. Sussex	1969.30462	4.5 x 7.2	(1967)	RIP AGM 1976
Glenveagh, Co. Donegal	B	7	87 @ 1.3 (2004)	leaning, fork at 1.5
Glenveagh, Co. Donegal		7	87 (2004)	
Hof ter Saksen, Belgium		6.4	60 @ 0.5 (2009)	pl. 1981
Longwood, PA	1959-0506C	6 x 10.8	172 @ base 104 @ base (2010)	ex J. Creech, Japan 1956; 8 stems
Crathes Castle, Banchory		6	101 (1981)	
Herkenrode, Belgium	#71007	6 x 6	(2009)	pl. 1973, ex Hillier
BG Milde, Norway		c. 6	(2009)	
BG Meise, Belgium		c. 6	(2009)	
Mt Usher, Co. Wicklow		5	(2009)	pl. 1965
Great Dixter, E. Sussex		5 x 4	(2010)	ex RBG Kew
RBG Kew	1999.3952	c. 4.5 x 2.4	(2010)	pl. 1999 *ETOT* 31
Singleton BG, Swansea		c. 4.5 x 5	85 @ 80 (2010)	? pl. c. early 1920s
Saltram House, Devon		4 x 3.6	25 (2010)	c. 15 years old
Arboretum Kalmthout, Belgium	#1966.1307A	3.8	27 (2009)	pl. 1966, ex Zwijnenburg
BG Meise, Belgium	1983.2296	3.6	32 (2009)	pl. 1988, ex HBU Rostock

LOCATION	ACC./ TREE NO.	HT. + SPREAD (m)	TRUNK DIAM. (cm) @ 1m	NOTES
RBG Edinburgh	1969.9346A	3.5	(2010)	
RBG Edinburgh	1968.5269A	c. 3	(2009)	
RBG Edinburgh	1980.1760B	c. 3	(2008)	
RBG Edinburgh	1980.0721A	2	(2010)	x 3
RBG Edinburgh	1980.1760C	2	(2009)	
RBG Edinburgh	1993.4181B	2	(2006)	no. 316, ex Taiwan 1993
RBG Kew	1996.1855	1.8 x 2.2	(2010)	pl. 1996, *ETOT* 31
RBG Edinburgh	1993.4181G	c. 1.8	(2009)	no. 316, ex Taiwan 1993
BG Meise, Belgium	1983.0049	1.8	(2009)	pl. 1984, ex Hillier
Arboretum Kalmthout, Belgium	#2004.0567A	1.75	(2004)	ex Holland
RBG Edinburgh	1993.4181E	c. 1.6	(2009)	no. 316, ex Taiwan 1993
RBG Edinburgh	1994.1503A	c. 1.5	(2009)	ex Kyushu, Japan 1990
RBG Edinburgh	1993.4181F	c.1.2	(2009)	no. 316, ex Taiwan 1993
RBG Edinburgh	1993. 4181C	1	(2009)	no. 316, ex Taiwan 1993

Acknowledgements
Grateful thanks to Tomasz Anisko, Chris Clennett, Jan De Langhe, Philippe de Spoelberch, John Gallagher, Fergus Garrett, Alan Gregg, Penny Hammond, Andy Jackson, Tony Kirkham, John Lanyon, Marc Libert, Christa Maes, Bjorn Moe, Tom Price, Abraham Rammeloo, Bernard de la Rochefoucauld, Alan Rudd, Brian Schrire, Song Kihun, Shirley Stark (Plant Records, RBG Kew), Ivor Stokes, Marc Struelens, Jef Van Meulder, Timothy Walker and to the Library and Archives staff at RBG Kew.

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Trees of the year – past and future

Liriodendron (1992)
Zelkova (1993)
Davidia involucrata (1994)
Ginkgo biloba (1995)
Cladrastis and *Maackia* (1996)
Cercidiphyllum (1997)
Dipteronia sinensis (1998)
Nyssa (1999-2000)
Quercus frainetto (2001) by Allen Coombes
Liquidamber (2002-2004) by Eric Hsu & S. Andrews
Magnolia campbellii (2005)
Carya ovata, part I (2006)
Parrotia persica and *P. subaequalis* (2007)
Eucommia ulmoides (2008)

With *Trochodendron aralioides* (2009) as my final Tree of the Year, I am passing the baton on to John Grimshaw, who you will know from *New Trees* and his many other publications. My thanks to all of you for your help, support and encouragement down the years.

Tree of the Year 2010

The first species that John Grimshaw will research and write about will be *Taiwania cryptomerioides* (Cupressaceae), a species that is now becoming more widely cultivated.

Please send your comments, photographs and any other information to John Grimshaw, Sycamore Cottage, Colesbourne, Cheltenham, Gloucestershire, GL53 9NP, but preferably by e-mail to: j.grimshaw@virgin.net.