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ARBORETUM NEWS

Vol. 6, No. 1

Madison, Wisconsin

January, 1957

1956 Plantings - Superintendent Jacobson's Report

The following is a list of plants that were set out in the Arboretum during the planting season of 1956, exclusive of the prairie plantings, the herbaceous plantings in the Camp Woods, the Garden Club planting at the Duck Pond, and the plantings in the Arboretum nurseries.

The temperature and moisture factors during the 1956 season were conducive to good planting over a long period, the last being made on Nov. 14th.

A total of 5927 trees and 806 shrubs were set out in various areas of the Arboretum. Many of these were propagated in the Arboretum nursery, and were of excellent quality and large enough to endure the ravages of rabbits. In addition, thousands of seedling trees and shrubs were transplanted from the seed beds in the nursery to the nursery proper for future stock.

A new shrub and tree section was established in the Horticultural Area. Its purpose is to exhibit native, exotic and hybrid shrubs and trees that can be used for landscape purposes in our state.

Spring Trail Area

Viburnum section

- 1 *Malus coronaria* - wild crabapple

Stevens Pond section

- 1 *Cornus alternifolia* - alternate leaved dogwood
- 1 *Cornus racemosa* - gray dogwood
- 5 *Ilex* sp. - holly
- 30 *Viburnum trilobum* - American highbush cranberry

Duck Pond section

- 3 *Betula papyrifera* - paper birch
- 2 *Celastrus scandens* - bittersweet
- 1 *Cornus circinata* - round-leaved dogwood
- 1 *Cornus alternifolia* - alternate leaved dogwood
- 29 *Cornus racemosa* - gray dogwood
- 15 *Corylus americana* - hazelnut
- 1 *Crataegus* sp. - hawthorn
- 1 *Malus coronaria* - wild crabapple
- 7 *Physocarpus opulifolius* - ninebark
- 3 *Polygonatum giganteum* - Solomon's seal
- 3 *Prunus pennsylvanica* - pin cherry
- 1 *Viburnum trilobum* - American highbush cranberry
- 25 *Viburnum lentago* - nannyberry
- 6 clumps *Myosotis palustris* - forget-me-not

- 2 *Celastrus orbiculatus* - Oriental bittersweet
- 1 *Campsis radicans speciosa* - showy trumpet creeper
- 1 *Campsis grandiflora* - Chinese trumpet creeper
- 2 *Lonicera standishi* - Standish honeysuckle
- 2 *Lonicera tellmanniana* - red gold honeysuckle
- 2 *Lonicera sempervirens* - yellow trumpet honeysuckle
- 2 *Lonicera heckrottii* goldflame - goldflame everblooming honeysuckle
- 2 *Polygonum auberti* - silvervine fleecyflower
- 2 *Solanum dulcamara* - bitter nightshade
- 2 *Wisteria floribunda macrobotrys rosea* - pink longcluster Japanese wisteria
- 2 *Wisteria floribunda macrobotrys violacea plena* - double violet longcluster Japanese wisteria

Grady Tract

Grady pines section

- 992 *Pinus resinosa* - Norway pine
- 500 *Pinus banksiana* - jack pine
- 1235 *Pinus strobus* - white pine

Grady Ozark Forest section

- 200 *Pinus echinata* - shortleaf pine

Sand Pit section

- 1 clump *Arctostaphylos uva-ursi* - bearberry
- 7 *Comptonia asplenifolia* - sweet
- 1 clump *Gaultheria procumbens* - wintergreen
- 4 *Prunus pumila* - sand cherry
- 3 *Lilium philadelphicum* - wood lily
- 7 Sand willow
- 5 clumps *Vaccinium canadense* - blueberry

Caw, Caw, Caw - No More

Large flocks of crows returned last fall to their roosting haven in the Leopold Pines of the Arboretum. It was estimated that at times there were between two and three thousand crows that descended in the evenings to the pines for rest and shelter. But by the last of November something happened to that great congregation, What was it, or is it a mystery? Was it the backfire and constant rumbling of trucks and cars in the ever flowing traffic on the Beltline Highway adjacent to the pines, or the unsavory odorous exhalations of vehicles that drifted through the pines, or was it the nocturnal predacious activities of a pair of Great Horned Owls? Wha knows? The crows have faded away (we hope!).

-----J. R. Jacobson

Arboretum Personnel

Chairman of the Arboretum Committee	A. F. Gallistel
Executive Director	G. W. Longenecker
Research Coordinator	J. T. Curtis
Superintendent	J. R. Jacobson
Botanist	E. T. Cawley
Editor, Arboretum News	H. C. Greene

- Monroe Street section
 3 Cornus sericea - silky dogwood
 5 Cornus racemosa - gray dogwood
 5 Prunus americana - wild plum
 23 Viburnum trilobum - American highbush cranberry
 26 Viburnum lentago - nannyberry

Olbrich Entrance Area

- 4 Cornus racemosa - gray dogwood
 3 Cornus alternifolia - alternate-leaved dogwood
 6 Viburnum trilobum - American highbush cranberry

Leopold Pines Area

- Red and white pine section
 10 Cornus racemosa - gray dogwood
 5 clumps Cornus canadensis - bunchberry
 7 Corylus americana - hazelnut
 8 Diervilla lonicera - bush honeysuckle
 1 clump Epigaea repens - trailing arbutus
 5 Ilex sp. - holly
 25 Pinus strobus - white pine
 17 Rubus - thimbleberry
 22 Viburnum lentago - nannyberry
 22 Viburnum trilobum - American highbush cranberry

Mixed Forest Area

- 648 Acer saccharum - sugar maple
 22 Betula lutea - yellow birch
 91 Celtis occidentalis - hackberry
 50 Corylus americana - hazelnut
 25 Ostrya virginiana - ironwood
 1000 Picea glauca - white spruce
 25 Pinus strobus - white pine
 196 Tilia americana - American basswood

Lost City Pines Area

- 1 clump Arctostaphylos uva-ursi - bearberry
 6 Comptonia asplenifolia - sweet fern
 16 Corylus cornuta - hazelnut
 10 Corylus americana - hazelnut
 6 clumps Gaultheria procumbens - wintergreen
 3 Prunus pumila - sand cherry
 2 Salix sp. - sand willow
 5 Vaccinium canadense - blueberry

Lost City Oak-Hickory Area

- Trenk's Project section
 500 Pinus strobus - white pine
 200 Pinus resinosa - Norway pine

Camp Woods Area

- Maple-basswood section
 25 Celtis occidentalis - hackberry
 3 Cypripedium spectabile - showy ladyslipper
 44 Tilia americana - American basswood

Juniper Knoll Area

- 3 Diervilla lonicera - bush honeysuckle

Wingra Woods Area

- Wingra Woods oak section
 2 Cypripedium spectabile - showy ladyslipper
 Wingra Woods Spring section
 3 Taxus canadensis - American yew
 5 clumps Myosotis palustris - forget-me-not

Wingra Fen Area

- 11 Cypripedium spectabile - showy ladyslipper

Horticulture Area

- Lilac section
 2 Abel Carriere

- 9 Arboretum seedlings #2, 3, 4, 5, 6, 7, 8, 9, 10
 1 Blue azure
 2 Congo
 2 Chinensis atro-sanguinea
 1 Condorset
 1 General Pershing
 1 Frank Klager
 2 Miriam Cooley
 1 Monique Lemoine
 1 Vivian Evans

Crabapple section

- 2 Malus baccata columnaris
 1 Malus Cowichan
 1 Malus Dorothea
 1 Malus Evelyn
 1 Malus Gloriosa
 1 Malus Irene
 1 Malus Makamik
 1 Malus Marshall Oyama
 1 Malus Prince George
 2 Malus Sargenti
 1 Malus Scugog
 1 Malus Strathmore
 1 Malus Wanda

New tree section

- 1 Acer saccharum - sugar maple
 1 Acer rubrum - red maple
 1 Acer platanoides drummondii
 1 Acer platanoides ascendens
 1 Acer saccharinum - silver maple
 1 Acer saccharinum pyramidal silver maple
 1 Acer saccharinum Blair's
 1 Beatrice locust
 1 European birch - pyramidal - single stem
 1 European birch - pyramidal - multiple stem
 1 Gleditsia triacanthos - honey locust
 1 " " - #16
 1 " " - #18
 1 " " - #154

- 1 Ginkgo biloba - Ginkgo

- 1 Linden - Redmond's pyramidal

- 1 Moraine locust

- 3 Sunburst locust

- 1 Tilia americana - American basswood

Shrub section

- 3 Amelanchier stolonifera - June berry
 16 Amelanchier canadensis - Juneberry
 3 Amorpha canescens - lead plant
 12 Aronia melanocarpa - black chokeberry
 3 Comptonia asplenifolia - sweet fern
 12 Cornus racemosa - gray dogwood
 3 Cornus alternifolia - alternate-leaved dogwood
 2 Calycanthus floridus
 12 Cotoneaster acutifolia - Peking cotoneaster
 8 Cotoneaster multiflora - many-flowered cotoneaster
 2 Cotoneaster divaricata - spreading cotoneaster
 4 Crateagus crusgalli - cockspur hawthorn
 22 Corylus americana - hazelnut
 3 Corylus cornuta - hazelnut
 2 Chaenomeles japonica - Japanese quince
 2 Chaenomeles Texas pink
 5 Chaenomeles lagenaria - glowing ember quince
 1 Cornus stolonifera nana - dwarf red osier
 3 Cornus stolonifera Kelsey's - Kelsey's dwarf red dogwood
 1 Caryopteris mongholica
 1 Caryopteris incana
 2 Deutzia gracilis
 6 Evonymus alatus compacta - firebush
 4 Evonymus colorata upright
 3 Evonymus alatus
 3 Evonymus yedoensis - yeddo evonymus
 3 Evonymus radicans - winter creeper evonymus
 3 Evonymus vegetus - big leaf winter creeper evonymus
 1 Evonymus nana turkestanica
 1 Evonymus nana
 1 Evonymus Manhattan

- 6 Evonymus Arnold's dwarf
 2 Elsholtzia stauntoni
 1 Forsythia ovata - early forsythia
 3 Forsythia intermedia spectabilis
 5 Hypericum - St. Johnswort
 4 Hydrangea arborescens grandiflora - Snow Hill hydrangea
 12 Ligustrum vulgare - European privet
 122 " " - #107630
 122 " " - #26767

- 2 Ligustrum vulgare namum
 3 Ligustrum regelianum - Regel's border privet
 3 Lonicera clavayi - dwarf honeysuckle
 3 Lonicera bella alba - white bella honeysuckle
 2 Juniperus pfitzeriana - Pfitzer's juniper
 5 Malus Hopa - Hopa crabapple
 6 Malus Arnold - Arnold crabapple
 1 Malus ioensis - prairie crabapple
 2 Magnolia soulange - saucer magnolia
 2 Physocarpus opulifolius nana - dwarf ninebark
 5 Prunus tomentosa - Manchurian cherry
 6 Prunus triloba - flowering plum
 4 Prunus glandulosa sinensis - pink almond
 2 Prunus pumila - sand cherry
 2 Pinus mugho - Mugho pine
 20 Pinus resinosa - red pine
 21 Pinus strobus - white pine
 2 Potentilla fruticosa - gold drop
 7 Picea glauca - white spruce
 2 Philadelphus frosty morn
 2 Philadelphus Belle Etoile
 5 Philadelphus boquet blanc
 2 Physocarpus parvifolius - dwarf Illinois ninebark
 3 Rubus sp. - thimbleberry
 3 Rhus aromatica - fragrant sumac
 16 Ribes alpinum - alpine currant
 5 Rhodotyus scandens - Kerra white
 3 Rosa rugosa - Rugosa rose
 1 Sand willow
 2 Blue leaf arctic willow
 2 Spirea callosa alba
 12 Spirea bumalda superba - Anthony Waterer spiraea
 3 Spirea billardi
 6 Spirea vanhouttei
 4 Symphoricarpos chenaulti - Chenault coralberry
 2 Symphoricarpos albus - common snowberry
 2 Symphoricarpos orbiculatus - Indian currant coralberry
 1 Sorbaria sorbifolia - Ural false spiraea
 25 Taxus cuspidata - Japanese yew
 29 Thuja occidentalis - white cedar
 3 Vitex latifolia
 3 Viburnum acerifolium - maple leaf viburnum
 6 Viburnum pubescens - downy viburnum
 10 Viburnum lentago - nannyberry
 11 Viburnum trilobum - American highbush cranberry
 1 Viburnum rafinesquianum - Rafinesque viburnum
 2 Weigela nana variegated
 2 Weigela eva rathke
 3 Berberis crimson pygmy - dwarf red barberry
 12 Pyramidal Arborvitae

Strain Garden Area

- 1 Diospyros virginiana - persimmon

Arboretum Nursery Area

Fence section

- 1 Ampelopsis brevipedunculata elegans - basket ampelopsis
 2 Ampelopsis brevipedunculata maximowiczii - porcelain ampelopsis
 2 Aristolochia tomentosa - birthwort
 1 Aristolochia durior - common Dutchman's pipe
 2 Actinidia arguta - bower actinidia
 1 Clematis jackmani clon - Mme. Edouard Andre
 2 Clematis virginiana - virgins' bower clematis
 2 Clematis texensis - scarlet clematis
 2 Clematis paniculata - sweet autumn clematis
 2 Celastrus gemmata



ARBORETUM NEWS

Vol. 6, No. 2

Madison, Wisconsin

April, 1957

Winter and Spring, 1956-57.

The winter in the Madison area was, by and large, dry and cold, although no record low temperatures were reached. At the time of this writing, in the third week of April, some warm days and considerable precipitation have occurred. In the early part of the month there were some heavy wet snows, very welcome indeed so far as the Arboretum is concerned, as we have now been able to get our spring planting program off to a good start. Those harbingers of spring, the snow trilliums, were in good bloom in the Arboretum woods, by the second week of April and pasque flowers were noted on the Grady Tract Prairie at the same time.

Dane County Rural School Tours of Arboretum

In October 1956 some 1300 Dane County rural school children were taken on guided tours of the Arboretum. Prof. Robert Ellarson of the Dept. of Forestry and Wildlife Management was in charge of the program and has provided the information for the following account.

Each year J. W. (Bill) Clark, the Dane Co. Agricultural Agent, arranges a series of meetings for all the 6th, 7th and 8th grade pupils in the Dane Co. rural schools. Some phase of conservation is emphasized at each of these meetings. In past years the principal emphasis has been on soils and forestry. In 1956, however, Mr. Clark decided to deal with wildlife conservation and requested Prof. Ellarson to arrange tours of the Arboretum in order to bring out the values of the area as a wildlife refuge.

Since it is scarcely possible to show large groups very much of the native fauna of the area, it was decided to examine the various plant associations of the Arboretum, and to point out the contribution each of these makes to the food and cover requirements of the various game birds and mammals inhabiting the Arboretum.

Tours were conducted during the afternoons of October 8, 9, 10, 16, 17, 18, and 19. About two hundred students came out on each of these afternoons. The children were divided into groups of from forty to fifty, and each group was conducted on a pre-arranged tour under supervision of a guide. With Prof. Ellarson as leader, personnel of the Wisconsin Conservation Dept., the Soil Conservation Service and the County Extension Office served as guides. Each tour lasted about two hours. Starting from our parking lot adjacent to the Nakoma Golf Course groups proceeded afoot through the prairie, with a number of stops being made on the prairie itself, at the cottonwood swamp, the Teal Pond, oak woods, cedar knoll, and thence back to the Arboretum Headquarters.

According to Prof. Ellarson follow-up work was planned for the classroom, with a prize to be awarded for the best conservation project developed by a class as result of the tour. The award is an annual one made by the Madison Lions Club. The Arboretum program appears to have been well received and present plans are to repeat it, possibly in 1959.

The Madison Capital Times gave substantial publicity to the rural school tours, and on October 24, 1956 ran a feature article in the Green Sheet under the title of "Back Through Years at U. W. Arboretum", illustrated with photographs.

"Wisconsin's Renewable Resources"

The Arboretum and its research program on the native plant communities of the state is prominently mentioned in a book of the above title written by Mr. J. A. Larsen, Science Editor, University of Wisconsin News Service, and published in December 1956 by the University of Wisconsin, with funds supplied by the Wisconsin Alumni Research Foundation. This attractive volume, with its many fine photographs, "takes as its point of departure the gift to the Wisconsin Alumni Research Foundation in 1952 of the property surrounding the Dells of the Wisconsin River.....The acquisition of such a well known portion of Wisconsin's natural landscape seemed to furnish an appropriate occasion for an assessment of the value of the University of Wisconsin's research program to the conservation of the State's natural heritage of field and forest, lake and stream."

Interesting Plants of the Arboretum

8. Giant Reed Grass.

One of the conspicuous sights, winter and summer, in the marshes along Lake Wingra and in the Gardner Tract is the Giant Reed Grass (*Phragmites communis*). This tall, bamboo-like grass is nearly cosmopolitan in distribution, being found on every continent. It grows to heights of 10 or 12 feet and is common in alkaline marshes and on lake margins. Dense colonies are formed through the vegetative activity of a vigorous rhizome system; seeds are rarely produced. One of the mysteries of plant life concerns the means whereby the species attained its worldwide distribution in the absence of any apparent means of long distance dispersal. When grown in the garden under normal conditions of soil moisture the Giant Reed becomes reduced in size. Its great ability to spread laterally, however, makes it unsuited for any but the largest plantings.

9. Lupine or Blue Bonnet.

The Blue-Bonnet Fields of Texas and the Lupine meadows of California can offer nothing more spectacular than the colony of Lupine (*Lupinus perennis*)

to be found at the northwest corner of the Grady Prairie. This colony occupies close to three acres and occupies them completely, with a solid sheet of blue in mid-May. No other floral display on the Arboretum can rival this for sheer intensity of color.

Lupinus perennis is found in sandy, open situations throughout the eastern United States. In Wisconsin it is most abundant in sandy prairie and oak openings. The plants vary from 15 to 30 inches in height. They have oval, palmately compound leaves and terminal racemes of typical pea-shaped flowers which are bright blue, with purple veins. Some individuals have pink flowers while a very few are pure white. The seeds are shed by a sudden explosive opening of the densely hairy pods.

Due to difficulties in transplantation, the simplest way of introducing this species to the flower garden is by a direct seeding in the place of permanent choice. If the spot is sunny and has a light, well-drained soil, a number of plants should bloom in the next summer following seeding. ----- J. T. Curtis.

Madison Group 'Explores' Arboretum

Appreciation of the interesting features of the Arboretum is not confined to school children, as numerous adult groups and clubs visit the area every year. One such group was the Madison City Farmers Club which toured the Arboretum under the guidance of Arboretum Director, Prof. G. Wm. Longenecker. The Madison Capital Times for October 20, 1956 featured a half-page pictorial spread which showed club members assembled in the Council Ring, pictures of the prairie, shrub plantings, duck ponds, and one of the ornamental signs, made of boiler plate during CCC days and still serving undamaged.

Arboretum Seed Exchange - 1956.

The 1956 seed exchange - in the absence of Prof. Curtis, on leave - was carried on by Prof. Grant Cottam who reports that about 70 different institutions received among them a total of approximately 600 packets of seed. All seeds were from native Wisconsin plants, including 106 species in 37 plant families.

Tree Nucleus in Horticultural Area

Prof. Longenecker reports that it is planned this year to establish the tree nucleus, based on the long-range plan for the large Horticultural Area, adjacent to and north of the Arboretum headquarters. These trees will be spotted throughout the area, many of them in sites which will not be planted up to shrubs for some years to come. When the time for intensive planting comes, these trees will be of value as markers and points of reference, and it will also be more feasible to make allowance for shading effects produced by them if they are established on the site. Scheduled for use this year are various sorts of maples, basswood, thornless honey locusts and other species.

Additions to Lilac and Viburnum Plantings

Twenty-six new lilacs, nine of them seedlings developed in the Arboretum nursery, have been set out. Substantial additions were also made to the Viburnum collection in 1956.

Burning of Prairies

In accordance with past and established annual practice a portion of the Arboretum Prairie was burned on April 18. This year the western third adjacent to the Leopold Pines was burned successfully and without untoward incident. Wind and humidity conditions were ideal, a condition not often realized in spring in this area. On April 24 the Faville Prairie Preserve in Jefferson Co. near Lake Mills was successfully burned by the Arboretum crew and a few Botany Dept. staff members. In this case there was a very strong south wind and the fire threatened to get away on several occasions, but did not get out of hand. The Faville Prairie is almost entirely surrounded by cultivated land and there are no dwellings in the near vicinity, so the overall peril is less.

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The University of Wisconsin Arboretum
A. F. Gallistel, Chairman
Observatory Hill Office Building
Madison 6, Wisconsin



ARBORETUM NEWS

Vol. 6, No. 3

Madison, Wisconsin

July, 1957

Early Summer Weather - 1957

As is well known to most of our readers, following a very dry winter and a similar early spring, the weather picture changed radically, and May and June were exceptionally wet, with almost daily, and frequently heavy rains. For the Arboretum the effects have been in part beneficial and in part detrimental. On the credit side, our new spring plantings, most of which we had completed before the rains got well under way, have in general done better than in most years and the initial survival rate is high. Also, of course, soil moisture conditions, in terms of water table levels, have materially improved, following several basically dry years. On the debit side, our lawn areas and fire lanes have grown "like crazy", necessitating many more man hours than usual devoted to maintenance mowing. Weeds are a problem in many parts of the Arboretum, particularly on the prairie north of the Beltline Highway. The shoulders of the new north lane, completed late in 1956, have not yet become stabilized and there has recently been much additional erosion from them onto the Arboretum. The weed crop, notably white sweet clover and wild parsnip, on this shifting deposited soil has been phenomenal, requiring more mowing time to keep it from going to seed and thus providing us with a steady source of more weeds into the indefinite future. Plant diseases due to parasitic fungi are more than usually prevalent, and the lush foliage also sets up conditions favoring an upsurge in numbers of insects feeding thereon. Troubles from both fungi and insects will likely come to a peak somewhat later in the season.

Arboretum Brochure

Our long-contemplated brochure, describing the Arboretum, its history and its prospects, has just been published. It is a 16 page slick-paper booklet, plus covers, and measures $7\frac{1}{4} \times 10\frac{1}{4}$ ". The brochure is dedicated to Col. Joseph W. Jackson "whose continual devotion to the Arboretum and the ideals it represents made possible the acquisition of many of the most interesting and valuable sites. The University, the State and the world of science own him a great debt." The text is divided into Introduction, History, Vegetation, The Prairie, The Forests, The Fauna, Uses of the Arboretum, and Arboretum Support. The cover, in yellow green, depicts a prairie-oak opening scene, south of the headquarters, and taken from the juniper hillside. This is overprinted in darker green "University of

Wisconsin Arboretum". Included are 14 photographs, two of them full-page, of various scenes and features in the area. In the center of the booklet is a double page spread of a map of the Arboretum, showing the main trails, vegetation groupings, water bodies and marshes. On the rear cover is an orientation map showing the location of the Arboretum with reference to the City of Madison and the principal adjacent highways. Under the heading of Arboretum Support are listed some of the more pressing needs, including a suitable Administration Building, greenhouses and propagation facilities, development of Arboretum entrances, and a few minor land acquisitions to fill out certain larger areas. Mr. James A. Larsen, Science Editor of the University News Service, assembled and edited the material used in the brochure, and the photos are by Gary Schulz.

Interesting Plants of the Arboretum, 10. Purple Cone Flower.

Midsummer in the prairie is the season of maximum production of color. An important contributor to this tapestry is the Purple Cone Flower (*Echinacea purpurea*). The scientific name is derived from the sea-urchin, in allusion to the round spring flower-head. In the summer this head is reduced in size, but still forms a conspicuous blackish center to the large daisy-like flowers with their pink or purple petals. The plant is up to 3 feet tall, with large rough leaves. The flowers are produced over a long period from July to September. Its obvious horticultural merits have led to its extensive use as a garden plant, where it is commonly grown in several improved varieties.

Although the native range of the Purple Cone Flower lies just to the south of Wisconsin it has been successfully established in the prairie of the Arboretum. By some standards it might be judged too successful, since its colonies appear able to prevent or retard the entrance of other prairie species, while steadily increasing their own size. The Purple Cone Flower has several closely related species. One of these, *Echinacea pallida*, has been introduced to the Grady prairie. *E. pallida* is misnamed, since often its flowers are, if anything, darker than those of *E. purpurea*. It is a native of Wisconsin prairies and demonstrates none of the weedy tendencies of its better known relative.

----- J. T. Curtis.

Border Screen for Grady Tract

When, shortly after World War II, a large housing development was constructed across the Fitchburg Road from the Grady Tract, it was decided that for screening purposes, and to discourage entrance at spots other than the gates, it would be desirable to set out a more or less impenetrable planting just inside the fence line. Accordingly, about five years ago, in our headquarters nursery, seed of types of heavily armed hawthorns were planted. These have now become quite large shrubs, bushy, and mostly about five feet high, suitable for transplantation in the near future. All appear very healthy and were raised at a small fraction of the cost of purchased specimens from commercial sources.

The Arboretum Nursery

From the standpoint of present and future development of the Arboretum, we have no single installation which exceeds, or perhaps even equals, our nursery in importance. Our present single large nursery is located in the headquarters area, across the road and somewhat to the southeast of the well-known lilac collection.

The nursery was established in the early days of the Arboretum and was set up by Civilian Conservation Corps labor from the camp maintained in the area at that time. It is on a slight southward slope and is 400 feet square, enclosing close to four acres, according to Superintendent Jacobson. A five foot Cyclone fence surrounds the nursery. This fence is mounted on a concrete foundation

which, it was fondly hoped, would render it rabbit-proof. It was not, however, ground-hog-proof and these animals have been a continual problem, repeatedly tunneling under the foundation, thus providing a handy entrance means for rabbits as well.

As indicated, the nursery is square in shape. There is a vehicular road through the center portion, running north and south, and each of the halves thus formed is divided into 8 sections. There is a centrally located overhead irrigation system, fitted with oscillators so that the entire nursery or any part thereof can be watered. Pressure for the system is produced by an air-cooled gasoline engine in a housing outside, but adjacent to the nursery.

The soil, unfortunately, is not the best for nursery purposes, being too much on the heavy clay side and there is somewhat of a drainage problem in the southeast corner. We are, however, working on building up the soil by employing a sort of use rotation whereby one or two sections are always in a cover crop such as rye or red clover, which crops are plowed under at the end of the growing season to provide humus and to improve soil texture. As plants are moved out of other sections, they in turn are put in cover crops, and so on continually. This works out to a cover crop about every four or five years for any one section. Commercial fertilizer is also used as needed and there has been some application of manure.

The principal pieces of equipment used in nursery maintenance are plows, discs, drag, rototiller and various hand tools. The rototiller is the single most used piece of equipment, as it is of great value in keeping down weeds between rows and in maintaining proper soil texture for moisture conservation.

In the central part of the nursery are a dozen seed beds, 20 by 4 feet. These are sealed with hardware cloth to seal out gophers and other small rodents. Essentially, what we have is a oblong screen cage set several inches down in the ground in an excavation, which is then filled to surface level with a soil mixture suitable for seedling development, such as peat-sand-clay, plus fertilizer in amount suited to the material in hand. Where desirable the beds may be shaded with slats or burlap. Some of the seedlings currently being grown, with high success, are hemlock, balsam fir, white spruce, sugar maple, red maple, silver maple, mountain maple, Ginala maple, Kentucky coffee tree, persimmon, Amelanchier, a dozen or more species of *Biburnum*, tamaracks, black ash, elms, many kinds of hawthorns, and red-buds. Seed sources, when possible, are from particularly desirable native trees or shrubs, or where not native from specimens which have demonstrated their hardiness under Wisconsin conditions. Without any attempt at listing in proper botanical order, the following are some of the specimen plants, in various stages of growth, noted during a tour of the nursery with Superintendent Jacobson who has been largely responsible for getting the set-up into its fine present shape: many types of hawthorns, thornless honey-locust, sugar maple, white ash, native highbush cranberry, nannyberry, dogwood, hemlock, red maple, wild plums, balsam fir, black walnut, tulip tree sassafras, sycamore, lilacs, river birch, white birch, gray birch, swamp white oak, holly, hazelnut, burning bush, Amelanchier, junipers, eastern red maple, yellow wood, yellow birch, spiraea, and a number of others.

On the north and west sides of the fence flowering vines, including some showy honeysuckles, have been set out at 10 foot intervals. It is planned that these will provide both ornament and shelter from drying winds. We already have a good "shelter belt" of well established densely growing shrubs along the south nursery fence.

Eyesore Converted to Asset

In the first few years of the Arboretum, in addition to the Headquarters Nursery, a large unfenced nursery was established about a quarter of a mile to the southeast, and many specimens used in pre-World War II days were grown there.

During the war transplanting activity was at a low and many of the shrubs and trees became too large to move. For various reasons it was decided to abandon this nursery, but for some years it merely stood there, with the trees and shrubs growing ever larger. Since, as is normal in nurseries, they had been planted in rows of one of a kind, the effect was very unnatural and from the headquarters about all that could be seen was a long row of 20 foot red pine. Therefore, a couple of years ago a radical thinning project was undertaken so that, particularly when viewed from a distance, the effect is that of a rather varied and attractive mixed conifer-hardwood-shrub planting.

A Showy Mint

Most plants of the mint family which are native to Wisconsin do not have very showy flowers. One exception is Wild Bergamot (*Monarda fistulosa*) with lilac-reddish flower heads. This is very common and widespread and has no doubt been seen by practically everyone. Another much less common plant, but one even handsomer in the writer's opinion is *Blephilia ciliata* (it has no common name). In Wisconsin, this is a plant of moist prairies and the Arboretum has a good stand of it in the prairie south of the headquarters area. The pale bluish-purple flowers are in whorls which are crowded together in conspicuous spikes and produce a gorgeous effect when many plants are growing close together, as they commonly do. The wet summer of 1957 seems to have been particularly favorable and the Arboretum plants are larger and even more floriferous than usual.

Arboretum Personnel

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Executive Director	G. W. Longenecker
Research Coordinator	J. T. Curtis
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ARBORETUM NEWS

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The 1957 Growing Season

Conditions for plant growth and development in the Madison area were, generally speaking, better in 1957 than for some years past. Total rainfall was not excessive, but the rains were well spaced and drought was at no time a problem. The fall, as often happens here, has been on the dry side, but at this writing in late October fairly adequate rains are falling and most plants should go into the winter in good condition.

Headquarters Parking Area Spruced Up.

In September, the graveled parking lot, near the Headquarters and adjacent to the formal Horticultural Area, was provided with creosoted log barriers to provide as guides for row parking and to avoid confusion in the future when large groups are guided through the Horticultural Area.

New Arboretum Equipment

In the past year or so several needed and highly useful pieces of equipment have been acquired:

1) A U.S. Govt. surplus fire-truck was obtained from a storage depot in Ohio and has been reconditioned and refitted for our specialized use. It is equipped with a 400 gallon water tank, 300 feet of hose with standard nozzle, and we also have a fog nozzle to produce a mist suitable for blanketing small fires and dry areas adjacent to them. This truck will materially reduce our dependence on outside aid in fire-fighting and, even more important, should in most cases enable us to get on the spot sooner than outside equipment, and thus perhaps prevent small fires from becoming big ones.

2) A four-wheel-drive Jeep, mounting a 125 gallon water tank and a so-called Panama pump which is powered off the motor fan belt. This can go almost anywhere and should be valuable in coping with small fires in inaccessible spots. Also, of course, such a vehicle can be used in numerous other ways where a mobile power source is needed.

3) A four-wheeled rubber-tired wagon, 5 ton capacity, with hay rack, and which can be adapted to almost any hauling job. This can be pulled by tractor or Jeep and has been in almost daily use.

4) Two gasoline truck tanks, which we plan to use for water storage. Supt. Jacobson expects to place the larger - 450 gal. capacity - at a central point in the Grady Tract to hold a reserve water supply for fire purposes, while the other - 300 gal. capacity - will be hauled about in the field as required to provide a water source at planting time in spring and fall, and may find other uses as well.

A highly desirable and useful piece of equipment, not yet acquired, would be a power shredder for cutting up branches and tree limbs on the spot, providing humus, eliminating hauling to a trash pile, and doing away with wasteful ultimate burning of such debris.

Gas Pipeline Crosses Arboretum

The Madison Gas and Electric Co. has recently completed installation of a large subterranean pipeline, crossing the Grady Tract approximately along the Madison-Fitchburg Town Line. Permission for the installation was granted because 1) there are no above-ground structures in the Arboretum, 2) the area through which the line passes follows the line of an existing Arboretum road for about half its length, while the rest follows the old motorcycle race track and the old fence line along the property acquired from A. Haen several years ago - thus no Arboretum plantings or research were damaged or interfered with, and 3) the only alternative route available to the gas company - along the right-of-way of the Beltline Highway - appeared highly undesirable for several reasons which were explained to us. The line is laid very deep, and all in all a fairly commendable job - from the Arboretum standpoint - was done, with less disturbance than usually occurs in connection with a project involving power earth-moving equipment. The exposed soil was neatly graded following construction and it is hoped that the weed problem will not be great or of long duration, since the soil in question is sandy and relatively sterile.

A Preliminary Experiment on the Rooting of Horizontal Juniper Cuttings.

The Horizontal Juniper (*Juniperus horizontalis*) occurs in Wisconsin on the beaches of Lake Michigan and Lake Superior, and also in a very narrow band along the edge of the non-glaciated region in interior counties. In the latter area a number of forms occur which seem to offer great horticultural promise. Previous trials at propagation of these by usual methods had not been very successful. This year a simple new method was used which gave 80% success. Terminal branches were removed from the stock plants, their lower leafy side branches were pruned off, and the cleared portions were inserted in open beds of muck soil. The soil was almost pure organic matter, black in color and alkaline in reaction (pH 8); it was formed by the breakdown of sedge peat in the bed of Glacial Lake Wingra. No covering of any kind was used and no artificial watering was employed. Rains were evenly spaced during the summer, so the cuttings were never exposed to severe drought, although they experienced several periods of 7 to 10 days without rain.

The cuttings ranged from 15 to 25 inches in length, with stem diameter of 1/4 to 1/2 inch at the basal end. They were placed in the soil on May 6. By June 15 one fifth of them had turned brown, but the others showed signs of new top growth. The dead cuttings were all in the smallest group. When the live cuttings were lifted toward the end of August all had an abundant fibrous root system, with roots of up to 12 inches in length. The best and most numerous roots occurred on stems in the 3/8 to 1/2 inch diameter class. It seems possible that larger cuttings might have performed still better.

With this new method we hope to develop a collection in the Arboretum of all the potentially valuable forms of Horizontal Juniper we can find. The better strains will be further propagated and used in display beds to demonstrate the wide usefulness of this attractive evergreen as a ground cover for dry banks and other exposed places.

-----J. T. Curtis

Demonstration Plots for Ground Cover Plants

Immediately north of the Headquarters an area of about an acre has been cleared, preparatory to setting up demonstrations of plants suitable for ground cover in this climate. A principal use of such plants is to provide cover in shady spots where lawn grasses do not thrive. One such which has been used with considerable success on the University of Wisconsin Campus is periwinkle, *Vinca major*.

Expansion of Grady Tract Border Screen Plantings

In addition to screen plantings along the Seminole Highway mentioned in the July number of the Arboretum News, it has been decided to expand the program to include the east border of the Grady Tract, starting at the southeast corner and working north. The former Williams farm, adjacent to our east border in the Town of Fitchburg, has been sold to real estate interests for purposes of a housing development. It is felt that the maintenance of more of less natural vegetational communities, one of our principal aims, is jeopardized when, in effect, our lands become the backyards of private dwelling places, and the screen planting provides a partial amelioration of this situation.

Ecological Note on Downy Gentians

The downy gentian, *Gentiana puberula*, is a handsome species of the prairie which has been under observation by Prof. J. T. Curtis, Arboretum Research Coordinator, for a number of years at many different locations. It has been noted by Prof. Curtis, and confirmed by others, that downy gentians and prairie drop-seed grass (*Sporobolus heterolepis*) are frequently found growing in close association, so that it appears this grass, which is a very strong tuft former, provides conditions which are highly favorable to seed germination and seedling growth of the finicky gentian. As one sees a stand of *Sporobolus* late in the season, it would seem that the grass, with its many, closely growing, long, widely spreading, prostrate leaves must preempt the entire ground surface. However, closer examination reveals that there are many patches of almost bare soil between the grass clumps where, one might suspect, the shade prevents most other plants from establishing a foothold. The downy gentian is obviously not bothered by this and thrives. Confirmatory evidence is provided on the Grady Prairie in the Arboretum, where clumps of *Sporobolus* have been artificially established over a period of years. It is the writer's certain knowledge that these clumps came from seed, and not from sods brought in from outside. Downy gentians have been established in a spot about 50 ~~years~~^{yards} away from the *Sporobolus* for some time. In 1957 blooming plants of gentian were observed amongst the grass clumps and nowhere else adjacent, indicating preferential germination and development of the light, easily blown seeds from the source 50 yards away.

Northern Collecting Trip

Superintendent Jacobson and Arboretum Botanist Ed Cawley made a three-day trip to northern Wisconsin in early October to collect specimen plants for the Arboretum. Using the Arboretum truck, they visited and collected in Douglas, Bayfield, Barron, Chippewa and Eau Claire counties. A state permit was issued through the office of E. L. Chambers, State Capitol, and the plants obtained were inspected after being brought back to Madison. The truck was riding very low indeed as it pulled into Madison bearing nearly 700 specimens, many of them with sods still in place. A great many small trees were dug, including 91 white cedar, 72 white birch, 52 balsam fir, 50 hemlock, 40 red maple, and 29 tamarack. Many shrubs and some herbaceous plants were also included. Among the shrubs were various viburnums, blueberries, huckleberries, dogwood, honeysuckle, leatherwood, sand cherry, yews, and others. Creeping evergreen ericads were represented by wintergreen, trailing arbutus, and bearberry. Various ferns, including about 60 bracken rhizomes were obtained. A very successful trip, well worth the effort and expense incurred.

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