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On the cover: Forsythia x intermedia 'Spectabilis' at the Arnold Arboretum. Photo by P. Bruns.
The Story of Forsythia

It is difficult to imagine what the spring garden must have been like without the Forsythias, but it is of interest to note that no Forsythia species was common in cultivation until about 1850 and it was not until 1908 that the first really outstanding horticultural variety was imported into this country. Because of their ability to produce an abundant display of bright color so early in the season, few groups of shrubs have risen to favor as quickly as the Forsythias. The only other hardy early flowering shrubs that have yellow flowers are *Cornus mas*, the Cornelian Cherry; *Lindera benzoin*, Spice Bush; and *Dirca palustris*, Leatherwood. Delightful as each of these may be, none can match the bright display which most of the Forsythias produce.

The following account is an attempt to describe the various species and cultivars of *Forsythia* which have played a role in the development of our current garden varieties, and also to describe a number of the best ones which are easily available on the market today. Some varieties, of interest only in botanical collections, have been omitted from this discussion as well as a few cultivars currently available which will probably never become popular.

*Forsythia x intermedia* and its cultivar ‘Spectabilis’ have played an important role in the development of many varieties. These are excellent garden plants, but it is felt by the authors that much more needs to be done. Larger, more attractive flowers should be developed; greater hardiness should be bred into future varieties probably using *F. ovata*; and forms with a more graceful habit of growth would be a welcome addition using a variety such as *F. suspensa* var. *sieboldii* as a starting point. Dwarf shrubs are in great demand today and in Forsythia we have only *F. ‘Arnold Dwarf,’* a good ground cover but with washed out flower color and sparse bloom; *F. viridissima* ‘Bronxensis,’ which flowers well but is difficult to propagate and grow; and *F. x. intermedia* ‘Nana,’ another plant with poor, greenish-yellow flowers. Even though the story of our garden Forsythias is a long one, several more chapters are undoubtedly waiting to be written.

Between August 1775 and November 1776 Carl Pehr Thunberg, a pupil of Linnaeus, visited Japan as a member of the Dutch Embassy to the Imperial Court at Tokyo. Some years later, in 1784, he published a Flora Japonica which included about 1000 species which he had collected on his trip, including many cultivated plants. One plant in particular, and the one in which we are interested, he called Syringa suspensa. This was a deciduous shrub with slender weeping branches which produced quantities of yellow flowers in April, before the leaves began to grow.

According to P. J. van Melle, a catalog published in 1817, of a garden maintained by Christian August Breiter in Leipzig, lists the name Syringa suspensa. We suppose that this is the plant that Thunberg described, but how or when it got to Leipzig we have no idea.

In 1804 Martin Vahl, Professor of Botany at Copenhagen, recognized that Thunberg’s plant was not a lilac and established the genus Forsythia for the plant. The genus commemorates William Forsyth, who was at that time Director of the Royal Garden at Kensington.

From 1825 to 1830 Philipp Franz von Siebold was living in Japan as an employee of the Dutch government. He too studied many Japanese plants, native and cultivated, and on his return to Holland he (with Joseph Gerhard Zuccarini) prepared a Flora Japonica. In this work he published a colored illustration of Forsythia suspensa, indicating that it was known only in cultivation, and noted that there were two forms, one with slender, weeping stems and the other with stouter, more erect and spreading stems. In 1833 Verkerk Pistorius is said to have imported living plants to Holland where they were apparently cultivated for the next twenty years.

In 1857 Forsythia suspensa var. sieboldii was flowered in England at the Veitch Nurseries. This is the form of the species with long, slender, pendant branches which is effective when planted in such a way that it may trail over walls. The shrub grows to 6 feet tall, the stems are arching and become 10–12 feet long. The flowers are slightly larger than F. viridissima, being about an inch long (2.5 cm.), clear yellow without a tinge of green, and borne singly. In 1864 the erect form of the species, Forsythia suspensa var. fortunei, was introduced, with spreading (not weeping) branches. The flowers are either solitary or as many as 6 together. The leaves are frequently 3-lobed or 3-parted, and the corolla lobes are narrow.

Fig. 1: Forsythia suspensa from Flora Japonica by Siebold and Zuccarini, 1835.
and generally twisted. The Arnold Arboretum received cuttings of *Forsythia suspensa* from Francis Parkman, the historian, in 1876.


In 1844 or 1845 Robert Fortune, on his first trip to China sponsored by the Horticultural Society of London, found a *Forsythia* cultivated in a Chinese garden. He sent material to London and John Lindley, the Assistant Secretary of the Horticultural Society, described it in the first volume of the *Journal of the Horticultural Society* as *Forsythia viridissima*. At this time he quoted Fortune's notes as follows:

This is a deciduous shrub with very dark green leaves, which are prettily serrated at the margin. It grows about 8 or 10 feet high in the north of China, and sheds its leaves in autumn. It then remains dormant like any of the deciduous shrubs of Europe, but is remarkable for the number of large prominent buds which are scattered along the young stems produced the summer before. Early in spring these buds, which are flower-buds, gradually unfold themselves, and present a profusion of bright yellow blossoms all over the shrub, which is highly ornamental. I first discovered it growing in the same garden with *Weigela rosea*, which, I have said in another place, belonged to a Chinese Mandarin, on the island of Chusan, and was generally called the Grotto Garden by the English. Like the Weigela it is a great favourite with the Chinese, and is generally grown in all the gardens of the rich in the north of China. I afterwards found it wild amongst the mountains of the interior in the province of Chekiang, where I thought it even more ornamental in its natural state amongst the hedges than when cultivated in the fairy gardens of the Mandarins.

For twenty years or more *Forsythia viridissima* was the only *Forsythia* in cultivation in Britain and in the United States. Today it is rarely seen. It forms an erect branching shrub four to nine feet tall; the flowers are a little less than an inch long (2–2.5 cm.), yellow tinged with green, and borne singly or two together. It is hardy to Zone V (Massachusetts and southern New York State as far north as Albany). The Arboretum obtained seed of *Forsythia viridissima* from the garden of Charles Sprague Sargent in 1874.

F. viridissima 'Bronxensis' is difficult to propagate and for that reason not many nurserymen offer it. At the time the plant was first described, it was growing at the New York Botanical Garden where no record of its origin had been kept. It was later found that the Botanical Garden had received its plant from the Boyce Thompson Arboretum, Yonkers, N.Y., where it was grown from seed received from the Imperial University Botanic Garden of Tokyo, Japan, in 1928 as F. koreana. Three plants developed from these seeds, two of which were F. viridissima var. koreana and the third a dwarf seedling.

F. viridissima 'Bronxensis' is a true dwarf, ten-year-old plants being little more than a foot high and two feet in diameter. It blossoms freely, unlike F. 'Arnold Dwarf,' but although the outer branches are somewhat spreading, they do not root into the ground at their tips as F. 'Arnold Dwarf' does, and it cannot be used as a ground cover. It is, however, a very fitting subject for the rock garden.

Forsythia x intermedia Zabel, in Gartenflora 34: 35. 1885.

In the summer of 1878 Hermann Zabel, Director of the Municipal Garden in Munden, found seedling Forsythias in the Botanic Garden of Gottingen which were apparently the result of a cross between F. viridissima and F. suspensa var. fortunei. He described this, in 1885, as Forsythia x intermedia. This hybrid has been the source of many garden forms. Its value lies in its being somewhat hardier than either parent, being hardy through much of New Hampshire, Vermont and up-state New York. In habit it is similar to Forsythia suspensa var. fortunei. The Arboretum received its first plant of this hybrid in 1889. Forsythia x intermedia is of importance today because it has yielded a series of selections, and hybrids between those selections which are among the most useful of contemporary Forsythias.

Forsythia x intermedia 'Vitellina' Koehne, in Späth Nurs. Cat., Berlin, Germany. 1899.

Beginning in 1899 a number of selections were made at the Späth Nurseries, Berlin, Germany, from seedlings of F. x intermedia. Forsythia x intermedia 'Vitellina' was offered for sale in the same year, thus starting the parade of new cultivars which are characterized as having more upright and vigorous
growth than their "ancestor," *F. suspensa* var. *fortunei*, and larger and more profuse flowers than either *F. suspensa* or *F. viridissima*. *Forsythia* 'Vitellina' is noted for having the smallest flowers (3.6 cm. diameter) in this general group of hybrids and although these are deep yellow, the cultivar is not in general cultivation today.

*Forsythia x intermedia* 'Densiflora' (Koehne) Schelle, in Beissner, et al., Handb. Laub.-Ben 413. 1903.

*Forsythia x intermedia* 'Densiflora' was introduced in the same year as *F*.'Vitellina' by Späth and proved popular for a number of years because of its profuse flowers. It has spreading and pendulous branches, like *F. suspensa*, and crowded, pale yellow, rather flat flowers with slightly recurved corolla lobes. Its parentage is the same as 'Vitellina.'

*Forsythia x intermedia* 'Spectabilis' Koehne in Gartenflora 55: 227. 1906.

The next introduction from Späth in 1906 was *F. 'Spectabilis'* and it is the one cultivar in the series from that nursery which has remained extremely popular to the present day. Combining the stiffer habit of *F. viridissima*, with the more profuse flowering of *F. suspensa* var. *sieboldii*, it is especially noted for its display of large vivid yellow flowers which are one-and-a-half inches across, and are produced in clusters.

Never before had any Forsythia produced as many or such deeply colored flowers as this new hybrid selection. After sixty-five years, during which many other varieties have come on to the market, *Forsythia x intermedia* 'Spectabilis' remains the standard for any new cultivar to better when it comes to critical comparisons.


The story of the Forsythias switched next to the other side of the Atlantic, to the Arnold Arboretum, where in 1912 Alfred Rehder observed a chance seedling growing in a mass planting of Forsythias on Bussey Hill. It was propagated and named *F. 'Primulina.'* Of much the same habit as *F. 'Spectabilis,'* it is a selection from *F. x intermedia* but in this case the flowers are pale-yellow. It was much admired by those who objected to the "brassy" tones of *F. 'Spectabilis,'* but is seldom grown outside of botanical collections now that the following cultivar is easily available.
**Forsythia x intermedia 'Spring Glory'** Wayside Gardens Cat., Mentor, Ohio. 1942.

Mr. M. H. Hovarth of Mentor, Ohio, discovered 'Spring Glory' in 1930 as a branch sport on a plant of F. x intermedia 'Primulina' which grew in his garden. He noted one branch consistently produced larger and more densely arranged flowers than the others on the bush. Cuttings taken from this branch produced plants which were far superior to F. 'Primulina,' and about 1942 it was introduced into the trade by Wayside Gardens, Mentor, Ohio, as F. x intermedia 'Spring Glory.' It is still one of the leading varieties on the market today, and well worth growing by those who object to the color of F. x intermedia 'Spectabilis.'


The next sport to be found on a plant of F. x intermedia 'Spectabilis' occurred in a garden in Northern Ireland called Lynwood. The owner, Miss Adair, noticed a branch on her plant that had flowers which were more open and better distributed along the stem than those on the rest of the plant. The Slieve Donard Nursery of Newcastle, Northern Ireland, took cuttings from the branch and introduced it about 1935. It is called F. 'Lynwood' in honor of the garden where it originated. The flowers are brilliant yellow and slightly lighter than F. x intermedia 'Spectabilis.' Although the plant is possibly a bit stiff in habit of growth, in flower it is without doubt one of the best. By 1949 the cultivar had reached America where nurserymen called it 'Lynwood Gold,' a name thought to have greater appeal. Unfortunately, it still appears in catalogs under this incorrect name.

**Forsythia x intermedia 'Arnold Giant'** Sax, Arnoldia 7: 10. 1947.

Until the 1940's the main role played by the Arnold Arboretum in the story of the Forsythias was that of the original importer of some species and cultivars into the United States. About this time Dr. Karl Sax, Director of the Arnold Arboretum, and certain of his students became interested in the breeding of Forsythias, and particularly in the treatment of seedlings with a colchicine emulsion in an attempt to produce tetraploid plants. By producing tetraploid cells (which contain double the ordinary number of chromosomes) in the growing point of a young plant, entire plants can be developed which have two
Figs. 2 and 3: Typical habitat for Forsythia, Kongo-san, Korea.
Photos: E. H. Wilson, 1918.
times the normal chromosome number. In many instances such plants have more vigor and larger flowers. *Forsythia* 'Arnold Giant' was developed in this manner from a seedling of *F. x intermedia* 'Spectabilis.' It has thicker leaves, larger and darker flowers, and is more erect in habit of growth than *F. x intermedia* 'Spectabilis.' Although offered by some nurseries, it has never proved popular in this country as it is too rigidly upright and difficult to place correctly in the garden. It is also difficult to root from cuttings, an objectionable characteristic for a Forsythia.

*Forsythia x intermedia* 'Tremonia'

In 1966 the Arnold Arboretum obtained a new cultivar of *Forsythia x intermedia* called 'Tremonia' from Mr. Gerd Krussman of the Dortmund Botanic Garden, Dortmund, West Germany. Although it is too early to predict the habit of growth or flower production of our specimens, young plants in the nurseries produced flower buds for the first time last fall. The plants are of immediate interest, moreover, because of the deeply cut leaves, giving it the most interesting foliage of all the Forsythias. Young plants and hardwood cuttings were released by the Arnold Arboretum to the nursery trade in 1969 and it is hoped that within a few years *Forsythia x intermedia* 'Tremonia' will be available commercially.


In 1897 a new species of Forsythia was discovered in Albania. Seed was immediately distributed and by 1904 seedlings were flowering in various public and private gardens. The story was set out by Otto Froebel, a nurseryman of Zurich:

> It may be regarded as a most interesting phenomenon that in our days an entirely new shrub should have been found in Europe, the existence of which no one had any idea of and the family of which had hitherto only been known in Japan and China.

> This was only rendered possible through this European species having its home in a part of the Balkan Peninsula in Albania, which has hitherto been comparatively unexplored on account of the danger and difficulty of the journey and the absence of any accommodation. I was indebted to the kindness of Dr. A. von Degen in Budapest for a small packet of the seed collected by him in October
1899, from which I was able to raise a few plants. Thanks to careful attention the seedlings thrived well, and by the autumn of 1902 they had grown to be fine, strong bushes 8 feet and more high; and to my surprise, and contrary to all expectation, one single plant, in 1904, produced a small number of blooms scattered over two year old wood, but unfortunately it was not observed until too late. I sent the already half-bloomed spray to Herr Beissner in Bonn, but he could not use the material for further investigation.

*Forsythia europaea* is a stiff upright shrub 6 feet or more tall. The flowers are generally solitary, or two or three together, a little less than one inch long (2 cm.) and pale yellow in color. Although it is about as hardy as *F. suspensa* it is not a particularly ornamental species, and is seldom found outside of botanical collections. The Arnold Arboretum received seed of this new species from A. K. Bulley in 1900.


In 1897 G. Giraldi collected a Forsythia in North Shensi, China. The material was not in flower, but fruits were present. The dried specimens were studied by Alexander Lingelsheim who determined that the plant was related to, but different from, *F. viridissima*. He published a description based on the dried specimens and the collector's notes and called the plant *Forsythia giraldiana*. In 1914 Reginald Farrer collected seeds of the same species in Kansu, China.

*Forsythia giraldiana* is an upright shrub up to twelve feet tall. The flowers are yellow, borne singly, a little less than an inch long (1.6–2.1 cm.) and it is one of the earliest of Forsythias to flower. It is as hardy as *F. suspensa* but not so ornamental. The Arboretum obtained material of this species in 1938.

*Forsythia japonica* Makino, in Bot. Mag. Tokyo xxviii: 105, Fig. IV. 1914.

In the first part of the twentieth century plant exploration in eastern Asia produced quantities of interesting plants. In 1914 Tomitaro Makino, Lecturer in Botany in the Imperial University, Tokyo, described a Forsythia collected in the mountains in the Province of 'Bitchu' which is in southwest Honshu, between Hiroshima and Kyoto (it is now the Chugoka District). This is a relatively small-flowered species, the flowers only a little more
than one-half an inch long, (1.5 cm.). He called it *Forsythia japonica*, and it is the only species of the genus native in Japan.


In 1917 Takenoshi Nakai collected fruiting material of a Forsythia in the Diamond Mountains of Central Korea (just inland from the eastern coast and bisected now by the boundary between North and South Korea) and published a description of *Forsythia ovata* in 1917. In that same year E. H. Wilson collected seeds of the species in the same location and in 1923 Alfred Rehder published a description of the flowers based on plants raised in the Arnold Arboretum. *Forsythia ovata* makes a stiff spreading shrub 4 to 6 feet tall. The flowers are small, less than 1 inch long (1–1.5 cm.) and “butter yellow.” Its great virtue is its hardiness (to Zone IV) and the fact that it is the earliest Forsythia to come into bloom.


In 1919 Nakai described another Forsythia from specimens collected near Seoul, Korea, a small shrub 3 feet tall, with small flowers. Its only claim to fame is that it is one parent of *Forsythia ‘Arnold Dwarf.’* Nakai originally considered this to be only a variety of *Forsythia japonica*; however in 1921 he decided that it was sufficiently different from that species to be considered a species in its own right. Further study by Rehder suggests that Nakai’s original disposition was the correct one, and it is now generally referred to as *Forsythia japonica* var. *saxatilis*.


Exploration in Korea continued and in 1924 Rehder described another of Wilson’s introductions as *Forsythia viridissima* var. *koreana*. In 1923, Nakai, in the course of a study trip to the United States, visited the Arnold Arboretum and discussed this plant among others with Rehder and Wilson. In 1926 he published a description of it and raised it to specific rank saying: “This Korean species is one of the most decorative among the Forsythias.” It is a large shrub, up to 12 feet high, with flowers about the size of *F. ovata*. 

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Fig. 4: Forsythia x intermedia 'Arnold Giant.'

Homika Uyeki described a plant from Mt. Keikwan, Manchuria, as Forsythia mandschurica in 1929. This is said to be similar to F. japonica and F. saxatilis but little more is known of it. So far as we know it is not in cultivation.


The next year, 1930, Nakai described a plant which he called Forsythia densiflora based on specimens collected growing on calcareous rocks on Mt. Chojusan in the Province of Kokai in Korea. Nakai thought it would be a good garden plant, but it apparently has not been used in cultivation. It should be noted that the name Forsythia densiflora had already been used for an entirely different plant, so that Nakai’s name cannot stand. In 1966 T. B. Lee, of the Forest Experimental Station at Seoul, Korea, published the new name Forsythia nakai for this plant, and this is the name that must be used henceforth.

Hybrids

Because of the value of Forsythias as garden plants, a number of hybrids have been made, although relatively few aside from Forsythia x intermedia have proved superior to selections from the species. Forsythia x intermedia has already been mentioned. In 1935 a cross between Forsythia europaea and F. ovata was raised in the Arnold Arboretum. We still have a plant of this cross, but it is not particularly ornamental. In 1965 Z. Katedry Roslin Ozdobuych described two hybrids raised in Poland — Forsythia x kobendzae (F. europaea x F. suspensa) and F. x variabilis (F. ovata x F. suspensa). Unfortunately we do not have specimens and so are in no position to evaluate these plants.

The best known hybrids are those which were produced by Professor Karl Sax at the Arnold Arboretum. Forsythia ‘Arnold Giant’ is a seedling of F. x intermedia whose chromosomes were doubled by treatment with colchicine in 1939. This has stiff erect stems, with thick, large leaves and flowers one inch long, but is difficult to propagate. It was crossed back to F. intermedia spectabilis and in 1944 a large population of seedlings was produced. One of these (which is no longer in cultivation) was a triploid and was named F. ‘Beatrix Farrand.’ Another clone, a tetraploid, was named F. ‘Karl Sax’ by Joab L. Thomas
in 1960. There are still a number of these seedlings growing in the Arnold Arboretum. They have become large, massive plants, six to eight feet tall with relatively large flowers. A number of clones from this cross were distributed, and since there has arisen a confusion over the name 'Beatrix Farrand,' we propose the following:

The progeny of the cross *Forsythia* 'Arnold Giant' x *Forsythia intermedia* 'Spectabilis' shall receive the group name (Farrand Hybrids). Within the group two cultivars (clones) have so far been named:


This triploid cultivar was the result of a cross made by Dr. Sax and his students between *F.* 'Arnold Giant' and *F.* x *intermedia* 'Spectabilis.' It is described as being upright and dense in habit, producing dense clusters of flowers which are slightly darker than those of *F.* x *intermedia* 'Spectabilis.' Its name honors Mrs. Beatrix Farrand, a well-known landscape architect who served as landscape consultant to the Arnold Arboretum for several years. This clone apparently is not in the trade. All of the plants with this name that have been examined cytologically have proved to be tetraploids.


This clone was later selected and named *F.* 'Karl Sax' in recognition of Dr. Sax's work with the group. It is a moderately compact shrub, the branches not being as rigidly erect as those of *F.* 'Arnold Giant.' The deep yellow flowers are profuse and large, up to 4.5 cm. across. It is easier to root from cuttings than *F.* 'Arnold Giant' and is hardier than many other cultivars.

We recommend that all Forsythias in the trade now called 'Beatrix Farrand' be designated *F.* (Farrand Hybrids) and that each grower, if he feels his clones warrant it, register a new cultivar name.

Another of Dr. Sax's hybrids is *Forsythia* 'Arnold Dwarf' Sax, Arnoldia 7: 10. 1947. This Forsythia is grown not for its flowers, but because of its value as a ground cover. It originated at the Arnold Arboretum in 1941 as the result of a cross which Dr. Sax made between *F.* x *intermedia* and *F.* *japonica* var. *saxatilis.* It is a low-growing shrub, old specimens seldom reaching over three feet in height. Young branches root readily when
they come in contact with moist soil, and in the process they droop to form a dense mat of foliage. The flowers are very sparingly produced, and when observed are pale greenish-yellow and of no value from an ornamental standpoint. The great versatility of *Forsythia* 'Arnold Dwarf' as an unusual ground cover, even under somewhat difficult conditions, more than makes up for this latter defect.

**Floral Dimorphism**

Forsythias exhibit an interesting form of floral dimorphism. Some plants have styles as long as, or longer than, the tube of the corolla, and others have the style only as long as the calyx, or shorter. This is a structural adaptation to prevent or reduce self-pollination. The phenomenon has been studied in *Primula* where it has been determined that pollination of long- and short-styled flowers gives significantly better seed production than self-pollination.

**Culture**

Forsythias are among the easiest of all our hardy shrubs to grow. Mass plantings in the Arnold Arboretum have been placed on steep hillsides where the soil is poor and very dry in the summer. Despite this, our plants have flourished for a number of years and blossom well, except when an unusually severe winter destroys the flower buds. Forsythias have been reported to tolerate both acid and alkaline soil conditions, and do especially well when given an annual application of a 5–10–10 fertilizer. They will also flower when planted in slightly shady conditions, but a sunny position will insure better ripening of the wood in late summer, a condition which relates directly to the ability of plants to withstand periods of severe cold in the winter. One of the few soil conditions which Forsythias will not tolerate is one in which excessive moisture surrounds the roots for any period of time.

With the one exception of *F. viridissima*, which is the least hardy of the common forms, all Forsythias in cultivation are reliably hardy in the Boston area, but not much further north except along the sea coast of New Hampshire and southern Maine. A few species and cultivars, namely *F. ovata*, *F. ovata* 'Robusta,' *F. ‘Arnold Giant,’* and *F. ‘Karl Sax,’* are reported as being able to withstand colder conditions which roughly approximate to Zone 4 of the Arnold Arboretum Plant Hardiness Zone Map; that is, southern Maine, southern New Hampshire, southern Vermont, and most of New York State. Probably the hardi-
Fig 5: Top: left: F. japonica var. saxatilis  
right: F. suspensa var. fortunii  
Center: left: F. ovata  
right: F. suspensa var. sieboldii  
Bottom: left: F. x intermedia 'Spectabilis'  
right: F. europaea
est of all is *F. ovata* and its cultivar *F. ovata* 'Robusta.' This latter plant flowers much more freely than the type and should be tried in areas where other varieties have not been successful or where *F. ovata* has been disappointing due to its rather shy flowering habits. *F. europaea*, the species from Albania, is extremely hardy, too, but because of its ungainly upright habit of growth it is not popular. *F. Karl Sax* has not been in cultivation long enough for us to make a proper assessment of its hardiness, but it has been reported as being nearly as hardy as *F. ovata*.

The above discussion has been concerned with the ability of certain species or varieties to survive more extreme cold than others, but unfortunately still another factor enters the picture with Forsythia — namely bud hardiness. During some winters temperatures are experienced which, although not cold enough to kill the plants, will injure flower buds to such an extent that blossoming may be either reduced somewhat or almost entirely eliminated the following spring. These conditions can occur when temperatures drop below -15° F as determined by Robert Mower and his students at Cornell. Flower buds of the hardier varieties listed above are generally less affected, and it is of interest to note that *F. ovata* and *F. ovata* 'Robusta' flower well at the Arnold Arboretum when exceedingly harsh winters have killed the flower buds of other Forsythias.

When planting Forsythia it must be remembered that they will form specimens six feet tall and eight feet wide, and too often we see them severely cut back or sheared into nearly topiary form in an attempt to confine them into a small space. However, they will grow vigorously and flower even under this treatment. Ernest H. Wilson once wrote (Arn. Arb. Bull. Pop. Inf. Ser. 3, Vol. 11. 1928):

\[\ldots\] one of the tragedies of spring is the brutal way in which these good-natured shrubs are clipped and sheared at the annual tidying up of the garden. As one travels through the suburbs and countryside decapitated bushes

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**Fig. 6:**

*Top:* 1. *F. ovata*
   2. *F. europaea*
   3. *F. x intermedia ‘Nana’*
   4. *F. suspensa var. sieboldii*
   5. *F. x intermedia ‘Spectabilis’*

*Bottom left:* *F. x intermedia ‘Spectabilis’

*Right:* *F. x intermedia ‘Arnold Giant’

*Bottom right:* *F. ‘Karl Sax’*
of Forsythias are to be seen on either hand despite the obvious fact that every branch cut from them in early April means a loss of flowers. If people would only wait and enjoy the crop of blossoms and then cut the Forsythia bushes back as severely as circumstances or fancy dictates, no harm would be done. Like other spring flowering shrubs and trees Forsythias produce their blossoms on the past season's growth and the pruning of all these plants should be done immediately after the blossoms have fallen. It is surprisingly difficult to get people to appreciate or at least to practice this simple fact.


Unfortunately many public plantings of Forsythias are sadly mutilated because of lack of intelligent care in pruning. Forsythias should be given plenty of room in which to grow and expand. They should not be crowded closely together for any reason except to make a good, dense bank planting where the whole object is to cover the ground. Many times when a single bush is used, it will be placed only two or three feet from a walk when actually it should be placed 8 to 10 feet from the walk, in order to give the plant plenty of room to expand fully at maturity. If the plants are pruned from the side, this necessarily cuts off the lovely drooping branches and spoils the entire effect, leaving only the unsightly base and a few branches ending prematurely in mid-air when they should be allowed to arch gracefully to the ground.

In fact, it is best to prune Forsythias as little as possible. Varieties of F. x intermedia seem to flower best on growth of two to three years, and when pruning must be done, only the older branches and dead wood should be removed to ground level. One should not leave stubs nor cut branches half-way back. In a very old planting where much dead wood occurs and drastic measures must be resorted to, entire plants can be cut back to the ground. The vigorous young shoots which result will be flowering well in a few years.

Forsythias can be used against walls and fences, as espaliers, or as informal hedges. The graceful F. suspensa var. sieboldii, with its long trailing stems has been used as an espalier or trained up over pergolas. A few striking examples can be seen in the Boston area where plants of this species have been
placed in such a way that their branches hang down and cover high walls along roadsides. One such example can be seen along the Arborway close to the Forest Hills gate of the Arnold Arboretum.

Few problems are encountered with insects or diseases on Forsythias. The only insect known to cause problems is the four-lined plant bug, *Poecilocapsus lineatus*, which makes characteristic tan circles in the leaves. When the insects begin to feed plants should be sprayed with Malathion. Leaf-spots occasionally occur due to the presence of one or several fungi (*Alternaria* sp., *Phyllosticta discincola*, *P. forsythiae*, and *P. terminalis*). Infected leaves can be picked off and burned or a copper spray can be used. Stem-Gall is another fungus disease (*Phomopsis* sp.) which causes abnormal nodular growths similar in appearance to the bacterial crown-gall disease or galls caused by insects. When severely attacked, whole branches die back and the bushes can look unsightly after the leaves have fallen. The best control is to cut off and burn all branches that bear the galls. Die-back is caused by a fungus (*Sclerotinia sclerotiorum*) which enters the plant via the flowers and flower stalks, and then grows into the twigs and kills them for some distance. The best control is to remove and burn all dead twigs and stems.

Buds on the Forsythias are fully formed by autumn. Every few years when we experience an unusually mild spell towards the end of autumn such weather induces some to break their dormancy and open. This is a normal occurrence (it also happens with such groups as *Chaenomeles*, *Lonicera*, and even with a few varieties of *Syringa*), but at such times we can expect to receive at the Arboretum telephone calls from a number of people who wish to report this “strange phenomenon.”

GORDON P. DEWOLF
ROBERT S. HEBB

Appendix

1. Forcing Cut Branches

In preparation for a flower show in 1955, Mr. Roger Coggeshall, then Propagator at the Arnold Arboretum, kept a record of the length of time it took to force branches of certain shrubs which were collected at various dates (see Arnoldia 15: 2. 1955.) These were forced in a greenhouse where night temperatures were maintained at 55°–60°F. The figures he kept for two species of *Forsythia* give an indication of the number of days it should take for those who may wish to force cut branches in the home.
No. of days to bloom: Date of normal bloom out-of-doors

| Forsythia ovata  | 18 | 8 | April 5 |
| Forsythia suspensa | 20 | 6 | April 15 |

2. Bibliographic list of varieties which have never been popular, illegitimate names, and synonyms (see Wyman, Arnoldia 21:6. 39–42. 1961).

Forsythia x intermedia (suspensa var. sieboldii x viridissima) (Zabel in Gartenflora 34: 35. 1885).
‘Dwarf’ (Siebenthaler Nurs. Cat., Dayton, Ohio. 1951). Illegit. as a nomen nudum = x intermedia ‘Nana.’
‘Nana’ (Wyman, Nat. Hort. Mag. 40: 194. 1961). Low dwarf, with simple, lobed and sometimes compound leaves; lamellate pith between the nodes, solid pith at the nodes; slow to bloom; poor, greenish-yellow flowers. A twenty-year-old plant was only 5’ tall and 8’ wide. Originated in midwestern United States.

‘Aureo-variegata’ (Koehne in Gartenflora 55. 206. 1906) = ‘Variegata.’
‘Decipiens’ (Koehne, Gartenflora 55: 206. 1906). Originated in Späth Nurseries, Germany, 1905; flowers single, not nearly as conspicuous as those of other cultivars of this species.
‘Fortunei Nana’ (Siebenthaler Nurs., Dayton, Ohio, Cat. 1938). Illegit. nomen nudum = F. intermedia ‘Nana.’
sa atrocaulis, bush erect, profuse flowers of ivory yellow.


Other hybrids (?)


3. Forsythias introduced by the Arnold Arboretum

The Arnold Arboretum has played a long and continuous role in the story of the cultivated Forsythias, perhaps more than any other institution. This role has included the discovery and introduction into cultivation of new species from the wild, the introduction of cultivars developed abroad, and the breeding and introduction of improved new forms.

Species or varieties discovered and introduced by the Arnold Arboretum

F. ovata, introduced by E. H. Wilson. Collected in Diamond Mountains, Korea, 1917.


F. viridissima var. koreana. Seeds sent by the Korean Department of Forestry, 1919.

F. x intermedia ‘Spectabilis.’ Plants received from Späth Nurseries, Berlin, Germany, 1906.

F. x intermedia ‘Tremonia.’ Cuttings received from Dortmund Botanical Garden, Dortmund, Germany, 1966.

Hybrids produced at the Arnold Arboretum

‘Arnold Dwarf’ (x intermedia x japonica var. saxatilis) — 1941.

‘Arnold Giant’ (x intermedia ‘Spectabilis’) — 1947.

‘Beatrix Farrand’ (x intermedia ‘Arnold Giant’ x intermedia ‘Spectabilis’) — 1959.

‘Karl Sax’ (x intermedia ‘Arnold Giant’ x intermedia ‘Spectabilis’) — 1960.

‘Primulina’ (x intermedia ‘Spectabilis’) — 1912.
Cold Damage to Forsythia Flower Buds

At the Arnold Arboretum in spring of 1967 the Forsythia plants near the summit of Bussey Hill flowered well while most of those in the main group opposite the shrub collection were ringed with blossoms only on their lower portions. Why the Forsythias behaved differently in the two locations may be readily explained by figures contained in temperature records kept at the Dana Greenhouses.

Since August 15, 1962, the Arnold Arboretum has operated a simple weather station in collaboration with the U.S. Weather Bureau. (See Arnoldia 30(5): 186–193, Sept. 1970). The equipment consists of a maximum and minimum thermometer and a non-recording precipitation gauge. Daily at 8 A.M. observations of temperature and precipitation are recorded and some interesting data have been accumulated.

Those familiar with the Arnold Arboretum are aware of the wide variety of topographical characteristics that are present within the bounds of this relatively small 265 acre area. With such geographical variation there is also a wide range of climatic differences. These deviations from the overall climatic picture have been termed microclimates. Microclimatic situations are infinite. They can occur at hilltops, slopes, valleys, different sides of a house, either side of a wall, under a tree, over a stone, or in a footprint. Areas concerned can be highly localized and sometimes involve distances as little as portions of an inch.

Temperature at Ground Level

In early autumn of 1966 a recording thermometer was placed on the ground below the Arboretum's official thermometer which is positioned at 5 feet. Each day when official observations were made, the temperature at the ground was also recorded. During some nights with radiational cooling, temperature differences as great as 16° existed between the two levels.

Radiational Cooling

Radiational cooling is typical of calm, clear nights during
which the atmosphere loses heat to outer space through radiation. In the absence of wind, cold air settles to the ground and drains from the higher elevations to lower areas. These nights during which our lowest temperatures occur are the most damaging to plants. Temperature drop is often greater during winter than at other seasons because the longer nights allow radiation to take place over a longer period of time.

Table 1 shows differences in minimum temperatures which occurred at ground level and the official thermometer five feet above ground level in February and March, 1967.

Table 1 reveals two instances in which the flower bud damage described above could have occurred. The buds of most Forsythias are susceptible to freezing at about -15°. February 13 shows -9°F at official level and -22°F at the ground, while March 19th shows 0°F and -16°F at these same levels. The wide differences in each example would indicate nights of radiational cooling and therefore even deeper cold in the Arboretum's low areas. The Forsythia collection is at a lower elevation than the weather station, and it is situated on the fringe of the large bowl-shaped cold pocket that contains the shrub collection. It is reasonable to suppose that the temperature there was many degrees colder than those cited in each of the above examples. Buds which led to the display of flowers on lower portions of the plants as previously described were insulated by a protective covering of snow, and were not affected. Snow with its myriad air spaces is the finest of all winter protective coverings. The Forsythias on Bussey Hill are located on slopes with good air drainage and they flowered well in 1967. Owing to more favorable microclimates their buds were not damaged.

Graduation of Cold

In January, 1968, additional thermometers were placed at our weather station so that temperatures at the ground and at one and two foot levels could be recorded. Table 2 shows some temperatures at these levels during the mid-January cold spell, 1971.

Forsythia bloom at the Arnold Arboretum — Spring 1971

It may be predicted as of January 22, 1971, that Forsythia flowering in spring of 1971 at the Arnold Arboretum will follow the pattern previously described for 1967. In the main collection flower buds above the present 15-inch snow line would have been killed in the mid-January cold spell, perhaps on the 17th or 19th of January. On those dates the ground level tempera-
tures fell to $-16^\circ$ and $-19^\circ$ at the Arboretum weather station. If no deep cold occurs during diminished snow for the balance of the winter, a ring of blossoms from ground level to 15 inches will be present. Forsythias near the summit of Bussey Hill are located in more favorable microclimates and should flower well. It is quite likely that Forsythias in the Boston suburbs will also conform to this prediction.

ALFRED J. FORDHAM

\begin{table}
\centering
\caption{Differences in minimum temperatures at ground level and five feet, in February and March, 1967}
\begin{tabular}{|c|c|c|c|c|c|}
\hline
Feb. & Five feet & Ground & Mar. & Five feet & Ground \\
\hline
1 & 13 & 14 & 1 & 17 & 13 \\
2 & 32 & 32 & 2 & 9 & 4 \\
3 & 17 & 18 & 3 & 14 & 14 \\
4 & 9 & 3 & 4 & 32 & 32 \\
5 & 21 & 20 & 5 & 28 & 26 \\
6 & 22 & 20 & 6 & 31 & 30 \\
7 & 10 & 8 & 7 & 31 & 30 \\
8 & -4 & -3 & 8 & 19 & 10 \\
9 & 9 & -6 & 9 & 22 & 13 \\
10 & 16 & 19 & 10 & 28 & 15 \\
11 & 27 & 17 & 11 & 36 & 28 \\
12 & 9 & 6 & 12 & 35 & 28 \\
13 & -9 & -22 & 13 & 22 & 16 \\
14 & 0 & -1 & 14 & 36 & 32 \\
15 & 14 & 32 & 15 & 33 & 30 \\
16 & 38 & 32 & 16 & 24 & 23 \\
17 & 17 & 16 & 17 & 12 & 6 \\
18 & 14 & 12 & 18 & 5 & -2 \\
19 & 6 & -1 & 19 & 0 & -16 \\
20 & 11 & 12 & 20 & 14 & 1 \\
21 & 27 & 25 & 21 & 22 & 12 \\
22 & 14 & 5 & 22 & 28 & 26 \\
23 & 22 & 16 & 23 & 25 & 24 \\
24 & 13 & 7 & 24 & 26 & 17 \\
25 & 9 & 2 & 25 & 30 & 24 \\
26 & 7 & 3 & 26 & 32 & 26 \\
27 & 6 & -3 & 27 & 33 & 24 \\
28 & 23 & 12 & 28 & 34 & 32 \\
& 29 & 36 & 34 \\
& 30 & 24 & 26 \\
& 31 & 30 & 24 \\
\hline
\end{tabular}
\end{table}
TABLE 2

Some temperatures at varying levels in January, 1971

<table>
<thead>
<tr>
<th>Jan.</th>
<th>Ground</th>
<th>1 Foot</th>
<th>2 Feet</th>
<th>5 Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>5*</td>
<td>-16</td>
<td>-11</td>
<td>-7</td>
</tr>
<tr>
<td>18</td>
<td>-3*</td>
<td>-8</td>
<td>-5</td>
<td>-2</td>
</tr>
<tr>
<td>19</td>
<td>-19**</td>
<td>-15</td>
<td>-12</td>
<td>-9</td>
</tr>
<tr>
<td>20</td>
<td>-12**</td>
<td>-9</td>
<td>-6</td>
<td>-5</td>
</tr>
</tbody>
</table>

* Thermometer in path dug in snow at base of thermometer stand.
** Thermometer removed from path and placed on snow near base of the stand (snow was 15 inches deep).

Key to Forsythias

(Modified from Rehder’s Manual of Cultivated Trees and Shrubs)

(Note — in the flowers of Forsythia the style may be either longer or shorter than the stamens).

A. Branches hollow in the internodes, without pith of any kind; with solid masses of pith only at the nodes; leaves often 3-foliolate or 3-parted on the shoots; flowers 1–3(–6) in each cluster (2–6(–12) at each node) corolla about 2.5 cm. long, calyx about as long as the corolla tube. Branches arching. Flowering April–May.  

F. suspensa

AA. Branches with thin, papery lamellae of pith in the internodes, sometimes with solid masses of pith at the nodes.  

B. Petioles and lower surface of the veins (and leaves) pubescent  

C. Branches arching, calyx as long as the corolla-tube, flowers 1–3 in each cluster, the corolla about 2.5 cm. long.  

F. suspensa f. pubescens

CC. Branches erect or spreading, calyx shorter than the corolla-tube  

D. Flowers solitary (paired at the nodes), corolla about 1.5 cm. long. Flowering in April  

F. japonica

DD. Flowers 1–3 in each cluster (2–6 at each node) corolla 1.5–2.0 cm. long. Flowering in April  

F. giraldiana

BB. Whole plant glabrous, flowers solitary or several in each cluster (2 — several at each node), corolla 2 cm. or more long  

E. Pith in solid masses at the nodes, usually with lamellae of pith in the internodes; leaves often 3-parted on the shoots; flowers usually several in each cluster, corolla about 2.5–3.0 cm. or more long, calyx shorter than the corolla tube. Branches arching. Flowering in April and May  

F. x intermedia  

(F. suspensa x F. viridissima)
EE. Pith lamellate throughout nodes and internodes, leaves generally entire, only exceptionally 3-parted

F. Leaves usually entire or with only a few shallow teeth, ovate to ovate-lanceolate; flowers usually solitary (paired at each node), corolla about 2 cm. long, calyx shorter than the corolla-tube, branches erect.

* main axis of flowering branches 3–5 mm. in diameter. Flowering in April and May

** main axis of the flowering branches 2–3 mm. in diameter. Flowering in April

F. europea

F. giraldiana

FF. Leaves serrate, only occasionally nearly entire

G. Leaves elliptic-oblong to lanceolate, cuneate at the base, serrate only above the middle; branches angular, green; flowers 1–3 in a cluster (2–6 at a node), bright yellow with a greenish tinge, corolla 2.0–2.5 cm. long, calyx about half as long as the corolla tube. Branches erect. Flowering in April–May

G. viridissima

GG. Leaves ovate, usually rounded at the base and serrate nearly to the base; branches round or nearly so, yellowish; flowers solitary (paired at the nodes), amber yellow, corolla 1.5–2.0 cm. long; calyx about half as long as the corolla-tube. Branches erect. Flowering in March and April

F. ovata

Christmas Bird Count at the Arnold Arboretum

On January 2, 1971, a group of amateur ornithologists led by Miss Miriam Dickey met at the Arnold Arboretum to participate in the National Audubon Society's annual “Christmas Count” of birds.

The group covered the Arnold Arboretum with the following results:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Jay</td>
<td>44</td>
<td>Junco</td>
<td>18</td>
</tr>
<tr>
<td>Brown Creeper</td>
<td>2</td>
<td>Mockingbird</td>
<td>1</td>
</tr>
<tr>
<td>Cardinal</td>
<td>4</td>
<td>Nuthatch</td>
<td>8</td>
</tr>
<tr>
<td>Cedar Waxwing</td>
<td>20</td>
<td>Purple Finch</td>
<td>1</td>
</tr>
<tr>
<td>Chickadee</td>
<td>18</td>
<td>Robin</td>
<td>38</td>
</tr>
<tr>
<td>Common Crow</td>
<td>26</td>
<td>Song Sparrow</td>
<td>2</td>
</tr>
<tr>
<td>Goldfinch</td>
<td>3</td>
<td>Starling</td>
<td>29</td>
</tr>
<tr>
<td>Gull, Great Black-backed</td>
<td>8</td>
<td>Towhee</td>
<td>1</td>
</tr>
<tr>
<td>Hawk, Red-Tailed</td>
<td>1</td>
<td>White-throated Sparrow</td>
<td>5</td>
</tr>
<tr>
<td>House Sparrow</td>
<td>17</td>
<td>Woodpecker, Downy</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Woodpecker, Hairy</td>
<td>2</td>
</tr>
</tbody>
</table>

Drawing of Downy Woodpecker by P. Bruns.
Dictamnus — Gas Plant, Dittany, Burning-Bush

Of all the plants discussed in this article, Dictamnus albus (listed as D. fraxinella in most catalogs) is, along with Peonies, without doubt the most permanent of all perennials in the garden. The best treatment is simply to leave the plants alone, and they will increase in vigor as each year passes. In fact, the best way to ruin a good clump of Dictamnus is to divide it and attempt to reestablish the resulting plants elsewhere. For this reason, it is advisable to begin with young plants of seedling size, preferably started in pots. Even then it may take several seasons before they give the desired effect, but the results will be worth waiting for.

Although it will tolerate partial shade, a sunny location with moderately rich soil is probably best for the Gas Plant. Situations which remain wet for any length of time should be avoided, and the plant can be counted upon to withstand moderate periods of drought. Although it is slow to start, a well-grown specimen will take up a lot of room in the border and it is best to leave about two feet in each direction for expansion. Annuals can be used to fill the gaps in the meantime. A well-grown Gas Plant will eventually attain a height of three feet, and is of value as a specimen plant in the background of the small garden or as a middle-of-the-border subject when combined with shrubs. Staking is not required as the stems do not have the tendency of other plants of similar height to fall over.

The short period of blossom (about one week during July) has been listed as an objectionable characteristic. Perhaps this would be true if it were not for the handsome pinnate leaves which remain in good condition throughout the season and provide an excellent accent wherever the plant is placed.

The name Gas Plant or Burning Bush is derived from the fact that under exactly the right conditions the plant exudes a volatile
gas, particularly around the flowers, and this can be ignited by a match. The author has yet to encounter "exactly the right conditions" under which this can be done. Supposedly they exist during calm sultry evenings while the plant is in bloom.

Dictamnus albus has white flowers and those of its variety D. albus var. ruber are a soft rose-pink.

Digitalis — Foxglove

The Common Foxglove, Digitalis purpurea, is an old time favorite, but it is excluded here because of its biennial character. Plants must be renewed each year from seeds and winter protection is necessary in areas of severe cold. It is true that Foxgloves will, under the right conditions, self-sow in the same manner as Hollyhocks. In a semi-wild garden, this may be a distinct advantage, but in most borders considerable time must be spent pulling out the hundreds of seedlings which come up in the most unwanted places.

There are a few perennial species of Digitalis, but they are not particularly showy in the border, and suffer from the same over-promiscuity in their seed sowing activities.

Echinops — Globe Thistle

If the reader is unfamiliar with the appearance of Globe Thistles, he should make an attempt to observe them growing in another garden before deciding to plant them in his own. Opinion seems to be divided pretty nearly 50–50 for or against this group.

Some people object strongly to the coarse general appearance of the plant, and the harshness of the thistle-like leaves. Others, including those who like to arrange cut flowers, prize the blue globular flower heads which are made up of many spiny bracts and flowers. The thistle-like leaves are white on the undersurfaces and give character to the plant.

Aside from this, the author has a distinctly unpleasant recollection of once having to dig and divide a large clump of Echinops. The vigorous fleshy root system penetrates the soil to more than a foot in depth, making this a particularly arduous chore, so it is best to leave Echinops alone as long as the plants maintain their vigor. The task will probably have to be faced, however, every four or five years.

There are a number of species and varieties to choose from, but without question the best is the cultivar of E. exaltatus called 'Taplow Blue.' This selection comes from England and has
glistening rich blue flower heads up to three inches in diameter. To be seen at their best, all varieties of the Globe Thistle should be planted in full sun and in a soil which is somewhat on the lean side. Shade or rich soil conditions encourage them to grow tall and lanky. In general, however, they are quite easy to grow.

**Epimedium — Barrenwort, Bishop’s Hat**

This group is well known to a number of advanced gardeners, but has been undeservedly neglected by the majority of the gardening public in this country. Although they will grow well in full sun if the soil is moist, they are best used as ground covers in shady areas where the soil is fairly rich and damp. This would exclude *Epimedium* from many perennial borders and they are mentioned here mainly because they will grow well at the base of a tree if fertilizer is applied occasionally.

The problem of what to plant at the base of the tree is always encountered, and a number of very charming herbaceous borders have been planned around existing small trees such as Crab apples or Magnolias.

The pinnate foliage (some varieties have very interesting leaf patterns) is attractive when the plants are not in flower and is made more valuable by its ability to persist into the winter. The foliage should be cut back to the ground in late winter or very early spring to enhance the beauty of the new leaves in spring. New leaves are pale green, tinted with a delicate shade of rose, but in the summer become deeper and often are mottled with purple. The cooler weather of autumn brings out an attractive crimson coloration.

Many varieties can be obtained if one is patient enough to sift through a number of catalogs. Unfortunately, where this group is concerned, incorrect names abound in the trade.

*E. grandiflorum* produces the largest flowers of any in the genus. They vary between one and two inches, the outer sepals are red, the inner violet, and the spurred petals are white. *E. grandiflorum* var. *violaceum* has pure violet petals.

*E. pinnatum* has small bright yellow flowers with rose-red spurs. Most plants listed in catalogs under this name are probably *E. pinnatum* var. *colchicum* which grows a foot tall and blooms later than *E. grandiflorum*.

One of the showiest is *E. x rubrum* (*E. alpinum* x *E. grandiflorum*) which has large, brilliant red flowers flushed with yellow or white. The juvenile foliage is red, a most attractive asset.

The author’s favorite is *E. x youngianum* var. *niveum*, a hy-
brid between *E. grandiflorum* and *E. pinnatum* var. *colchicum*. Plants are a bit shorter than those listed above, usually only reaching a height of ten inches. The bronze foliage provides a handsome contrast to the pure white flowers.

**Eupatorium** — Mist-Flower, Hardy Ageratum

Only one species in this genus is suited to the perennial border, all others being more suitable when naturalized in wild gardens or woodlands. *E. coelestinum* is native from New Jersey to Florida and Texas, and its pale lavender flowers can be used in the same manner as the more fickle Asters to provide a contrast to the rich yellow, orange, and bronze of many autumn flowering plants. It resembles Ageratum when in bloom and some people will mistake it for that plant even though it does not have the compact habit of Ageratum.

This has been listed in several books as having invasive tendencies, but although it will spread fairly rapidly, the author has not seen a situation where it was out of hand. Best results are obtained when plants are exposed to full sunlight, and perhaps its most serious drawback is that even in sun the two-foot plants may become straggly after a few years and need to be divided.

*E. coelestinum* ‘Wayside Variety’ was grown at the Arnold Arboretum last year and seems to be somewhat more compact in habit. It is a distinct improvement on the wild form.

**Euphorbia** — Spurge

Several members of this genus have given it a bad name among gardeners. *E. marginata* commonly called Snow-on-the-Mountain is an annual with decidedly weedy and invasive tendencies. *E. cyparissias* can be a great nuisance if planted in too rich a soil, becoming rampant and soon outgrowing its welcome. This is, however, a good rock garden subject and can be used as a ground cover in very arid places. *E. myrsinitesis* is another species which may be difficult to keep in bounds.

However, *E. epithymoides* (sometimes seen in catalogs as *E. polychroma*) is a neat, symmetrical plant for the front of the border. It grows to a height of one-and-a-half to two feet and produces globular umbels of bright chartreuse-yellow bracts from the end of April until early June. As with the rest of this family, flowers are really not the conspicuous feature, and color is produced by the enlarged bracts which surround the true flowers. The foliage remains attractive all summer and turns to a rather handsome dark red in autumn.
E. wulfenii is of value for its handsome clusters of yellow bracts in May. It is taller than E. epithymoides and reaches a height of three feet. It is an unusual cut flower, and even more so for its blue-green leaves.

All species of Euphorbia do best in well-drained sandy soils and should be considered by anyone who has dry soil conditions. The last two species above are the best and they can be expected to last for many years with very little attention. In fact, all Euphorbias resent being disturbed when well established and it is better to start with young plants than with divisions.

Filipendula — Meadow-sweet, Dropwort

This genus used to be included with Spiraea, and unfortunately, like Astilbe, it can still be found by this name in some catalogs. Filipendulas are usually grown for their large feathery panicles of numerous small flowers. Several of the species in common cultivation are quite tall and suitable for the rear of the border, used in combination with shrubs, or as woodland or streamside plantings.

F. hexapetala, the Dropwort, seldom exceeds two feet, however, and is an excellent border subject. The fern-like foliage is especially pleasing and can be used to advantage to tone down the leaves of certain coarser plants. The creamy-white flower panicles are produced in June. It is another plant for those who have poor dry soils, as it will succeed in such locations if fertilizer is given from time to time. Occasionally one can find the beautiful double-flowered form E. hexapetala 'Flore-Plena.' This is lower, to fifteen inches tall, and well worth the effort to locate in nurseries.

F. rubra, Queen-of-the-Prairie, is one of the best back-of-the-border plants. It grows from four to six feet tall and produces large terminal clusters of small pink flowers in June and July. Its variety F. rubra var. venusta (Martha Washington Plume in some catalogs) is a much better form with deep pink flowers.

F. ulmaria, Queen-of-the-Meadow, is another tall species which will reach four to five feet in height under good conditions. This is a Eurasian species which is now rather widely naturalized in New England.

Filipendulas are of added value because they can go for many years without needing to be divided. A possible drawback to the last two species discussed above is that watering is essential during dry periods and these are best planted in moist, fertile soil.
Gaillardia — Blanket-Flower

Gaillardias can cause great disappointment unless they are grown in a very well-drained soil. Even then, permanence is somewhat questionable. Many types sprawl unless staked early, and the best ones are seldom very hardy. Some people are greatly attracted to the bright color of the flowers, others think them too gaudy. Some varieties are advertised to bloom on and on during the summer, and this is true if one is careful to remove dead and fading flower heads faithfully.

One member of the Arboretum staff has suggested that these might best be used for colonizing gravel heaps, and although this suggestion might have some merit, it must be said that Gaillardias are best left to those with the time and patience to cater to their specialized needs. For those in this latter category, some of the good varieties to watch for in catalogs are as follows: G. 'Burgundy' — deep red, two feet; G. 'Goblin' — red and yellow, one foot; G. 'Sun Dance' — red with yellow edges; and G. 'Sun Gold' — yellow, two feet.

Geranium — Cranesbill

These are sometimes confused with Pelargonium (whose common name, unfortunately, is Geranium), a showy group of great value as pot plants and for summer bedding. True Geraniums come from temperate parts of the world. Some (but not all) of the handsome species are hardy as far north as Boston and among them are several which will adapt well to low-maintenance plantings.

The most commonly planted is G. sanguineum, a plant which forms a mound about a foot tall and two feet in diameter and produces rose-purple flowers in profusion from May until early August. The attractive leaves turn bright red in late autumn. G. sanguineum var. album has attractive white flowers and those of the selection G. sanguineum 'Johnson’s Blue' are a good bright blue. G. sanguineum var. prostratum (still in most catalogs as G. lancastriense or G. sanguineum var. lancastriense) forms a neat mat of foliage seldom over six inches high with freely borne light pink flowers with red veins.

It would be a mistake to plant any of the above in an overly rich soil as they may spread too rapidly and have to be divided after a few years. Although they will withstand light shade, flowering will be more profuse in full sun. Under this latter condition, plants should be able to remain undisturbed for a number of years. Sometimes grasses can invade an old clump to such an extent that it will have to be lifted and divided.
Another nearly indestructible hardy species is *G. grandiflorum*. This species is usually only a foot high and produces large purple-blue flowers with red veins in clusters on fifteen-inch stems from May to July. *G. grandiflorum var. alpinum* is a smaller plant with larger, nearly true-blue flowers. As with *G. sanguineum* an overly rich soil encourages excessive spreading tendencies.

**Geum — Avens**

Geums have had a bad name among gardeners in the Boston area for some time. Many people have heard glowing reports of the wonderful flower colors but have been dismayed when their newly acquired plants have died during the first winter. A number of beautiful cultivars such as 'Mrs. Bradshaw' and 'Lady Stratheden' are derived from *G. chiloense* which is reliably hardy only as far north as Long Island. These are the ones which have caused the trouble and they should be avoided in our area.

*G. coccineum*, a species with bright orange-red flowers, is native to Asia Minor and Southern Europe. Breeders have selected hardy forms of this and crossed them with the less hardy *G. chiloense* to produce a remarkably showy and valuable group of cultivars which are quite hardy in our area and which do not require the biennial divisions necessary to maintain the old selections of *G. chiloense*.

Several of the outstanding newer hybrids to watch out for and try are as follows: *G. 'Dolly North'* — flowers gold overlaid with orange; *G. 'Fire Opal'* — flowers rich red with bronzy overtones; *G. 'Princess Juliana'* — flowers clear rich orange; *G. 'Red Wings'* — flowers scarlet; *G. 'Wilton Ruby'* — flowers ruby-red.

These hybrids grow to two-and-a-half feet tall and bloom from May to July. Young plants are slow to start and it may take a year or two for them to become established. Those who have been disappointed with the old cultivars of *G. chiloense* should be aware of this latter characteristic before making hasty conclusions about the newer ones.

**Gypsophila — Baby's-breath, Chalk-plant**

The latter common name given above and the generic name derived from the Greek word which means lime-loving give one of the main clues to success with this group. It is wise to have the soil tested before growing most perennials, and this is particularly so with *Gypsophila*. If the reaction is lower than
pH 6, ground limestone should be applied to bring it up to pH 7 or pH 7.5. One other soil condition is equally as necessary if success is to be achieved. Gypsophilas will not overwinter in moist soggy soils and a well-drained sunny situation is essential. Further care should be taken in choosing a good location because all except the dwarf varieties of Baby's-breath take up a lot of room, and once established the thick fleshy roots resent any disturbance.

This may seem a rather long list of requirements for a plant that is included in a list of supposedly maintenance-free garden subjects. These requirements are, however, relatively simple if properly understood; and once established the plants can be expected to last for years if they receive the necessary dose of ground limestone from time to time. Many people who use relatively low-maintenance plants soon discover that mulching not only cuts down on the incidence of certain weeds, but improves the growth response of many plants. Baby's-breath will benefit from this in still another way, as a mulch will help prevent the thick fleshy roots from being heaved in the winter. The mulch, however, should not cover the crown of the plant or rotting may occur before the ground becomes completely frozen. In the coldest of winters in the Boston area, some plants of Gypsophila may be killed and a good mulching may prevent this.

The best and probably the easiest to obtain of the cultivars of G. paniculata is the double white G. 'Bristol Fairy.' This is an extremely vigorous plant which can eventually fill up an area in the border four feet wide, with stems three feet high. It has long been known that by proper placement of Gypsophila the large gaps left by the withering of early flowering plants such as Oriental poppies and Dicentra spectabilis can be filled. Other varieties of G. paniculata include G. paniculata ‘Perfecta,’ a recent introduction from Europe with flowers supposedly twice the size of G. ‘Bristol Fairy,’ and G. paniculata ‘Pink Fairy’ a form with fully-double pink flowers.

Helenium — Sneezewood

Cultivars of our native H. autumnale have long been considered essential for fall color in the border. The older forms grow from four to six feet tall and must be divided, if not every other year, then every third year, to maintain any semblance whatever of tidiness. Fortunately there are several newer cultivars which are shorter, do not fall over or need to be staked, and can be recommended here. H. ‘Bruno’ has dark red flowers on two-and-a-half-foot stems; H. ‘Moerheim Beauty’ has velvety
maroon-red flowers on two-and-a-half-foot stems; and *H. 'Pumilum Magnificum'* has yellow flowers on stems that are only twelve to eighteen inches high.

Chrysanthemums were described earlier in this article as too finicky to be included in a low maintenance scheme. The three cultivars named above can be used as a substitute to provide nearly the same effect at the same time with much less effort. They will grow almost anywhere, but do best in a moderately moist soil. Exposure to full sun will help to produce the desired bushy habit.

_Hemerocallis — Daylily_

Hybridizers have produced so many cultivars of this nearly perfect plant for the low maintenance garden that probably the greatest problem one will encounter is knowing which varieties to choose. In general the plants are nearly indestructible if placed in a reasonably fertile soil in sun or partial shade, but excessive fertility will lead to rank growth and poor flowering. Although it is often thought that Daylilies can be left to their own devices almost forever, division at infrequent intervals will produce superior plants. One of the biggest chores with Daylilies is the need to remove the unsightly flowering stalks after the flowers have gone by. This can be a task if one has extensive plantings.

Professional growers and amateur fanciers are now producing a completely new race of tetraploid hybrids which undoubtedly will be widely popular in the future. Although these can be obtained at present, prices still prohibit widespread use and they must be classed as "collectors items." Gardeners in the Boston area who wish to see these coming attractions of the Daylily world will want to visit the *Hemerocallis* plantings at the Case Estates of the Arnold Arboretum in Weston.

It would be extremely difficult to choose the best moderately priced varieties to grow today were it not for the 1970 Popularity Poll published in the December, 1970, issue of *The Hemerocallis Journal*. Daylily fanciers throughout the country have sent in lists of what they consider the best cultivars, and it is interesting to note that the six which are most popular in the Northeast also appear high up on the list of national favorites.

Those especially recommended are as follows: *H. 'Frances Fay' —* a low-growing variety with flowers of a melon tone (the melon in this case refers to cantaloupe); *H. 'Satin Glass' —* this is a new break in the "melon" color, being towards the pale creamy side; *H. 'Hortensia' —* the top winner in the national
poll with well-shaped golden yellow flowers, the petals are slightly twisted and ruffled; H. 'Luxury Lace' — has medium-sized lavender flowers with a greenish throat; H. 'Cartwheels' — with medium-sized golden yellow flowers, which are almost round, a desired quality; H. 'Little Rainbow' — the unusually colored attractive flowers are pale yellow with blendings of pink, lavender, and green. It is somewhat surprising to note that no red-flowered varieties appear on this list. One of the best of these is H. 'Bess Ross' which has good clear red flowers without the brown-red or purple-red overtones present in some varieties.

None of the above varieties are tetraploids, and all are easily available at a moderate price.

Heuchera — Coral Bells, Alum Root

For best results in most locations Heucheras need to be divided every third year, a distinct disadvantage for a very charming group of plants. Although perfectly hardy, they are susceptible to heaving during alternate periods of freezing and thawing, and one should take the extra precaution of applying a mulch in winter. These traits are most unfortunate when considering a list of plants to be grown with a minimum of maintenance, and they cannot receive the high praise in this discussion that they would most certainly deserve elsewhere.

Modern hybrids come in a good range of flower colors and the beautifully mottled leaves can be decidedly attractive as well. Some of the good cultivars presently available are derived from Heuchera sanguinea or H. sanguinea x H. micrantha and include the following: H. 'Chartreuse' — chartreuse flowers; H. 'Fire Sprite' — rose to rose-red flowers; H. 'Freedom' — rose-pink flowers; H. 'June Bride' — a very good white flower; H. 'Pluie de Feu' — deep pink to almost cherry-red flowers; H. 'Rosamundi' — one of the best cultivars with coral-pink flowers; and H. 'White Cloud' — white to creamy-white flowers.

Hibiscus — Rose Mallow, Hardy Hibiscus

The numerous cultivars which have arisen from the selection and crossing of Hibiscus moscheutos and H. palustris are not frequently seen in the Boston area even though most of them are perfectly hardy. This is strange because the equally showy tropical representatives of this genus are featured in many amateur greenhouses.

Some of the newer cultivars display gigantic flowers up to ten and twelve inches across making them the largest-flowered
herbaceous perennials that can be grown in this area. Some people object to the size and bright colors as being too gaudy but when grown as a single specimen in the mixed border, striking effects can be achieved. One great drawback is their susceptibility to attack by Japanese beetles. The large leaves become decidedly tattered if such attacks cannot be controlled.

Although they will grow well in an ordinary soil if watered during periods of drought, Hardy Hibiscus hybrids do especially well in moist situations and are the perfect answer where conditions are too moist for most other perennials. They attain a height of four to five feet in most situations but die back to the ground during the winter. One problem is that under good conditions, they seed themselves in a copious manner and all volunteers must be discarded if the good named varieties are to be retained. A number of the newer cultivars are presently being grown in the nurseries of the Arnold Arboretum, and it is hoped that in a few years we will have a good display of these valuable mid-summer flowering plants for visitors to see.

Some of the numerous varieties which are easy to obtain are: 

*H. 'Appleblossom' — crinkly petals which are light-pink margined with a deeper rose-pink;* 
*H. 'Raspberry Rose' — flowers deep rose-pink with a bright red throat;* 
*H. 'Satan' — flowers a brilliant fire-engine red;* 
*H. 'Snow White' — a shorter plant (about three-and-a-half feet) with pure white flowers;* 
*H. 'Snow Queen' — the white flowers have wide, overlapping, crinkled petals and a deep red throat;* 
*H. 'Super Clown' — flowers white and pink;* 
*H. 'Super Red' — the medium-sized flowers dark red;* 
*H. 'Super Rose' — brilliant rose flowers up to ten inches in diameter;* 
*H. 'White Beauty' — pure white flowers ten inches in diameter with a red throat.*

Many other cultivars are on the market and there will undoubtedly be an upswing in interest in this group before long.

**Hosta — Plaintain-lily**

If given a proper location as regards both soil and light, this can be another large group to delight the gardener who cannot spend a lot of time pampering his plants. A moderately rich soil with partial shade (preferably the shade of high trees) is about all that Hostas require to develop into majestic, eye-catching specimens. A visit to the Hosta collection in the woods at the Case Estates can be a rewarding experience as most visitors are unaware of the exciting range of variations in this group. This special planting is one of the most extensive collections of Hosta in this part of the country.
As with the Daylily, the most demanding seasonal task with Hostas is the removal of the scapes once the flowers have gone by. They not only are unattractive but should not be allowed to go to seed, as certain named varieties do not reproduce true to type and the resulting seedlings can be a distinct nuisance. Nonetheless some of the good cultivars on the market today have arisen as chance seedlings in just this way. For an interesting article on this subject and the development of a number of cultivars see Francis Williams and Her Garden Adventures by Gertrude C. Wister, Arnoldia, Vol. 30, No. 4, pp. 148–154. 1960.

There is little doubt that most Hosta cultivars are seen to best advantage if planted singly as specimen plants rather than being massed. This way the handsome radial symmetry of the individual plants can be seen to best advantage. Some of the more vigorous varieties will eventually occupy up to four feet of space in the garden and this must be taken into account at planting time. Some types make excellent ground covers, and when planted for this purpose the symmetrical effect is sacrificed. *H. undulata* with its white and green wavy leaves has been used extensively for this purpose and is often seen growing in the full sun — a condition not tolerated well by most other varieties.

The taxonomy of Hosta is confused and synonyms and incorrect names abound. The following is a list of some of the best varieties as they appear in the majority of nursery catalogs. It should be noted here that they fall into two different groups, some grown for the interesting leaves only, and others for their flowers. Plants in this list have been selected to provide a period of blossom from late June to September. *H. 'Betsy King'* which was hybridized by Frances Williams is grown mainly for its rich purple flowers which appear on twenty-inch scapes in August. *H. fortunei* (often listed as *H. glauca*) has glaucous, pale green leaves with lavender-blue flowers on spikes two to three feet high in August. A number of worthwhile variations exist and are grown as much for the flowers as for the leaves. *H. 'Honeybells'* has very fragrant white flowers with violet veining which appear on forty-inch scapes in late August. The leaves are light green. *H. 'Royal Standard'* has very sweetly scented white flowers on two-foot scapes in August and September. It is grown more for the sweet smelling flowers than for the foliage. *H. sieboldiana* and its varieties and forms are grown for the remarkable large heavy-textured leaves. It is one of the very best of all the plants for semi-shaded to heavily-shaded conditions. One of the most sought after of all varieties is *H. siebol-
diana 'Frances Williams' sometimes called *H. sieboldiana* 'Yellow Edge' or *H. sieboldiana aureo-marginata*. This form has lovely round glaucous leaves which are bordered in yellow.

*H. undulata* has white and green wavy leaves and has been much used in foundation plantings and as a ground cover. It blooms in July and forms a plant ten to twelve inches high. *H. ventricosa* (*H. coerulea*) is especially valuable for its beautiful dark violet flowers on spikes three-and-a-half feet high, and for its deep green leaves. It blooms in late June and early July.

*To be continued*

ROBERT S. HEBB

Summary of weather data recorded at the Dana Greenhouses, January 1971.

<table>
<thead>
<tr>
<th>January</th>
<th>Precipitation</th>
<th>Average Daily Temp.</th>
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<tbody>
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<td>10.3</td>
<td>33.1</td>
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*Salix lucida with Skunk Cabbage.*

*Photo: P. Bruns.*
Trees and Shrubs Hardy in the British Isles, by W. J. Bean.

The present generation of gardeners has grown up with two monumental reference works devoted to trees and shrubs: Rehder's "Manual of Cultivated Trees and Shrubs," a one volume handbook for identification, and Bean's "Trees and Shrubs Hardy in the British Isles," a two (or three in later editions) volume compendium of descriptive matter. They are both monuments to the incredible energies of their respective authors. Both works were produced as a response to the large number of new woody plants that were introduced into cultivation from eastern Asia in the last part of the nineteenth and early part of the twentieth centuries.

Rehder's "Manual . . ." was originally published in 1927 and issued in a revised edition by its author in 1940. Bean's "Trees and Shrubs . . ." was originally published in 1914 in two volumes, went through six editions in the author's lifetime, and was last issued three years after his death, in 1949, as a seventh edition in three volumes, edited from the author's manuscript. Economic exigencies required that the successive editions of Bean be issued with a minimum of alteration to the text of the original volumes, but with the new matter added as a supplementary volume.

Bean's "Trees and Shrubs . . ." was always a discursive and descriptive work. It described the forms cultivated in the British Isles, but made no real attempt to indicate diagnostic characters or to provide keys for identification. As such, Bean and Rehder were complimentary texts, for Rehder's "Manual . . .", despite its cryptic notes on flowering time and hardiness, is essentially a manual for identification.

For years there have been rumors that there was to be a new edition of Bean, and at last the first volume of the new edition is here. While in appearance it resembles the old Bean, there is much that is new. The entire text has been reset in a more modern type face. All of the descriptive material has been cast into one alphabet, and nomenclature and synonymy have been
brought up to date. Many of the species were known to Bean only as juvenile specimens — the new text brings his observations up to date by the incorporation of data on mature specimens. As much as possible of Bean's original text has been saved; the editing has consisted to a large extent of adding new observations.

The new seventh edition of Bean’s “Trees and Shrubs Hardy in the British Isles” seems destined to take its place on the bookshelves of all who have a serious interest in growing trees and shrubs in the temperate zones. The editors are to be congratulated on producing a thoroughly up-to-date work that retains the flavour of the original; and the publisher is to be applauded for a fine job of book production. The reasonable price of about twenty dollars per volume is due to financial assistance from the Royal Horticultural Society and the Nuffield Foundation. We, the public, must be forever grateful to all concerned.

G. P. DeW.


Hortulus, by Walahfrid Strabo, translated by Raef Payne

The book’s white vellum binding and the gold letters Walahfrid Strabo. Hortulus. 1510/1966 stood out among the dark volumes on the shelf.

I took it down and opened it to one of the middle pages:

Then my small patch was warmed by winds from the south
And the sun’s heat. That it should not be washed away,
We faced it with planks and raised it in oblong beds
A little above the level ground. With a rake
I broke the soil up bit by bit, and then
Worked in from on top the leaven of rich manure.
Some plants we grow from seed, some from old stocks
We try to bring back to the youth they knew before.

I was in a dry dusty library but suddenly the warmth of the sun was on my face, I smelled the rich spring scent of manure, and felt damp crumbling soil between my fingers.
On the left-hand page the poem was in Latin, on the right in English. Each page was delicately imprinted with a pale green block print of a plant. I turned a few pages:

You have seen how ivy twines
Its leaves round a lofty elm, from the earth's bosom
Lapping its supple arms around the whole tree till it finds
A way to the very top, and hides all the wrinkled bark
With a mantle of green —

Who was Walahfrid Strabo? I turned to the front of the book. In the first twelve pages I found an account of this 9th century poet and monk by Wilfrid Blunt. The account of his life tells what is known historically about him, and includes footnotes of further historical information. Many of his writings were of religious subjects including a study of the growth of observances in the Church. His *Hortulus* seems to have been the only poem of nature that he wrote. Although the poem was written in the ninth century the manuscript lay undiscovered until 1509, when it was found and printed in Vienna in 1510. It has had an appeal to poets and gardeners ever since, and this volume includes a discussion of other manuscripts and editions of the poem which have appeared since medieval days.

After reading Walahfrid's life I turned again to the poem, and found, toward the front of the volume, twenty facsimile pages of the ninth century manuscript of the *Hortulus*, reproduced from La Biblioteca Apostolica Vaticana. Even though I have forgotten the little Latin I knew, these pages, written in neat Latin calligraphy, produced the same feeling of excitement and history that I get from turning the crackling pages of an old book.

I turned to the beginning of the English translation and began to read: "Here begins the Book on the Cultivation of Gardens by Strabus (or Strabo). May it find favor." I was in a monastery garden, sharing with a 9th century monk the joys and sorrows of watching a garden grow. I rejoiced with him at the arrival of spring:

A purer air was now beginning to herald
Fine weather. Plants stirred in the zephyr's path
Thrusting out from their roots the slender tips
Which had long lain hidden in the earth's blind womb,
Shunning the frost they hate. Spring smiled
In the leaves of the woodland, the lush grass on the slopes
And the bright sward of the cheerful meadows.
When a dry spell threatened I hurried with him to bring water:

Should a dry spell rob the plants of the moisture they need,
My gardening zeal and fear that the slender shoots
May die of thirst make me scurry to bring fresh water
In brimming buckets. With my own hands I pour it
Drop by drop, taking care not to shift the seeds
By too sudden or lavish a soaking.

Together in the library, surrounded by old books, Walahfrid
and I strolled down his garden path. It was a kitchen garden,
as most northern European gardens were in the ninth century.
Tansy, Betony, Celery; he admired each and gave directions
for its use.

At the end of his garden stood the rose and the lily, and with
words of religious mysticism he compared them to the symbols
of the Church:

These two flowers, so loved and widely honored,
Have throughout the ages stood as symbols
Of the Church’s greatest treasures; for it plucks the rose
In token of blood shed by the Blessed Martyrs;
The lily it wears as a shining sign of its faith.

I closed the book and put it back on the shelf. That evening
as I turned the hose on my newly planted beds I thought of the
monk in his monastery garden. Eleven centuries separate us,
but we share the hopes and despairs of gardening.

Some plants we grow from seed, some from old stocks
We try to bring back to the youth they knew before.

H. R. G.

This edition of Hortulus, published by the Hunt Botanical
Library, Pittsburgh, Pennsylvania, is limited to 1500 copies. It
can be ordered from Stechert-Hafner Service Agency, Inc., Box
2000, 260 Heights Road, Darien, Connecticut, 06820. The price
is $15.00.
Lecture Series: “Meet the Staff”

In the fall of 1968, the Arnold Arboretum instituted a series of talks by some members of the staff. This spring’s program will allow five more members of the staff to speak about subjects that interest them and, we hope, you.

Time: 8 P.M., Tuesday evenings: April 6 to May 18, 1971
Place: The Schoolhouse, 133 Wellesley Street, Weston, Massachusetts
April 6: *Plant Collecting in New Guinea*
Thomas G. Hartley, Ph.D., Associate Curator of Pacific Botany
April 13: *A Botanist in Korea, Japan and Hong Kong*
Shui-Ying Hu, Ph.D., Botanist
April 20: *Some Gardens in Southern Spain*
Helen Roca-Garcia, A.M., Research Assistant
April 27: *A Naturalist in the Southeastern United States*
Richard Weaver, Ph.D., Assistant Curator
May 4: *Pruning Practices at the Arnold Arboretum*
Robert G. Williams, B.S., Superintendent

Refreshments will be served at 7:30 P.M., and the lecture will begin promptly at 8. Please park in the areas indicated near the barn. Limited space makes it necessary to restrict the size of this group to 30 members.

This series requires a registration fee of $5.00 for Friends of the Arnold Arboretum*; $10.00 for others. Any member of the immediate family of a “Friend” may register for these meetings but a registration fee of $5.00 must be paid for each person.

* Information on how to become a “Friend of the Arnold Arboretum” can be obtained by writing or calling the Arnold Arboretum, Arborway, Jamaica Plain, Massachusetts 02130. Telephone: 524-1717.
1971 Spring Classes of the Arnold Arboretum

Practical Gardening for the Homeowner  Mr. Robert Hebb

This series is designed to teach gardening skills as they relate to plantings usually found around the home. It will be a continuation of the course presented last fall. Emphasis will be placed upon supervised practical work, utilizing the various plantings at the Case Estates in Weston. Newcomers are welcome. Wear clothing suitable for working in a garden. Class limited to 20.

Five classes: Wednesdays  April 14–May 12, 1 to 4 P.M.

Spring Field Class in Ornamental Woody Plants  Dr. Gordon P. DeWolf

The months of April and May are the peak of flowering period for most of the trees and shrubs in the Arnold Arboretum. Field classes will permit observation of many plants as they come into flower. Discussions will include an evaluation of many plants, with suggestions as to their availability, culture, and proper use. In case of rain, the meetings will be held indoors.

Five classes: Fridays  April 23–May 21, 10 to 12 A.M.

Each of the above 2 series of talks requires a registration fee of $5.00 for Friends of the Arnold Arboretum; $10.00 for others.

Elementary Techniques of Bonsai  Mrs. Ara R. Derderian

This series will consist of three 2-hour lectures and a workshop at the last meeting. The basic principles of bonsai will be explained, such as soil preparation, potting-up procedures, pruning techniques, and general design. Classes will be conducted at the Dana Greenhouses at the Arnold Arboretum. Plant material will be provided.

Saturdays  April 17, 24, May 1, 10 A.M. to 12 noon
          May 8, 10 to 3 P.M.

Registration fee for Friends of the Arnold Arboretum, $25.00; others $35.00.

Meeting for Advanced Bonsai Enthusiasts  Mrs. Ara R. Derderian

This will be a workshop for group plantings of Bonsai.

Saturday  May 15, 9 A.M. to 12 noon

Registration fee for Friends of the Arnold Arboretum, $7.50; others $10.00.
ARNOLDIA is a publication of the Arnold Arboretum of Harvard University, Jamaica Plain, Massachusetts, U.S.A.