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University of Wisconsin--Madison. Arboretum  
Madison, Wisconsin: University of Wisconsin-Madison Arboretum,  
1956

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# ARBORETUM NEWS

Vol. A<sup>5</sup>, No. 51

Madison, Wisconsin

January, 1956

## More Bad Weather News

The current weather picture - a bad one insofar as the Arboretum is concerned is summarized in the following account - reprinted from the January 3rd issue of one of the Madison newspapers: "Madison's rainfall and snow added up to only 22.49 inches of moisture in 1955 - just 73% of normal, and this may have an adverse effect on crops in 1956, the U. S. weather bureau at Truax Field reported today. Rainfall was especially light during the fall when moisture generally is required to build up the reserves underground to insure good crops for the next spring, the bureau stated. Actually, Madison was 7½ inches short of the usual amount for a year. Both December and November of 1955 were cold months, the bureau continued. During December, the average temperature was 3.6 degrees below the normal of 23, making it the coldest December since 1950. In November, temperatures averaged 3.8 degrees below normal.....the coldest since 1951." The combination of insufficient soil moisture, no snow cover, and subnormal temperatures is, of course, highly unfavorable for coniferous plantings in the Arboretum and throughout southern Wisconsin. Next summer will tell the story and we can only hope that the damage will not be disastrously severe.

## 1955 Plantings of Woody Species in the Arboretum

Mr. J. R. Jacobson, Arboretum Superintendent, has provided the following summary of our 1955 plantings. He states that while total numbers are less than in 1954 the per cent survival of the stock planted this year appears higher, due largely to use of superior plants.

- 2572 Red Pine (*Pinus resinosa*)
- 1711 White Pine (*Pinus strobus*)
- 500 Jack Pine (*Pinus banksiana*)
- 2300 White Spruce (*Picea glauca*)
- 300 Hemlock (*Tsuga canadensis*)
- 125 Trembling Aspen (*Populus tremuloides*)
- 500 Yellow Birch (*Betula lutea*)
- 3 River Birch (*Betula nigra*)
- 134 White Birch (*Betula papyrifera*)
- 75 Wild Plum (*Prunus americana*)
- 1000 Sugar Maple (*Acer saccharum*)

- 200 Soft Maple (*Acer saccharinum*)
- 447 Swamp White Oak (*Quercus bicolor*)
  - 1 Moraine Locust #836
  - 8 Hazelnut (*Corylus americana*)
- 10 Beaked Hazelnut (*Corylus rostrata*)
  - 1 Arrow-wood (*Viburnum dentatum*)
  - 5 Nannyberry (*Viburnum lentago*)
- 10 Highbush Cranberry (*Viburnum trilobum*)
  - 1 Bladdernut (*Staphylea trifolia*)
- 11 Holly (*Ilex verticillata*)
  - 1 London Plane Tree (*Platanus acerifolia*)
  - 1 White Ash (*Fraxinus americana*)
  - 1 Hackberry (*Celtis occidentalis*)
  - 1 Buttonbush (*Cephalanthus occidentalis*)
  - 3 Gray Dogwood (*Cornus racemosa*)
  - 1 Spineless Honey Locust (*Gleditsia inermis*)

#### Grady Tract Oak Plantings

Sorted and stratified seed - spring planted.

Black Oak ( <i>Quercus velutina</i> )	2½ bushels
Bur Oak ( <i>Quercus macrocarpa</i> )	2 bu.
Red Oak ( <i>Quercus borealis</i> )	½ bu.
Yellowbud Hickory ( <i>Carya cordiformis</i> )	½ peck

Sorted seed - fall planted.

White Oak ( <i>Quercus alba</i> )	2 bu.
Bur Oak ( <i>Quercus macrocarpa</i> )	1½ bu.
Black Oak ( <i>Quercus velutina</i> )	1½ bu.
Red Oak ( <i>Quercus borealis</i> )	½ bu.
Swamp White Oak ( <i>Quercus bicolor</i> )	1 qt.
Black Walnut ( <i>Juglans nigra</i> )	½ bu.
Black Cherry ( <i>Prunus serotina</i> )	4 qts.
Gray Dogwood ( <i>Cornus racemosa</i> )	2 qts.
Yellowbud Hickory ( <i>Carya cordiformis</i> )	5 qts.
Shagbark Hickory ( <i>Carya ovata</i> )	2 qts.

#### Nursery Plantings

Three new 4 x 20 ft. seed beds were made in the nursery at the headquarters and were completely planted with the following: *Platanus occidentalis*, *Diospyros virginiana*, *Abies balsamea*, *Tsuga canadensis*, *Pinus echinata*, *Picea glauca*, *Larix laricina*, *Thuja occidentalis*, *Cornus purpusis*, *C. alternifolia*, *C. racemosa*, (incl. seed planted as *C. femina* and *C. paniculata*), *C. alba*, *C. sanguinea*, *Cercis canadensis*, *Quercus* sp. (from Ill. Ozarks), *Cotoneaster multiflora*, *Acer saccharum*, *Fraxinus americana*, *Castanea dentata*, *Magnolia stellata*, *Corylus americana*, *Sorbus americana*, *Aesculus parviflora*, *A. avia*, *A. neglecta*, *Crataegus succulenta*, *C. canbyi*, *C. coccinoides*, *C. macrochanta*, *C. punctata*, *C. nudiflora*, *C. pruinosa*, *C. chrysocarpa*, *C. prunifolia*, *C. calpodendron*, *Sambucus* sp., *Viburnum cotinifolium*, *V. dentatum*, *V. edule*, *V. rufidulum*, *V. pubescens*, *V. sieboldii*, *Ilex laevigata*, *Prunus americana*.

One transplant bed was planted with hemlock seedlings from seed collected in southern Wisconsin, and another was filled with seedlings of *Tilia glabra*. Two additional sections of the nursery were planted full with seedlings and trans-

plants, chiefly of the following species: *Acer pennsylvanicum*, *A. rubrum*, *A. saccharinum*, *A. spicatum*, *Corylus* sp., *Crataegus* spp., *Ilex* sp., *Rosa setigera*, *Fraxinus americana*, *Ulmus americana*.

### Lilac Plantings

The lilac area has been greatly extended. Six large new planting beds were set with 109 new lilacs, including one of our own seedlings. The varieties used are Alice Harding, Ami Scott, Firmament, Microphylla, Mrs. W. E. Marshall, Sarah Sands, Henri Robert, Candeur, Mrs. Florent Stepman, Glory, Thunberg, Marceau, Oblata, Duc-de-Massa, Churchill, Jan van Tol, Mount Blanc, Victor Lemoine, Messena, DeCaisne, White Swan, Univ. Wisc. Arboretum seedling, Diderot, Desfontaines, Ester Staley, Capitaine Perrault, Clarke's Giant, Persica laciniata, Evangeline, Catinat, Violette, Pres. Viger, Kate Sessions, Montesquieu, Victor, John Wyman, Assesippi, Blue Hyacinth, Paul Deshanel, Prof. E. Stockhardt, Mountain Haze, Primrose, Edith Cavell, Fuerst Lichtenstein, Senator Vollard, Charm, Diplomate, Monique Lemoine, Crepuscula, Sweginzowi Albida, Coral, Mme. Chas, Souchet, Jessica, Rutilant, Nervissa, Isabella, Royalty, Tomentilla, Hiawatha, Wolfi, Night, Priscilla, Monument, Marie Finon, Ethel Webster.

### Parasitic Fungi in the Arboretum

The writer's special interest for a number of years has been the collection and study of the fungi which are parasitic on plants in Wisconsin. These fungi appear to form an integral, though periodically fluctuating, part of the flora and their presence is not ordinarily inimical to higher plants which are growing under relatively normal conditions. The Arboretum probably contains no more parasitic fungi than any other area with a similar range of species and habitat conditions, but because of its convenience and accessibility rather intensive collecting has been carried on there during the last fifteen years.

The results have been fairly spectacular, in view of the fact that at the time the work started the parasitic fungi of the state had been studied over a period of many years by the late J. J. Davis, who published numerous scientific papers on the subject. So far as the Arboretum is concerned, 66 of the species collected there have been described as new, and 168 more had not been previously reported as occurring in Wisconsin, although described earlier from other localities. Many parasitic fungi occur on more than one host species - some of them, such as certain powdery mildews and rusts, may be found on scores of hosts - and 250 additional hosts have been recorded for fungi previously known to occur in Wisconsin on other hosts.

----- H. C. Greene

### Interesting Plants in the Arboretum. 4. Compass Plant.

In the winter season, when the standing leaves of last year's grasses make a uniform blanket of light yellow over the prairie, a conspicuous feature is the scattering of coarse, slightly zig-zag stems of the compass plant. This relatively huge member of the sunflower family is still more interesting in the summer and has given rise to much discussion of its unusual habits. The compass plant (*Silphium laciniatum*) has a basal rosette of large ovate leaves, each about 2½ feet long, with deep pinnate divisions in the blades. A stout flowering stem is produced from the center of the rosette. It is often up to 8 feet tall, is covered with rough hairs, has a few clasping leaves, and terminates in a cluster of bright yellow sunflower-like heads, each about 4 inches across. The major

interest in the plant attaches to its peculiar reactions to light. Most of the basal leaves are oriented in a north and south direction, so that the flat surfaces of the blades face east and west. This orientation was early noticed by travelers on the prairie and was used by them as a compass on dull and cloudy days. As long ago as 1869 Dr. Thomas Hill checked the true bearings of the railroad, at various places, between Chicago and Omaha against the bearings as shown by compass plants at these places, and found the remarkable agreement of 35, 75, and 90 degrees vs. 31, 78, and 90 degrees. In an experimental approach to the problem he raised a number of seedlings and found that the average bearing of their leaves was only 2½ degrees from true north and south.

The flowers are similarly direction-minded, but the uppermost flower faces slightly to the north of east. Schaffner made a count on the Kansas prairie in 1905 and found that more than 99% of the plants had flowers oriented in this direction. Similar observations have been made on the Faville Prairie Preserve of the Arboretum in Jefferson Co., Wisconsin.

In spite of its great interest, the compass plant is not recommended as a garden plant. As a mature plant it cannot be transplanted, and when planted from seed seven years or more must elapse before flowering begins. It is a plant of the prairie and only on the prairie can it be seen at its best. The role of the compass plant in underscoring the need for preservation of prairie is admirably described in the July entries of Aldo Leopold's "Sand County Almanac".

----- J. T. Curtis.

#### 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 . . . . .	R. E. Shake
Editor, Arboretum News . . . . .	H. C. Greene

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



# ARBORETUM NEWS

Vol. 5. No. 2

Madison, Wisconsin

April, 1956

## Widening of Beltline Highway through Arboretum

The Wisconsin Highway Department has announced plans for making a divided highway of the present Beltline by constructing another lane about 30 feet north of and paralleling the present road, work to start in 1956. As far as the Arboretum is concerned the new lane will be laid out on a right-of-way which was acquired at the time the present road was built, about a decade ago. Although the right-of-way thus laid out cut deep into many of our plantings on the north side of the road, at the time we felt there was good reason to believe that a second lane would never be built. Therefore, we continued caring for these plantings, and added to them to a limited extent, particularly in the way of some screen plantings. Whatever the worth of the new road as a highway, there can be no question that its construction is in the nature of a disaster to the Arboretum. The new fence line will be at all points at least 66 feet north of the present one and in order to make the planned fill in certain places it appears that a greater width than this will be required. We will lose many of our largest white pines, nearly all our spruce planting adjacent to the Leopold Pines, most of our screen plantings above the prairie, most of our thriving sugar maple stand east of this, and a number of fine large old oaks. Complicating matters further will be the inevitable deposition on our land of damaging clayey subsoil, resulting from the erosion which always accompanies construction of this type. We feel that the fire hazard will be materially increased, particularly where the Leopold Pines are concerned, since the new road will be practically "on top" of them, as it were. We are not as fortunate as the University of Washington Arboretum at Seattle where an aroused public opinion caused governmental agencies to modify their plan for using Arboretum land for the Seattle approach to an \$18 million dollar bridge across Lake Washington, with the end result of probably shifting the proposed bridge site several miles distant.

## Winter Bird Records

Prof. J. J. Hickey of the Department of Forestry & Wildlife Management reports that during the past winter the following more or less unusual birds have been observed in the Arboretum: 1) A saw-whet owl in the white cedars near the

Teal Pond. This little fellow is only 5-6 inches high, smaller than a screech owl, 2) Two long-eared owls in the vicinity of Ho-Nee-Um Pond, 3) Seventeen evening grosbeaks also at Ho-Nee-Um, 4) Short-eared owls in the Leopold Pines, 5) A Carolina wren near the Mills St. entrance, 6) White-throated sparrows around Lake Wingra. Prof. Hickey further reports that a large group of about 70 robins overwintered in the Arboretum.

### Dam Proves Effective

In the October 1955 issue of the Arboretum News mention was made of an earthen dam with a wooden gate which was constructed north of the Teal Pond and across the drainage from the Pond, as a water-conserving measure. This spring the dam has been full almost to overflowing on several occasions, but so far as we can see all the water which has been impounded has been sinking in on the spot and has not been seeping through the dam. This points up the extreme dryness of the soil resulting from drought conditions during the last year. Before the dam was built most of this water would have run off into Lake Wingra and been lost to us.

### Fire Break in Grady Tract

The wide new fire break, described in the lead article in the April 1955 issue of the Arboretum News, has now been covered with gravel at a number of points and, while it is still somewhat soft, we expect that following this season the gravel will settle and become stabilized to such a degree that the break will be passable for moderately heavy vehicles throughout the year. Because of its width, combined with its placement on the ridge summit, we feel that we are in a more favorable position now than we have ever been heretofore in this area, so far as fire control is concerned.

### Mowing of Wingra Fen

The Wingra Fen, also called the Wingra Marsh, is a 5-6 acre area adjacent to the southwest shore of Lake Wingra. It is a wet spring-fed, marly alkaline meadow and is one of the most interesting and valuable habitats in the Arboretum since it contains, along with other rare species, our one remaining large colony of the little white ladyslipper, *Cypripedium candidum*. Formerly the area retained its open character as a result of mowing for marsh hay and probably, before that, as a result of periodic fires. When the Arboretum acquired the land regular mowing ceased and, because of danger to dwellings and other appurtenances of civilization, we have sought, successfully so far, to avoid fires here. Following these changes, in recent years there has tended to be an undesirably heavy growth of shrubs, especially red-osier dogwood, which by competition and shading have threatened to change the habitat to the point where white ladyslippers and other wildflowers with similar requirements would be unable to survive. Accordingly, during the past winter when the ground was frozen, and the numerous holes and irregularities were full of ice, thus producing a relatively level surface, we went in with the power mower and cut the shrubs off the entire area. It is anticipated that this will result in great improvement from the wildflower standpoint, and it might be pointed out that, in carrying out the mowing we are but following the recommendations, belatedly to be sure, of Arboretum Journal Paper No. 6 by J. T. Curtis, entitled "Use of mowing in management of white ladyslipper" which appeared in 1948 in the Journal of Wildlife Management.

## Arboretum Seed Exchange, 1955

A list of 51 species, with seeds ripening in spring and early summer was sent to about 300 botanical institutions. A total of 50 institutions requested some 448 packets. Of these establishments 13 were in the U. S. A., 10 in Germany, 6 in France, 4 in England, 3 in Belgium, 3 in Switzerland, 2 in Austria, 2 in the Netherlands, and 1 each in Japan, Norway, Poland, Portugal, Russia, Spain, and Sweden.

### Interesting Plants in the Arboretum. 5. Hepatica

The Hepatica is one of the most familiar of the very early wild flowers of the rich woods of Wisconsin. There are two closely related species - the Round-lobe Hepatica, *Hepatica americana*, and the Sharp-lobe Hepatica, *Hepatica acutiloba*. The former is more abundant in northern Wisconsin while the latter is the typical form in the southern part of the State. Populations intermediate in characteristics between the two species are to be found in many places.

The Sharp-lobe Hepaticas at present in the Arboretum are a large colony of several thousand plants on the slope south of the linear effigy mound in the Camp Woods. Smaller colonies of the Round-lobe Hepatica are found on the north slope of the Wingra Woods.

Both species form a compact rosette of trilobed, leathery, dark green leaves. New leaves are produced in late spring. They last over the following winter but become rather moribund by the time the cluster of single-stemmed flowers makes its appearance in early April. Each flower has a single row of petal-like sepals which may vary in color in different plants from various shades of blue to bright pink or nearly to white.

The Hepaticas are easily grown in a shady garden which is not subject to extreme summer drought. They are long-lived and completely hardy. Best results are obtained in a site which is exposed to full light in the spring but is protected from the summer sun.

----- J. T. Curtis

### Largest Trees on the Arboretum

In preparation for a forthcoming series of articles on the woody plants of the Arboretum, Roy Shake, the Arboretum Botanist, has measured the largest specimen he could find of all species of mature trees on the area. Some of them\* were planted around the original Grady Homestead at an unknown date in the past, but the majority are native trees of the presettlement forests and savannas. Measurements are circumferences at a level of 4½ feet above the ground. The known state record is given in parentheses, as provided by Mr. Walter Scott, of the Wisconsin Conservation Department.

Soft Maple ( <i>Acer saccharinum</i> )	Grady Tract	15'	(21')
Black Willow ( <i>Salix nigra</i> )	Stevens Pond area	13'2"	(18'9")
Cottonwood ( <i>Populus deltoides</i> )	Teal Pond area	13'	(27')
Black Oak ( <i>Quercus velutina</i> )	Grady Tract	10'2"	(12')
White Oak ( <i>Quercus alba</i> )	West end of prairie	10'	(13')



*Box Elder ( <i>Acer negundo</i> )	Grady homestead	9'7"	(12'3")
Bur Oak ( <i>Quercus macrocarpa</i> )	South side of prairie	9'5"	(14'2")
Red Oak ( <i>Quercus borealis</i> )	Wingra Woods	9'2"	(14'1")
*Sugar Maple ( <i>Acer saccharum</i> )	Grady homestead	8'2"	(11')
Hill's Oak ( <i>Quercus ellipsoidalis</i> )	Grady Tract	8'1"	(8'5")
*American Elm ( <i>Ulmus americana</i> )	Grady homestead	8'	(19'7")
Shagbark Hickory ( <i>Carya ovata</i> )	Leopold Spruce area	7'10"	(This is it)
Black Cherry ( <i>Prunus serotina</i> )	Camp Woods	6'	(11'4")
*Yellowbud Hickory ( <i>Carya cordiformis</i> )	Grady homestead	5'10"	(8'8")
Red Mulberry ( <i>Morus rubra</i> )	Noe Woods	5'7"	(?)
Butternut ( <i>Juglans cinerea</i> )	Noe Woods	5'1"	(8'5")
Basswood ( <i>Tilia americana</i> )	Wingra Woods	4'1"	(13'5")
*European Larch ( <i>Larix decidua</i> )	Grady homestead	4'9"	(?)
Red Maple ( <i>Acer rubrum</i> )	Camp Woods	4'8"	(?)

----- J. T. Curtis.

#### Arboretum Personnel

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The University of Wisconsin Arboretum

A. F. Gallistel, Chairman

Observatory Hill Office Building

Madison 6, Wisconsin



# ARBORETUM NEWS

Vol. 5, No. 3

Madison, Wisconsin

July, 1956

## The Weather Picture

Rainfall for 1956, as this is written in early July, has been fairly adequate during the growing season, though spotty. We were able to carry out our spring planting program without much difficulty. The great moisture deficit, resulting from the excessively hot, dry summer and fall of 1955, has not been compensated for, but the effect on Arboretum plantings has, so far as we are able to tell at this time, been less damaging than we had feared it would be. Our coniferous plantations have come through in good shape, where established trees are concerned, and the mortality among new plantings does not appear to be excessive.

## An "Assist" to the Arboretum

The Wisconsin State Highway Commission, following a hearing at which members of the Arboretum Committee were present, agreed to construct a pedestrian underpass below the Beltline Highway, joining the Grady Tract with the rest of the Arboretum. This will be done in connection with the road construction now in progress and will be of great assistance to us in handling large groups of people touring the Arboretum on foot. We have heretofore been unable to make full use of the Grady Tract, particularly for class instructional purposes, because of the difficulty and danger of getting people across such a busy highway as the Beltline.

## Arboretum Visitors

The annual meeting of the National Association of Physical Plant Administrators was held at the University of Wisconsin in late May. Under the guidance of Mr. A. F. Gallistel, Chairman of the Arboretum Committee and Director of Physical Plant Planning at the University here, approximately 125 members of the group toured the Arboretum by bus.

## An Incident in "Public Relations"

The following article, quoted from the Madison Wisconsin State Journal for May 28, 1956, is self-explanatory.

"Several hundred Madison area residents helped themselves to a grove of young trees along the West Beltline during the week-end, but officials doubted if their efforts would prove worthwhile.

"A radio announcement was made Friday night - by whose authority remains a mystery - that residents could help themselves to a group of young trees along the Beltline next to the University of Wisconsin Arboretum.

"Construction of two additional lanes of Beltline roadway got started in the area Thursday. The trees are in the path of the new road and will be bulldozed into trash this week.

"An Arboretum official told The Wisconsin State Journal that they were at a loss to know who said "help yourselves."

"University police and Arboretum workers said they had to patrol the Arboretum boundary to prevent trees from being dug. The boundary fence had been removed for the roadwork.

"But the people got some of those trees, too," the official said.

"There must have been 400 cars out there Sunday, he said.

"The people even were taking up a lot of dirt. Most of the trees they took were young maples and pines. The maples don't have adequate roots and probable won't survive," he said. "And the same is probably true of the pines", he added.

"State police set up "No Parking" signs, which were ignored. But there were no reports of any arrests. Dane county police said they had not been notified of the incident.

"Allowing trees to be taken from state property is against the law and this instance sets a bad precedent," the official said."

#### Interesting Plants of the Arboretum. 6. Indian Paintbrush.

The Indian Paintbrush (*Castilleja coccinea*) is one of the most colorful of the early summer plants of moist sand prairies. It has been established on the Grady Prairie and is now present in a colony of more than 10,000 plants. The plant is an annual, about 12 to 15 inches tall, with lobed leaves. The flowers in a terminal spike are small and inconspicuous, but are surrounded by brilliantly colored leafy bracts. These were bright scarlet when the colony was first developed, but a gradually increasing proportion of forms with clear yellow bracts has become evident in recent years, and occasional specimens have bracts of an intermediate orange color.

The plant is a partial root-parasite, gaining part of its food from the roots of neighboring host plants which are probably grasses or sedges. Because of this it does not lend itself to horticultural uses, and this is a great pity, since our gardens are almost totally lacking in flowers with such an intense shade of red.

In Wisconsin the Indian Paintbrush is found in moist, peaty low prairies and also among the sand plants at several places on the Lake Michigan shore, especially in Kenosha and Door Counties.

---J. T. Curtis.

#### A New Arboretum Publication Series

A paper entitled "Supplement to Fungi of the University of Wisconsin Arboretum" is No. 1 in the University of Wisconsin Arboretum Occasional Paper Series. This series is designed to include papers which may appear at irregular intervals, are confined to material of local or restricted interest, and which may not be suitable for standard periodicals. "Fungi of the University of Wisconsin Arboretum" appeared in *Trans. Wis. Acad. Sci Arts & Letters* 39: 47-82. 1949. The supplement is a 27-page paper reproduced from typescript by the University Duplicating Department, and contains numerous additional records of fungi collected within the Arboretum, many of the collections having been made during the September 1953 Foray of the Mycological Society of America, held at Madison in conjunction with the AIBS meetings at that time. This paper, and others which may appear in the series, will ultimately be distributed to institutions on our mailing list.

## A Fine Native Phlox

The Smooth Phlox, *Phlox glaberrima*, is native to southeastern Wisconsin in the meadows bordering the shore of Lake Michigan in Kenosha County. Large patches of this beautiful rose-red species brightened the entire area in early July, blooming strongly until about the third week of the month. Following the last war it became apparent that the entire lake shore was destined to become one vast real estate development from Kenosha to the Wisconsin-Illinois state line, and farther. Accordingly, with the consent of the landowners, a considerable number of plants were dug and transplanted to likely situations in the Arboretum at Madison. Much seed was also collected in several successive years, and was sowed in suitable spots in the Arboretum. The first transplants were moved in 1952 and now, in the summer of 1956, seem firmly established, proliferating strongly and blooming profusely in the low meadow of the Grady Tract Prairie. Mature blooming plants have also been obtained from seed collected and sown in the summer of 1951. This seed was planted in an area that is relatively high and dry, but this seems to have had no adverse effect, although in their native habitat the plants cluster in low, comparatively moist spots. The Smooth Phlox is a slender-stemmed perennial, ranging from one to more than two feet in height, usually with only one to three blooming stems per plant, but occasionally with more. The leaves are narrowly linear, tapering to a point, clear green, smooth and shining. They are borne in pairs opposite one another, and at right angles to the stem. The rose-red flowering heads are globose or subglobose in outline, and approximately 3-4 inches in diameter. The Smooth Phlox is easily our most handsome native Wisconsin species and is worthy of the serious attention it has received from horticulturalists, as it is in no way inferior in appearance to the popular cultivated phlox, *Phlox paniculata*. In the year when we offered Smooth Phlox seed on our Seed Exchange it was the most desired single item, a testimonial to world-wide appreciation of its merits.

## A White Oak Woods Under Arboretum Supervision.

The University of Wisconsin Astronomical Observatory is being relocated on a tract of land about a mile northwest of the village of Pine Bluff which is itself about eleven miles west of Madison on the so-called Mineral Point Road. Adjacent to the open land on which the observatory will be erected is a wooded area of about 13 acres which, until this spring, was the property of Professor John R. Barton of the Department of Rural Sociology at the University of Wisconsin. This woodland has now been acquired and is being managed by the Arboretum Committee. The reason for the acquisition was partly to further protect the observatory from possible loss of its desirable isolation, but even more because the area contains a very large number of magnificent, old, open-grown white oaks, and is worthy in every way of preservation as a specimen area of its type. Adjacent to the woods and grading into it is an opening containing a full range of native high prairie species. It is anticipated that this property will be of utmost value for instructional purposes for students in field botany.

## Arboretum Official on Leave

Professor J. T. Curtis of the Department of Botany at the University of Wisconsin and Coordinator of Arboretum Research is taking a year's leave of absence beginning September 1, 1956. A prominent ecologist, Professor Curtis has, with his students, spent much time and effort studying and appraising the vegetation of this region. He will devote the period of his leave to writing and to bringing into form for publication a manuscript on the subject "Vegetation of Wisconsin". The work is being supported by funds from the Guggenheim Foundation and from the Wisconsin Alumni Research Foundation.

## A New Arboretum Botanist

Mr. Edward T. Cawley started work July 1st as Arboretum Botanist, succeeding Roy Shake who obtained a Master's degree this spring and has left the University. Mr. Cawley is a student in ecology in the Department of Botany and came to us from Northern Illinois State College.

### Arboretum Personnel

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

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



Vol. 5, No. 4

Madison, Wisconsin

October, 1956

### 1956 Weather

The 1956 growing season, in contrast to that of 1955, was characterized by relatively low temperatures, and by abundant rainfall throughout July and August and into early September. This state of affairs has of course been most helpful to our new plantings, and has produced generally good growth of all vegetation. It is noteworthy, however, that the signs are that the subsurface deficit of the past three or four "dry" years has not yet been overcome. This statement is supported by observations made in the rather level southerly part of the Grady Tract, where the soil is relatively sandy and porous. In this area are several small depressions, 3-4 feet deep and about 50-75 feet across, plus a shallow well, about 5 feet deep, lined with rocks, which was dug many years ago when the land was part of a farm. The situation in 1956 may be contrasted with that in 1950. In 1950 there had been at least average snowfall the preceding winter, and during the summer there were heavy and frequent rains, continuing through July and into early August. All the depressions and the well had water in them continuously up through the middle of August, with the well frequently overflowing. The well never did go dry, although the fall was not a wet one. In 1956 the depressions contained standing water only very briefly, following even the heaviest rains, while the well dried up several times, and was never more than halfway full. The water which fell did not evaporate. It was quickly absorbed. It is to be hoped that 1957 will have adequate rainfall, since we are plainly not "out of the woods" yet in the matter of moisture deficit.

### Small Shrub Plantings

Intensive developmental work was carried out in 1956 on the new Small Shrub Area, within the general Horticultural Area and adjacent to the Arboretum Headquarters. Details of these plantings will be set forth in the next issue of the Arboretum News.

### New Parking Lot

A very sizeable parking lot has been made at the east end of the public drive leading to the Arboretum Headquarters, and just south of the Small Shrub plantings. Space was obtained by making a considerable set-back in the fence. It is anticipated that this will relieve the congestion that has occurred annually at the time of the lilac display when, up to now, many visitors have been forced to park on the lawn beside the road.

## Grady Tract Entrance

Except in emergencies, vehicular entrance to the Grady Tract is now restricted to the gate at the northwest corner of the tract, adjacent to the Beltline Highway, on the Fitchburg Road. The formerly steep entrance has been graded, a culvert installed, and the fence set back to provide outside parking for several cars, so that visitors wishing to go through the area on foot will have a safe place to leave their cars. The gate is at all times left on a long chain, so that pedestrians may enter and leave at will. It is possible that, under conditions of extreme fire hazard, we may at times find it necessary to exclude pedestrians for the period of the emergency. Just inside the gate there is a sizeable parking lot which can be used as occasion demands, and still another parking area has been set up in the central part of the Grady Tract, in the vicinity of the old motorcycle race-track, and adjacent to the new gravelled all-weather road and fire-break, described in the April 1955 issue of the News.

## Seal on Dam in Camp Woods

In the October 1955 issue of the Arboretum News the construction of a dam across the drainage north of the Teal Pond was described. This was designed as a water-conserving measure, but, contrary to an optimistic report in the April 1956 issue, was not at first completely successful, due to seepage. This now appears to be corrected by deposition of finely divided clay particles over the surface of the dam and its approaches, creating an effective seal, so that it is hoped that the peripheral land will benefit from a longer available water supply. The source of the clay was erosion from the newly constructed north lane of the Beltline Highway. While this erosion has, in sum total, done the Arboretum much more harm than good, we are glad to be able to report on a compensating feature.

## Interesting Plants of the Arboretum 7. Grass-of-Parnassus

Grass-of-Parnassus (*Parnassia glauca*) is an attractive but slightly misnamed member of the autumn flora of the Wingra Fen at the Arboretum. A related species was described from Mount Parnassus by Dioscorides but it is not a grass. The alternative name of Bug-Star is more apt, since the inch-wide, shining white flowers are borne singly at the ends of 15 to 20 inch wiry scapes and appear to float like stars over the surrounding vegetation. The plant is found in moist, alkaline, open situations throughout Wisconsin, where it is frequently associated with Fringed Gentians and Ladies Tresses. All of these species are at their peak in early September but may be found with occasional flowers until the first killing frosts.

The leaves are about 2 inches in diameter, round, and leathery and are produced in a basal rosette. The flower petals are white with a pronounced veining of green. Several other related species of similar appearance occur in Wisconsin. Because of its requirements for continual moisture the plant is not a good subject for garden use.

----- J. T. Curtis

## Asters and Goldenrods

One of the glories of the autumn scene in all sections of the Arboretum is the mass of color contributed by the asters and the goldenrods. The area is very rich in species, representing a considerable fraction of the forms to be found in Wisconsin. The prairies, fens, and sedge meadows have the greatest number, but the various forest communities have their share. The earliest species of goldenrod to bloom are the related *Solidago juncea* and *S. missouriensis*, beginning in early August in the dry prairie. These are followed by a number of other prairie goldenrods, including *Solidago rigida*, *S. altissima*, *S. speciosa*, *S. graminifolia*, and *S. nemoralis*. The wetter prairie areas and the Wingra fens harbor *Solidago uliginosa*, and *S. gigantea*. The oak forests have two typical goldenrods - *Solidago ulmifolia* and *S. flexicaulis*. These twelve species are more than 50% of the total number found in the state.

The asters are still better represented, with 17 out of the 26 Wisconsin species in the Arboretum. None of the asters reach their peak much before the latter part of September, although *Aster ptarmicoides* in the Grady Prairie and *Aster umbellatus* in the sedge meadows and fens may be well underway by then. Other early species are *Aster junceiformis* in the Wingra fen, *A. linariifolius* in the Grady oak opening, *A. sagittifolius* in the oak woods and *A. simplex* in the sedge meadows. These are quickly followed by *Aster azureus*, *A. ericoides*, *A. laevis*, *A. novae-angliae*, *A. oblongifolius*, *A. pilosus* and *A. sericeus* in the prairies, *A. lucidulus* in the Wingra fen, and *A. lateriflorus*, *A. macrophyllus* and *A. shortii* in the hardwood forests.

These many kinds differ greatly in attractiveness and potentiality for horticultural use. Several of them possess forms, strains, or races that are more showy than others - wherever possible, these superior strains should be used for garden purposes. Perhaps the best asters from the standpoint of size of flower or effectiveness of the total inflorescence are *Aster ptarmicoides* and *A. umbellatus* with white flowers and *A. novae-angliae* and *A. lucidulus* with flowers in various shades of purple. *A. sericeus* is no doubt the most beautiful of all, but it demands very special conditions and is generally unsatisfactory as a garden plant.

Among the goldenrods the choice is more limited. *Solidago missouriensis* and *S. rigida* (certain strains) are the best for general use. *Solidago nemoralis*, from the dry lime prairies, makes a very effective rock garden plant. Many of the other species are of limited use because of their invasive tendencies or undependable flowering habit. Practically all goldenrods are difficult to transplant, and commonly require two or three years for complete recovery.

----- J. T. Curtis

### Sycamores Thriving

Sycamores planted in the more or less open, but still protected, drainage area between the Teal Pond and Lake Wingra are prospering and there seems reason to hope that they will attain to maturity and give us a stand comparable to those which occur naturally in the river bottoms of central and southern Illinois and Indiana. Tulip trees are also doing well in this same general area which offers better protection from cold and desiccating winds than any other spot on the Arboretum, due to its low elevation and the surrounding high vegetation.

### "Ladies' Tresses" in Arboretum

These attractive little white orchids have done exceptionally well over a period of years in the moister portions of the Grady Tract Sand Prairie, and 1956, with its repeated late summer rains, has been the banner year to date.

The plants under discussion consist of the species *Spiranthes cernua* and its variety *S. cernua* var. *ochroleuca*. *S. cernua* consists of a spike of small sessile white flowers, arranged in a spiral about the unbranched stem, which is usually about 4-6 inches high, with the spike being approximately the same diameter at the top as at the bottom. Unlike many other orchids, *S. cernua* seeds in readily and mature plants may be developed in 2-3 years under favorable conditions. From less than a dozen known transplants the Grady Prairie colony has multiplied into the high thousands, and in late August and early September the ground was white with the plants over considerable areas. Their blooming seems to be largely conditioned upon the plants receiving rain at the proper time. In the relatively very hot and dry summer of 1955, for example, only a few plants bloomed. but from the 1956 display it seems fairly obvious that the species was not really harmed thereby, although it is of course possible that numbers will be fewer in a year or two from now as a result of a low 1955 seed set. *Spiranthes cernua* var. *ochroleuca* is quite similar in appearance to *S. cernua*, but nevertheless seems distinct. The period of maximum blooming of the variety is about two weeks later, from the middle of September on, the flowers are arranged in a tighter and more distinct spiral, the spike tapers somewhat at the apex, due principally to slower opening of the topmost flowers, each individual flower has a yellowish-cream-colored center, and the plants produce a very pleasing and noticeable fragrance (almost lacking in *S. cernua*), so that on a warm autumn afternoon with a



light breeze the perfume of only a few plants is apparent many yards away. The numbers of our plants of var. ochroleuca have never been very high, and at one time it was feared that they had died out. However, in 1956 more than 100 plants were counted, more than twice as many as noted in any previous year. The original 18 plants came from a portion of the Faville Prairie near Lake Mills that is now a pea field.

### Bottle Gentians Don't Always Stay Put

From experience in low sand prairie in the Arboretum, it appears that the handsome fall-blooming bottle gentians (*Gentiana andrewsii*) behave as rather short-lived perennials under such conditions, whereas on heavier soils these plants may reach a very considerable age. In the Grady Tract Sand Prairie the positions of a number of individual plants have been known and the plants observed annually for some years. Included are mature transplants and plants which have developed in situ from seed. The writer's observations would indicate that slightly less than a decade is about the maximum age attained, and that many do not last this long. Competition and disease seem to be among the limiting factors. Bottle gentians are highly susceptible to so-called Asteromella disease, caused by a fungus which initially attacks the leaves, but which in severe infections literally destroys the plants. Curiously enough, this fungus remains confined to the host cuticle, and does not actually penetrate the cells, but produces toxins which cause complete destruction and collapse of adjacent host tissue. Under garden conditions control might be gained by use of fungicides and rigid sanitation, but this is scarcely feasible in nature, and fortunately seems unnecessary, for bottle gentians seed in readily, especially in light soils such as those of the Grady Prairie, and become dispersed over wide areas. Thus, as one population is going down for one reason or another, a more recent population takes its place, and numbers are maintained with considerable constancy, although not in the same spot year after year.

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