

Hamamelidaceae, Part 2: Exploring the Witch-hazel Relatives of the Arnold Arboretum

Andrew Gapinski

In “Hamamelidaceae, Part 1” we looked at just one genus, *Hamamelis*, in the witch-hazel family. In Part 2, we’ll study the other representatives of the family that are present in the Arnold Arboretum. It’s helpful to start by looking at the evolutionary relationships among the genera in Hamamelidaceae. As mentioned in Part 1, witch-hazel (*Hamamelis*) displays showy flowers, each with four straplike petals. Several other genera within the family also have four-petaled flowers but they are found in warmer regions of the world and are not represented in the Arboretum, except for a lone specimen of *Loropetalum* (see page 26). In the past, these four-petaled genera were thought to be closely related on the family tree but recent DNA work is proving otherwise (Li and Bogle 2001). For example, when looking at the

very similar appearing flowers of *Hamamelis* and *Loropetalum* it’s easy to think they must be closely related (at one time both were included in the same genus), but in fact they are distant relatives found on separate branches of the family tree. The closest relatives of *Hamamelis* actually include genera such as *Fothergilla*, *Parrotiopsis*, and *Parrotia* (Li and Bogle 2001). Furthermore, the more advanced genera on each branch of the tree are those that have lost their showy, insect-attracting petals altogether, which is seen as an evolutionary shift from insect to wind pollination (Figure 1) (Li and Del Tredici 2008; Li et al. 1999). Among these aforementioned genera, *Hamamelis* is the oldest in evolutionary terms and is insect pollinated; *Fothergilla* and *Parrotiopsis* appear to represent an intermediate state in the transitional period and likely have both insect and wind pollination; and *Parrotia*, the most advanced, relies mainly on wind for pollination. Similar transitions take place on the other branches of the tree as well. We pick up here with the historical, taxonomic, and horticultural stories of the rest of the witch-hazel family starting with the closest relatives of *Hamamelis*.

Fothergilla

Fothergilla Gardeni[i] was introduced into English gardens one hundred and thirty years ago [1765], and judging by the number of figures that were published of it in Europe toward the end of the last and at the beginning of the present century, it must at that time have been a well-known and favorite inhabitant of gardens from which it has now almost entirely disappeared, in spite of the fact that few shrubs present a more curious and beautiful effect than *Fothergilla* when it is covered with flowers. Its habit is excellent, too, and its foliage is abundant and rich in color.

C. S. Sargent, *Garden and Forest*, 1895

ANDREW GAPINSKI



The flowers of *Loropetalum* look very similar to those of *Hamamelis*, but the two genera are not closely related within the witch-hazel family. This is a flower of *L. chinense* on the Arboretum’s sole specimen (see page 26).

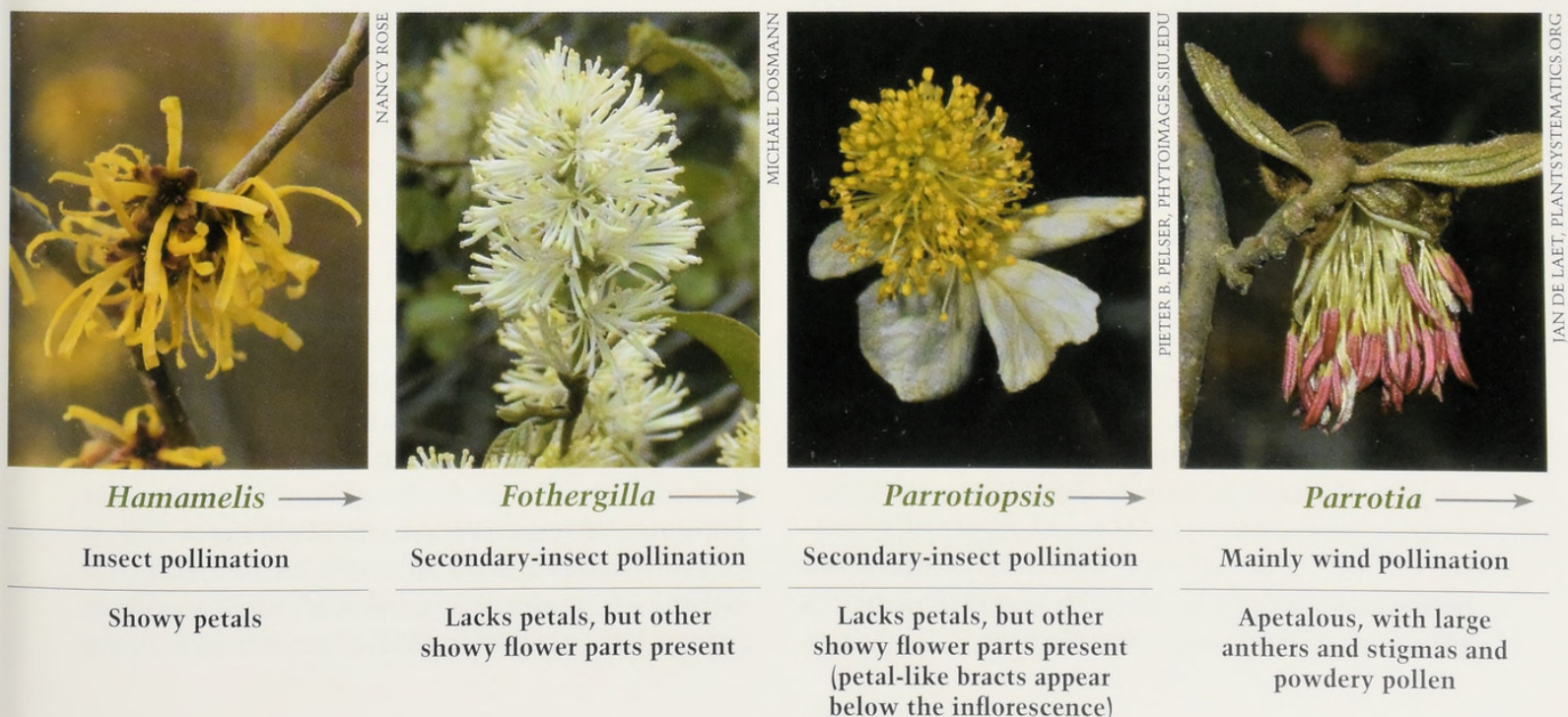
Beyond the witch-hazels (*Hamamelis*), the genus *Fothergilla* is perhaps the second most recognizable and utilized member of the witch-hazel family among gardeners. It is also the genus most closely related to *Hamamelis*. An exclusively North American genus, *Fothergilla* consists of two species, *F. gardenii* and *F. major*, both of which grow natively in the southeastern United States. Despite the favorable assessment of its ornamental traits by Sargent and others through the years, *Fothergilla* still remains underutilized, though new cultivar introductions as well as recent mentions in trade and popular publications are helping the cause (Darke 2008; Dirr 2009). Like its Ozarks relative, vernal witch-hazel (*Hamamelis vernalis*), the fothergillas carry with them winter hardiness well beyond their native range. They grow successfully at the Arnold Arboretum (USDA Hardiness Zone 6, -10 to 0°F [-23.3 to -17.8°C]) and even colder areas.

The flowers of *Fothergilla* are apetalous (lack petals) but are far from inconspicuous. The sweetly scented, bottle-brush-like inflorescences—composed of many individual flowers clustered together—appear in May in New England, with full bloom occurring just as the

leaves begin to emerge, *F. gardenii* typically slightly ahead of *F. major*. Lacking petals, the species' insect pollinators are attracted to the creamy white coloration of the flowers' enlarged stamens, tipped with yellow, pollen-bearing anthers. The fall foliage color of the genus is second to none. Typically the plant transitions from its clean, dark green to bluish green summer foliage to an array of yellow, orange, and red shades in autumn. Given these attributes, it's surprising that fothergilla isn't more widely planted, though the lack of a catchy and recognizable common name may have limited the marketability of the plant in the nursery industry. Anderson and Judd (1933) note, "Fortunate, indeed, are those plants whose common names are attractive and imaginative ... Lacking such a name, the Fothergillas have made their way slowly into public favor."

Fothergilla gardenii, commonly called dwarf fothergilla, is native to the moist coastal plain from North Carolina to Georgia and also the Florida panhandle along the Gulf Coast. The plant typically grows only 2 to 3 feet (.6 to .9 meters) tall and spreads slowly by underground stems, making it an ideal size for smaller landscapes. Although its native range falls within

(Figure 1) An example of the evolutionary transition from insect pollination (*Hamamelis*) to more advanced wind pollination (*Parrotia*) within the witch-hazel family. The sweetly-scented flowers of Chinese witch-hazel (*Hamamelis mollis*) have showy petals and freely exposed nectaries and stigmas to support insect pollination, while the flowers of Persian parrotia (*Parrotia persica*) are apetalous and have large, elongated anthers common to wind-pollinated species (Endress 1993).





The bottle-brush-like blooms of large fothergilla (*Fothergilla major*) are sweetly fragrant.

USDA Plant Hardiness Zones 8a to 9a, it can be grown successfully through Zone 5. The Arboretum's most interesting individual of the species, accession 681-88-A, was originally wild collected near Jesup, Georgia, by Harold Epstein, renowned New York plantsman. The specimen was much smaller than typical *F. gardenii*—only 12 to 15 inches tall and with proportionately smaller leaves and flowers. A rooted layer of the plant was sent to the Arboretum for evaluation in 1988, and in 2001, as part of our Plant Introduction, Promotion, and Distribution Program, it was released under the cultivar name *Fothergilla gardenii* 'Harold Epstein' (Bennett 2000). The original diminutive plant we received can still be seen in the Arboretum's Leventritt Shrub and Vine Garden.

Its cousin, *F. major*, commonly called large fothergilla or mountain witch-alder, grows upland from *F. gardenii* in the southern Appalachian Mountains from North Carolina and Tennessee to South Carolina, Georgia, and Alabama. A disjunct population is also found in Arkansas. Growing at higher elevations (and therefore in cooler conditions) and in leaner, drier soils, large fothergilla is hardier (to USDA Zone 4) and less finicky than dwarf fothergilla. Large fothergilla can reach upwards of 10 feet (3 meters) in height, forming a large mass over time. The Arboretum's finest specimen (694-34-A), accessioned in 1934, was found as a seedling growing at the base of the parent plant in the Arboretum. It was ultimately transplanted to a spot near the main gate along the Arborway, where it thrives today for all to enjoy. The 10- by 10-foot plant is consistently engulfed with blooms in the spring and displays magnificent fall color. Wild-collected representatives of the species can be found in the Leventritt Shrub and Vine Garden and on the summit of Bussey Hill and in the Explorers Garden.

Increasing interest in finding reliable native plants for home landscapes has boosted the popularity of fothergilla in recent years (Darke 2008). Another factor in raising fothergilla's profile is the recent introduction of new cultivars, particularly those that we now know are the result of hybridization between *F. major* and *F. gardenii*. In the Arboretum's propagation records, the earliest determination of a hybrid between the species is from 1980, made by Richard Weaver, the Arboretum's horticultural taxonomist and assistant curator at the time. As a graduate student at Duke University, Weaver had helped to settle the long-standing debate over the number of *Fothergilla* taxa (some authors had cited as many as four) by counting chromosome numbers and comparing morphological features of the species (Weaver 1969). Some of the samples he used for comparisons were from the Arboretum, and in his subsequent years working here Weaver continued his interest in *Fothergilla* and the rest of Hamamelidaceae (Weaver 1976; Weaver 1981).

The plants noted in 1980 as "*Fothergilla* hybrid—*F. major* × *F. gardenii*" were seedlings from a 1967 accession (709-67) received as open-



KYLE PORT

This splendid specimen of *Fothergilla major* (694-34-A) grows near the Arboretum's main gate.

pollinated *Fothergilla gardenii* seed from the Botanical Gardens of Villa Taranto in northern Italy. Several individuals appeared distinct from the others, leading to the hybrid notation. Later entries (1983) noted that in fact "Dr. Weaver counted chromosomes" to determine that the plants were hybrids between *gardenii* and *major*. Although no formal publication of the hybrid was made, Michael Dirr, following a year-long fellowship at the Arnold, notes in the 1983 revision of his *Manual of Woody Landscape Plants* that "The Arnold Arboretum has identified a hybrid between the two species which offers intermediate size and other characteristics. This could be a most valuable shrub for modern landscapes." Dirr's manual, well known for its cultivar descriptions, listed no cultivars for *Fothergilla* at the time—a testament to the lack of horticultural attention the genus had received (Dirr 1983).

Around the same time, selections of fothergilla noted for improved ornamental traits and adaptability began to enter the nursery trade, most identified as *F. gardenii* cultivars (Darke 2008). 'Mt. Airy', a 1988 Michael Dirr selection from a plant growing in Cincinnati's Mt. Airy Arboretum, was one of the first named fothergilla cultivars and is still perhaps the best known and most widely planted. The true identity of 'Mt. Airy' and other cultivars as either *gardenii* or *major* was certainly confusing, and in many cases the species names were used interchangeably in the horticulture industry. Research by Ranney and others (2007) finally determined, through cytometry, that the majority of cultivars available today, including 'Mt. Airy', are in fact hybrids between *gardenii* and *major*.

The hybrid was officially described and named *Fothergilla* × *intermedia* (Ranney et al. 2007).



The hybrid fothergilla cultivar 'Mt. Airy' has notable displays of spring flowers and bright fall color.

The increasing success of fothergilla in cultivation can be attributed to the hybrid's adaptability and hardiness—gained from *F. major*—and the landscape-friendly intermediate size, typically 4 to 5 feet (1.2 to 1.5 meters) tall. Within the Arboretum collections, fine specimens of *Fothergilla* × *intermedia* 'Mt. Airy' grow in the Leventritt Shrub and Vine Garden (429-2002- B and -D), along with several accessions near the summit of Bussey Hill.

Ancestors from the Persian Empire

Parrotia Jacquemontiana. – This is now flowering for the first time in the arboretum at Kew. It differs from *Parrotia Persica* in having smaller flowers arranged in a conical head and surrounded by ovate petaloid whitish bracts nearly an inch long. The flowers are developed before the young leaves. When mature, the leaves are orbicular or obovate, distinctly toothed all around the edges, dull green, and they do not assume the bright colors in autumn so characteristic of Persian species. The former is a native of Kashmir at an elevation of from 5,000 to 9,000 feet, where it forms a Hazel-like bush, six to twelve feet high. Dr. Aitchison [Scottish surgeon and botanist known for his plant collecting in India and Afghanistan in the late 1800s] found it in abundance in Afghanistan in the interior

of the hills, forming much of the shrub jungle there. He says the long slender stems and pliant branches are used in wicker-work and for the handles of farm implements. As a garden plant it is not as valuable as *P. Persica*, which at Kew forms a beautiful shrub or small tree, bearing large glossy leaves all summer, which in autumn change to the richest hues of orange, red, brown and yellow.

C. S. Sargent, *Garden and Forest: Foreign Correspondence*. London Letter. 1896

The monotypic genus *Parrotiopsis*, containing only *P. jacquemontiana*, as it is known today, is the topic of Sargent's writing above. Originally named *Fothergilla involucrata* without being formally described, the species would later be reclassified as *Parrotia jacquemontiana*. In 1905, the plant was placed in its very own genus as *Parrotiopsis involucrata* because its floral characteristics were found to be distinct from both *Fothergilla* and *Parrotia*. Alfred Rehder, Arboretum taxonomist, revised the specific epithet to *jacquemontiana* in 1920. Splitting hairs, he justified the name change because *F. involucrata*, as it was originally called, was never published with a description and thus the specific epithet *involucrata* was invalid and "cannot stand" (Rehder 1920).





Foliage of a *Parrotiopsis jacquemontiana* specimen (656-75-A) growing at the Arboretum.

The taxonomists of the day were certainly not far off in their placement of *Parrotiopsis* with *Fothergilla* and then *Parrotia*. They are closely related on the family tree, with *Parrotiopsis* serving as the transitional link between the two other genera (Li and Bogle 2001). The most conspicuous difference in *Parrotiopsis* is the white floral bracts (modified leaves) that surround the conical cluster of flowers, which are apetalous but feature enlarged yellowish stamens, as is the case with both *Fothergilla* and *Parrotia*. These bracts are similar in function and appearance to those of flowering dogwood (*Cornus florida*), serving as a device to attract insect pollinators. The species is abundant in the northwestern Himalayan Mountains of India, Pakistan, and Afghanistan at elevations up to 9,000 feet (2,743 meters).

The Arboretum's best specimen of *Parrotiopsis jacquemontiana* (656-75-A) is located under the shade of the hickory (*Carya*) collection just off of Valley Road. Although a fascinating plant with modest horticultural merit as a large multi-stemmed shrub or small tree, it is rare in

cultivation but certainly deserving of a place in any plant collector's garden.

Its cousin, *Parrotia persica*, known as Persian parrotia or Persian ironwood, occurs on the mountain slopes of Iran at the southern end of the Caspian Sea. Unlike *Parrotiopsis*, *Parrotia persica* offers undoubtable ornamental value and environmental adaptability. An upright, often multi-trunked small tree, it is notable for its attractive foliage that develops excellent fall color and its multi-colored, jigsaw-puzzle-like bark (see Nicholson 1989 for more on the species). The oldest and largest specimen of *Parrotia persica* (2230-A) at the Arnold Arboretum

A Lone *Loropetalum*

Chinese fringe-flower (*Loropetalum chinense*) is a shrub in the witch-hazel family that is commonly featured in southern landscapes (USDA Zones 7 to 9) but is not hardy outdoors at the Arboretum (USDA Zone 6). However, we do have a handsome penjing (the Chinese predecessor of Japanese bonsai) specimen of this species (accession 200-90) that is kept in a cool greenhouse over winter before moving to the dwarf potted plant pavilion for the warmer months.





ANDREW GAPINSKI

Views of the multi-trunked form and bark detail of *Parrotia persica* (2230-A), which was received in 1881 as a cutting from the Harvard Botanical Garden in Cambridge, Massachusetts.



MICHAEL DOSMANN

This handsome specimen of Persian parrotia was received as cultivar 'Pendula' (accession 629-87-A), though it has a spreading rather than weeping habit.



This specimen of *Parrotia subaequalis* (accession 304-2004-A) developed outstanding fall color in 2014.

(and possibly all of North America) grows in the Centre Street Beds adjacent to the hickories.

A second species of *Parrotia*, *P. subaequalis*, has recently been uncovered. The plant was originally described in 1960 as *Hamamelis subaequalis*, then in 1992 was placed within a newly proposed genus as *Shaniodendron subaequale*. After DNA analysis showed that *S. subaequale* was actually a sibling species of *Parrotia persica*, the plant was once again renamed in 1998 as *Parrotia subaequalis*. Critically endangered in the wild, only a handful of populations are known to exist in eastern China. The Arboretum has several specimens growing in the collections, the finest of which (304-2004-A) grows in the shade of mature white pines in the Explorers Garden. Although it has yet to show the exfoliating bark for which *Parrotia* are known, last fall the specimen developed outstanding orange, red, and purple foliage coloration, certainly among the most spectacular plants at the Arboretum that season.

Chinese Wilson

The genus *Sinowilsonia* is named in compliment to Mr. E. H. Wilson, whose excellent collections have thrown light on many doubtful points connected with Chinese plants.

W. Botting Hemsley, *Hooker's Icones Plantarum*, 1906

The genus *Sinowilsonia* consists of a single species, *S. henryi*, named after the plant explorers Augustine Henry and E. H. Wilson who collected the herbarium specimens from which the species was described; Wilson also first introduced the species into cultivation in 1908 as part of his first expedition for the Arnold Arboretum. *Sinowilsonia* specifically refers to Wilson—the term *sino* refers to China, and he was nicknamed “Chinese” Wilson among his peers in the botanical world.

While of botanical and historical interest, *Sinowilsonia* offers little in the way of ornamental value. Apetalous male and female flowers are borne on separate catkin-like structures (similar to birch) and rely on wind for polli-



Flowers of *Sinowilsonia henryi*.



VINCENT SIMEONE

This *Sinowilsonia henryi* growing at Planting Fields Arboretum is linked to the original introduction of the species into cultivation. A sapling propagated from the original tree—intended to take the place of its parent one day—can be seen growing nearby.

KYLE PORT



Foliage of a *Sinowilsonia henryi* specimen (156-99-A) that was propagated from the large tree at Planting Fields Arboretum on Long Island, New York.

nation. Similar in form to witch-hazel, the species is a large shrub or multi-stemmed small tree. From his collection notes, Wilson observed that the species was, "Common in the sheltered valleys and ravines of north-western Hupeh, very rare elsewhere in the province and unreported from western Szech'uan [Sichuan]. It is very partial to the sides of mountain-streams where it forms a large bush or bushy tree, and in general appearance resembles a witch-hazel" (Wilson and Sargent 1913). Today we know the species' range to be throughout central China, but it is threatened, like many species, by habitat degradation.

The Wilson collections of *Sinowilsonia* in 1908 grew in various locations throughout the Arboretum until the dev-

astatingly cold winter of 1933–1934, in which dozens of taxa, including all the *Sinowilsonia*, were outright killed and many more plants died back to the ground (Faull et al. 1934). Fortunately, material from the Wilson collection had been distributed to other gardens, though it is unclear how many plants from this original collection remain in cultivation today. A truly grand specimen of *Sinowilsonia*—possibly the finest in North America—grows at Planting Fields Arboretum State Historic Park, Long Island, New York. It originated from material shared by the Arnold Arboretum and undoubtedly represents the lineage of the original Wilson introduction. Propagules from this now 40- by 50-foot multi-stemmed tree have been obtained on several occasions to reestablish the Wilson pedigree here; one such specimen (156-99-A) currently grows on the edges of the hickory collection. Our best representative of the species (1970-80-A) grew from the only seed to germinate from a seed lot acquired during the 1980 Sino-American Botanical Expedition (Spongberg 1991). Today, it thrives in its permanent location on the edge of a gentle slope adjacent to the east nursery at the Dana Greenhouses.

At the same time of Wilson's expedition to introduce *Sinowilsonia* to the cultivated world, he discovered a plant that Augustine Henry overlooked in his travels in Hubei 20 years prior:

Ichang [Yichang]

June 28, 1907

Dear Professor Sargent,

... I am enclosing a fragment of what is to me perhaps the most interesting plant, together with a similar fragment of *Sinowilsonia* for comparison. The new plant may be any one of these things ... a new genus; a new species of the *Sinowilsonia*; the male form of *S. henryi*, allowing that the latter plant is sexually dioecious ... If I can only secure fruits of both, the point can be easily settled. Unfortunately, the new plant is very rare, occurring only in oak woods ...

Believe me, Dear Professor Sargent

Faithfully and obediently yours,

E. H. Wilson

Returning to the location that autumn to prospect for seeds, Wilson again wrote to Sargent:

Ichang [Yichang]

November 30, 1907

Dear Professor Sargent,

... Some time ago I wrote you about (and forwarded a fragment of) what I thought was either the male form of *Sinowilsonia henryi* or a new species. I have now secured ripe fruits and seeds of both plants and these conclusively prove the latter view to be correct. The species are very distinct in every way, so much so in fact that some doubtless will be inclined to regard them as constituting distinct genera. I am particularly delighted over this find and only hope you succeed in raising plants ...

I am, dear Professor,

Faithfully and obediently yours,

E. H. Wilson

At the conclusion of his first expedition to China for the Arboretum in 1907–1908, Wilson returned to Boston, accepting an offer from Sargent to supervise the investigation in the Arboretum's herbarium of the plant vouchers he had collected. Working alongside Alfred Rehder, the pair described several new species from Wilson's collections. The vouchers Wilson mentioned in his correspondence with Sargent were cited when Wilson and Rehder introduced a new genus, *Fortunearia*, to the botanical world:

This new Chinese genus is named for the late Robert Fortune whose travels in China and Japan, from 1843–1861 resulted in important additions to our knowledge of the far eastern, and particularly the Chinese flora and enriched our garden with a large number of highly ornamental plants ... *Fortunearia* closely resembles in foliage and habit *Sinowilsonia*, which differs chiefly in its tubular calyx-tube several times longer than the ovary and enclosing it, by the absence of petals, the larger spatulate sepals, sessile flowers and the flat cotyledons ...

Plantae Wilsonianae Volume 1, 1913

As Wilson noted, *Fortunearia* differs from *Sinowilsonia* in its reproductive structures. The two species are close cousins on the family tree and again the evolutionary transition from

What About Sweetgum?

The sweetgums (*Liquidambar* spp.) have traditionally been included in Hamamelidaceae, forming the subfamily Altingioideae along with two other genera, *Altingia* and *Semiliquidambar*. However, the members of Altingioideae have enough morphological differences from the rest of Hamamelidaceae that some taxonomists through the years have suggested that the group be elevated to their own separate family, Altingiaceae. Recent research at the molecular level supports this separate family, and some (though not all) taxonomic references now list sweetgums under

Altingiaceae rather than Hamamelidaceae. The Arboretum has accessions of three *Liquidambar* species in the collection: *L. styraciflua* from North America, and *L. acalycina* and *L. formosana*, both from China. This large specimen of *L. styraciflua* (135-38-B) grows near the juncture of Bussey Hill Road and Valley Road.



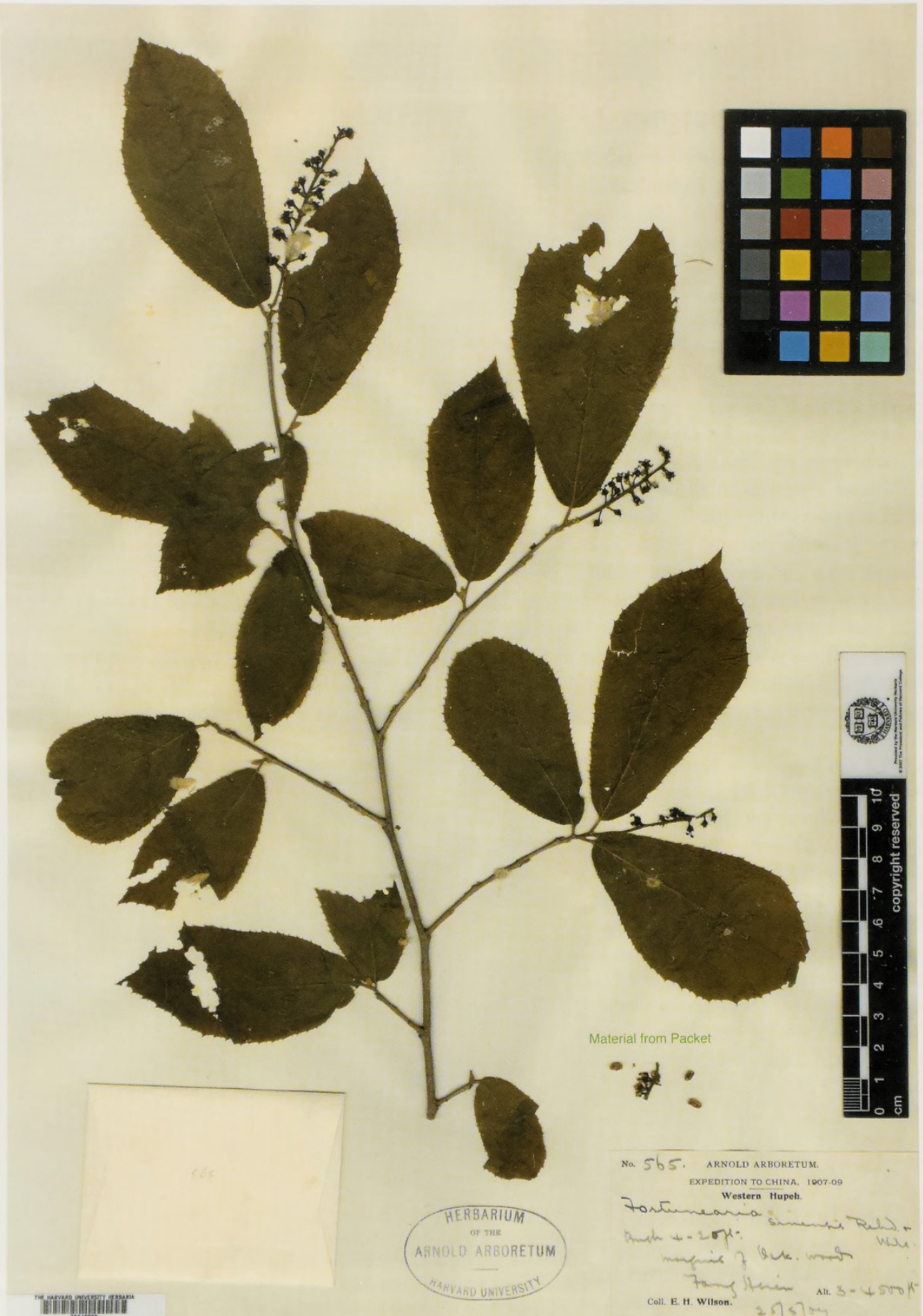
ANDREW GAPINSKI

petals to no petals is apparent. A few accessions of *Fortunearia sinensis* do exist in the Arboretum, most notably a pair growing in the Explorers Garden under the shade of a large Canadian hemlock (*Tsuga canadensis*) just up the slope from Oak Path. These specimens were received as wild collected seed in 1980 from the Chinese Academy of Forestry. No plants collected directly through Arboretum expeditions currently exist on the grounds; seedlings from Wilson's original collection survived only a few years in cultivation. Seeds were also collected on the 1994 NACPEC expedition, but no plants resulted. This is another example of an extremely rare plant in cultivation, given its modest ornamental interest.



KYLE FORT

Foliage and warty developing seed capsules of an Arboretum specimen of *Fortunearia sinensis* (580-79-B) grown from seeds received from the Nanjing Botanical Garden.



Herbarium voucher in flower collected May 25, 1907, in Fang Hsien, Hubei, China, by E. H. Wilson, who considered it a possible new species at the time of collection. It would later be named *Fortunearia sinensis* by Wilson and Rehder.



(Clockwise from top left) The bonsai specimen of *Corylopsis spicata* was in bloom in mid-April last year.

A raceme of pale yellow flowers dangles from a branch of *Corylopsis sinensis* var. *calvescens* in the Explorers Garden.

A specimen of *Corylopsis glabrescens* 'Longwood Chimes' (159-99) in full bloom in the Leventritt Shrub and Vine Garden.



NANCY ROSE

Winter-hazel

Corylopsis. All the species of this genus of shrubs of the Witch Hazel Family cultivated in the Arboretum have survived the winter with little or no loss of wood, but the flower-buds of the Chinese *C. Veitchiana* and *C. Willmottae*, and of the Japanese *C. pauciflora* and *C. spicata* have been killed by the cold, and the only species which has flowered is *C. Gotoana* of the elevated region of central Japan. This is evidently the hardiest of the plants of this genus, and as it has now flowered in the Arboretum every spring for several years there is good reason to hope that we have here an important shrub for the decoration of northern gardens. The flowers are produced

in drooping spikes and open before the leaves appear, as in the other species, and are of a delicate canary-yellow color and pleasantly fragrant.

Arnold Arboretum, *Bulletin of Popular Information*, May 4, 1918

In the early to mid-1900s, the status of the winter-hazels (*Corylopsis*) was a topic of interest in Arboretum publications each spring. As noted above, the most reliably flower hardy species has been *C. gotoana*, which some taxonomic references now group with another Japanese montane species, *C. glabrescens*, under the latter name. There is still much debate about the most appropriate treatment of the *Corylopsis*



A Missing Gem

Disanthus cercidifolius is a witch-hazel family member that is, unfortunately, missing from the Arboretum collection. This large shrub from China and Japan is noted for its attractive heart-shaped leaves; the specific name *cercidifolius* alludes to their resemblance to the leaves of *Cercis*, the redbuds. Like several of its relatives in Hamamelidaceae, *Disanthus* has excellent fall foliage color featuring rich shades of red and purple.

The Arboretum has accessioned this species a number of times but we currently have no living specimens. Some seed accessions had poor or no germination, and unfavorable climate or site conditions may be responsible for other failures. Arboretum Curator of Living Collections Michael Dosmann reports that *Disanthus cercidifolius* is high on his “wanted” list, and future accessions will be carefully sited to provide the fertile, moist, well-drained soil, partial shade, and wind protection that this plant prefers.

taxa. Some references have listed upwards of 30 taxa, though most research today groups many of these together into around ten species. E. H. Wilson even proclaimed his confusion with the genus in field correspondence with Sargent from China dated August 17, 1907: “*Corylopsis* are exceedingly common shrubs and extremely variable in foliage and degree of hairiness. At present I am undecided as to whether one, two or three species occur ...”

All of the species are similar in appearance, growing as multi-stemmed, broad-spreading shrubs of varying size. Of particular ornamental value are the early spring flowers—fragrant, bell-shaped, pale yellow to greenish yellow, and borne in pendulous racemes. Fall foliage color is a rather muted greenish yellow, unimpressive compared with many other family members. There are reports of better fall color farther south; possibly the leaves fall prematurely in colder northern regions.

Corylopsis glabrescens (*C. gotoana*), reportedly the hardiest species and the most well suited for New England gardens, was first introduced into cultivation by Arboretum dendrologist John George Jack. He sent seeds back to the Arboretum from Japan in 1905, the year he spent touring Northern China, Korea, and Japan as only the second Arboretum staff member (after Sargent) to visit Asia. Another Arboretum connection to the genus came when Wilson and Rehder named several new *Corylopsis* taxa from the herbarium vouchers Wilson brought back from his early expeditions for the Arboretum. Although some of these *Corylopsis* have now been lumped together with other taxa, I think Wilson would be pleased to hear that the topic continues to confuse taxonomists even today!

The greatest concentrations of winter-hazel in the Arboretum can be found adjacent to the hickories in the area known as the Centre

Street Beds and in the Explorers Garden near the summit of Bussey Hill—a visit to these areas in early spring is certainly worth the trip. A bonsai specimen of *Corylopsis spicata* can also be seen in the dwarf potted plant pavilion adjacent to the Leventritt Shrub and Vine Garden.

A Family Worth Knowing

The witch-hazel family contains a relatively small number of species (around 100), yet the group is tremendously diverse. Its members are botanically fascinating and carry with them a remarkable history of exploration and discovery. From witch-hazel to winter-hazel, *Fothergilla* to *Parrotia*, they are among the most charming of garden plants. Although much work has been done to increase the utility of the family members in our landscapes, their presence remains understated. In New England and many other regions, the plants of Hamamelidaceae fill our gardens with beauty, even in the depths of winter. As has been stated before, there is a tree or shrub in bloom every month of the year in the Arnold Arboretum—a phenomenon only possible because of the witch-hazel family.

References

- Anderson, E. and W. H. Judd. 1933. *Fothergilla major*. *Bulletin of Popular Information*. ser. 4. vol. 1, no. 12.
- Arnold Arboretum. 1918. Effects of the severe winter. *Bulletin of Popular Information*. vol. 4 no. 1.
- Bennett, E. S. (ed.). 2000. 2001 PIPD releases, in Arnold Arboretum News. *Arnoldia* 60(4).
- Darke, R. 2008. *Fothergilla* in cultivation. *The Plantsman*. 7(1): 10–17.
- Dirr, M. A. 2009. *Manual of woody landscape plants*. Champaign, IL: Stipes Publishing.
- Dirr, M. A. 1983. *Manual of woody landscape plants*. Champaign, IL: Stipes Publishing.
- Endress, P. K. 1993. Hamamelidaceae. In: K. Kubitzki, J. G. Rohwer, and V. Bittrich (eds.), *The families and genera of vascular plants*, vol. 2, page 324. Berlin-Heidelberg-New York: Springer-Verlag.
- Faull, J. H., J. G. Jack, W. H. Judd, L. V. Schmitt. 1934. Winter hardiness of trees and shrubs growing in the Arnold Arboretum. *Bulletin of Popular Information*. ser. 4. vol. 2, no. 7: 29–36.
- Hemsley, W. B. 1906. *Sinowilsonia henryi*, Hemsl. *Hooker's Icones Plantarum* 29: t. 2817.
- Li, J. and A. L. Bogle. 2001. A new suprageneric classification system of the Hamamelidoideae based on morphology and sequences of nuclear and chloroplast DNA. *Harvard Papers in Botany* 5: 499–515.
- Li, J., A. L. Bogle, and A. S. Klein. 1999. Phylogenetic relationships of the Hamamelidaceae inferred from sequences of internal transcribed spacers (ITS) of nuclear ribosomal DNA. *American Journal of Botany* 86: 1027–1037.
- Li, J. and P. Del Tredici. 2008. The Chinese *Parrotia*: A sibling species of the Persian *Parrotia*. *Arnoldia* 66(1): 2–9.
- Nicholson, R. G. 1989. *Parrotia persica*: An ancient tree for the modern landscape. *Arnoldia* 49(4): 34–39.
- Ranney, T. G., N. P. Lynch, P. R. Fantz, and P. Cappiello. 2007. Clarifying taxonomy and nomenclature of *Fothergilla* (Hamamelidaceae) cultivars and hybrids. *HortScience* 42: 470–473.
- Rehder, A. 1920. New species, varieties and combinations from the herbarium and the collections of the Arnold Arboretum. *Journal of the Arnold Arboretum* 1: 256–263.
- Sargent, C. S. 1895. New or little-known plants. *Fothergilla Gardeni*. *Garden and Forest*. 8: 446.
- Spongberg, S. A. 1991. A Sino-American Sampler. *Arnoldia* 51(1): 2–14.
- Watson, W. 1896. Foreign correspondence: London letter. *Parrotia Jacquemontiana*. *Garden and Forest*. 9: 173–174.
- Weaver, R. E. 1969. Studies in the North American genus *Fothergilla* (Hamamelidaceae). *Journal of the Arnold Arboretum*. 50: 599–619.
- Weaver, R. E. 1981. *Hamamelis* 'Arnold Promise'. *Arnoldia* 41(1): 30–31.
- Weaver, R. E. 1976. The witch hazel family (Hamamelidaceae). *Arnoldia* 36(3): 69–109.
- Wilson, E. H. and C. S. Sargent (ed.). 1913. *Sinowilsonia*. *Plantae Wilsonianae*. Vol. 1. Cambridge, Massachusetts: Harvard University Press.

Andrew T. Gapinski is Manager of Horticulture at the Arnold Arboretum.



Gapinski, Andrew. 2015. "Hamamelidaceae, Part 2: Exploring the Witch-hazel Relatives of the Arnold Arboretum." *Arnoldia* 72(4), 20–35.

View This Item Online: <https://www.biodiversitylibrary.org/item/216997>

Permalink: <https://www.biodiversitylibrary.org/partpdf/253586>

Holding Institution

Harvard University Botany Libraries

Sponsored by

Harvard University Botany Libraries

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.