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ARNOLD ARBORETUM
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ARNOLDIA



A continuation of the
BULLETIN OF POPULAR INFORMATION

VOLUME XVI

1956

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ARNOLD ARBORETUM
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ARNOLDIA



A continuation of the
BULLETIN OF POPULAR INFORMATION
of the Arnold Arboretum, Harvard University

VOLUME 16

MARCH 2, 1956

NUMBER 1

AN EARLY SPRING?

THOSE of us who live in New England should learn not to forecast the weather unless we are willing to be involved in all sorts of difficulties. We have just passed through a six-month period that will probably go into the records as one of the most variable in years (as well as one of the most difficult for forecasters!) Even before the disastrous hurricane that brought more rain to New England than it had ever experienced before in such a short period, the month of July was noted as within 0.3 degrees of being the hottest of all times. With 4.28 inches of rain, the precipitation was already above normal, and in August, with the tropical hurricane, the total precipitation was officially 17.09 inches, nearly 14 inches above normal. Even August was slightly hotter than normal.

September was a relatively temperate month with temperatures and precipitation about normal although we can easily remember several hurricane alarms. The normal temperatures of October were accompanied by precipitation which was 4.15 inches above the average for this month. November was colder than usual with another 2.19 inches of rain above the norm, while the snowfall on the 19th-20th was the heaviest recorded for so early in the season since 1894. The noteworthy point here was that none of the daily maximum temperatures during November exceeded 60° F., and since 1871 there were only three other Novembers this cold.

December was the coldest December in 38 years while precipitation was 2.34 inches below normal. Another feature of this month's weather was the maximum sunshine, 73 percent of the total possible. Usually, winter months are on the dark side.

Because of these vagaries, if vagaries they be, plants in this area have certainly had plenty of moisture for the past six months, and went into the winter in an excellent condition regarding growth and soil moisture. Beginning in November there wasn't any question about it: winter, and a fairly cold one, had set in. It

stayed cold for at least two full months, hence the lack of snow cover on the ground was not detrimental to the plants during that period. Briefly, woody plants went into the winter in good condition after plenty of late summer growth, went quickly into a dormant period, and were kept there by continued cold temperatures.

Temperatures have been on the warm side for January and February.* Week-ends recently have been consistent with light rain or drizzle. Snow has appeared once or twice, but apparently the elements are only half-hearted about it, for it quickly thaws and disappears. We in New England have read of winter floods in California; unprecedented November "freezes" which have killed millions of dollars worth of ornamental woody plants in the Pacific Northwest; and most recently of the extreme cold weather in Europe. Mr. H. G. Hillier of Winchester, England, wrote only last week that his plants were frozen solidly in the soil, a most unprecedented occurrence in his nursery at this time of year. We know it all will end some time, but how soon?

Now (February 14) snowdrops have been in bloom in front of the Administration Building in the Arboretum since February 6, and the Chinese witch-hazel normally blooming in mid-March, is in full bloom today. There have been some warm days this month, and these early flowering plants are prone to bloom as soon as the weather warms up a bit, once they have had their proper dormant period.

It should be said that as far as can be told now, there has been little winter damage of any kind to woody plants in the Arnold Arboretum. Although it is yet too soon to tell definitely whether rhododendrons have been burned, (or will be, for much damage can be done in March), it looks at this point as if they have not. Nor have any other evergreens displayed any serious winter burning up to this point. Winter burning, of course, is brought about when high winds or warm sunshine cause excessive transpiration from the leaves, while the roots and soil about them remain solidly frozen.

Just now a visitor came in the office and reported that the flower buds of the red maples were "swelling" and they must really be, if he could see them from the ground. So, with these harbingers of a spring which is certainly on the way today (but may not be tomorrow!), the approximate blooming dates of some other woody plants are here given for this area, so that anyone who is interested can try his hand at forecasting an "early" or a "late" spring.

* *Note*—This bit of optimistic writing was done February 14. During the next ten days we received a blizzard leaving nine inches of snow on the ground and near zero temperatures many of the nights. All of which goes to prove, you can never tell—in New England!

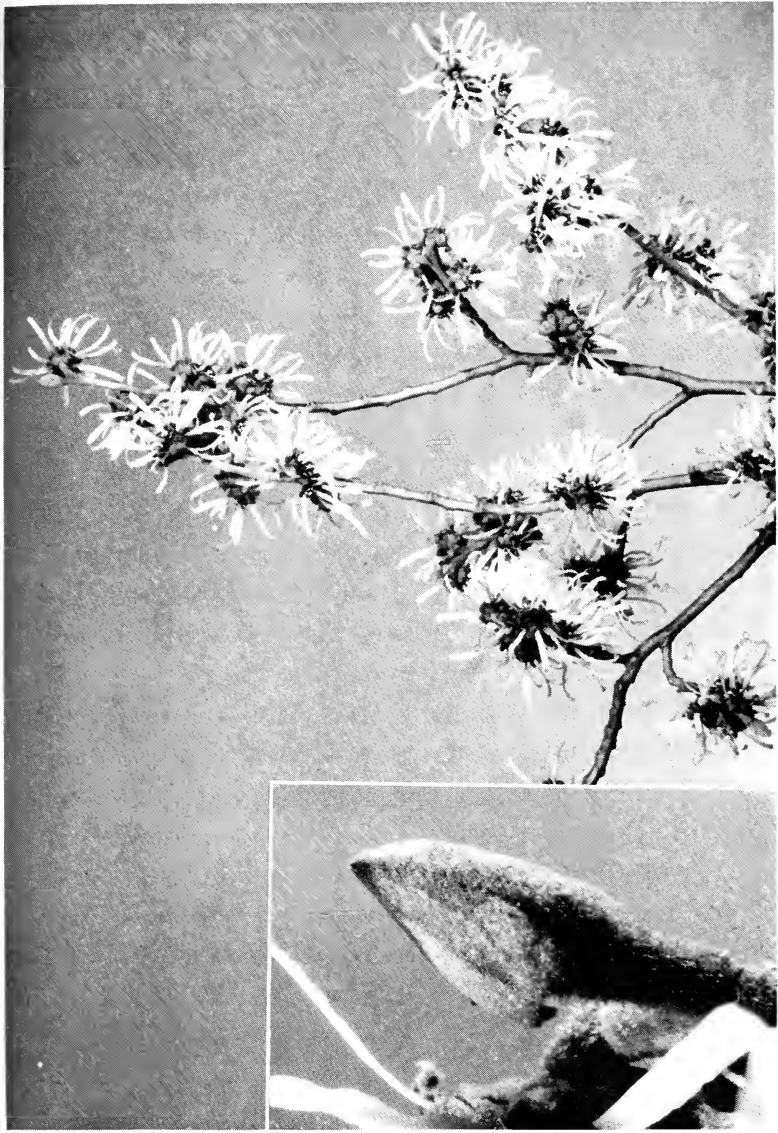


PLATE I

The Chinese witch-hazel (*Hamamelis mollis*) as it was in full bloom in the Arnold Arboretum, February 14. Inset, a close-up of the buds and twig showing the very pubescent character (also on the leaves) which is one of the means of differentiating this species from the others. The vernal witch-hazel also has pubescent twigs but its flowers are, of course, much smaller and its leaves more lustrous and not nearly as pubescent.

**Dates on which plants were noted to be in full bloom
in the Arnold Arboretum**

Plant	An "early" season 1945	A "normal" to slightly "late" season—1941
Hamamelis vernalis	March 3	March 27
" mollis	" 3	—
Acer saccharinum	" 10	March 28
Ulmus americana	" 20	April 13*
Acer rubrum	" 28	" 6
Daphne mezereum	" 28	" 15*
Dirca palustris	" 28	" 19
Forsythia ovata	" 28	—
Magnolia stellata	" 28	" 24
Rhododendron dauricum	" 28	" 15
Viburnum fragrans	" 28	" 14*
Abeliophyllum distichum	" 29	" 17
Cercidiphyllum japonicum	" 29	" 15
Lonicera praeflorens	" 29	" 14
Cornus mas	" 31	" 17

*The plants thus noted for 1941 bloomed about one week later than normal; the rest bloomed about on time.

DONALD WYMAN

REMINDER OF SPRING CLASSES

This is a second reminder to those subscribers living in the Boston area, about two classes in the Arboretum's educational program starting this month.

Plant Propagation (Instructor: Mr. Roger Coggeshall)
Starting: **Wednesday, March 14**

Plant Breeding (Instructor: Dr. Karl Sax)
Starting: **Tuesday, March 20**

For full particulars, write immediately to Dr. Carroll E. Wood, Jr., Arnold Arboretum, Jamaica Plain 30, Massachusetts.

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VOLUME 16

APRIL 13, 1956

NUMBER 2

PASTE THE POISON IVY

THE eradication of poison ivy is not an easy task under the most favorable conditions, but it is even more difficult when the ivy is growing among ornamental vines or ground cover plants, in hedges, or climbing up small trees and shrubs. Under these conditions the ivy cannot be sprayed with weed killers without killing the ornamental plants. For most people the destruction of poison ivy by pulling it out of the ground is a hazardous operation. I tried this method about twenty years ago. The plants were dormant; I wore leather gloves and washed my hands thoroughly with strong laundry soap after the job was done, but I was so badly infected about the face that I could hardly open my eyes for nearly a week. It is also difficult to pull out all of the roots, especially if they are interlaced with the roots of adjacent ornamental vines and shrubs, and the remaining roots will often send up new shoots.

Poison ivy can be killed with the non-selective herbicides, such as ammonium sulfamate, or with 2,4-D and 2,4,5-T which does not kill the grass. The ivy can be sprayed with any of these weed killers, but all or most of the nearby plants will also be killed. The non-selective weed killers can be painted on the stems and on larger vines or the dry crystals can be put in frills cut in the base of the trunk, but there is still some danger of killing adjacent plants. The fumes from 2,4-D are even more hazardous to neighboring ornamental and crop plants.

About five years ago my wife, who is on the grounds committee of the Friends of the Peter Bent Brigham Hospital, asked me how she could get rid of a large poison ivy vine growing on the wall of one of the buildings, which was covered with Boston ivy. The poison ivy plant could not be sprayed without killing the Boston ivy, and it was too large to be pulled out by the roots. We needed a weed killer which would be effective when applied to the stem of the vine, but one which would not injure the adjacent ornamental vines.

We first tried a mixture of 2,4-D in a lanolin emulsion. The material was tested

for fume drift by painting the greasy mixture on a pole stuck in the ground and placing a young potted tomato plant within a foot from the pole for a day. The tomato plant was uninjured, although extremely sensitive to 2,4-D fumes.

We then felt that it was safe to try the weed killer emulsion on the poison ivy vine at the hospital. The base of the stem was nearly two inches in diameter, and the bark was thick. In order to permit the weed killer to enter the stem more readily, a thin strip of bark was cut from one side of the base of the stem for a distance of about one foot. The emulsion was then brushed on the cut stem. Within several weeks the poison ivy was dead, the Boston ivy uninjured.

The emulsion weed killer was later modified, using a commercial weed killer containing equal parts of 2,4-D and 2,4,5-T. One part of the concentrated (35% 2,4-D; 33% 2,4,5-T) brush killer was mixed with nine parts of a greasy carrier. In addition to lanolin we have used waxes, heavy lubricating grease and even vegetable fats, such as Crisco. Any carrier is satisfactory if it mixes well with the brush killer, is viscous enough to stick on the stem in hot weather, and thin enough so that it can be painted on the stem with a small brush.

If the poison ivy stems are small, the emulsion can be painted directly on the bark, but if the stem is thicker than about a third of an inch, a thin strip of bark should be removed along one side of the stem, or longitudinal slits made in the bark, to permit the weed killer to enter the stem. The weed killer must enter the bark and be carried down to the roots to be effective. It can also be absorbed by the leaves, but it is a tedious job to smear the leaves with the greasy mixture. The weed killer is most effective if applied early in the summer, when the vines are growing vigorously, but it is effective at any time during the growing season.

We have used this weed killer on poison ivy vines growing up young pine trees, along stone walls and among ornamental shrubs. It can also be used to kill almost any weed tree or vine. During the past summer we tried it on a heterogeneous lot of young trees, shrubs and vines which were growing in a hedge of *Rosa virginiana* in the Arnold Arboretum. In this rose hedge, which was nearly 400 feet long, were more than 100 seedlings of weed plants ranging in size from four to six feet tall. Among them were 11 apples, 21 cherries, 17 barberries, 16 bittersweets, 15 grapes, 22 maples, 20 oaks and 6 black swallow worts. The test was made by two of our summer helpers, Edward Dowgialo and Robert Newman of the Jamaica Plain Agricultural High School. The weed killer was applied in mid-July. By the middle of August most of the weed trees were dead, with no injury whatever to the rose bushes. A few maples had survived, but they may have been missed in the treatment. Unfortunately one of our worst weeds, the black swallow wort (*Cynanchum nigra*), was not killed or injured, even though the slender stem was split lengthwise and the emulsion was forced into the slits.

This type of brush killer can easily be prepared, or may now be bought from dealers in horticultural supplies. If large quantities are needed it can be made more cheaply by buying the necessary ingredients and mixing them at home.

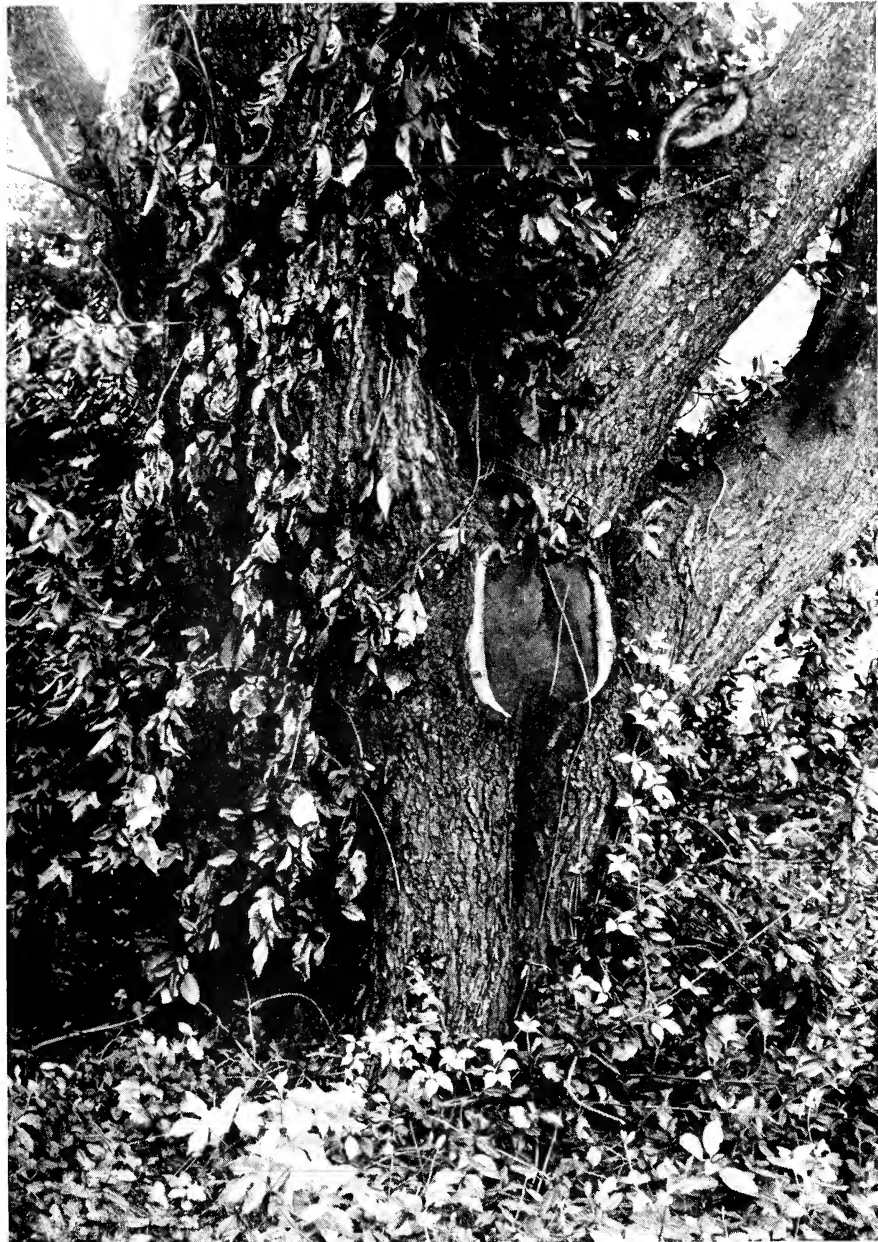


PLATE II

A poison ivy vine about 8 feet tall growing on the left side of this red maple, is surrounded by a *Euonymus* ground cover. On June 27 a thin strip of bark was cut from one side of the ivy stem for about a foot above the ground. The stem was then painted with "Ivy Kill." By July 27 the poison ivy vine was completely killed, with no injury to either the maple tree or to the *Euonymus* ground cover.

The commercial preparation is packed in a small jar, complete with a small brush and two long plastic bags to cover the hands and arms and prevent contact with the leaves and stems of the poison ivy plants. It would also be advisable to slip a transparent plastic bag over the head to protect the face. If the plastic bags are to be used again they should be washed thoroughly.

CONTROL OF PEACH BORERS

For the past ten years we have been testing dwarfing rootstocks for peaches at the Bussey Institution. By budding peaches on the Nanking Cherry (*Prunus tomentosa*) it is now possible to grow dwarf peach trees which will bear fruit at an early age, and at maturity will produce about 100 large peaches on a tree only six or seven feet tall.

Peach trees need little care except for the control of peach tree borers. The borers enter the bark near the base of the trunk and seriously injure or kill the tree in a short time.

The borers can be easily controlled by a single application of a greasy insecticide about the middle of June, before the eggs are laid. This insecticide is made by mixing one part of concentrated (40-50%) DDT or chlordane powder with nine parts of heavy grease. The soil is pulled away from the base of the tree to a depth of several inches and the trunk of the tree is smeared with a thin layer of the greasy insecticide up to a height of about a foot above the ground. The soil that was pulled away from the base of the tree is then replaced.

Another species of peach borer attacks the upper trunk and crotches of the trees. It is not as prevalent as the common borer, but if present it can be controlled by smearing the entire trunk and the base of the branches with the greasy insecticide.

The greasy carrier holds the DDT or chlordane in place and the insecticide kills any eggs which are laid and start to develop on the trunk of the tree. A single application will last an entire season.

KARL SAX

REMINDER OF SPRING CLASSES

This is a second reminder to those subscribers living in the Boston area, about two classes in the Arboretum's educational program starting this month.

Principles and Practice in Plant Identification II

(Instructor: Dr. Richard Howard) Starting: **Tuesday, April 24**

Spring Field Class in Ornamental Plants

(Instructor: Dr. Donald Wyman) Starting: **Friday, April 27**

For full particulars, write immediately to Dr. Carroll E. Wood, Jr., Arnold Arboretum, Jamaica Plain 30, Massachusetts.

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VOLUME 16

APRIL 27, 1956

NUMBER 3

EIGHTY TREES FOR THE SMALL PLACE
(New Demonstration Plot opened at the Case Estates of the
Arnold Arboretum in Weston, Massachusetts)

DURING the spring of 1951 a demonstration plot of small ornamental trees was planted on the Case Estates of the Arnold Arboretum in Weston, about thirteen miles from Jamaica Plain. It does take time for small trees to begin to show the true habit for which they are valued, and the trees in this plot are no exception. Five years have gone by since the majority were planted, with some varieties being added each year until now there are about eighty different kinds of trees growing in this one plot. It is high time that home owners in this area knew of the existence of this trial demonstration.

The plot is situated adjacent the Ground Covers, at the junction of Wellesley Street and Newton Street in the heart of Weston. It is open to the public at all times, and all the trees are clearly labeled. They have been planted merely in rows, the idea being that here is to be displayed a good selection of the most outstanding small ornamental trees for planting small streets or small home properties. Three fourths of them are under 35 feet in height, and the remainder can be kept this high by pruning.

All these trees are represented in the main collections of the Arnold Arboretum in Jamaica Plain, but in this Demonstration Plot they are all being grown together in one small, easily-accessible area, where they can be compared quickly, one with the other. The field is bordered by a woods on one side and by the high school football field on the other. No special attention is given the trees once they become adjusted to the situation, except normal correctional pruning.

The following list is given for the benefit of those who would like to visit this plot and find individual trees. Rows are numbered from the road bordering the playing field, first numbers being closest to the old cow barn adjacent. It might also be mentioned at this point that there are now 150 different kinds of ground-

covering plants in the plots nearby, so a trip to the Case Estates to observe these most interesting plants might prove very worth while.

Ornamental Small Trees in Demonstration Plot

	Location	
	Row	Number in Row
‡Acer ginnala	II	1
‡— griseum	II	3
— miyabei	II	11
*— mono	II	12
‡— palmatum	II	4
*— platanoides columnare	III	5
*— — erectum	III	6
*— rubrum "Armstrong Upright"	V	16
*— — columnare	III	8
*— saccharum monumentale	III	9
— tataricum	III	4
‡— truncatum	V	15
Albizia julibrissin rosea	II	13
Betula pendula fastigiata	III	14
Carpinus betulus fastigiata	III	10
— caroliniana pyramidalis	III	11
*— cordata	IV	2
*— japonica	IV	3
*Cercidiphyllum japonicum	III	12
Chionanthus retusus	II	10
— virginicus	II	9
Cornus florida	II	7
— fastigiata	III	7
— rubra	II	6
‡— kousa chinensis	II	2
‡— mas var.	IV	10
Crataegus crus-galli	III	2
— flava	III	19
— monogyna inermis	V	2
— — stricta		
	Pyramidal singleseed hawthorn	III 3
— nitida	Glossy hawthorn	IV 1
— phaenopyrum	Washington hawthorn	II 8
— — fastigiata	Pyramidal Washington hawthorn	III 13
— punctata	Dotted hawthorn	III 1
‡Elaeagnus angustifolia	Russian olive	V 5
‡Evodia danielli	Korean evodia	IV 4



PLATE III

One of the newer crab apples, *Malus* "Dorothea," blooms heavily even when the tree is only a few years old. The flowers are double, a light pink color, followed by bright yellow fruits which remain on the tree all winter, making this an excellent specimen for the small home garden.

Ornamental Small Trees in Demonstration Plot (Continued)

* <i>Evodia hupehensis</i>	Hupeh evodia	IV	5
<i>Franklinia alatamaha</i>	Franklinia	V	1
<i>Ginkgo biloba fastigiata</i>	Sentry ginkgo	III	15
<i>Gleditsia triacanthos elegantissima</i>	Bushy honey-locust	V	6
<i>Halesia carolina</i>	Carolina silverbell	V	12
<i>Koelreuteria paniculata</i>	Golden-rain tree	IV	17
<i>Laburnum alpinum</i>	Scotch laburnum	II	14
— <i>anagyroides semperflorens</i>	Autumn goldenchain	II	15
* <i>Magnolia loebneri</i>	Lobner magnolia	IV	9
‡— <i>stellata rosea</i>	Pink star magnolia	IV	8
‡ <i>Malus</i> "Almey"	"Almey" crab apple	I	13
‡— <i>arnoldiana</i>	Arnold crab apple	I	5
‡— "Brilliant"	"Brilliant" crab apple	I	12
‡— "Case Seedling"	"Case Seedling" crab apple	I	11
‡— "Dorothea"	"Dorothea" crab apple	I	4
‡— <i>floribunda hillieri</i>	Hillier crab apple	I	6
‡— <i>hupehensis rosea</i> (?)		I	15
‡— "Jay Darling"	"Jay Darling" crab apple	I	10
‡— "Katherine"	"Katherine" crab apple	I	3
‡— "Oekonomierat Echtermeyer"		I	1
‡— "Pink Weeper"	"Pink Weeper" crab apple	I	2
‡— <i>prunifolia rinki</i>	Chinese Pearleaf crab apple	I	9
*— <i>pumila niedzwetzkyana</i>	Red-vein crab apple	I	14
‡— <i>purpurea</i>	Purple crab apple	I	7
‡— — <i>eleyi</i>	Eley crab apple	I	8
‡ <i>Morus australis</i>	Japanese mulberry	II	16
* <i>Populus alba pyramidalis</i>	Bolleana poplar	III	18
*— <i>simoni fastigiata</i>	Pyramidal Simon poplar	V	14
‡ <i>Prunus cerasifera</i> "atropurpurea veitchi"	Veitch Pissard plum	IV	19
‡ <i>Prunus</i> "Fugenzo"	"Fugenzo" oriental cherry	V	10
‡— "Gyoiko"	"Gyoiko" oriental cherry	IV	6
‡— "Ojochin"	"Ojochin" oriental cherry	V	11
*— <i>sargentii</i>	Sargent cherry	V	3
— — <i>columnaris</i>	Columnar Sargent cherry	III	16
— <i>serrula</i>		V	8
*— "Schubert"	"Schubert" chokecherry	V	4
*— <i>yedoensis</i>	Yoshino cherry	V	9
* <i>Quercus robur fastigiata</i>	Pyramidal English oak	III	17
‡ <i>Robinia pseudoacacia bessoniana</i>	Besson black locust	V	7
<i>Sorbus arnoldiana</i>	Arnold mountain-ash	IV	15
— <i>aucuparia fastigiata</i>	Upright mountain-ash	IV	14
— <i>discolor</i>	Snowberry mountain-ash	V	17
* <i>Stewartia koreana</i>	Korean stewartia	IV	11

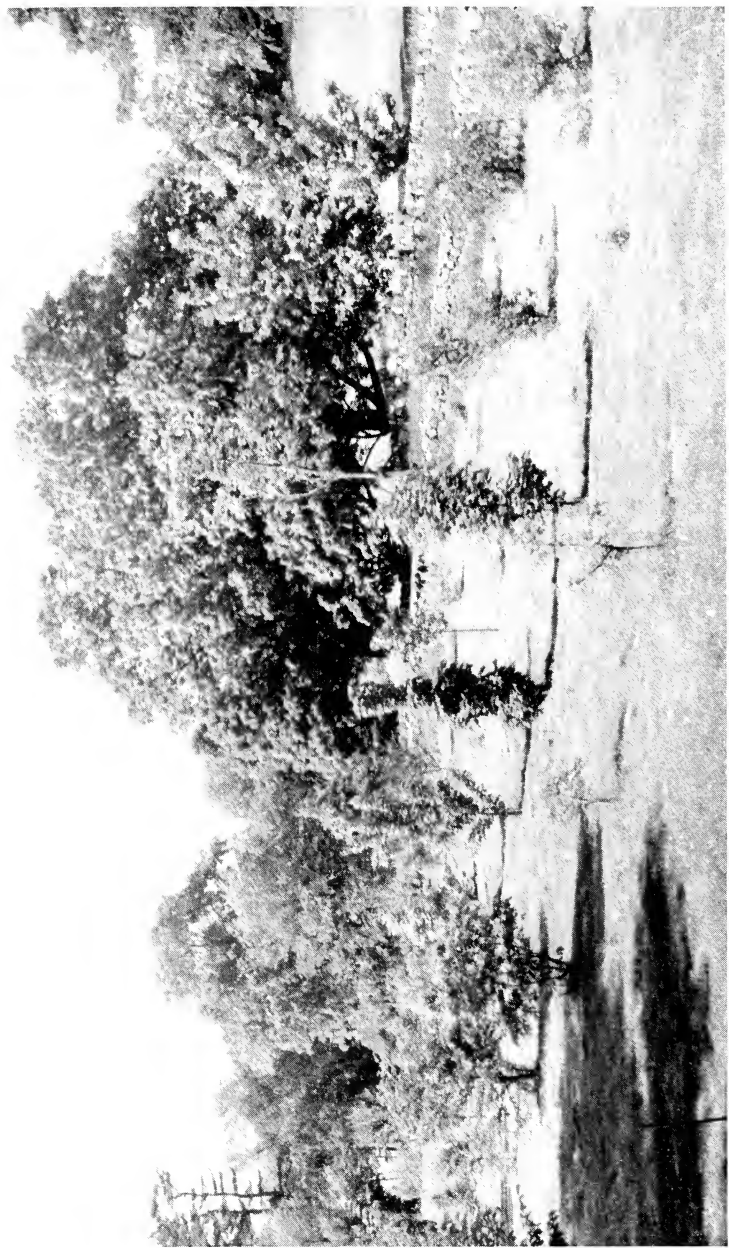


PLATE IV

A part of the Small Tree Demonstration Plot of the Arnold Arboretum in Weston. Eighty different kinds of small trees are being grown here in rows, all well labeled, for public study.

Ornamental Small Trees in Demonstration Plot (Continued)

<i>Syringa amurensis</i>	Amur lilac	II	5
* <i>Ulmus americana</i> "Augustine"	"Augustine" elm	IV	18
*— <i>parvifolia</i>	Chinese elm	IV	12
† <i>Viburnum prunifolium</i>	Black-haw	IV	13

† Trees lower than 24 feet in height.

* Trees which eventually may grow over 35 feet tall, but can be kept at this height by proper pruning. (Those with no marginal marks are usually between 24 and 35 feet tall at maturity.)

Trees with Narrow, Upright Habit

<i>Acer platanoides columnare</i>	<i>Crataegus phaenopyrum fastigiata</i>
— <i>erecta</i>	<i>Ginkgo biloba fastigiata</i>
— <i>rubrum</i> "Armstrong Upright"	<i>Populus alba pyramidalis</i>
— <i>saccharum monumentale</i>	— <i>simoni fastigiata</i>
<i>Betula pendula fastigiata</i>	<i>Prunus sargentii columnaris</i>
<i>Carpinus betulus fastigiata</i>	<i>Quercus robur fastigiata</i>
— <i>caroliniana pyramidalis</i>	<i>Sorbus aucuparia fastigiata</i>
<i>Cornus florida fastigiata</i>	<i>Ulmus americana</i> "Augustine"
<i>Crataegus monogyna stricta</i>	

Small Trees with Ornamental Flowers

Time

<i>Albizia julibrissin rosea</i>	Summer
<i>Chionanthus</i> species	Early June
<i>Cornus florida</i> vars.	Mid-May
<i>Cornus kousa chinensis</i>	Early June
<i>Cornus mas</i>	Early April
<i>Crataegus</i> species	Late May
<i>Evodia</i> species	August
<i>Franklinia alatamaha</i>	September
<i>Halesia carolina</i>	Mid-May
<i>Koelreuteria paniculata</i>	Mid-June
<i>Laburnum</i> species	Late May
<i>Magnolia</i> species	Late April
<i>Malus</i> sp. and vars.	May
<i>Prunus cerasifera</i> "atropurpurea veitchii"	Late April
<i>Prunus</i> "Fugenzo," "Gyoiko," and "Ojochin"	Early May
<i>Prunus sargentii</i>	Late April
<i>Prunus</i> "Shubert"	Mid-May
<i>Prunus yedoensis</i>	Late April
<i>Sorbus</i> species	Late May
<i>Stewartia koreana</i>	Early July
<i>Syringa amurensis</i>	Mid-June
<i>Viburnum prunifolium</i>	Late May

Small Trees with Ornamental Fruits

	Color
<i>Chionanthus</i> species	Blue
<i>Cornus</i> species	Red
<i>Crataegus</i> species	Red
<i>Evodia</i> species	Red to glossy black
<i>Halesia carolina</i>	Greenish
<i>Koelreuteria paniculata</i>	Greenish
<i>Magnolia</i> species	Red
<i>Malus</i> species and vars.	Red and yellow
<i>Sorbus</i> species	Orange to red
<i>Viburnum prunifolium</i>	Red, green, blue

Small Trees with Outstanding Autumn Color

	Color
<i>Acer ginnala</i>	Red
— <i>palmatum</i>	Red
— <i>platanoides</i> vars.	Yellow
— <i>rubrum</i> vars.	Red
— <i>saccharum monumentale</i>	Yellow to red
— <i>tataricum</i>	Red
<i>Betula pendula fastigiata</i>	Yellow
<i>Cercidiphyllum japonicum</i>	Yellow to scarlet
<i>Chionanthus</i> species	Bright yellow
<i>Cornus florida</i>	Scarlet
— <i>kousa</i> , <i>mas</i>	Red
<i>Crataegus phaenopyrum</i>	Scarlet to orange
<i>Ginkgo biloba fastigiata</i>	Yellow
<i>Prunus sargentii</i>	Red
<i>Sorbus</i> species	Orange to red
<i>Viburnum prunifolium</i>	Deep red

DONALD WYMAN

CASE ESTATES — OPEN HOUSE

Sunday, May 6, 1956 (10 A. M. - 5 P. M.)

All interested are invited to visit the Case Estates in Weston (see map, page 16) on this day, when staff members will be present to conduct visitors about the grounds.

THE CASE ESTATES OF THE ARNOLD ARBORETUM WESTON, MASSACHUSETTS

Total Area 145 Acres
Scale 1/4" = 100'
April 14, 1933

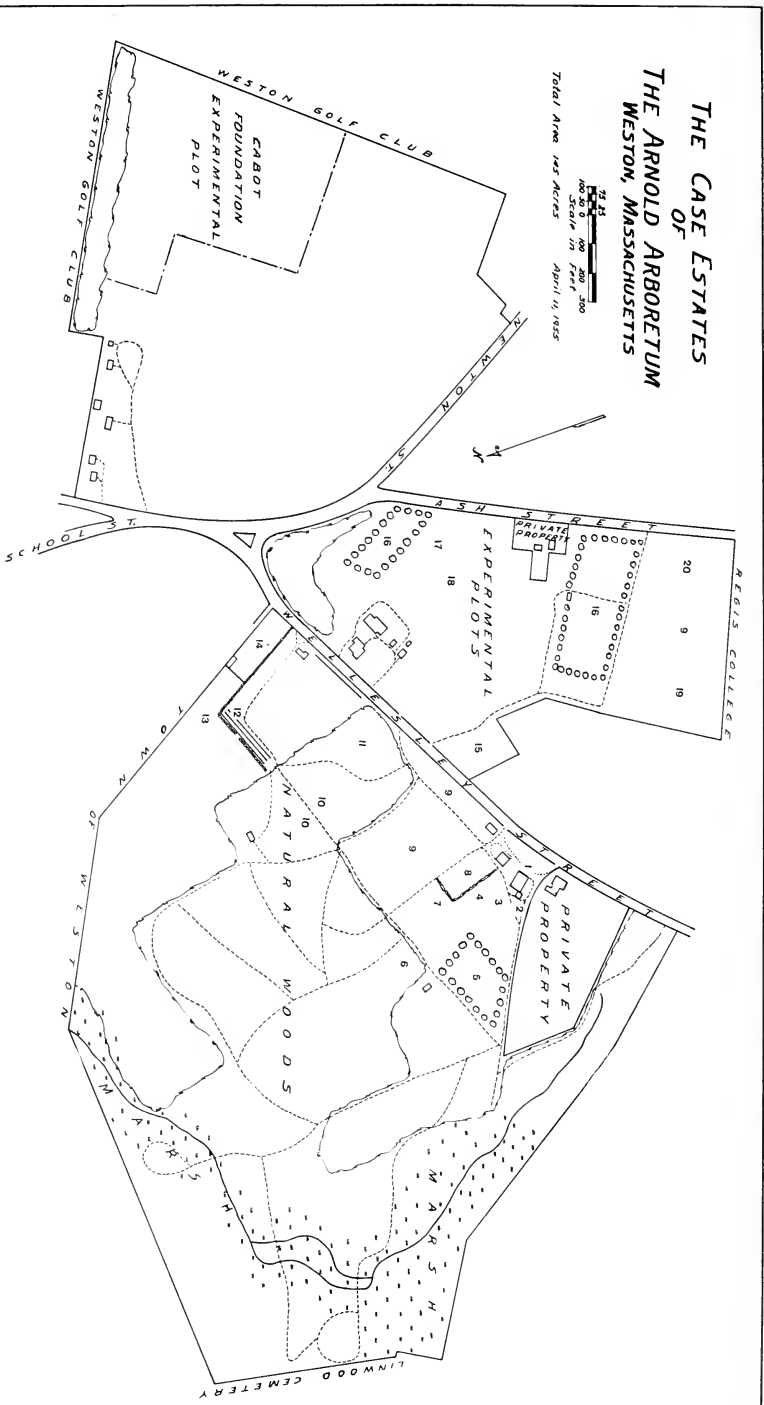


PLATE V

1. Barn, 135 Wellesley Street.
 2. Greenhouse.
 3. Cold Frames.
 4. Young Plant House.
 5. Malus sikkimensis Orchard.
 6. Holly Collection.
 7. Evergreen Nursery.
 8. Ericaceous Nursery.
 9. Nursery.
 10. Woods Path.
 11. Rhododendrons.
 12. Wisteria Experiment.
 13. Small Street Trees.
 14. **Ground Cover Demonstration Plots.**
 15. **Ornamental Small Tree Demonstration Plot.**
 16. Orchard
 17. Beach Plum Collection.
 18. Dwarf Fruit Trees.
 19. Permanent Barberry and Currant Collection.
 20. Orchard Plot.
- The Case Estates of the Arnold Arboretum are situated in the town of Weston on both sides of Wellesley Street, between the major Massachusetts highways Route 20 and Route 30.

ARNOLDIA



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NUMBERS 4-5

ARBORETUM SPRING PLANTING NOTES

SPRING planting at the Arnold Arboretum goes on year after year, unheralded and unsung, yet many extremely interesting plants will eventually grow into the public's notice. Young plants are necessarily pruned very heavily when they are transplanted to the grounds here, so that frequently several years elapse before such plants eventually reach any real size and become noticeable to the horticultural-minded visitor. However, a close scrutiny of any year's planting list will show many an old variety being replaced in young form (making it possible to remove diseased or damaged specimens), and many new plants being placed that have never been in the Arboretum collections before. Some are probably new to any American planting. Brief information concerning a few of the trees and shrubs planted out this spring will be of interest in this respect.

It should be pointed out that to reach planting size, these plants have been growing in the nurseries of the Arnold Arboretum anywhere from one to sixteen years. Some must be tested for hardiness before they are planted in the permanent collections; others must be checked when they flower to make certain they are named correctly. So, although they may be noted in the following pages as "new" to the permanent collections, they have all been growing in the Arboretum nurseries for several years.

This is only part of a lengthy testing program for new plants which is going on continually, year after year. Many a promising "new" introduction fails to meet the hardiness test and must be discarded or sent to arboretums in warmer climes. Others are not sufficiently outstanding to warrant space in the permanent collections; and far too many arrive here misnamed. Often, propagation material of new plants is practically non-existent, for it is extremely hazardous to cut such young specimens further, at least until they grow several years.

This 1956 planting list is a normal one for the Arboretum, so a few statistics concerning it might be considered:

1956 PLANTING LIST

Number of different species and varieties (all woody)	208
Number of species and varieties new to the Arnold Arboretum (never before planted here, according to the records)	49
Number of species and varieties possibly new to American plantings	17

SOURCES

Propagated directly from Arnold Arboretum plants	65
Imported from outside the United States	58
Propagated (or obtained as plants) from plants in American gardens, other arboretum, and nurseries	90

It can be seen from these figures that three-fourths of the "new" plants have at one time or another been growing in the Arnold Arboretum. Some, like *Salix purpurea pendula*, died out years before and have only now been replaced. Others, like the *Corylus colurna*, are being replaced merely as a precautionary measure. In another case (*Exochorda korolkowii*) the old Arboretum plant had to be removed because of space limitations and new plants had to be propagated from it as replacements. Many another plant, like the "Sunburst" honeylocust, is being planted on the grounds for the first time.

By far the most exciting plants are the 25 percent which have never before been grown here. Some of these are the first American introductions. If they turn out to be worthy ornamental specimens, they are propagated and distributed to commercial growers, but this does take time. It is also of interest to note that 25 percent of the plants come from outside the United States.

A complete listing of these plants, their sources, and the reasons why they were propagated would be too lengthy for this bulletin; so twenty-eight will be discussed briefly to show where they come from and why they were obtained.

Acer platanoides "Fassen's Black"

This plant has been growing in our nurseries since March 1954 and is extremely difficult to differentiate from "Crimson King," which was introduced into America about 1946 and has been grown by us ever since. Both are much superior to the old-fashioned Schwedler's maple, for they keep the purplish red color of the foliage through the entire summer. Mr. Herman J. Grootendorst of Boskoop, Holland, has claimed that there are minute differences between these two. "Fassen's Black" is supposed to have originated at Tips Nursery, Herck-de-Stad in Belgium, from a Norway maple seedling, but the origin of the seedling is in doubt. In fact, it may even have come from Orleans, France, where "Crimson King" originated in the nursery of Barbier & Cie, and so may have the same origin as



PLATE VI

Nuts, burs, and leaves of the new Chinese chestnut varieties ("Nanking," "Kuling," "Meiling") are much like those of the once popular American chestnut except the nuts are larger.

(Photo courtesy of Bureau of Plant Industry, U. S. Dept. of Agriculture)

the "Crimson King" seedling. Mr. Fassen (a nurseryman of Tegglen, Holland) received his seedling before World War II with the right to name it, and in fact, the original plant he received is supposed to still be alive in Holland. I doubt whether there is sufficient difference between the two clones to warrant growing both, but they can be observed now in the Arboretum, for those who wish to make their own comparisons.

Alnus glutinosa

This species has been grown off and on in the Arboretum since 1897, but in 1950 an effort was made to try to obtain seed from a very hardy strain. Consequently, some was obtained from Helsinki, Finland. It is yet too soon to know definitely whether this is hardier than other forms we have here now.

Aralia elata variegata

This aralia is noted for the broad, creamy-white variegations on the margin of the leaves. Apparently, it is an old favorite in England (from where we imported it in 1953) first introduced there in 1865, but it may not have been in America. Certainly, it was never before in the collections of the Arnold Arboretum.

***Berberis thunbergi* "Thornless"**

This shrub (Plant Patent No. 40) was received from Stark Brothers, Louisiana, Missouri, in 1952. It has all the good points of the regular Japanese barberry, except fewer thorns. In our experience, the plant has not proved completely thornless, but does produce a few weak thorns.

***Castanea mollissima* "Nanking"**

This is a clone selected from several hundred seedlings grown by the United States Department of Agriculture (and planted out as an orchard of 400 seedlings in 1938) in its hunt for Chinese chestnut clones that are the best of this species for growing in America as substitutes for the American chestnut. Two other clones have been released, "Kuling" and "Meiling," and we have been growing them all in our nurseries since 1950. These trees produced nuts (in Maryland) at the rate of 75 to 100 pounds per ten-year-old tree, on trees selected because of their good habit and high yield. Nuts from these trees are large and good tasting, even from five-year-old trees.

Amelanchier asiatica

This is a rare member of the *Amelanchier* genus which grew in the Arboretum from 1881 to 1946 when our plants died. We were fortunate in being able to obtain a few scions from Henry Kohankie and Son of Painesville, Ohio, who originally obtained his stock from the Arnold Arboretum many years ago.

Cornus alba sibirica

A shrub commonly listed by most American nurseries, but unfortunately much mixed with other stock throughout the country, even the plants in the Arbore-

tum were untrue to name. Consequently, plants and cuttings with this name were obtained by the Arboretum in 1950 from six different European sources. After several years' growth in the nursery, it turned out that plants from one source were true to name, having the bright red winter twigs that are much more colorful than those of the species or the native *C. stolonifera*. These plants came from the Grootendorst Nurseries of Boskoop, Holland. Since then, they have been propagated by the Arboretum and distributed to commercial growers as being the true *Cornus alba sibirica*, and now these are added to the permanent collections at Jamaica Plain.

Cornus florida magnifica

The flowering dogwood grows naturally over a wide area of the eastern United States, and during the past years, some clones have been noticed and propagated asexually. This one, obtained from the Westbury Rose Company of Westbury, Long Island, was selected as having extra large flowering bracts.

Cornus mas aurea

The cornelian cherry is a common landscape plant in America, offered by most of the large nurseries. It grows well and vigorously and is susceptible to few pests. This variety with yellow leaves does not grow as well as the species, and probably will not make as desirable a landscape plant. In 1950, it was obtained from Hillier and Sons of Winchester, England, the first time it has ever been in the collections of the Arboretum, and this may be the first importation into America.

Corylus colurna

The Turkish filbert is one of the best tree filberts for ornamental planting, with a good habit and good foliage, apparently doing well in dry soils and perfectly hardy in the Boston area. It may grow as high as 75 feet with the male catkins being of interest in the very early spring. The tree of this species growing in the Arboretum since 1907 showed signs of failing a few years ago when a large limb was broken off by a storm and disease took hold in the trunk. Grafts were taken from it in 1951, but since that time the original tree has apparently recovered. This young one has been planted to make doubly certain that such an excellent plant will be retained in the collections.

Cytisus scoparius (hardy form)

Commonly seen naturalized on Cape Cod, Martha's Vineyard, and throughout Virginia, the Scotch broom has not proved completely hardy in the Arnold Arboretum where severe winters have killed it to the ground and sometimes killed it completely. This clone, supposedly much hardier, is planted out for trial. It was obtained from the mountainous area of central Germany by Heinrich Rohrback of the Heatherfells Nursery, Andover, Massachusetts, when he made a trip to



PLATE VII

Corylus colurna — the Turkish filbert, makes a fine pyramidal shade tree, doing well in dry situations where maples sometimes drop their leaves because of lack of water.

Germany a few years prior to 1950. Certainly, it has withstood the winters since that time in our nurseries, in fine condition.

***Euonymus europaea* "Red Cascade"**

The European spindle tree does vary when grown from seed. This clone was recently selected from a lot of seedlings grown in the George Jackman and Son Nursery of Woking, England, because of the very bright red and profuse fruits. We obtained cuttings in 1952, but the plants have not yet fruited. They are too large to grow any longer in the nursery, so they are being planted in the *Euonymus* collection. We are relying on the experience of the men in this fine, old, English nursery, in making this selection as being worthwhile.

Exochorda korolkowi

A few years ago (1952) it became necessary to remove a very fine old plant of this species from the shrub collection because it was too large for the space allotted to it. In fact, it was too large to be moved with the equipment we had at the time; consequently, seed was collected, sown, and when the plants were definitely showing signs of strong continued growth, the old plant was removed. Three young and vigorous seedlings now are being planted to take its place at another spot in the Arboretum where they will have plenty of space in which to grow.

***Fraxinus pennsylvanica lanceolata*—"Marshall's Seedless Green Ash"**

The green ash is a vigorous, fast-growing tree, often considered a weed in gardens because of the fact that the seed is promiscuously blown everywhere; and even small seedlings are so deep-rooted that they are hard to pull out. This clone is welcomed merely to point out the fact that Mr. Vernon Marshall of the Marshall Nurseries, Arlington, Nebraska, is one nurseryman who has recognized the fact that asexual propagation of the staminate tree is an excellent means of circumventing this promiscuous seed-sowing habit.

***Gleditsia triacanthos inermis* "Sunburst"**

In 1954, we obtained this interesting plant which has since been patented (no. 1313) by the Cole Nursery Company of Painesville, Ohio, where it was found in a seedling block in 1947. It has all the good points of any thornless honeylocust and being a male plant it does not produce the objectionable long pods. Most important, of course, is the fact that the leaves on the outer 8 to 10 inches of the branches are yellow and hold this color throughout most of the growing season. An excellent addition to the list of trees for city use.

Liriodendron chinense

This tree will probably not prove hardy in the Arnold Arboretum. It was first tried in 1908, grown from seed collected by E. H. Wilson in West Hupeh Prov-

ince, China. These plants had all died by 1919. Again it was tried from Chinese seed in 1933, and these plants all died by 1941. Another lot of seed from H. H. Chung collected in Hupeh Province, had died by 1946, and a final lot of plants (seed from Lushan Botanic Garden in 1947) did very poorly and died by 1952. The plants set out this year were grown from seed from the Lushan Botanic Garden in 1931. The plants grow vigorously during the summer in the nursery, but are not sufficiently hardy to withstand our winters. Seeds of this last seed lot have been sent to several institutions further south where the tree should prove more hardy than it does in Boston.

Liriodendron tulifera contorta

There are few varieties of the native American tulip-tree. Years ago a correspondent in Ireland wrote of a contorted-leaved tulip poplar growing on an estate there and sent a few scions to the Slieve Donard Nursery of Newcastle, County Down, Ireland, for grafting. The Arboretum received the plants in 1949, but only one survived so they had to be repropagated here in 1951. Now a nice plant about five feet tall is being set out this spring, varying from the species by having leaves that are slightly wavy in general outline. This may be the same as a variety grown here from 1895 to 1912 from the Biltmore estate in Asheville, North Carolina, termed var. *crispa*, but no description of the foliage appeared on the record of this particular plant.

Malus "Red River"

In the collection of crab apples at the Arboretum are over 200 species and varieties, since we try to grow all the varieties available in North America. One which we did not have until 1950 was this variety, "Red River," a cross made by Dr. A. F. Yeager (when he was at the South Dakota Agricultural Experiment Station) before 1938 between "Dolgo" and the "Delicious" apple. The fruit of "Red River" is edible, a bright red, about two inches in diameter. Scions we obtained from Mr. A. F. Den Boer of Des Moines, Iowa, from the excellent collection of which he has charge.

Picea tonaiensis

A new species, with small plants looking somewhat similar to *Picea purpurea*. We obtained the seed in 1940 from Takenoshi N. Nakai, a Japanese botanist, who collected it from the very tree in North Korea he used in describing the species. It has grown this long in the nurseries merely because we wished to be certain it was of value for transplanting to the permanent collections. This is undoubtedly its first importation into America.

Prunus japonica

This species we have had from time to time in the past, but invariably the plants appear to be short-lived. In 1951, two plants were received from the Manitoba Hardy Plant Nursery, Dropmore, Manitoba, Canada. Mr. F. L. Skinner,

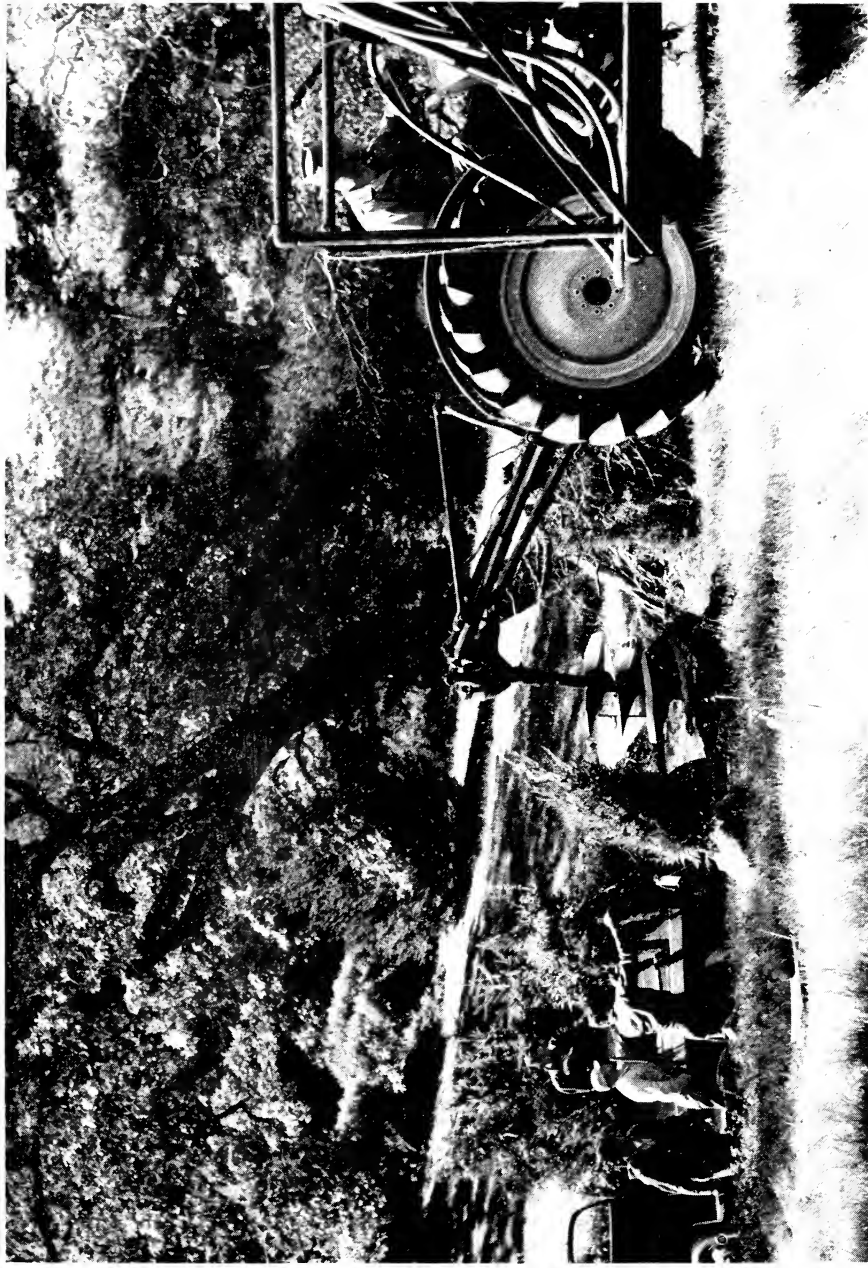


PLATE VIII

Planting jumpers in the Arnold Arboretum. Compost, well-rotted manure, a mulch, and water (here supplied from the large spray machine), supplied at planting time, are prerequisites in starting young plants off to good growth the first year.

the proprietor, has sent us many an interesting shrub in the past, and plants that are hardy with him, certainly should be hardy here.

Pyracantha "Kazan"

Pyracantha coccinea lalandi used to be reputedly the hardiest form of *Pyracantha* for growing in the North, and has proved hardy through all but the most severe of Boston's winters. "Kazan," we obtained from Mr. S. G. A. Doorenbos, Director of Parks, The Hague, Holland, in 1951. It is supposed to be more hardy than other forms of *P. coccinea* and is being widely offered in European nurseries.

Plants of "Kazan" have not been seriously injured in our nurseries during the five years we have been growing them, but it must be admitted, that of nearly a hundred seedlings of *P. coccinea lalandi*, there were nearly twenty that did not suffer any winter injury when grown under the same conditions. So, this variety is still on trial for hardiness. Others in North America have reported that in southern Canada it is the most hardy of the forms tried there, and one nurseryman in central Ohio has been selling it several years now as one of the best.

Rhamnus japonica

The last Japanese *Rhamnus* (direct from its native habitat) died in the Arboretum shortly after 1923. In an attempt to obtain the true plant once again, seeds were imported from the Botanical Institute of Forest Science, University of Tokyo, Japan, in 1952. Healthy specimens are being planted this spring, grown from this seed, to once more represent this species direct from its native habitat.

Robinia "hillieri"

A cross between *R. kelseyi* and *R. pseudoacacia*, raised in the nurseries of Hillier and Sons, Winchester, England, this is a small tree with lilac-pink flowers. *Robinia "slavini"* raised in the Parks of Rochester, New York, has the same parentage. We obtained two grafted plants from Hillier in 1953, probably the first importation into America.

Rosa moyesi "Geranium"

A selected form of *Rosa moyesi* which is more bushy than the species and has brighter crimson flowers. The bottle-shaped red fruits are somewhat similar, but this clone is supposed to make a better landscape plant than the species. We obtained it from George Jackman and Son of Woking, England, early in 1952. Because of special United States Department of Agriculture Plant Quarantine restrictions, this had to be grown in a "post-quarantine nursery," or a few rows of nursery set aside only for growing restricted imported nursery stock, so that Government inspectors could periodically study it for a two-year period. During this time, it cannot be moved or repropagated, but if reported free of all disease and insect pests, then it can be released after the two-year period. Many another plant has been grown in the Arboretum nurseries under such restrictions, one of

the reasons why it takes so long to obtain suitable specimens of some things for the collections.

Salix purpurea pendula

The pendulous branched form of the purple willow used to grow in the Arboretum prior to 1910, but died and was not replaced until it was located growing in Watson's Nurseries, Ltd., of Dublin, Ireland, in 1952. In Europe, this is grafted high on standards, making a mass of pendulous branches from one trunk, but such plants are finding less and less favor in American gardens. It is not a very outstanding plant, possibly one of the reasons why it was overlooked for so many years; nevertheless, with modern transportation methods what they are today, it was a simple matter to have a few hardwood cuttings sent over by air. In fact, the most difficult problems now are not the transportation or the wrapping of plant materials for shipment, but the precise steps that must be taken in plant inspection both in Europe before the plants are shipped, and in inspection and fumigation in the United States after the plants are received.

Staphylea holocarpa rosea

In 1908, there was one plant of this variety in the Arboretum grown from seed collected by E. H. Wilson in China, which later died during or slightly after the very cold winter of 1918. When a rare plant is killed suddenly, it often becomes extremely difficult to replace, as is the case with this plant. The Arboretum had sent propagating material to Hillier's Nursery in England while the plant was alive, and it was from this source that we obtained another plant in 1951, and so returned to the Arboretum a variety that had been missing since 1910. This history is more interesting than are the ornamental characteristics of the plant, since bladdernuts in general are vigorous growing shrubs with little ornamental value.

Viburnum opulus "Notcutt's Variety"

This was first obtained in 1938 from the R. C. Notcutt, Ltd. Nurseries of Woodbridge, Suffolk, England. It is a vigorous growing *V. opulus*, and has performed well here as a young plant. It was to make a larger planting of this good variety that it was propagated.

Viburnum tomentosum "Lanarth"

Three plants of this variety were obtained from George Jackman and Son Nurseries, Woking, England, in 1952. The variety is supposed to be similar, but somewhat more narrow in habit than the variety *mariesi* which has proved one of the best of the viburnums here in the Arnold Arboretum. The new plants are still too young to determine whether or not they have superior ornamental qualities to *mariesi*. Consequently, both will be grown in the main viburnum collection for further study.

DONALD WYMAN

Lilac Sunday — Open House

Sunday, May 20 should see the lilac collection at peak bloom and on this Lilac Sunday the Arboretum staff will also hold "Open House." Staff members will be on the grounds from 10:00 A.M. to 5:00 P.M. to answer questions regarding the plants of the lilac collection and the collections of shrubs, vines, dwarf fruit trees and hedges, as well as the Larz Anderson collection of Japanese Dwarf Trees. In addition, various items of mechanical equipment used to care for the grounds will be demonstrated. These will include a brush chipper, Blitzer mowers, sprayers and planters.

During the Open House the meadow road from the Forest Hills to the Arborway Gates and beyond the lilacs will be closed to automobile traffic. Parking will be permitted from the Conifer collection to the Viburnum collection near Bussey Hill. The Bussey Street, South Street and Centre Street gates will be open. Parking will also be permitted on the paved areas of the Bussey Institution on South Street.

Botanical Exploration of the Trans-Mississippi West, 1790-1850

The Director of the Arnold Arboretum is pleased to announce the publication of a new book by Mrs. Susan Delano McKelvey, research associate of the Arnold Arboretum and long a member of the Committee to visit the Arnold Arboretum. Mrs. McKelvey's earlier writings on Lilacs, Yuccas and the history of the Arboretum are familiar to readers of *Arnoldia*. Her latest book represents the culmination of long and meticulous research in checking the routes and the collections of botanists who assisted in "opening the West." The names of Lewis and Clark, Nuttall, Douglas, Coulter, Leavenworth, Audubon and Fremont are a few of the more important collectors considered, although some are remembered more in history for companion accomplishments. Excellent maps by Dr. Erwin Raisz translate historical fact in graphic clarity. Footnotes are frequent and offer many anecdotes of charm and poignancy. Mrs. McKelvey has made a real contribution to the available knowledge of the western United States.

"Botanical Exploration" is a large book, in large octavo size and is nearly 1200 pages long with 9 text maps and two in a pocket. The price is \$25.00. Orders may be addressed to the Librarian, Arnold Arboretum, Jamaica Plain 30, Mass.

ARNOLDIA



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NUMBER 6

CRAB APPLES FOR ORNAMENTAL FRUITS

THE oriental crab apples are certainly among the best of the small trees for small gardens, and even when large numbers are massed in park plantings and on large estates, they make excellent ornamental trees, both in the spring and in the fall when they fruit. The native crab apples, on the other hand, although they may be beautiful in flower, do not have colorful fruits, most of them having merely green fruits that are of no ornamental value. So, it is the oriental types and their many hybrid varieties that we must look to for bright fall color.

New varieties are appearing almost every year, for these trees are easily grown from seeds and may fruit within five years' time. The experienced plantsman knows, however, that such seedlings rarely have the beauty and the outstanding ornamental characters of some of the currently-named clones. In fact, a new seedling is up against pretty stiff competition to produce flowers and fruits that surpass some of the currently-named modern varieties, since there are approximately 125 species and varieties being offered for sale by American nurserymen, and an additional 135 being grown in the arboretums and botanical gardens throughout the United States and Canada.

A new element is now being looked for in recent crab-apple seedlings, namely, their ability to bear flowers and fruits annually instead of every other year. There are some excellent varieties which are dependable in this respect, so that any new ones introduced from now on, should have this most desirable quality. Among the best of the crab apples for ornamental fruits (of those with this annual-bearing quality) are "Arrow," *Malus baccata* and several of its varieties, *dawsoniana*, "Dorothea," *floribunda*, "Makamik," *purpurea aldenhamensis*, *purpurea lemoinei*, and *sieboldi*. "Ormiston Roy" and "Red Jade" also appear to have this desirable trait, but neither has been tried for a sufficient number of years to prove this without a doubt. Certainly, some that alternate in one area have been known to be annual bearers in another area, so that soil and climate may well have a bearing on this quality, too.

DATES BETWEEN WHICH FRUITS ARE COLORFUL

Most of these dates have been recorded for the plants as they grow in the Arnold Arboretum, Jamaica Plain, Mass., these dates will naturally vary from year to year, and vary in different locations, but the chart can be used as an indication of how some varieties may hold their fruits longer than others. A few additional dates have been supplied by originators of new varieties.

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Adams							
<i>x arnoldiana</i>							
Arctic Dawn							
<i>x atrosanguinea</i>							
<i>baccata</i>							
<i>baccata columnaris</i>							
<i>baccata costata</i>							
<i>baccata gracilis</i>							
<i>baccata jacki</i>							
<i>baccata mandshurica</i>							
Bob White							
<i>brevipes</i>							
Chilko							
<i>x dawsoniana</i>							
Des Moines							
Dolgo							
Dorothea							
E. H. Wilson							
Exzellenz Thiel							
Flame							
<i>florentina</i>							
<i>floribunda</i>							
<i>fusca</i>							
Garnet							
Gibbs Golden Gage							
Golden Hornet							
Gorgeous							
<i>halliana parkmani</i>							
<i>halliana spontanea</i>							
<i>x hartwigi</i>							
Henry DuPont							
<i>honanensis</i>							
Hopa							
<i>hupehensis</i>							
Ivan							

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Joan							
Kingsmere							
<i>x magdeburgensis</i>							
Makamik							
<i>x micromalus</i>							
Montreal Beauty							
Mount Arbor							
Olga							
Ormiston Roy							
Professor Sprenger							
Profusion							
<i>prunifolia</i>							
<i>prunifolia fastigiata</i>							
<i>prunifolia rinki</i>							
<i>pumila niedzwetzkyana</i>							
<i>x purpurea</i>							
<i>x purpurea aldenhamensis</i>							
<i>x purpurea eleyi</i>							
<i>x purpurea lemoinei</i>							
<i>x purpurea kornicensis</i>							
Queen Choice							
Redflesh							
Red Jade							
Red Splendor							
<i>x robusta</i>					some clones until		x
<i>x robusta erecta</i>							
<i>x robusta percisifolia</i>							
Rondo							
<i>sargentii</i>							
<i>sieboldi</i>							
<i>sieboldi arborescens</i>							
Snowcap							
<i>spectabilis</i>							
<i>spectabilis riversi</i>							
<i>x sublobata</i>							
Tanner's Variety							
Thomas Roland							
<i>toringoides</i>							
Wabiskaw							
Winter Gold							
<i>x zumi</i>							
<i>x zumi calocarpa</i>							

Many a plantsman professes to be little interested in this annual bearing characteristic, especially if he likes the form of the tree or the color and size of its flowers. However, since there are so many varieties being grown today, I feel certain that new introductions must have this annual-bearing habit to merit attention today, in this highly competitive field.

The crab apple varieties on the enclosed table are listed according to the length of time their fruits remain colorful. This may easily vary from year to year, depending on whether the season is "early" or "late." The same is true of the blooming times of the flowers. The length of time they remain effectively colored on the tree may vary somewhat also, depending on the kind of weather during that period. Consequently, the records should be taken merely as an indication of what can be expected in a normal season. It has been proved time and time again that varieties like "Bob White" and *M. zumi calocarpa* will retain their fruit much longer than most of the other varieties. This table was originally prepared for and published in "Crab Apples for America," published by the American Association of Botanical Gardens and Arboretums in September 1955.

DONALD WYMAN

A REMINDER OF FALL CLASSES AT THE ARBORETUM

Four classes will be offered this fall in the continuing educational program at the Arnold Arboretum. All classes are informal and are open to anyone interested in plants and gardening. Full particulars may be obtained by writing to Dr. Carroll E. Wood, Jr., Arnold Arboretum, Jamaica Plain 30, Massachusetts.

Botany in Boston

(Instructor: Dr. Richard A. Howard) Starting **Wednesday, October 17**

Fall Field Class in Ornamental Plants

(Instructor: Dr. Donald Wyman) Starting **Friday, September 28**

Plant Propagation I

(Instructor: Mr. Roger Coggeshall) Starting **Wednesday, October 3**

Principles and Practice in Plant Identification I

(Instructor: Dr. Carroll E. Wood, Jr.) Starting **Tuesday, October 2**

ARNOLDIA



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NEW AND RARE ORNAMENTAL WOODY PLANTS
RECENTLY DISTRIBUTED BY THE ARNOLD ARBORETUM

ONE of the functions of the Arnold Arboretum always has been to distribute new or rare ornamentals of high quality to the commercial propagators and so make them available to the plant-buying public. Many gardeners in the northern United States may not have had the opportunity to realize that the Arnold Arboretum has been doing this since it was established in 1872. Propagating material of plants not available in the trade in the form of seeds, cuttings, scions and budwood is frequently given commercial nurserymen who request specific items. Fifteen years ago a special program for the distribution of new or rare plants was started, and over a hundred species and varieties of new or rare ornamental woody plants have been distributed to commercial sources as a result. It is always easy to lose sight of the fact that new plants are being made available to commercial sources (especially when no extensive advertising accompanies the program!). In 1941 a general program of propagation was started at the Arnold Arboretum in which particular new or rare ornamental woody plants were specifically grown for the nurseryman.

Our experience had shown (see ARNOLDIA, Series 4, Vol. VIII, No. 3, May 1940) that seeds, buds, cuttings and scions when given to nurserymen frequently "failed" for several reasons. As a result, rare specimens in the Arboretum were being heavily cut in order to provide commercial growers with propagating material. Too often young plants propagated by nurserymen from such material, easily obtained, were quickly sold or forgotten, and requests were repeatedly made to the Arnold Arboretum for more propagating material.

As a result of years of experience, it was decided to actually grow plants here in the Arboretum, and to offer these to the commercial growers under the agreement with the Arboretum that such plants could neither be sold nor patented, but could be used for propagating purposes by the nurseryman receiving them.

These plants are sent only to those nurserymen requesting them specifically, since it is reasonable to expect that all commercial propagators are not interested in all types of woody plant materials.

The plants noted in this issue of *Arnoldia* are either new or rare in American gardens and are certainly worthy of greater use. The plants listed in this issue of *Arnoldia* are those distributed under this program for 1949-1955, inclusive. Those distributed for the years 1941-1948 are listed in *Arnoldia* 8: 9-12, Dec. 3, 1948. Fourteen of those here described have been introduced by the Arnold Arboretum for the first time anywhere, and an additional eight of them have been introduced into the United States by the Arnold Arboretum for the first time. They have been sent to one or more commercial propagators as plants and the recipient nurserymen are noted in the following pages. Gardeners who are interested in obtaining any of the following plants should write the nurserymen receiving them. Plants sent out in 1954 and 1955 would not yet be available from the nurserymen since there has not been sufficient time for such plants to have been propagated and grown for sale.

The following list of plants and the probable sources from which they may be purchased, will serve as a finding list, we hope, for those adventurous gardeners who may wish to acquire some of this material.

**Plants sent to cooperating nurserymen
with notes accompanying them**

* first introduced in the United States by the Arnold Arboretum.

** first introduced into cultivation anywhere by the Arnold Arboretum.

numbers refer to "List of Cooperating Nurserymen" (page 50), who have received the plant for propagating purposes.

****Acer rubrum schlesingeri** 50'+ In the Arnold Arboretum since 1888
Distributed: 1951—1, 6, 7, 8, 9, 10, 13, 14, 15, 17, 19, 21, 22, 24, 25,
26, 28, 32, 34, 35, 36, 39, 41, 42

The original grafts were obtained from a tree on the property of Mr. B. Schlesinger of Brookline, Mass. The tree is identical with the common red maple except that the foliage turns color in the fall anywhere from two to four weeks before the color changes in the foliage of the species. At one time we thought this characteristic might be due to soil conditions or the location where the tree was growing, consequently, scions from this variety were grafted on seedling red maples, but both the scion and the understock were allowed to grow. In the fall, it was clearly evident that the variety *schlesingeri* would produce autumn color several weeks before the seedling understock on which it was growing, regardless of where it was planted.



PLATE IX

Two large-growing Oriental hornbeams that may have merit as dense shade trees, although they are often difficult to transplant. (Above) *Carpinus japonica*. (Below) *Carpinus cordata*.

****Acer triflorum** 24' In the Arnold Arboretum since 1923
Distributed: 1953—9, 13, 19, 20, 21, 23, 25, 26, 27, 28, 31, 34, 35, 36,
41, 42

This small maple is a native of Korea and Manchuria. Closely related to *A. nikoense* it may be an addition to that group of shade trees for the small place.

***Acer truncatum** 24' In the Arnold Arboretum since 1905
Distributed: 1953—9, 13, 19, 20, 21, 23, 25, 26, 27, 28, 31, 34, 35, 36, 41

First introduced into America by the Arnold Arboretum in 1905 from northern China, this is another small tree which has proved fairly hardy ever since. Another small and interesting shade tree of possible merit where it will prove suitable.

****Albizia julibrissin rosea** 36' In the Arnold Arboretum since 1918
Redistributed: 1950—2, 3, 6, 10, 17, 18, 19, 22, 25, 26, 28, 32, 33, 34,
35, 38, 39, 42, 45

This hardy form of the silk tree has been distributed by the Arnold Arboretum on many occasions since it was first introduced by E. H. Wilson from Korea in 1918. It is unfortunate that extremely few nurserymen in the northern part of the country are offering it, for it is a truly beautiful tree, with wide spreading branches, very delicate foliage, and pale pink flowers appearing a greater part of the summer. Grown extensively throughout the South, those plants are not hardy in the North, but this is, even as far north as Boston. It is one of the idiosyncracies of growing this plant, that it must be well protected from bitter winter cold the first few winters, when it is prone to die back somewhat, but, once established, it will grow vigorously in good soil, often increasing 6'-8' a year.

Carpinus cordata 45' In the Arnold Arboretum since 1886
Distributed: 1950—17, 19, 20, 21, 22, 25, 26, 32, 34, 39, 42
1952—4, 7, 15, 19, 20, 21, 24, 25, 26, 28, 32, 34, 39, 41, 42
1953—9, 19, 20, 23, 25, 26, 28, 31, 34, 35, 36, 41, 42

In the past few years the Arboretum has distributed four of the *Carpinus* clan, merely because these are small trees and may have merit on the small property or along streets in some areas. This species is a native of western China, with handsome foliage.

****Carpinus japonica** 45' In the Arnold Arboretum since 1892
Distributed: 1952—(seeds only) 4, 9, 19, 20, 21, 25, 32, 34, 39, 41
1953—1, 9, 10, 18, 20, 21, 28, 31, 32, 34, 35, 37, 39, 41

A native of Japan this is another small tree and seems to be the only one of the four here mentioned available commercially in the United States at this time.

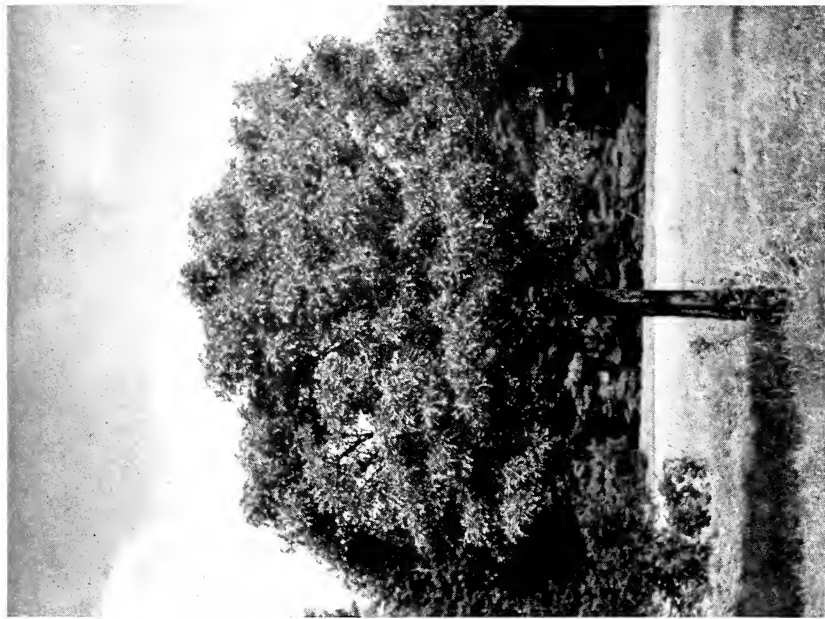


PLATE X

(Left) *Crataegus monogyna incornis*. A low, dense, round-headed tree that may have merit for planting as a street tree in areas where hawthorns are deemed satisfactory. (Right) The upright growing variety of the flowering dogwood, *Cornus florida fastigiata*.

Carpinus orientalis 15' In the Arnold Arboretum since 1885

Distributed: 1953—1, 9, 10, 15, 19, 20, 21, 25, 26, 28, 31, 32, 34, 35,
36, 37, 39, 41, 42

Often only a shrub or a very small tree, this is a native of southeastern Europe and Asia Minor. Because of its very small size and the fact that all *Carpinus* species are difficult to transplant, this species may not prove as popular as some of the taller growing hornbeams.

****Carpinus turczaninovi** 15' In the Arnold Arboretum since 1905

Distributed: 1953—1, 9, 10, 18, 19, 20, 21, 25, 26, 28, 31, 32, 34, 35,
36, 37, 39, 41, 42

The last of the four *Carpinus* here mentioned, this was first introduced into cultivation by the Arnold Arboretum from western China and Korea. Although these *Carpinus* species do make small, compact trees, it is doubtful if they will prove popular with nurserymen for they are notably slow in growth and are difficult to transplant. Such traits make saleable trees expensive and hence not too popular with the buying public.

Ceanothus pallidus roseus 2' In the Arnold Arboretum since 1889

Distributed: 1950—38

This interesting hybrid has been growing in the Arnold Arboretum for many years. Growing only about 2' tall, the pink flowers are interesting when they appear in late June, but the red fruit capsules which remain colorful for many weeks, are its chief point of interest. Like most of the other *Ceanothus* species, it will do well in dry soils.

****Cedrus libani** (hardy strain) 120' In the Arnold Arboretum since 1903

Redistributed: 1951—(seed only) 21, 32

The Cedar of Lebanon had been tried in the North many times prior to the turn of the century, but as a result of many attempts in the New England area, it failed to prove hardy over winter. In 1903, Professor Sargent, Director of the Arnold Arboretum, sent a special expedition to the uppermost parts of the Taurus Mountains where this tree was native in Asia Minor, believing that seed collected from trees growing normally in the coldest areas of their habitat, might prove hardier in America. Seeds collected on that expedition were sent to the Arnold Arboretum, and resulted in sturdy trees that have proved hardy under New England conditions ever since. This species has been of ornamental value in those northern gardens where the other two members of the genus (*C. atlantica* and *C. deodara*) will not live over winter.

Cornus alba sibirica 9' Brought in from Europe in 1950 to re-establish true
plant

Distributed: 1955—1, 6, 10, 12, 19, 23, 24, 25, 26, 27, 31, 34, 38, 45



PLATE XI

(Above) The large white flowers of the new *Magnolia loebneri* "Merrill." (Below) The flower buds of *Erodia danielli* appear in late summer and are followed by red fruit capsules which open up, disclosing shiny black seeds.

This is an old, popular favorite, but a few years ago Dr. John Wister, Director of the Arthur Hoyt Scott Arboretum at Swarthmore College, pointed out the fact that plants of this name were badly mixed in the American trade. The Arnold Arboretum checked this and found the same thing to be true. Hence, several plants were imported from various sources in Europe, tested in the nurseries of the Arboretum for a few years, and finally this clone was selected as being the true plant, with vividly red stems in the winter, especially when they are heavily pruned every few years. This clone was offered to the commercial growers only if they wanted it, i. e., as a means of introducing the true plant back into the American trade.

****Cornus florida fastigiata* 40'** In the Arnold Arboretum since 1910

Distributed: 1954—7, 15, 16, 17, 20, 24, 25, 26, 30, 31, 32, 39, 40, 41, 44

There are few forms of the flowering dogwood with growth habits different from that of the species, the weeping dogwood (*Cornus florida pendula*) being one commercially available. The fastigate form has been growing in the Arboretum for almost half a century. There are undoubtedly other fastigate forms to be found throughout the country, but this one was determined as interesting enough to be propagated and distributed primarily for its form.

***Crataegus monogyna inermis* 20'** In the Arnold Arboretum since 1914

Distributed: 1955—9, 12, 18, 19, 20, 23, 24, 25, 26, 27, 33, 34

This variety was first described as originating in Europe in the 1890's. Although it has been growing in the Arnold Arboretum for forty years, apparently no sources are available in this country where it can be bought. Very slow in growth, our 40-year-old plants are only 12' tall and practically thornless. Their outstanding ornamental characteristic is the fact that the branches form a densely rounded head, adaptable as a small street tree in locations where a hawthorn will prove acceptable. The flowers are single and white, the fruits are $\frac{1}{2}$ " long, elongated and dark red. It is easily propagated by budding and grafting. Probably this variety was also introduced into America first by the Arnold Arboretum.

***Cytisus praecox* 6'** In the Arnold Arboretum since 1924

Redisdistributed: 1950—38

Repeatedly sent out by the Arnold Arboretum since 1940, when it was only offered by two or three nurseries in the United States. It is indeed a satisfaction to find this excellent ornamental becoming more easily available to the gardening public. It is being offered by well over a dozen nurseries now, valued for its lemon yellow pea like flowers, dense green stems all winter long, and its ability to grow in very poor dry soils. Usually the Arboretum does not actively propagate plants for distribution when they are offered by more than three or four nurseries, but in this case, additional plants were available at this time.

***Cytisus praecox luteus** 4' In the Arnold Arboretum since 1945

Distributed: 1954—8, 9, 17, 20, 24, 25, 26, 34, 39, 40, 43, 44

This is a smaller edition of *C. praecox*, our ten-year-old plant, being 3' tall and about 4' across. The flowers are slightly darker yellow. Like all *Cytisus*, it is very easy to propagate from cuttings, and older plants are difficult to move. The plantsman would do best by buying potted plants and placing them immediately in their permanent spot in the garden. Like the Warminster broom, the stems are green all winter and give it an effect akin to an evergreen.

***Euonymus alata clone** 8' In the Arnold Arboretum since 1905

Distributed: 1954—7, 17, 18, 20, 24, 25, 26, 29, 31, 34, 39, 41, 45

This plant has been growing in the Arnold Arboretum since 1905 when it was first introduced by the Arboretum as a seed from Korea. It is now 8' tall and 17' across. Its only value rests in the fact that it is a low but very wide spreading form of *E. alatus*, with all the other attributes of the species.

****Evodia danielli** 25' In the Arnold Arboretum since 1905

Distributed: 1952—4, 6, 7, 9, 10, 13, 15, 19, 22, 24, 25, 26, 28, 34, 35,
39, 41

This tree is the smaller of the two species, growing about 25' tall and being fairly weak wooded. However, the flowers are borne in large clusters the last part of the summer, being somewhat like those of a large and loose *Viburnum* cluster and these are followed by red fruit capsules which eventually split open and disclose shiny black seeds. For late flower and early fall fruit color, these species may have merit, as well as for the fact that they are vigorous, growing rapidly from seed, and the flowers are most attractive to bees.

***Evodia hupehensis** 60' In the Arnold Arboretum since 1908

Distributed: 1952—4, 7, 9, 10, 15, 19, 24, 25, 34, 39, 41

This has become listed by at least three nurseries during the past few years, but, because it was first introduced into America by the Arnold Arboretum it also was distributed for further trial. It grows to approximately 60' in height, and has the same merits and weaknesses of *E. danielli*.

****Forsythia "Farrand"** 8' Originated in the Arnold Arboretum 1939

Distributed: 1952—6, 7, 9, 10, 11, 13, 14, 15, 19, 20, 21, 22, 24, 25, 26,
27, 28, 32, 39, 41, 42

The artificial doubling of chromosomes has been a promising technique in producing new varieties of forsythia. In 1939, Dr. Karl Sax and his students, treated *F. intermedia spectabilis* with colchicine and produced a tetraploid plant. This was pollinated with pollen from nearby species, including *F. ovata*, and gave rise to several dozen triploids. Several of these had exceptionally large flowers—up to

$2\frac{1}{2}$ " in diameter—and flowered freely. One was selected for propagation and named "Farrand" by Dr. Sax. The flowers are not quite as dark yellow as those of *F. intermedia spectabilis*, but they are slightly larger, a full 2" across.

****Hypericum buckleyi** 10"

In the Arnold Arboretum since 1889

Distributed: 1950—38

This native ground cover of the southeastern United States, was first valued as an ornamental by Professor Sargent who gives credit to the Arnold Arboretum for first introducing it into cultivation. It is a low deciduous shrub, not over 10' tall. A single plant will quickly grow into a round mass of foliage with procumbent stems along the ground, several feet long. The bright yellow flowers appear in mid-June and are an inch in diameter, and although the procumbent stems do not root very much as they lay on the ground, nevertheless they do cover the soil most effectively.

***Ilex yunnanensis** 12'

In the Arnold Arboretum since 1901

Distributed: 1952—2, 4, 7, 14, 15, 20, 21, 22, 24, 32, 33, 35, 36, 39, 41

The Yunnan holly is another of the Arboretum's introductions, and is just now being listed by one or two nurserymen, although it has been growing here since 1901. This is the evergreen holly with small, box-like leaves and bright red fruits in the fall. Its neat, pyramidal habit, and its ability to produce fruits even when grown in the greenhouse as a pot plant, may enhance its popularity when more people become acquainted with it.

Juglans nigra laciniata 150'

In the Arnold Arboretum since 1941

Distributed: 1954—24, 39, 40

Apparently not listed by Rehder, Gray or Bailey in their monumental works on woody plants, this variety was first spotted as a seedling in the Milton State Nurseries, Milton, Pa., in 1926. Few people plant the black walnut now as an ornamental, but this is just one of many obscure examples, of where a rare seedling has almost been wiped out by lack of interest and has been saved by one or two plantsmen for posterity. The finely cut leaves make this variety much more desirable as an ornamental than the species.

***Kalopanax pictum** 90'

In the Arnold Arboretum since 1892

Redistributed: 1951—(seeds only) 9, 25, 32, 42

1952—2, 4, 6, 15, 19, 20, 24, 25, 26, 28, 32, 36, 39, 41, 42

Still only listed by one nursery (as far as can be determined) this fine tree first introduced into America by the Arboretum in 1892, has been distributed many times, this last in the form of generous quantities of seed. The seed takes two years to germinate, one of the reasons why many a plant grower becomes overly impatient and passes it up. It is a tree of tropical appearance, with 5-7 lobed

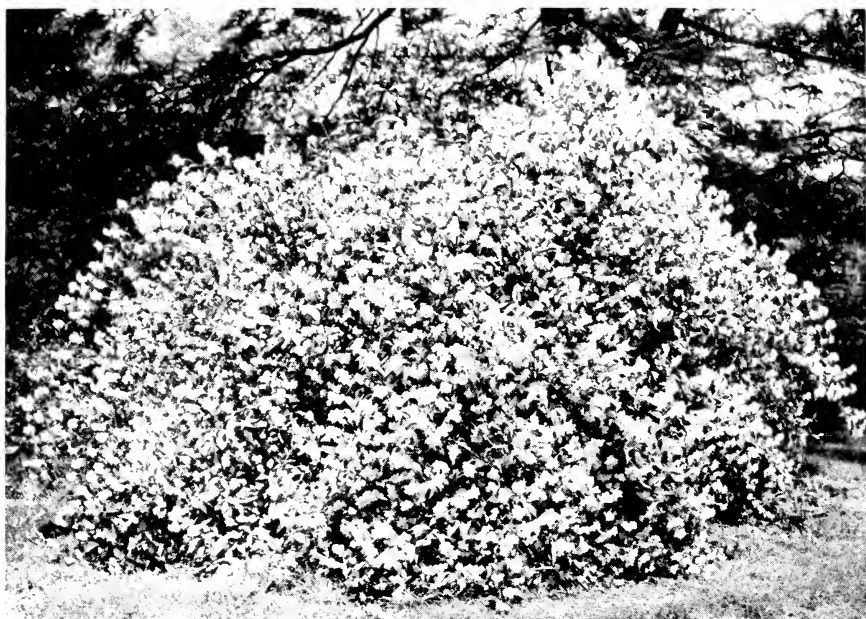


PLATE XII

(Above) The hybrid mock-orange "Bouquet Blanc" has flowers distributed uniformly over the entire plant. (Below) *Philadelphus splendens* is one of the few mock-oranges which can be used as a specimen with branches sweeping the ground.

leaves sometimes 14" across. Thorns are present on young plants, and the flowers are akin to those of aralias. This plant can also be propagated by root cuttings.

Larix decidua pendula 100' In the Arnold Arboretum since 1883

Distributed: 1954—20, 24, 26, 28, 39, 41, 45

This is the pendulous form of the European larch, making a very beautiful specimen, but of course, susceptible to the common larch pests.

Ligustrum vicaryi 12' In the Arnold Arboretum since 1936

Distributed: 1950—1, 2, 3, 6, 14, 16, 17, 21, 22, 25, 26, 27, 28, 33, 36, 37, 39, 42, 45

This excellent plant, a hybrid of *L. ovalifolium aureum* and *L. vulgare*, probably originated in the garden of Vicary Gibbs of Aldenham, England. It is of particular merit because of its golden yellow foliage throughout the entire growing season, especially when it is grown in the full sun. For this it is superior to some privets with variegated leaf margins which may become unsightly at certain times of year. The leaves of this plant remain on until well into November, and retain their yellow color, providing they are grown in full sun. In shade or partial shade, they tend to take on a much more green color.

Lonicera amoena alba 9' In the Arnold Arboretum since 1949

Distributed: 1954—7, 18, 20, 25, 26, 34, 39, 40, 41

The species is a hybrid of *L. tatarica* and *L. korolkowii* with small grayish green leaves, and a dense mounded form. This variety has white flowers and red fruits, being valued chiefly for its densely mounded form which shows off much better than the stiffly upright form of *L. tatarica*. It was probably introduced into America by the Morton Arboretum of Lisle, Illinois, prior to 1949, but apparently no commercial nurseries are listing it in their catalogues at the present time.

Lonicera japonica aureo-reticulata Vine In the Arnold Arboretum since 1883

Distributed: 1950—38

This variety of the Japanese honeysuckle has leaves that are veined or netted with yellow, thus making it a rather conspicuous landscape specimen, but it is a shy bloomer and does not grow nearly as fast as the species. The Chinese name for this plant means "Gold and Silver flower," singularly appropriate.

****Lonicera tatarica "Arnold Red"** 9' Originated in the Arnold Arboretum
in 1947

Distributed: 1954—6, 7, 9, 10, 15, 17, 18, 20, 25, 31, 32, 34, 39, 41,
44, 45

This originated as a seedling of *Lonicera tatarica pulcherrima* and has the darkest red flowers (1" in diameter) of any *Lonicera tatarica* variety, even darker than

those of *L. tatarica sibirica*. The fruits are often as much as $\frac{3}{8}$ " in diameter. In other characteristics and in its habit of growth, it is similar to *L. tatarica*. Although only released in 1954 this should become available shortly for it is very easily propagated. Unless dark red flowers or large fruits are wanted, it has no special merit over the species.

Lonicera yunnanensis Twining shrub In the Arnold Arboretum since 1949
Distributed: 1949—21

A low evergreen honeysuckle, native in southwestern China, which probably is not hardy in the northern United States, but still is worthy of a trial in the warmer sections. It resembles somewhat the native American *L. dioica*, except that it is evergreen.

****Magnolia loebneri "Merrill"** 50' Originated in the Arnold Arboretum in 1939
Distributed: 1950—38
1951—38
1955—2, 9, 10, 12, 14, 19, 20, 24, 26, 28, 29, 30, 31, 34,
35, 43, 44

This excellent ornamental tree is a cross between *M. stellata* and *M. kobus* made by Dr. Karl Sax of the Arnold Arboretum. Five years after the seed was planted the plant bloomed, which is rather unusual since one of its parents (*M. kobus*) is often black-listed because it does not flower until it is nearly twenty years old. The flowers of *Magnolia "Merrill"* have about as many petals as those of *M. stellata* (15 plus) but the petals are slightly larger and the flowers are also slightly fragrant. What makes this new magnolia of real value is the fact that it is a vigorous growing tree, the original plant being over 25' tall now. *Magnolia stellata* grows very slowly, forty-year-old plants in front of the Arboretum Administration Building being only about 18' tall. So, as a vigorous growing tree with a single trunk and a bearer of flowers when it is very young, this tree has merit.

***Phellodendron amurense** (male) 45' In the Arnold Arboretum since 1874
Distributed: 1954—8, 25, 26, 39, 41

The Amur cork tree was first introduced into the United States by the Arnold Arboretum in 1874, and this very tree is still alive today. It is a fast growing, wide spreading tree, with a rather loose, open top, excellent for producing light shade. The bark is deeply furrowed and looks somewhat like cork, but it is not sufficiently thick to be commercially of value. The reason some people are not enthusiastic about this tree is because of the fact that the sexes are separate and the fruiting plants produce large grape-like clusters of fruit that can be a nuisance on the lawn. To overcome this bad characteristic, the Arboretum distributed trees which were known to be staminate or male (non fruit producers) and at the same time distributed plenty of seed so the commercial growers could grow their

own understock on which they could graft the male plant. In doing this, it was hoped that such non-fruiting trees would become more popular.

Philadelphus "Argentine" 4' In the Arnold Arboretum since 1914
Distributed: 1952—1, 2, 6, 10, 11, 13, 16, 19, 20, 22, 25, 26, 32, 35, 42

This is one of the largest flowered of the *P. virginalis* clones, having double flowers at least 2" in diameter. It originated in the famous French nurseries of Victor Lemoine slightly before 1914, and grows about 4' tall.

Philadelphus "Bouquet Blanc" 6' In the Arnold Arboretum since 1905
Distributed: 1952—6, 11, 14, 20, 22, 24, 25, 26, 32, 35, 39

A taller clone of the Virginal mock-orange, this will grow about 6' high, with single flowers an inch in diameter, and a mound-like habit, bearing its flowers evenly distributed about the entire plant. Not all of the mock-oranges have this very desirable trait.

Philadelphus splendens 9' In the Arnold Arboretum since 1921
Redistributed: 1952—2, 6, 7, 9, 10, 11, 16, 19, 20, 21, 22, 24, 26, 32,
35, 39, 41

Still only listed by one nursery, this excellent single flowered Philadelphus has been distributed many times by the Arnold Arboretum because of the fact that it is one of the few which face the ground well on all sides and so can be used as a specimen plant. Many another mock-orange is leggy at the base and must be placed at the rear of the shrub collection to hide its unattractive habit.

Pinus bungeana 75' In the Arnold Arboretum since 1879
Distributed: 1952—10, 14, 15, 16, 18, 19, 22, 24, 25, 26, 28, 32, 34, 35,
39, 41, 42

The Lace-bark pine is a native of northwestern China and was supposedly introduced into America about the middle of the last century. The dense, very dark green foliage is of great ornamental value in itself, but the plant is also blessed with a characteristic exfoliating bark making it almost white in patches. It also has the desirable habit of holding its leaves about five years, which is considerably longer than most pines and is the reason for its dense foliage appearance. This fine tree is still extremely difficult to locate in nursery catalogues, and might be termed one of the best of the conifers for specimen planting.

Prunus maritima "Premier" 6' In the Arnold Arboretum since 1942
Distributed: 1950—14, 16, 17, 18, 19, 20, 21, 25, 32, 34, 39, 42, 45

This beach plum variety was one of several found in New England and named by the U.S. Dept. of Agriculture. "Premier" came from a plant found on Plum

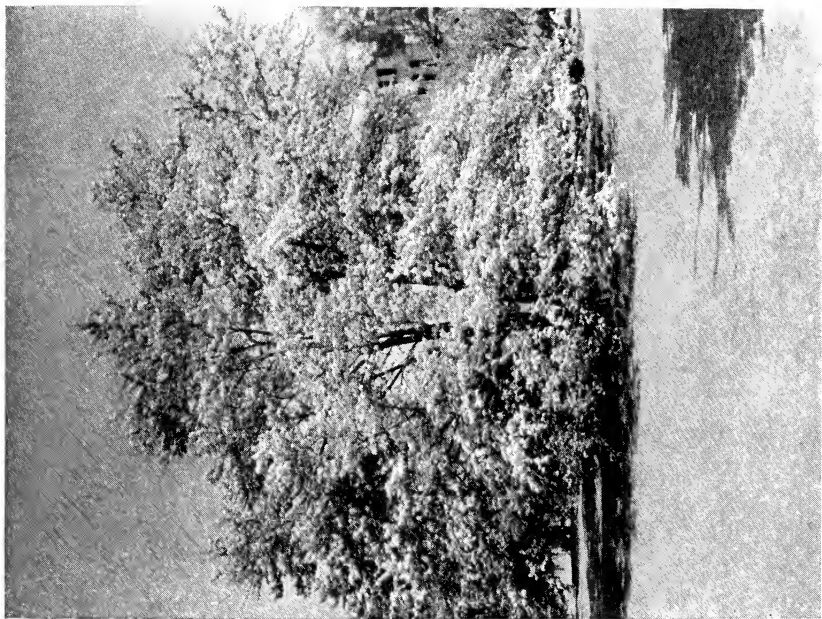


PLATE XIII

(Left) *Sorbus alnifolia*, one of the best of the *Sorbus* class as an ornamental tree valued for its fruit, flower and autumn color. (Right) The bright red, globular fruits of *Viburnum lobophyllum* are among the most conspicuous of the many viburnums.

Island, just below Newburyport, Massachusetts. The original plant when found was a shrub 4' high and 20' across with fruits nearly an inch in diameter. This can not be termed "the best" of all the beach plum varieties, but certainly it is among those well worthy of cultivation.

Pseudolarix amabilis 120' In the Arnold Arboretum since 1891
Distributed: 1951—(seed only) 21, 25, 32
1952—18, 19, 24, 25, 32, 35, 39, 41

The Golden larch of China is one of the most beautiful of exotic trees hardy in the North. Originally found by Robert Fortune as an ornamental pot-plant in China, eleven years later he found it growing in a monastery garden. It is not for the small garden since a tree 30' tall will be just as broad. Its beautiful golden yellow autumn color makes it very worth while, and the unique cones, appearing on the upper sides of the branches are of great interest throughout the fall. It has no serious insect or disease pests, but is deciduous, not evergreen.

Pyracantha coccinea "Kazan" 6' In the Arnold Arboretum since 1951
Distributed: 1955—2, 7, 12, 13, 18, 19, 20, 23, 25, 26, 27, 29, 30, 31,
32, 33, 36

At least one nursery has been offering this variety of the firethorn in recent years. It is supposed to be more hardy than *P. coccinea lalandi*, but unfortunately the winters during the past few years have not been sufficiently cold so that we have been unable to make a good comparison. However, this variety was propagated and distributed for hardiness trials in the northern part of the United States.

Rosa virginiana alba 6' In the Arnold Arboretum since 1939
Distributed: 1950—6, 14, 16, 17, 18, 19, 20, 21, 22, 25, 26, 32, 34, 42, 45

A white flowered form of the native and wide spread Virginia rose, this was given the Arboretum by Mr. Will C. Curtis, of Sudbury, Mass., who has made a most rewarding hobby of collecting white flowering varieties of many of our ornamental plants.

Sambucus canadensis fructu-lutea 12' In the Arnold Arboretum since 1945
Distributed: 1950—14, 16, 17, 20, 21, 25, 26, 32, 34, 39, 42, 45
Merely the yellow fruiting form of the native elderberry.

***Sorbus alnifolia** 60' In the Arnold Arboretum since 1892
Distributed: 1953—1, 9, 10, 18, 20, 21, 26, 28, 31, 32, 34, 35, 37, 39, 41

Another one of the really forgotten or overlooked ornamental trees, this plant was first introduced into cultivation by the Arnold Arboretum in 1892, being a native of Japan, central China and Korea. The tree produces profuse flat flower

clusters, made up of very small white flowers, appearing in late May. In the fall the fruits appear a bright orange, and the autumn color of the foliage is a brilliant orange to scarlet, especially when the tree is planted with a western exposure. The bark of the trunk is light gray, very similar to that of the American beech, and so makes this tree of much interest throughout the entire year. In the Arnold Arboretum we have found that this species is not nearly as susceptible to attacks from borers as are many of the other mountain-ash. It is well worth growing as a vigorous and very large specimen.

***Viburnum lobophyllum** 15' In the Arnold Arboretum since 1917

Distributed: 1952—2, 4, 6, 9, 10, 11, 13, 14, 15, 16, 18, 19, 20, 21, 22,
24, 25, 28, 32, 34, 35, 36, 39, 41

1954—9, 17, 25, 26, 28, 30, 31, 32, 34, 40, 41, 44

Only one nurseryman now lists this most desirable Chinese viburnum. The profuse crop of round, shining red berries, sets this plant apart from most of its relatives every fall, although it is somewhat similar in general effectiveness to the European highbush cranberry and Sargent's viburnum.

DONALD WYMAN

List of Cooperating Nurserymen

(Those nurserymen receiving the plants listed from the Arnold Arboretum have been listed according to number under each plant)

1. Adams Nursery, Inc., Westfield, Mass.
2. Alanwold Nursery, Neshaminy, Bucks Co., Pa.
3. Armstrong Nurseries, Ontario, Calif.
4. Bay State Nurseries, North Abington, Mass.
5. Beardslee Nurseries, Blackmore Road, Perry, Ohio
6. Bobbink and Atkins Co., East Rutherford, N.J.
7. C. R. Burr & Co., Manchester, Conn.
8. W. B. Clarke & Co., P. O. Box 343, San Jose, Calif.
9. Cole Nursery Co., Painesville, Ohio.
10. Cottage Gardens, 2707 W. St. Joseph St., Lansing, Mich.
11. Descanso Gardens, La Canada, Calif.
12. Tom Dodd Nurseries, Inc., Semmes, Alabama
13. Henry Field Seed & Nursery Co., Shenandoah, Iowa
14. Fruitland Nurseries, Augusta, Ga.
15. R. L. Gardner Nursery, Rt. 7, Box 266A, Yakima, Wash.
16. Glen St. Mary Nurseries, Glen St. Mary, Fla.
17. Hicks Nurseries, Westbury, Long Island, N.Y.
18. Jackson & Perkins Co., Newark, N.Y.
19. Harlan P. Kelsey, Inc., East Boxford, Mass.
20. Kingsville Nurseries, Kingsville, Md.
21. Henry Kohankie & Son (now Horton Nurseries), Painesville, Ohio
22. Koster Nursery, Bridgeton, N.J.
23. Lake's Shenandoah Nurseries, Shenandoah, Iowa
24. Le Blanc Gardens, Kent, Wash.
25. Linn County Nursery, Center Point, Iowa
26. Littlefield-Wyman Nursery, Abington, Mass.
27. Mt. Arbor Nurseries, Shenandoah, Iowa

28. W. A. Natorp Co., 4400 Reading Rd., Cincinnati 29, Ohio
29. T. G. Owen & Son, Inc., P. O. Box 946, Columbus, Miss.
30. Perkins de Wilde Nurseries, Shiloh, N.J.
31. Pine-Croft Nurseries, Exeter, N.H.
32. Princeton Nurseries, Princeton, N.J.
33. Sherwood Nursery Co., 141 S. E. 65th Ave., Portland 16, Ore.
34. The Siebenthaler Co., 3001 Catalpa Drive, Dayton 5, Ohio
35. Upper Bank Nurseries, Inc., Media, Pa.
36. Verhalen Nursery Co., Scottsville, Texas
37. Verkade's Nurseries, New London, Conn.
38. Wayside Gardens, Mentor, Ohio
39. Weston Nurseries, Weston, Mass.
40. White Flower Farm, Litchfield, Conn.
41. Wood-Howell Nurseries, Inc., #11 Lee Highway, Bristol, Va.

Foreign Nurseries

42. Hillier & Sons, Winchester, England
43. Jackman & Sons Nurseries, Woking, England
44. den Ouden Nurseries, Boskoop, Holland
45. Manitoba Hardy Plant Nursery, Dropmore, Manitoba, Canada

Acer platanoides "Crimson King" vs. "Fassen's Black"

In the May 4, 1956 issue of *ARNOLDIA*, a statement was made to the general effect that the Norway Maple variety "Crimson King" and Fassen's Black" were so similar that there was not the need for growing them both in America, implying that since the former was well established in the trade and had been widely advertised and accepted generally as a good tree, that there was no need of growing the newer more recently introduced (but not patented) "Fassen's Black." The statement concerning the similarity of these two varieties was based on my own observations of plants sent me by the man who holds the patent on "Crimson King" so that I would have expected that the stock he sent us of "Fassen's Black" was definitely true to name. These plants were grown in our own nursery and observed over a period of several years.

However, observations based on only half a dozen plants can be wrong, and apparently were in this case, for several nurserymen who have grown large blocks of both varieties, have written that there very definitely is a difference between these two varieties.

In their opinion, "Fassen's Black" maple does not keep its red foliage color throughout the summer as does the "Crimson King" maple. Rather, the color of the leaves of "Fassen's Black" takes on a greenish cast in late summer. Also, "Fassen's Black" does not grow as rapidly in caliper and in size as does "Crimson King," and the leaves are smaller as well. One nurseryman even goes so far as to report that "Fassen's Black" is more prone to attacks from the maple leaf hopper. These men, who have grown large numbers of both varieties, certainly should be qualified to report on these differences.

All of which adds up to the fact that *Acer platanoides* "Crimson King" is an excellent ornamental maple, keeping its color throughout the growing season. *Acer platanoides* "Fassen's Black" is not identical and can be considered ornamentally inferior, hence might well be dropped from further commercial propagation as just another inferior variety.

DONALD WYMAN

ARNOLDIA



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of the Arnold Arboretum, Harvard University

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THE GROUND COVER DEMONSTRATION PLOTS
(Brought up to date)

THE Ground Cover Demonstration Plots on the Arnold Arboretum's Case Estates in Weston, Massachusetts, were first laid out in 1950. Then, only about fifty different kinds of plants were tried, but as time went on, there was so much interest shown in these plantings that they were increased considerably. New ones are being added every year, and unfortunately, there are always some which do not do well and die as a result of severe winters. It is impossible to publish a list that is complete for any length of time, since numerous changes are constantly being made.

There are at least 150 different kinds of plants being grown in these plots now, and most of these are listed in this bulletin according to row number and position in the row. Row I is nearest to the high stone wall, and the plants are numbered from the Wellesley Street end, the first plant in each row being the closest to Wellesley Street.

The plots are in an open former cow pasture, mostly in the full sun, although the first row along the taller stone wall does receive shade about half the time. Otherwise, these plants are all given approximately the same care, with only a few being covered in the winter with pine boughs.

Late fall and winter are not the best times of the year to see these plots. Rather a visit might best be made in late spring after many of the plants have made a major amount of growth and while many of them are still in flower.

This list is published now so that the arm-chair gardener who makes plans during the winter for next spring's gardening activities, can become acquainted with the fact that this demonstration plot exists and is open to the public at all times. All the plots are labeled with the common and the scientific name of each plant. It is here that one might come when in doubt as to just which ground cover to select for a certain area.

GROUND COVERS AT THE CASE ESTATES

(E = Evergreen ; h = herbaceous)

SCIENTIFIC NAME		COMMON NAME	ROW NUM- BER	POS- ITION IN ROW
	h <i>Achillea millefolium rosea</i>	Pink Common Yarrow	IV	18
E	h <i>Achillea tomentosa nana</i>	Dwarf Woolly Yarrow	V	23
	h <i>Aegopodium podagraria</i>	Bishop's Goutweed	III	10
	h <i>Aegopodium podagraria variegata</i>	Silveredge Bishops's Goutweed	III	19
	<i>Ajuga reptans</i>	Carpet Bugle	IV	3
	<i>Ajuga reptans</i> - white veins	Carpet Bugle	IV	4
	<i>Ajuga genevensis rosea</i>	Redleaf Carpet Bugle	IV	2
	<i>Akebia quinata</i>	Fiveleaf Akebia	III	18
	<i>Alyssum petraeum</i>	Goldentuft Alyssum	IV	9
E	h <i>Arabis alpina</i>	Alpine Rockcress	III	3
E	h <i>Arabis alpina flore-pleno</i>	Alpine Rockcress	IV	5
E	<i>Arctostaphylos uva-ursi</i>	Bearberry	III	6
	<i>Arenaria montana</i>	Mountain Sandwort	VI	5
E	<i>Arenaria stricta</i>	Rock Sandwort	III	16
E	h <i>Armeria maritima</i>	Common Thrift	IV	23
	<i>Artemisia purchiana</i>	Purse Sagebrush	II	11
E	<i>Asarum caudatum</i>	British Columbia Wild Ginger	I	11
E	<i>Asarum europaeum</i>	European Wild Ginger	I	12
	h <i>Astilbe japonica</i>	Japanese Astilbe	VI	2
	h <i>Athyrium felix-femina</i>	Ladyfern	I	16
	h <i>Campanula carpatica</i>	Carpathian Bellflower	IV	1
	h <i>Campanula rapunculoides</i>	Creeping Bellflower	VI	1
E	h <i>Cerastium tomentosum</i>	Snow-in-Summer	III	24
	<i>Chaenomeles japonica alpina</i>	Alpine Quince	VII	24
	h <i>Chrysanthemum majus tanacetoides</i>	Rayless Costmary Chrysanthemum	VI	6
	h <i>Convallaria majalis</i>	Lily-of-the-Valley	I	13
	h <i>Coreopsis auriculata nana</i>	Eared Coreopsis	II	18
	h <i>Coronilla varia</i>	Crown Vetch	V	24
	<i>Cotoneaster adpressa</i>	Creeping Cotoneaster	V	1
	<i>Cotoneaster apiculata</i>	Cranberry Cotoneaster	V	2
	<i>Cotoneaster horizontalis</i>	Rock Cotoneaster	IV	17
	<i>Cytisus purpureus</i>	Purple Broom	V	4
	<i>Dianthus deltoides</i>	Maiden Pink	III	13
	h <i>Dicentra eximia</i>	Fringed Bleedingheart	III	15
	<i>Diervilla lonicera</i>	Dwarf Bush Honeysuckle	VII	6
	<i>Diervilla rivularis</i>	Georgia Bush Honeysuckle	VII	7
	<i>Diervilla sessilifolia</i>	Southern Bush Honeysuckle	VII	8



PLATE XIV

Part of the Ground Cover Demonstration Plots at Weston.

h	<i>Duchesnea</i> species	Mock Strawberry	II	14
h	<i>Epimedium grandiflorum</i>	Longspur Epimedium	I	7
E	<i>Erica carnea</i>	Spring Heath	II	6
E	<i>Euonymus fortunei colorata</i>	Purpleleaf Wintercreeper Euonymus	IV	14
E	<i>Euonymus fortunei kewensis</i>	Kew Wintercreeper Euonymus	V	16
E	<i>Euonymus fortunei minima</i>	Baby Wintercreeper Euonymus	IV	13
E	<i>Euonymus fortunei radicans</i>	Common Wintercreeper	III	14
	<i>Euonymus obovata</i>	Running Euonymus	IV	15
	<i>Forsythia "Arnold Dwarf"</i>		VII	4
h	<i>Fragaria vesca americana</i>	Alpine Strawberry	VI	23
E h	<i>Galax aphylla</i>	Galax	I	14
h	<i>Galium vernum</i>	Yellow Bedstraw	VI	9
E	<i>Gaultheria procumbens</i>	Checkerberry Wintergreen	I	17
E	<i>Gaylussacia brachycera</i>	Box Huckleberry	IV	7
	<i>Genista pilosa</i>	Silky-leaf Woadwaxen	III	1
h	<i>Geranium sanguineum</i>	Blood Red Geranium	I	23
h	<i>Gypsophila repens rosea</i>	Rosy Creeping Gypsophila	II	16
E	<i>Hedera helix</i>	English Ivy	III	21
E	<i>Helianthemum nummularium</i>	Sunrose	V	14
h	<i>Hemerocallis fulva "Kwanso variegata"</i>	Tawny Day-lily	VI	4
E h	<i>Heuchera sanguinea</i>	Coral Bells	V	19
h	<i>Hosta decorata</i>	Blunt Plantain-lily	I	8
h	<i>Hosta lancifolia</i>	Blue Plantain-lily	I	2
h	<i>Hosta lancifolia albo-marginata</i>	Variiegated Blue Plantain-lily	I	1
h	<i>Hosta undulata</i>	Wavy-leaved Plantain-lily	I	6
h	<i>Hosta undulata univittata</i>	Variety of Wavy-leaved Plantain-lily	I	5
	<i>Hydrangea petiolaris</i>	Climbing Hydrangea	I	15
	<i>Hypericum buckleyi</i>	Blueridge St. Johnswort	II	8
	<i>Hyssopus officinalis rubra</i>	Red Hyssop	III	9
E	<i>Iberis sempervirens</i>	Evergreen Candytuft	III	23
E	<i>Iberis sempervirens "White Gem"</i>	"White Gem" Evergreen Candytuft	III	22
	<i>Indigofera incarnata alba</i>	White Chinese Indigo	VII	9
	<i>Indigofera kirilowi</i>	Kirilow Indigo	VII	10
h	<i>Iris cristata alba</i>	White Crested Iris	VI	19
E	<i>Juniperus chinensis sargentii</i>	Sargent Juniper	V	6
E	<i>Juniperus horizontalis douglasi</i>	Waukegan Juniper	V	5
E	<i>Juniperus horizontalis plumosa</i>	Andorra Juniper	V	7
E	<i>Juniperus sabina tamariscifolia</i>	Tamarix Savin Juniper	IV	24
h	<i>Lamium album</i>	White Deadnettle	IV	10
h	<i>Lamium galeobdolon</i>	Archangel Deadnettle	I	19
E	<i>Leiophyllum buxifolium</i>	Box Sandmyrtle	V	15
E	<i>Leucothoe catesbaei</i>	Drooping Leucothoe	III	17



PLATE XV

A bank planting in Scotland within one hundred feet of the seashore, featuring cottonasters, heathers, junipers, etc.

E	h	<i>Liriope spicata</i>	Creeping Liriope	II	15
E		<i>Lonicera henryi</i>	Henry Honeysuckle	VII	3
		<i>Lonicera japonica aureo-reticulata</i>	Yellownet Japanese Honeysuckle	V	9
		<i>Lonicera japonica halliana</i>	Hall's Honeysuckle	VII	2
		<i>Lonicera japonica repens</i>		V	8
		<i>Lysimachia clethroides</i>	Clethra Loosestrife	III	12
		<i>Lysimachia nummularia</i>	Moneywort	II	13
E		<i>Mahonia aquifolium</i>	Oregon Holly-grape	VI	13
	h	<i>Mazus reptans</i>		I	9
		<i>Mentha gentilis</i>	Red Mint	III	11
		<i>Mentha piperita</i>	Peppermint	II	12
		<i>Mentha citrata</i>	Bergamot Mint	VI	22
		<i>Myrica pensylvanica</i>	Bayberry	VII	25
	h	<i>Nepeta hederacea</i>	Ground Ivy	I	21
	h	<i>Nepeta hederacea variegata</i>	Variegated Ground Ivy	I	22
	h	<i>Nepeta mussini</i>	Persian Nepeta	II	9
E		<i>Pachistima canbyi</i>	Canby Pachistima	III	5
	h	<i>Pachysandra procumbens</i>	Alleghany Pachysandra	I	4
E		<i>Pachysandra terminalis</i>	Japanese Pachysandra	I	3
E		<i>Pachysandra terminalis variegata</i>	Variegated Japanese Pachysandra	I	25
		<i>Parthenocissus quinquefolia st. pauli</i>	St. Paul Virginia Creeper	I	26
		<i>Parthenocissus tricuspidata minutifolia</i>	Small Japanese Creeper	I	27
	h	<i>Phalaris arundinacea picta</i>	Ribbon Grass	IV	25
		<i>Phlox divaricata canadensis</i>	Canada Sweet William	V	11
		<i>Phlox stolonifera</i>	Creeping Phlox	IV	20
		<i>Phlox subulata</i>	Moss-pink	II	20
		<i>Phlox subulata "Emerald Cushion"</i>	Moss-pink "Emerald Cushion"	IV	19
	h	<i>Pleiblastus distichus</i>	Fern Bamboo	VII	1
		<i>Polemonium reptans</i>	Creeping Polemonium	IV	21
	h	<i>Polygonum affine</i>	Himalayan Fleecflower	VI	3
		<i>Polygonum bistorta</i>	European Bistort	III	25
	h	<i>Polygonum cuspidatum compactum</i>	Dwarf Polygonum	I	28
E		<i>Potentilla tridentata</i>	Wineleaf Cinquefoil	IV	12
	h	<i>Pulmonaria angustifolia</i>	Cowslip Lungwort	VI	12
	h	<i>Pulmonaria officinalis</i>	Common Lungwort	VI	11
	h	<i>Ranunculus repens</i>	Creeping Buttercup	VI	15
		<i>Rhus aromatica serotina</i>	Late Fragrant Sumac	VII	11
		<i>Rosa "Max Graf"</i>	var. of Rugosa Rose	V	17
		<i>Rosa rugosa repens alba</i>		V	18
		<i>Rosa wichuraiana</i>	Memorial Rose	VII	12
		<i>Rubus laciniatus</i>	Cutleaf Blackberry	III	4
		<i>Sagina subulata</i>	Corsican Pearlwort	II	5

	<i>Salix tristis</i>	Dwarf Pussy Willow	VII 13
E h	<i>Sanguisorba minor</i>	Small Burnet	VI 16
E	<i>Santolina chamaecyparissus</i>	Cypress Lavender-cotton	IV 8
E h	<i>Sedum acre</i>	Goldmoss Stonecrop	II 24
E h	<i>Sedum album roseum</i>		II 22
	<i>Sedum balticum</i>	Baltic Stonecrop	II 23
	<i>Sedum ellacombianum</i>		II 21
E h	<i>Sedum spurium</i>	Two-row Stonecrop	V 22
h	<i>Stachys grandiflora</i>	Big Betony	VI 7
h	<i>Tanacetum vulgare crispum</i>	Curlyleaf Common Tansy	IV 22
	<i>Teucrium chamaedrys</i>	Chamaedrys Germander	I 10
	<i>Teucrium chamaedrys prostratum</i>	Dwarf Germander	II 17
h	<i>Thymus lanicaulis</i>	Creeping Woolly-stem Thyme	VI 10
E	<i>Thymus lanuginosis</i>	Woolly Mother-of-Thyme	II 4
h	<i>Tiarella cordifolia</i>	Alleghany Foamflower	II 10
h	<i>Tussilago farfara</i>	Common Coltsfoot	III 7
	<i>Vaccinium angustifolium laevifolium</i>	Smoothleaf Lowbush Blueberry	I 18
E	<i>Vaccinium vitis-idea majus</i>	Shore Cowberry	III 8
h	<i>Vancouveria hexandra</i>		VI 20
h	<i>Veronica incana</i>	Woolly Speedwell	II 2
E h	<i>Veronica chamaedrys</i>	Germander Speedwell	V 2
E h	<i>Veronica officinalis</i>	Drug Speedwell	V 12
E	<i>Vinca minor</i>	Common Periwinkle	IV 6
h	<i>Viola septentrionalis</i> (white flowers)	Ontario Violet	VI 8
	<i>Xanthorhiza simplicissima</i>	Yellow Root	VII 5

DONALD WYMAN

DISPLAY OF CHRISTMAS GREENS AT THE ARBORETUM

The staff of the Arnold Arboretum will again arrange a display of greens and dried materials used in Christmas displays and in wreath-making. This will be in the large lecture hall of the Administration Building immediately inside the Jamaica Plain Gate and will open Tuesday, December 4. Visitors will be welcome weekdays from 9.00 a.m. to 5.00 p.m., from Tuesday, December 4, through Friday, December 21. Since most of the materials used at Christmas time will be displayed and properly labeled, this is an excellent opportunity to learn to know and recognize these materials.

VISIT THE ARBORETUM IN WINTER!

The Arnold Arboretum is a place of beauty even in the wintertime when all deciduous plants have dropped their leaves. Of particular interest would be a walk along the Centre Street Path where there are many excellent broad-leaved evergreens in fine condition. Visitors in the spring and summer are so interested in the flowering trees and shrubs that they often fail to study and appreciate the evergreens. Now is the time to see them at their best.

A walk through the arborvitae collection will show many of these plants starting to take on their typically brown and unsightly colored foliage for the winter — an important fact to recognize especially when there are so many dark green yews and retinosporas in perfect condition close by.

Then, too, if snow is not an obstacle, a leisurely walk through the conifer collection adjacent to the yews will show many a specimen of pine, hemlock, fir, and even spruce that is worthy of a place in the garden.

So, plan to visit the display of evergreens used in Christmas decorations and then walk through the evergreen collections of this world-famous garden to see some of these plants when they are really at their best.

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CHRISTMAS DECORATIONS FROM WOODY PLANT MATERIALS

NEAR Christmas time, every home becomes a workshop of vigorous activity, and it may well be that the most fun in preparation can be in those homes where the making of the decorations is a family project. There are many types of decorations which can be made from plants and literally hundreds of different kinds of plant materials are available. In an issue of *Arnoldia* last year (*Arnoldia* 15: 61-84, 1955), over 100 kinds of plant materials were described as being in use in the Boston area alone. Finding the materials and using ingenuity in arranging them into festive ornaments can well supply interest for the entire family.

This certainly has been true in our family, for a few years ago we merely made a wreath or two from white pine; but now our interest has grown to include all sorts of evergreen wreaths, cone wreaths, garlands, swags, stars, festoons, "arrangements," kissing balls, etc. In fact, ingenuity has added a very important ingredient to the fun of this family project. True, it is usually the lady of the house who has the time to study and experiment at home, to go to all sorts of "classes," to exchange ideas with her friends who are similarly interested; but it must be admitted that enthusiasm and "know how" thus acquired can be passed on to others. Such has been the case with us, at least. If there be a mere glimmer of interest in the mind of any one, this procedure can be recommended for trial. And here are a very few of the possibilities that might be considered.

Wreaths Made From Foliage

Wreaths of evergreen foliage, one kind or another, are the easiest to make, and once the technique is understood, it can be easily adapted to any type of material. First and foremost are the frames. Beginners may start with a single wire (No. 9, even a rebent coat hanger can suffice), or two branches tied together in a circle; but the experienced hand at wreath making will tell you that it is much easier to start with a ready-made wire frame of two circles of wire, avail-

able commercially expressly for wreath-making purposes. Also, one should have a spool of green enamelled No. 26 wire for wrapping the cut evergreen twigs to the frame.

Wreaths are made of balsam fir, pine, Norway spruce, red-cedar, juniper, yew, boxwood, and even hemlock, but this last should be avoided by all means, since the needles fall quickly after the twigs have been cut. Mountain-laurel, evergreen magnolia (*M. grandiflora*), rhododendron, holly, bearberry, Oregon holly-grape, and many other things are also used. In the Boston area, thousands of wreaths of balsam fir are sold. These are made from the lower, discarded branches of balsam firs cut for the Christmas-tree market, and also from defective trees which cannot be sold as trees. The wreaths are produced in large quantities in the areas of Vermont, New Hampshire, and Maine, where these trees are grown for the Christmas trade, and shipped by truck. In buying them, the trick is not to purchase too early, wreaths that have been made too soon.

Fortunate is he who has a stand of young white pine seedlings (i.e., any planting where branches are near the ground), for white pine affords excellent wreath material; so do the young shoots of yew. The shearing of a long yew hedge might well be let go until the Christmas period when the young shoots would afford the best possible material for Christmas wreaths. Especially is this true of the shorter branches and slower-growing *Taxus cuspidata densa* and var. *nana*, since six-inch shoots of these usually have several small side branches and "make up" quickly into wreath material. Cutting individual, unbranched yew shoots—sufficient for a wreath—can be a long and arduous task, enough to dampen the ardour of all but the most enthusiastic.

Boxwood, too, is excellent. Gardeners in New England usually are not as fortunate as their Virginia friends in having large amounts of this excellent plant, but it makes excellent wreaths. Holly, of course, also has been used, although it is prickly to handle.

No matter what the material, young shoots are cut about four to six inches long for the smaller wreaths, longer for larger wreaths. The end of the roll of No. 26 wire is attached firmly to the frame and then gradually worked tightly around the bases of these shoots as they are put in place, two or three at a time in the front and one large dense one in the back of the wire frame. It is necessary only to wind the base of these twigs to the frame, but this should be done carefully and well. The next small bundle of twigs is so placed as to cover the bases of those last wired on, and so on around the entire circle. It can take a lot of material for a large wreath, so one had better practice with the normal 14-inch size at first.

A simple wreath of boxwood, pine or yew, is beautiful enough in itself when tied with a large red (waterproof) ribbon. However, many prefer to use this merely as the base on which to attach all sorts of fruits, berries, cones, or painted objects. It is here that an artistic hand and good taste will prove helpful.

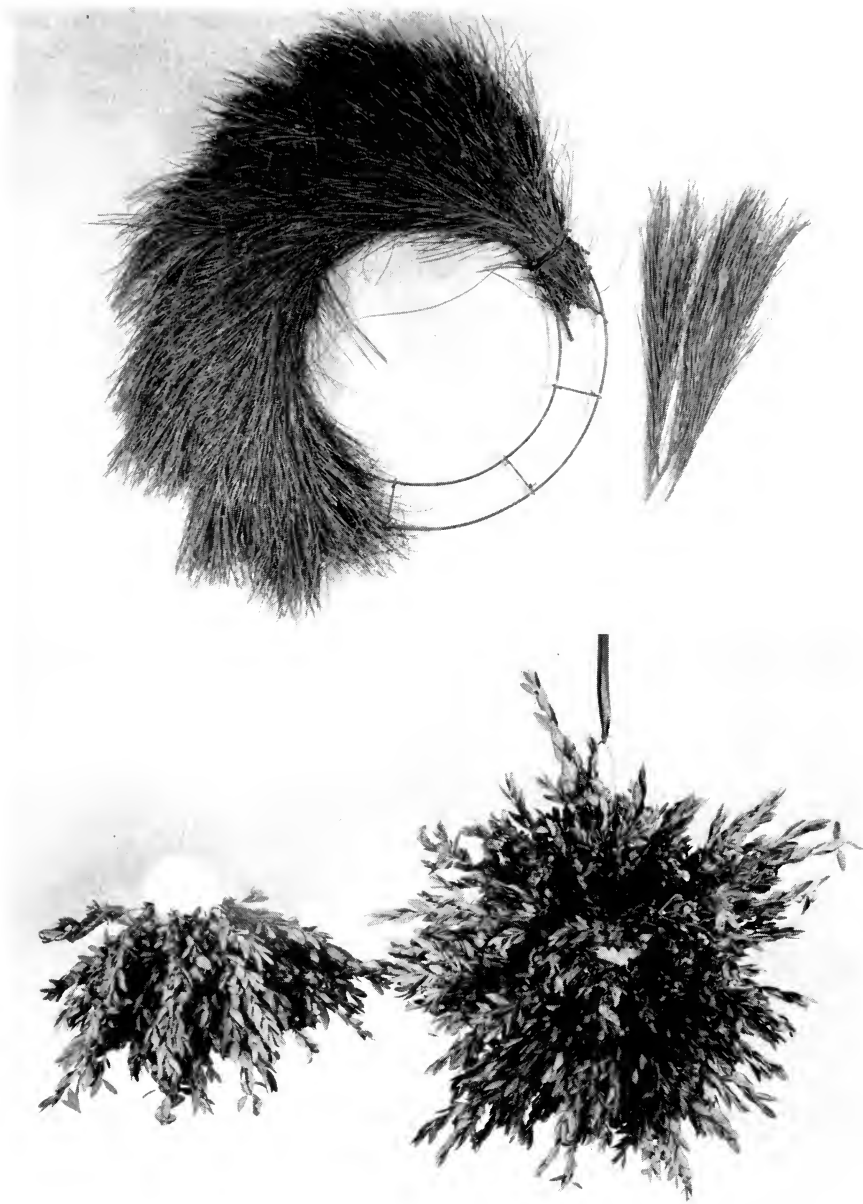


PLATE XVI

Top: The start of a white pine wreath. *Bottom: Left*—Kissing ball started by inserting sharpened branchlets of boxwood into styrofoam ball. *Right*—Finished ball.

Cut branches of boxwood seem to dry noticeably indoors. Experience has shown that wreaths of boxwood can be "freshened" considerably by a quick syringing with water twice a week, or an actual soaking in water if there are no ornaments to be harmed. Moisture in the atmosphere out-of-doors is sufficient to keep most cut greens (except hemlock and balsam fir which have been cut too soon) in good-appearing condition through the Christmas period.

Spraying with a clear plastic spray (now commonly available in small pressure cans) can give a sheen to any of these cut greens and can prove helpful in preserving them properly indoors. It is a simple matter to spray the finished product (away from fire) and it dries almost immediately.

Pine, boxwood, and yew wreaths will last throughout the Christmas period satisfactorily indoors or out, but fir wreaths will soon drop their needles indoors, although if purchased shortly after trimmed from the original trees, they will last out-of-doors several weeks.

Strikingly interesting small wreaths for the guest room door can be made around an ordinary jar rubber (see Plate XXI). Here bearberry (*Arctostaphylos uva-ursi*) is cut in pieces three to four inches long and tied on the jar ring in the same manner as is done for larger wreaths. Other small-leaved evergreens like the Kew euonymus (*Euonymus fortunei kewensis*), little-leaf Japanese holly (*Ilex crenata microphylla*), and the clippings and left-overs from boxwood and yew wreaths can be used similarly.

Cone Wreaths

In this category, one must have an artistic touch and a remarkable amount of patience. Time and experience not only in the making of the actual wreath, but in collecting the cones, are necessary! It is not a project conceived a few days before Christmas and then executed. Rather, it is a project which one apparently keeps in the back of her mind wherever she goes—for a full year or more, since all sorts of cones and dried fruits are needed. We have been talked into gathering cones in the woods of Mt. Desert Island, on the campus of Smith College, in some of the outlying areas around Williamsburg, Virginia, and in many a place in between. Automobile trips are never run on schedule to any place, when there is a cone-hunter along. Catalogues are searched for certain species; friends are inveigled into bringing back special types from trips to the far parts of the country, for variety in sizes and shapes of the cones and fruits is of the utmost importance. (For suggestions in this respect, see *Arnoldia* 15: 61-84, 1955, "Christmas Plants in the Boston Area.")

With a large and varied supply of cones on hand, one goes to work. First, evenings are spent wiring the cones so they can be attached. Twelve-inch lengths of No. 22 wire are used for the larger cones and they must be wired to the frame with two wires, one on either side of each cone, to prevent their being shaken out of place. Small cones like those of hemlock, can be wired with No. 30 wire,

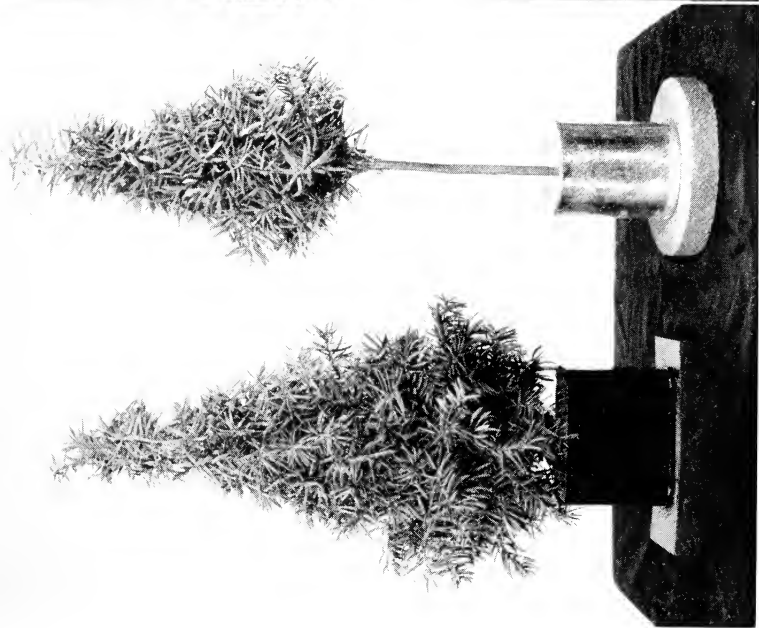
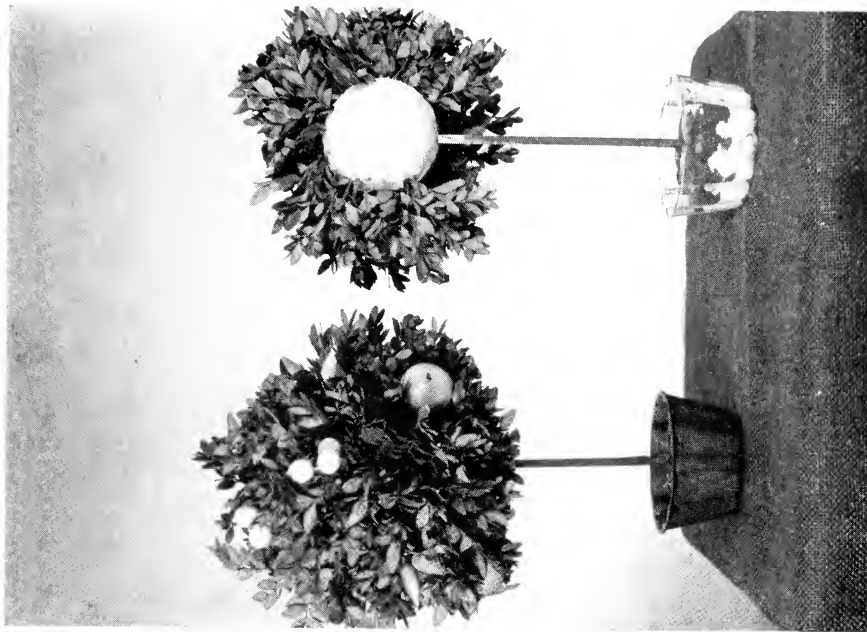


PLATE XVII

Left: Small yew trees made of wreath-making "leftovers" attached to a dowel inserted in plaster of Paris in tin cans.
Right: Ornamental box trees, made by inserting sharpened branchlets of boxwood into styrofoam balls attached to dowels in plaster of Paris or cement.

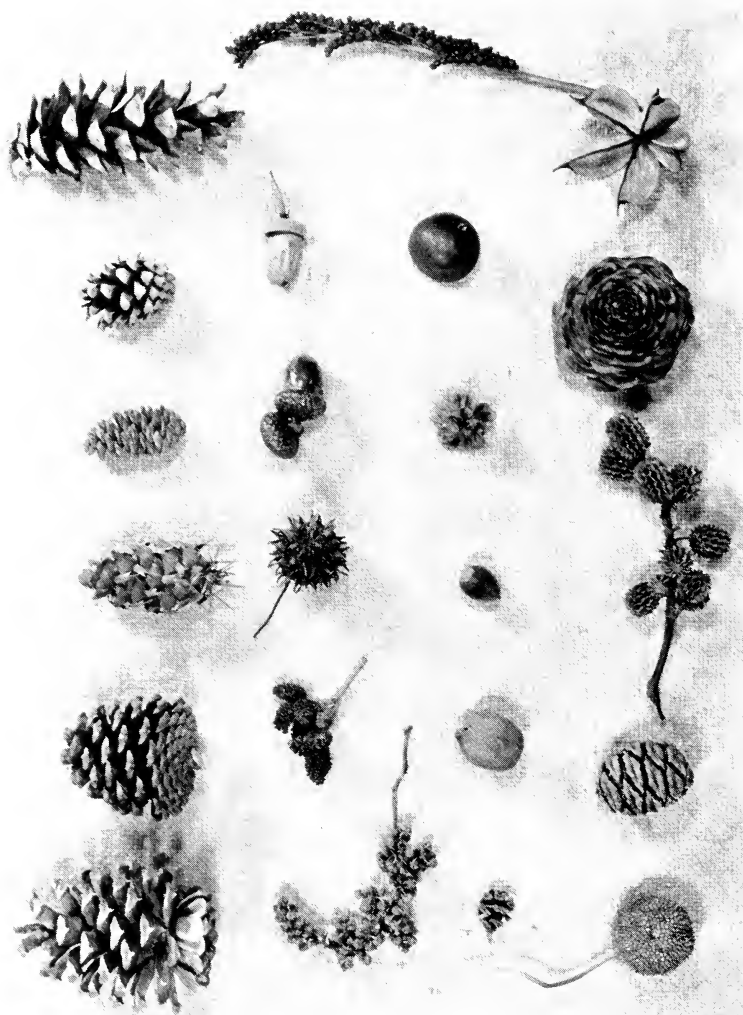


PLATE XVIII

Cones and fruits used in making wreath in Plate XIX. Left to right. Top row: *Pinus jeffreyi*, *P. rigida*, *Pseudotsuga taxifolia*, *Picea glauca*, *Pinus sylvestris*, *P. strobus*. Second row: *Leucothor calceolae*, *Alnus* sp., *Liquidambar styraciflua*, *Quercus borealis*, *Q. robur*. Third row: *Sequoia sempervirens*, *Eucalyptus* sp., *Quercus aliena*, *Tsuga caroliniana*, *Castanea mollissima*, *Onoclea sensibilis*. Bottom row: *Platanus acerifolia*, *Sequoiadendron giganteum*, *Casuarina equisetifolia*, *Cedrus libani*, Cotton Balls.



PLATE XIX

Cone wreath in which are used the twenty-two different cones and fruits illustrated in Plate XVIII.

many of them being wired together in groups of a dozen or so. Acorns—these are the problems! When green, cups and fruits remain nicely together, but as soon as they start to dry out, they part company. They can be wired together so the wire is unnoticed—but what a time-consuming job this proves to be. The youngsters of the house can do it, but if they insist on payment for time spent, costs go up quickly. It isn't long before this job reverts to the lady carrying the enthusiasm for the whole project. The electric drill is used for boring one hole through the center of the cup or base, and a hole straight across the lower base of the acorn itself. If this is done properly, with the smallest drill, the acorn can be wired to the cup (No. 30 wire) with only the two ends of the wire coming through the base of the cup, in evidence. These ends are easily tied together in a knot, thus preventing movement of the acorn from the cup. Acorns, too, especially the smaller types like those of the pin oak and red oak, are often wired in clusters to simulate grapes. Larger acorns like those of the mossy-cup oak are used in small groups, but wired similarly.

One of the methods of making a "base" on the three-dimensional frame for the cones, is to attach a double row of white pine cones entirely around the frame (see Plate XX). The larger cones, some of which have been cut in half to simulate rosettes or flowers, or turned upside down, are next attached. Standard practice seems to be to start with three properly-balanced, equidistant main accent points. Then, the smaller materials are worked in pleasing groups around these main focal points. Good taste, patience, and experience are primary assets in making beautiful cone wreaths. (Plate XIX shows a finished wreath and Plate XVIII shows all the kinds of materials used in its making.)

"Kissing Balls"

In medieval times, the "kissing ball" provided a very important part of the Christmas festivities. It was not made until Christmas Eve, when the entire family joined in. At first it was a large thing, made of three barrel hoops tied together vertically, and then one was attached to these in a horizontal position to hold them in place. Around these hoops were wrapped slender branches of boxwood, and also bright colored pieces of paper or metal. Sometimes they were dipped in water when they were finished and then sprinkled with flour, to give them a real wintery cast. Then they were hung in a prominent place, sometimes outside, and left hanging until Twelfth Night.

It was up to all the men and boys to catch the matrons and maids under the ball and kiss them soundly. Naturally, these balls were a source of much interest and fun throughout the entire Christmas period.

During these early times, castles afforded spacious halls where such large balls could be easily hung. Today, with our modern homes, the kissing balls have been considerably reduced in size. However, if hung in the proper place, there is no need for them to be any less effective now than they were then.

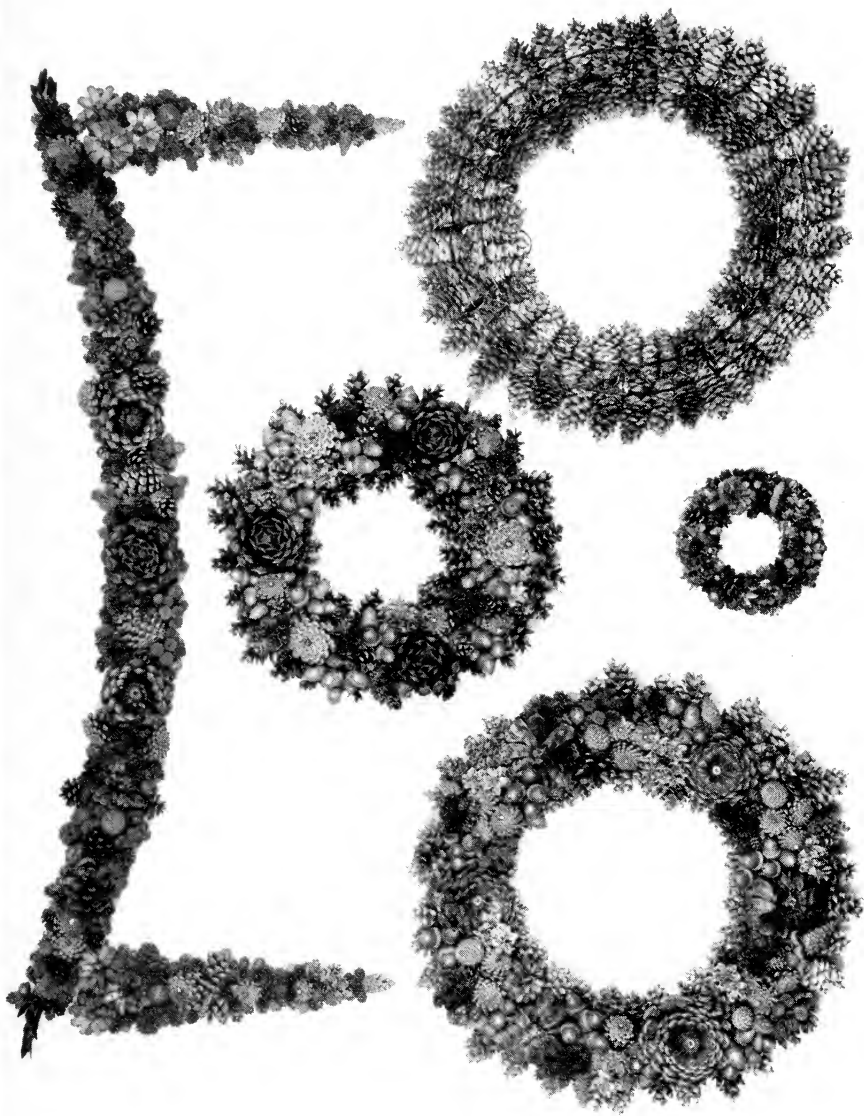


PLATE XX

Garland and cone wreaths. Note the background of white pine cones wired on one side of the cone wreath frame (lower right), preparatory to making the wreath proper.

The balls are simply made by starting with a ball of styrofoam which is available from any florists' supply house. This is about the size of a baseball and is a light plastic material in which it is easy to force sharpened twigs (see Plate XVI). If styrofoam balls are not available, a similar-sized ball is made by squeezing out moist sphagnum moss and tying string tightly around it in such a way as to hold it in a round shape.

A sturdy wire is placed through the ball and attached so that it can be hung. At first, it is advisable to hang this unadorned ball at about the eye level, so that working on it will be easy.

Five- or six-inch pieces of boxwood are cut from any vigorous plant, the stems sharpened a bit with a knife, and the pieces stuck in uniformly around the entire ball. It is important to keep in mind the fact that the finished ball will look much better if the pieces used are a uniform length. If this cannot be done, merely cutting off the longer ends after the pieces are all in place, will help.

Boxwood dries rather quickly, so it might be advisable to spray some plastic or wax coating material on the finished product to keep the foliage in a fresh appearing condition for as long as possible. Or, it can be freshened considerably once or twice a week by syringing with water or actually soaking in water for a few minutes. Then it can be hung as is, or for good measure, with a small piece of mistletoe underneath, so that there will be no misunderstanding as to what it is, on the part of our modern youngsters.

Garlands

After one has had experience in making foliage wreaths and cone wreaths, one can graduate to the garland-making class, for it is here that one needs the experience of all that was learned in making the cone wreaths. Since most fire-places differ in proportion, there is no standard measurement for these festoons of cones and fruits. Usually, a frame of plywood is cut out the exact size and shape wanted. Then the major groupings are arranged on this and wired around the narrow frame; or better still, a hole is bored through the frame, the wires inserted, pulled tightly and bent over, and then stapled with one of the special wood staplers now available. Not a simple or easy undertaking, yet the end result can be a thing of artistic beauty which can remain to adorn the living room long after the Christmas period.

Swags

A swag is merely a group of evergreen branches, tied together in a pleasing form. They are frequently hung on doors in lieu of wreaths. Once the knack has been acquired of arranging the branches artistically together, these, too, can be trimmed at the base with ribbon and a few carefully selected cones and fruits.

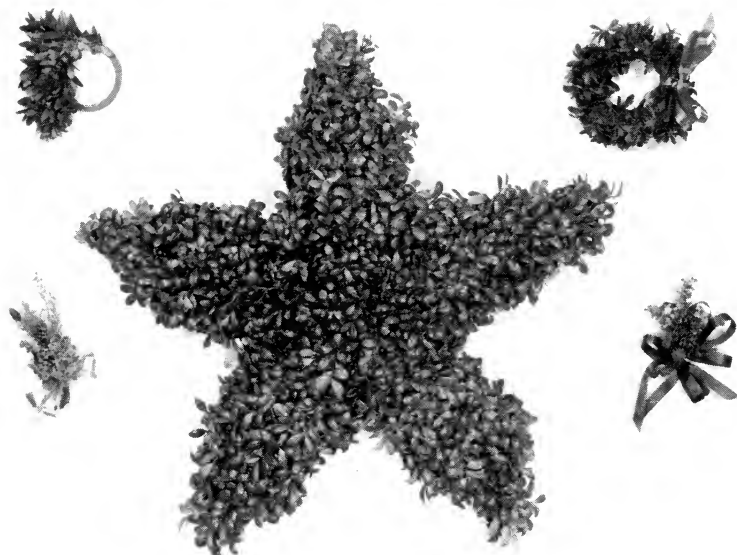
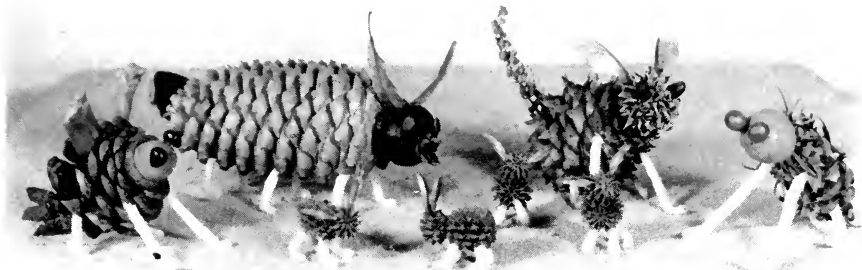


PLATE XXI

Top: "Fearsome Critters." For description, see page 72. Bottom, Center—Star made of *Ilex crenata convexa* stuck into styrofoam attached to a plywood cutout. Upper left—Small boxwood wreath started on a rubber jar ring. Upper right—Finished wreath of *Arctostaphylos uva-ursi* wired on a rubber jar ring. Lower left and right—Corsages for gift wrapping.

Novelties

There are many, many interesting objects, corsages, and "arrangements" which can be made with the leftovers from wreath-making. The small wreath made on a jar rubber (Plate XXI) is from the foliage of bearberry (*Arctostaphylos uva-ursi*). The small tree (Plate XVII) is made by inserting a dowel in some plaster of Paris in a painted tin can, and wiring on the branches of yew left over from making larger wreaths.

"Fearsome Critters"

The "Fearsome Critters" shown in Plate XXI offer a lot of fun in the making and the display of plenty of ingenuity, especially by the youngsters. Those in the cut were made by our fourteen-year-old son John who was interestedly watching his mother make some cone wreaths. When she left her materials to attend an afternoon meeting, he confiscated a few cones and seeds, took a walk out-of-doors in search of a few other things, appropriated a few of his father's pipe cleaners, and in no time at all, surprised himself and everyone else with his strikingly humorous results.

The short, squat figure on the left was made with a cone of a Scotch pine, two cone scales from a Jeffrey pine, a red-oak acorn for a head, and two small fruits of the jetbead (*Rhodotypos scandens*) for eyes, held in place either by glue or pins.

The six-legged monster in the rear was from a cone of a Norway spruce (*Picea abies*), a Chinese chestnut for a head, the leafy bract from the fruit of a linden for horns, small hazel nuts for eyes, and the expanded fruit capsules of the native witch hazel for a mouth.

The "small fry" in front were made from the fruits of the beefwood (*Casaurina equisetifolia*) and the fruits of the Japanese Katsura tree (*Cercidiphyllum japonicum*) for ears, held together with one pine and two dabs of glue.

The medium-sized critter in the rear has a tail of the fruit cluster of the drooping leucothoe (*Leucothoe catesbaei*), the body of a pine cone, ears of maple samaras, a head of the fruit ball of the sweet gum (*Liquidambar styraciflua*) and eyes of the fruits from the tupelo (*Nyssa sylvatica*).

The last creature on the right has the cone of the Douglas fir (*Pseudotsuga taxifolia*) for a body, apparently no tail at all, a eucalyptus fruit for a head, and two eyes of the fruits of bladdernut (*Colutea arborescens*).

If the idea is acquired, this can lead to an interesting walk about the grounds or through the woods in search for materials which, once found, can be worked quickly into many an entertaining object.

FLORENCE AND DONALD WYMAN

Visit the Arnold Arboretum Christmas green Exhibit, December 4-21

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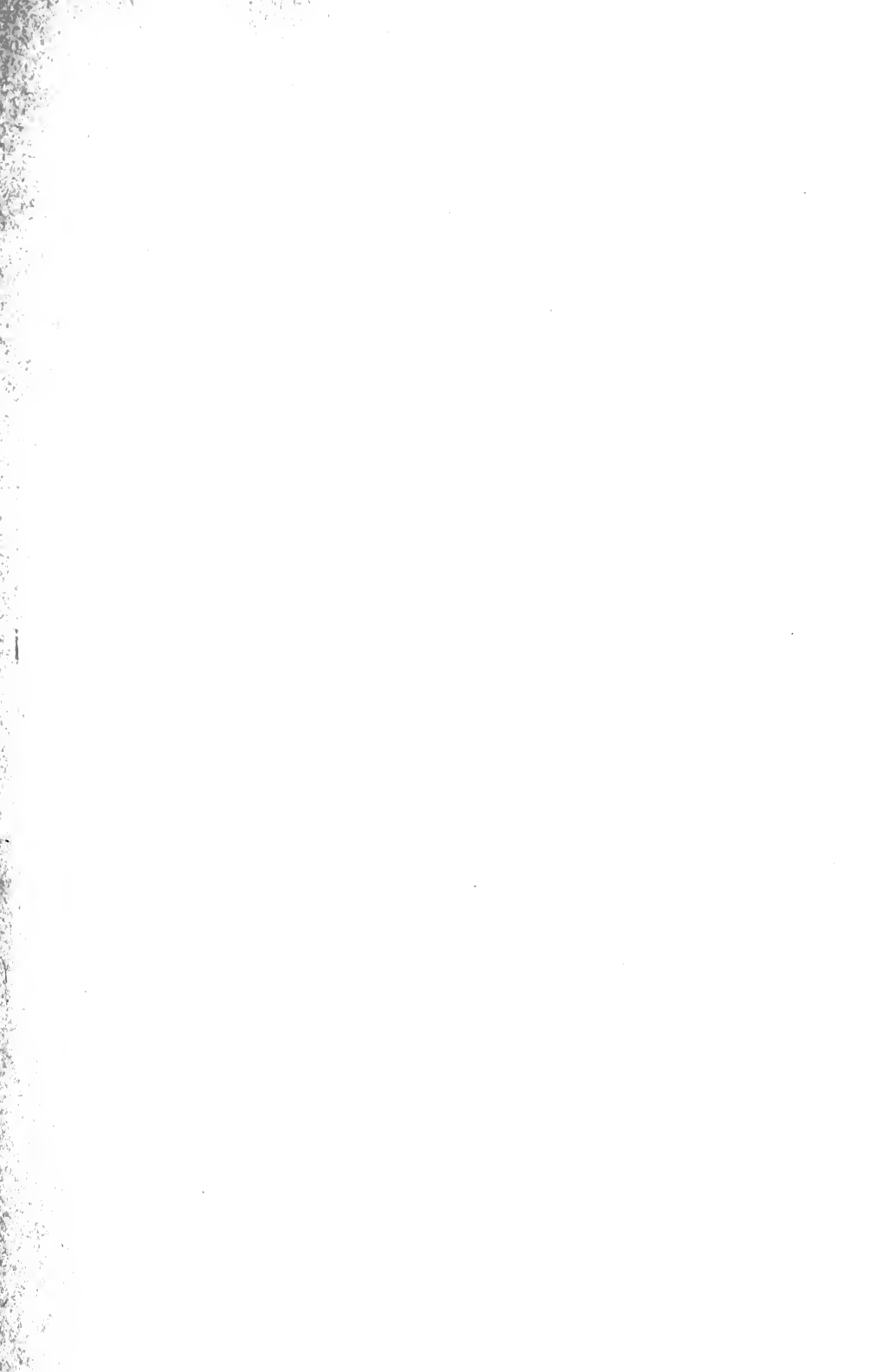
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