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ARBORETUM NEWS

Vol. 8, No. 1

Madison, Wisconsin

January 1959

Flowering Crabapples at the University of Wisconsin Arboretum

G. William Longenecker

A crabapple test and display area was started at the Arboretum in the spring of 1942. At the present time 225 trees of 84 species and varieties of crabapples are being grown in the crabapple collection, other Arboretum plantings or in the Arboretum nursery preparatory to transplanting into the crabapple area. This number does not include the large number of Prairie and Wild Sweet Crabapples growing along Arboretum Drive and in natural wooded areas.

The West Side Garden Club of Madison has been interested in this planting from the start and has given money for trees nearly every year. Trees and propagating wood have also been given to the Arboretum by the Alfred Boerner Botanical Garden of Milwaukee, the Rochester Park System, Rochester, New York, the Interstate Nursery, Hamburg, Iowa, the McKay Nursery Company, Madison, Wisconsin, the United States Department of Agriculture, and the Experiment Station of the University of Minnesota.

The flowering crabapples are probably our most popular group of flowering and fruiting small trees; this has been especially true during the past few years because they are in scale and in keeping with the one story ranch style house.

The Crabapples vary in flower from white, white and pink, rose, carmine, red to deep purplish red. The buds are often deeper toned than the flowers and are attractive in contrast with the flowers. Most crabapples have single flowers but a number like Charlotte, Parkman, Fringedpetal, Bechtel, Katherine, Prince Georges and Scheidecker have double or semi-double flowers.

Some kinds are highly fragrant which adds to their desirability. The Siberian C. and its varieties and the Prairie C. are near the top of the list in this respect.

The fruit of the Crabapples is usually considered to be two inches or less in diameter. There are, however, a few like the Redvein C. which is probably a true apple but because of its attractive purplish red flowers and showy fruit is considered and grown as an ornamental crabapple. The fruit in many cases is very ornamental and in some instances hangs onto the trees nearly all winter.

Fruit ranges in color from green, yellow, yellow orange, orange, tones of red to tones of purplish red. Often a yellow fruit has a cheek of red or a red crab has markings of yellow or orange. In size they range from that of a small garden pea up to two inches in diameter. Some of the larger fruited kinds like Alexis, Beauty, Dolgo, Hopa, Red Silver, Redvein and Scugog also have fruits which are usable or of economic importance.

The foliage of most of the crabapples is a good normal green but they can be had with foliage of reddish tones, reddish purple, garnet and bronze. Those with green toned foliage are the easiest to use in landscape plantings but the others have their place if they are carefully used. Some like Cowichan, Bechtel, Prince Georges, and Veitch turn orange or beautiful tones of scarlet and red in the autumn.

The stature and habit of the trees vary from a small almost bushlike spreading tree like the Sargent C. to some like the Hopa C. which get to be sizeable trees of 25 to 30 feet in height. There are wide horizontally branched types, narrow upright forms, round headed, vase shaped and drooping kinds, a type for almost any kind of situation.

The Crabapples are in most cases easily grown, liking good ordinary soil and flower best if they have a good sunny location. They are bothered by the same insects and diseases that trouble our ordinary apples. The Prairie and Wild Sweet C. and their varieties are also the alternate host for apple rust the other stage being on the Eastern Redcedar and its varieties, so they should not be planted near together.

Following is the list of Crabapples being grown at the University of Wisconsin Arboretum:

(The number before the name designates the number of trees in the crabapple planting, example 2-Aldenham C., if in brackets and followed by an n (2n) it designates that trees are in the Arboretum nursery but will probably be planted out this coming spring.)

2 Aldenham C. *Malus purpurea aldenhamensis*

Flowers very dark purplish red, single to semi-double, good bloomer, late.

Fruits purplish red

Foliage reddish-bronze green

Habit: round headed tree with compact growth

(4n) ALEXIS C. *Malus baccata* clone

Very similar to Dolgo C. Like Dolgo was raised from Russian seed by E. Hansen.

Flowers white single

Fruit bright red-similar to Solgo

1 & (4n) ALMATA C.

The Arboretum trees are young and have not flowered yet.

1 ALMEY C.

Flowers large and deep carmine pink, do not fade. Blooms as a small tree.

Fruit is small but is a bright scarlet and is persistent.

Habit: a loose open grower.

3 & (6 in shrub area) ARNOLD C. *Malus atrosanguinea*

Flowers rose pink buds which open into single white flowers. They are produced annually and in profusion.

Fruit yellow.

Habit: low broad spreading tree. 15-20 ft.

(4n) BEAUTY C. x *robusta* Hansen seedling 1919

Flowers single white

Fruit bright red 1" diameter, makes good jelly

- C. Habit: a narrow headed tree.
- 4 BECHTEL C., *Malus ioensis plena*
 Found growing wild near Staunton, Ill.
 Flowers double pink like small roses, (33 petals) very fragrant.
 Fruit green when present, fruits sparingly
 Foliage very subject to rust damage.
- 1 BOB WHITE C. chance seedling in Mass.
 Flowers are single, white and fragrant, alternate years.
 Fruit ½" yellow, persistent to late winter, liked by birds.
 Habit: dense round headed tree.
- 3 CARMINE C. *Malus atrosanguinea* (*Malus balliana* x *Malus sieboldi*)
 Flowers buds are a deep carmine opening to lighter carmine pink single
 flowers. Flowers heavily, early midseason, annual.
 Fruit red, small, not showy.
 Foliage a good, dark shiny green.
 Habit: a tree to 15 feet and wider than tall.
- 2 CHARLOTTE C. *Malus coronaria charlottae*
 Found near Waukegan, Ill.
 Flowers light pink and double 18 petals hanging in pendent clusters.
 They are not as double as Bechtel C. but are larger being 2-2¼ in diameter,
 annual.
 Fruit when present is flat and yellow green
 Habit: A rounded spreading tree lower and more spreading than Bechtels.
 Better than Bechtels because of its shape and its glossy green foliage of
 finer texture. The flowers, however, are not as double as Bechtel C.
- 1 CHINESE FLOWERING C. *Malus spectabilis*
 Flowers pink and are single or semi-double
 Fruit yellow
- 3 DOUBLE WHITE CHINESE FLOWERING C. *Malus spectabilis alba plena*
 Flowers are large and double white (15 petals)
 Fruit yellow
- 2 COLUMNAR SIBERIAN C. *Malus baccata columnaris*
 Flowers large single white and fragrant, Annual.
 Fruit small yellow to orange-red, persistent until late winter.
 Habit: columnar when young getting somewhat wider when older.
- 1 COWICHAN C. *pumila niedzetzkyana* open pollinated. Preston cross.
 Flowers the buds are rose pink opening single lighter pink flowers early
 and is an annual bloomer.
 Fruit is small and purplish-red and hangs onto the tree quite awhile,
 makes good jelly.
 Foliage is a bronze green turning to an attractive red in the autumn.
 Habit: tree is rounded in form.
- 2 CRIMSON BRILLIANT Pat. no. 939 originated by A. F. den Boer
 Flowers single are a deep, clear crimson. One of the best deep colored
 crabapples.
 Fruit red.
- 1 CUTLEAF C. *Malus toringoides*
 Flowers very late and are single, white and small, alternate.
 Fruit ½"-¾" pear shaped waxy orange yellow with reddish markings.
 Very ornamental.
 Leaves divided and deeply lobed.
 Habit: picturesque, graceful spreading in form. Broader than tall.
 Spiny branches. Reminds one of a hawthorn.

- 2 DAUPHIN C. *pumila niedzwetzkyana* open pollinated. Preston
Our trees evidently misnamed: the flowers of our trees are a beautiful clear white and it is a profuse bloomer. The flowers of Dauphin are supposed to be purplish-red and have bright red fruit.
- 2 DOLGO C. Obtained from Russian seed by E. Hansen in 1917.
Flowers are single white
Fruit attractive bright red and usable for jelly, etc.
One of the better dual purpose crabapples.
- 1 DOROTHEA C. (chance seedling by Donald Wyman)
Flowers semi-double rose crimson opening up from dark reddish buds. The flowers do not fade. One of the darker semi-double crabs.
Annual. Blooms as a young tree. Fruit ½" bright yellow, persistent until late winter, attractive.
- 1 DOUBLEPINK COMMON APPLE *Malus pumila translucens*
Flowers white when fully open. Buds pink. Doubl 15 petals.
Fruit red.
(DOUBLEWHITE CHINESE FLOWERING C.) See Chinese Doublewhite Flowering Crabapple.
- 3 ELEY C. *Malus purpurea eleyi*
Flowers single, bright purplish red, tend to fade, midseason.
Buds dark red contrasting with the flowers, alternate bearer.
Fruit abundant 1", conical, wine red on long stems.
Foliage when young reddish green, when mature bronzy green.
- 2 ERIE C. *Malus pumila niedzwetzkyana* x *M. baccata*.
(1930 Miss I. Preston)
Flowers single pink, midseason, alternate years, buds darker.
Foliage bronzy green at first turning green later.
Fruit red, small.
Habit: round headed
A. F. den Boer 1939 Natural Hyb. *Malus ioensis* and *M. purpurea*
- 1 EVELYN C.
Flowers single, bright pink, fragrant
Fruit medium, reddish yellow
Foliage similar to *M. ioensis* but a dark purplish green
- 1 FRINGEPETAL C. *Malus ioensis fimbriata*
(Obtained from A. D. Slavin, Rochester N. Y., Rochester Park System)
Flowers double, pink, fragrant (34 petals)
- 1 GLORIOSA C. *Malus scheideckeri* x *M. pumila niedzwetzkyana*
Introduced by Lemoine
Flowers purplish-red, midseason, not a good bloomer
Fruit bright red, small.
Foliage bronze green
Habit: round headed.
- 3 HARTWIG C. *Malus bartwigi* (*M. balliana* x *M. baccata*)
Flowers white, semi-double. Buds pink. Annual bearer.
Fruit yellow-green and red.
Habit: globe-topped, upright tree.
- (3N.) HENRY F. DUPONT C. (*M. Arnoldiang* x *M. purpurea eleyi*)
From USDA
Has not flowered for us yet. Flowers single and semi-double, pink.
Fruit red.
- 2 HILLIER C. *Malus floribunda billieri*
Flowers semi-double, pink.
Fruit yellow and orange.

- 5 HOPA C. *Malus pumila niedzwetzkyana* x *M. baccata*
 (Also 5 in shrub area, 3 along drive and 9 in nursery.)
 Flowers single, purplish-red fading lighter, annual, very popular with the public, strong grower.
 Fruit orange-red, dual purpose.
 Leaves purplish-green, turning greener.
- 1 3N IRENE C. (Den Boer seedling) Intro. 1951
 Flowers bright purplish-red Like "crimson brilliant" but more dwarf
 Fruit wine-red
 Leaves reddish green
 Habit: compact spreading tree
- 3 JAPANESE FLOWERING C. *Malus floribunda*
 Flowers single, pink fading to pure white, annual, midseason, profuse bloomer. Buds deep rose.
 Fruit yellow, small size of garden pea. (also red fruited, see Red fruited Japanese Flowering C.)
 Tree to 18'; broader than tall.
- 1 JAY DARLING C.
 Flowers bright purplish-red, midseason. Dark buds.
 Fruit 1" purplish-red with red flesh, rounder than Eley C. on shorter stems.
 Makes good jelly.
 Foliage reddish-green when young, mature leaves dark green with reddish veins.
 Habit: well rounded tree of vigorous growth.
 Very similar to Redvein C. but has smaller fruit.
- 1 KATHERINE (M. *halliana* x *M. baccata*) 1928 Rochester Park Sys.
 Rochester, N. Y.
 Flowers large, double pink fading to white borne on long stems, 20 petals, midseason, bears every other year.
 Fruit small, greenish-yellow
 Tree 18-20 ft.
- 2 KELSEY FLOWERING C. or Snowbank *Malus floribunda Kelseyi*
 Flowers white, buds pink
 Fruit red and yellow
- 3 KLEHMS (Sometimes called Improved Bechtel C.)
 Flowers very double, large, pink
 Broad vigorous tree with colorful fall foliage.
 Tree 18-20 feet
- 2 LEMOINE C. *Malus purpurea lemoinei*
 Flowers single and semi-double very dark carmine to wine red. Buds darker. The flowers are darker than either Eleyi or Hopa. Late midseason.
 Fruit purplish-red
 Foliage a rich bronze-green
 (one of the better dark flowered crabapples)
- (3n) LESET C. Seedling of Lemoine from the Hague, Holland
 (from USDA) (*M. purpurea lemoinei* x *M. sieboldi*)
 (has not flowered at the Arboretum as yet)
 Flowers purplish-red about a week after Hopa.
 Fruit very small but an attractive red.
 Foliage purplish-green
 Like Lemoine C. but with deeper colored foliage.
- 3 LINGS C.
 Has not flowered at the Arboretum as yet.

- 1 (4n) MAKAMIK C. *Malus pumila niedzwetzkyana* x (Preston cross) One of the best of the Rosyblossoms
Flowers single reddish-purple, late, annual bearer
Fruit wine-red three fourth inch in diameter, hangs on well into the winter.
Foliage bronze-green.
- 1 MANCHURIAN C. *Malus baccata mandshurica*
Flowers single white, buds deep pink. The first crabapple to flower, annual bearer.
Fruit bright red.
Tree of rounded outline, to 25 ft.
- 1 MARSHALL OYAMA (introduced by Boyce Thompson 1930)
Flowers single and pinkish white.
Fruits yellow and red, 1" in diameter.
Tree columnar in habit, wider as an older tree.
- 3 MINNESOTA No. 1472
Has not flowered yet.
- 1 MORDEN #134
No records as yet.
- 1 MORDEN #450
No records as yet.
- 1 MORDEN #451
No records as yet.
- 1 MORDEN #453
No records yet.
- 1 MORDEN #455
No records yet.
- 1 MORDEN #457
Flowers reddish purple
Fruit wine red
Habit: upright
- 1 NIEUWLAND C. *Malus coronaria nieuwlundiana*
Flowers double, (19-27 petals), pink.
Somewhat similar to Charlotte and Klehmns but smaller and a slower grower.
- 1 (5n) NIPPON C. *Malus brevipes*
Flowers single white, buds pink
Fruit bright red.
- 2 OEKONOMIERAT ECHTERMEYER (x *gloriosa* clon)
Flowers single carmine, annual.
Fruit reddish purple. Flesh red.
Form semi-weeping.
Foliage bronze green
- 3 (5n) PARKMAN C. *Malus balliana parkmanni*
Flowers double, (15 petals) pink, in pendulous clusters.
Have had some trouble with winterkilling.
- 7 PRAIRIE C. *Malus ioensis*
Flowers single, clear pink and nicely fragrant. Vary from seed from almost white to clear pink.
Fruit green, 1" in diameter.
Tree very interesting in shape with gray branches, in a horizontal pattern.
Foliage bothered by apple rust. Should not be planted near Red Cedars.
There are a large number of trees in the Arboretum naturalized along Arboretum Drive, edges of woods, etc. Native in this area.
- 2 PRINCE GEORGES (*M. ioensis plena* x *M. augustifolia*?)
Flowers are large and very double (53-61 petals), on long stems,

- Fragrant, very late, annual bearer.
Tree dense, with narrow leaves of medium green in summer, turning orange-red in autumn, thornlike spurs, tree wider than tall.
- 2 PURPLE C. *Malus purpurea*
Flowers single, purplish-red, fade badly, early, annual.
Fruit purplish-red.
Foliage bronze green.
- 3 (2n) PURPLE WAVE C. (A. F. den Boer intro.)
Flowers a deep rosy red
Fruit purple red
Foliage purplish bronze green throughout the summer.
- 3 (3n) RADIANT C. (Minnesota No. 6c.)
Fruit bright red
Foliage reddish green
- 6 (5n) REDBUD C. *Malus zumi calocarpa* (*Malus baccata mandschurica* x *M. sieboldi*)
Flowers single white. Buds rose pink. A very profuse bloomer, alternate years.
Fruit bright red to orange 1" in diameter on long stems. Very abundant and beautiful, persistent. One of the best Crabapple s in fruit.
Dense rounded tree to 25 feet.
- 3 REDFRUITED JAPANESE FLOWERING C. *Malus floribunda* red.
Flowers single pink fading to white, annual.
Fruit red, small.
- 3 RED SILVER C. (x *astringens* clon-*M. baccata* x *M. Pumila niedzwetzkyana*)
Flowers single dark red opening from dark purplish red buds, midseason.
Fruit purplish red.
Foliage reddish bronze with silvery undersurface.
Tree round headed. Bothered easily by fireblight.
- 2 REDVEIN C. *Malus pumila niedzwetzkyana*
Flowers single purplish red, alternate bloomer.
Fruit larger than a true crabapple to 2½ inches, attractive dark red, dark wine red inside, edible.
Foliage dark green with red veins.
- 2 RINGO C.
Has not flowered for us yet.
- 1 (3n) SARGENT C. *Malus sargentii*
Flowers small, white, profuse, alternate years. Buds pale pink.
Fruit red, small, hang onto tree all winter.
Tree very small, 6-8 feet, wider than tall, flat topped. The smallest of the crabapples, sometimes almost shrubby.
- 3 SCHEIDECKER C. *Malus scheideckeri*
Flowers double (10 petals), Pink
Fruit yellow orange
A very popular crabapple
- 1 SCUGOG C. Preston Cross (*M. pumila niedzwetzkyana* open pollinated)
Flowers a deep red, 2" in diameter
Fruit dark reddish purple 1½ inches in diameter, edible, alternate years.
A good Crabapple in both flowers and fruit.
- (9n) SIBERIAN C. *Malus baccata*
Flowers white and very fragrant
Fruit yellow or red, small.
SNOWBANK, see Kelsey Flowering C.

- 3 SOULARD C. *Malus soulardi* (*M. ioensis* x *M. pumila*)
 Flowers single, white, annual. Buds pink.
 Fruit yellow green.
 Foliage, upper surface of the leaves very rough.
- 1 STRATHMORE C. Morden introduction
 Flowers reddish purple, darker than Hopa C.
 Fruit reddish small to medium in size.
 Foliage reddish green all summer, turning darker in the fall.
 Habit narrow at first, getting wider after fruiting.
- 7 TEA C. *Malus bupebensis*
 Flowers single, white. Flowers heavily, alternate. Buds Pink.
 Fruit greenish yellow and red.
 Habit wide vase shaped.
 A popular Crabapple in this area.
- 2 TORINGO C. *Malus sieboldi*
 Flowers single, pink, annual
 Fruit red to yellowish
- 3 UPRIGHT PEARLEAF C. *Malus prunifolia* upright (Morton #1566)
 Flowers single, white.
 Fruit yellow and red
 Habit quite narrow and upright
- (3n USDA) 1 VAN ESELTINE C. (*x arnoldiana* x *spectabilis*)
 New York Experiment Sta. 1930 intro. 1938
 Flowers semi-double, light carmine pink, darker flowers than most
 semidouble crabapples, midseason. Buds carmine.
 Fruit yellowish red, small, persistent.
- (3n USDA) VEITCH C. *Malus yunnanensis veitchi*
 (has not flowered for us yet.)
 Flowers single, white. Buds pink.
 Fruit bright red.
- 1 WANDA
 Has not flowered for us yet.
- 3 WILD SWEET C. *Malus coronaria* (See Wis. Arb. Numbered seedlings.)
 Flowers single, pink and white, late.
 Fruit green 1 inch.
 Native in the Arboretum
- 1 WIS. ARBORETUM MALUS NO. 1. *Malus coronaria* seedling.
 Flowers deeper pink than the type, late, single flowers as a young tree.
- 1 WIS. ARBORETUM MALUS NO. 2. *Malus coronaria* seedling.
 Flowers deep pink, single, late.
 Fruit green, 1".
- 1 WIS. ARBORETUM MALUS NO. 3 *Malus coronaria* seedling.
 Flowers deep pink, single, late.
 Fruit green, 1 inch dia.
- 1 WIS. ARBORETUM MALUS NO. 4 *Malus coronaria* seedling.
 Flowers deeper pink than the type, single, late.
 Fruit green 1 inch in diameter
- 1 WIS. ARBORETUM MALUS NO. 5 *Malus coronaria* seedling.
 Flowers deeper pink than the type, single, late.
 Flowers as a young tree.
 Fruit green 1 inch in diameter.
- 2 ZUMI C. *Malus zumi*
 Flowers single, white. Buds pink
 Fruit bright red attractive, profuse.

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

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



ARBORETUM NEWS

Vol. 8, No. 2

Madison, Wisconsin

April, 1959

Spring Planting Prospects

The winter of 1958-59, although aggravating and wearisome in the extreme to its human victims, should, on balance, be highly helpful to the Arboretum. For the first time in some years we have gone into the spring planting season with ample soil moisture present when it is needed most.

Prairie Burn Completed

The scheduled burning of the western portion of the Old Prairie, adjacent to and north of the Leopold Pines, was carried out successfully and without incident by Supt. Jacobson and his crew, April 20-21.

Pasque Flowers from Seed

Seeds of Pasque Flower (*Anemone patens* var. *wolfgangiana*) were collected near Madison in late spring of 1951 and immediately sown in a dry, open, sandy area of the Grady Tract Prairie. The first blooming plants from this seeding were noted in April 1959, when about 20 well separated individuals were counted, most with but a single bloom, but a few with two or three flowers each. This, while slow to be sure, is highly encouraging and it is to be hoped that these plants will themselves seed in. Past experience has shown that transplants of mature specimens seldom thrive, presumably due to injury of the very deep taproot. Judging from the size of some plants seen in undisturbed native habitats, the pasque flower must be capable of attaining to a very great age. One plant, seen some years ago in Grant County, had more than thirty flowering stems and a crown about 4 inches in diameter.

Laboratory Building in Good Shape

The central heating plant installed last fall in the laboratory operated without a hitch throughout one of the most severe winters on record. Various sanitary facilities were also installed and the interior has received a new paint

job, so the structure will be much more useful in the future, and on a year-around basis. Supt. Jacobson has moved his office from the highly unsatisfactory quarters in the old dwelling house to the laboratory building and can now function more efficiently and in comfort.

Observatory Woods

Observatory Woods, the new Arboretum scientific area, is located in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ of section 16, T 7 N, R 7 E, Cross Plains Township, Dane County, Wisconsin. This site is adjacent to the new University of Wisconsin Observatory, approximately two miles northwest of the Village of Pine Bluff, and about fifteen miles west of the University.

Situated just a few miles west of the Johnstown terminal glacial moraine, the area is unglaciated; steep ridges and rock outcrops are typical. Observatory Woods proper is located on a SE-NW oriented ridge, with a bedrock of Mendota Limestone overlying St. Peter Sandstone. In the extreme NW corner of the Woods, the limestone lies at a depth of only three inches; a small quarry, about twenty feet in diameter, has been worked to a depth of three feet sometime in the past.

The climate of the region is essentially the same as that of Madison; about 30 inches of precipitation per year, 25 inches of this in the form of rain, the remainder as snow. First and last average dates for killing frost are October 17 and April 29 respectively, affording a growing season of about 170 days.

The purchased property, thirteen acres in size, comprises a small segment of a larger wooded area totalling almost 100 acres, bounded by town roads and farmland (see map). Across the road to the north and east, the woods stretches on for some distance. Prior to 1935, the entire area was subject to light grazing, and some cutting was done. Ground fires were frequent. Since 1935, Observatory Woods has had complete protection from grazing and all but accidental fires, with only the occasional removal of a dead or dying tree. The last cutting of any type was in 1953.

The Woods exhibits a variety of vegetational types. Starting from a patch of prairie vegetation in the northwest corner (adjacent to the quarry), a belt of bur oak runs parallel to the ridge on the southwest facing slope. The prairie sector is dominated by Side-Oats Grama (*Bouteloua curtipendula*). Other typical species include Prairie Milkweed (*Asclepias verticillata*), Shooting Star (*Dodocatheon meadia*), Evening Primrose (*Oenothera biennis*), Spiderwort (*Tradescantia obioensis*), Pussy-toes (*Antennaria plantaginifolia*), Wild Bergamot (*Monarda fistulosa*), Horsemint (*Monarda punctata*), Puccoon (*Lithospermum canescens*), Pasque Flower (*Anemone patens*), and one of the beautiful fall-blooming Gentians (*Gentiana quinquefolia*).

Under the bur oaks, almost all traces of a former prairie vegetation have been obliterated, and the ground is covered with a typical Oak Forest herb and shrub layer. Enchanter's Nightshade (*Circaea quadrisulcata*), Lopseed (*Pbryma leptostachya*), Wild Cranesbill (*Geranium maculatum*), Hazelnut (*Corylus racemosa*), blackberries and raspberries are all common plants.

The greater portion of the woods is a mixture of black oak and white oak, although the northeast slope, adjacent to the town road, is largely red oak overstory, with an astounding complement of species characteristic of more mesic forest conditions. Prince's Pine or Pipsissewa (*Chimaphila umbellata*), Sensitive Fern (*Oncoclea sensibilis*), Shining Club-moss (*Lycopodium lucidulum*), Common Polypody Fern (*Polypodium virginianum*), Bulblet Fern (*Cystopteris bulbifera*), and Dutchman's Breeches (*Dicentra cucullaria*) are restricted to this area.

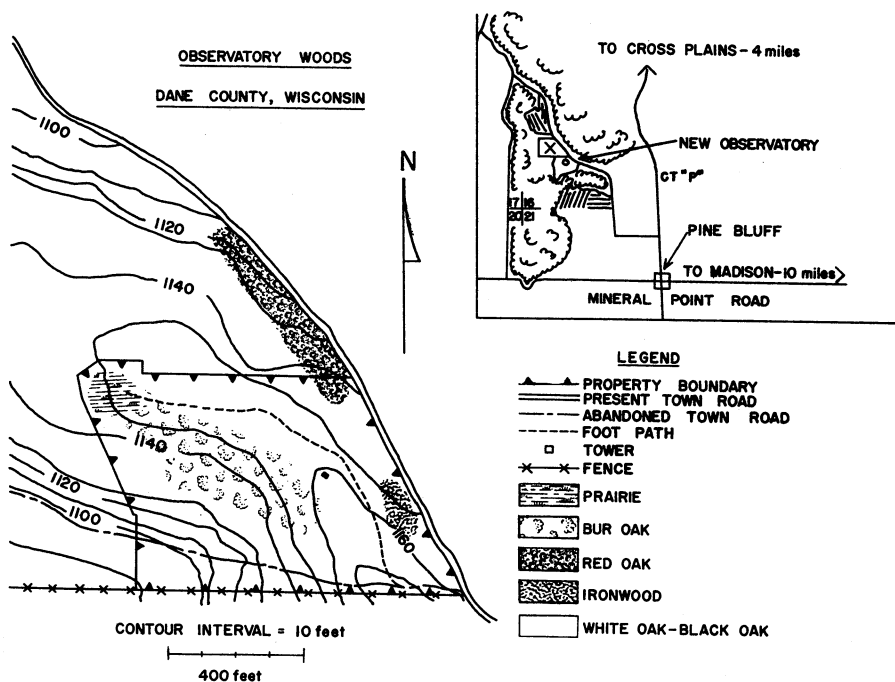
Near the northeast corner, an area of almost pure Ironwood (*Ostrya virginiana*) forms a closed canopy, and the ground cover is much reduced due to the extremely low light intensity reaching the forest floor during the majority of the growing season. The saprophytic Coralroot Orchid (*Corallorhiza maculata*), has been found here.

Throughout the woods, particularly on the ridgetop and southern slope, many of the trees, especially the white and bur oaks, are "open-grown," as indicated by their low branches and broad spreading crowns. In this same area, many of the black oaks are multiple-trunked, evidence of maturation from pre-existing grubs. This leads to the hypothesis that a major portion of Observatory Woods was oak opening at the time of white settlement around 1840.

Sixteen species of trees and 150 species of shrubs and herbs have been listed for the woods, a few of the latter, however, lying outside the University property line. The largest tree is an open-grown white oak, measuring 41 inches in diameter. Also worthy of note are a shagbark hickory of 24 inch size, and a black cherry 20 inches in diameter.

The animals of the woods are of interest, although as yet there has been no official survey of either numbers or species. Deer, rabbits, squirrels, chipmunks, a skunk, mice, and moles have all been observed. Pheasants, ruffed grouse, great horned owls, and crows have been seen, along with a myriad of smaller birds too numerous to list. The relatively large distances to human habitation and the proximity of woodland to cornfield make this area extremely rich in animal life, and an interesting area for all naturalists, amateur or professional.

R. L. Burgess



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Observatory Hill Office Building
Madison 6, Wisconsin**



ARBORETUM NEWS

Vol. 8, No. 3

Madison, Wisconsin

July 1959*

Retirement of Mr. A. F. Gallistel

After many years of selfless and productive service to the Arboretum, Mr. Gallistel has retired as Chairman of the Arboretum Committee. We hope that he will remain available for advice and counsel for a long time to come. Professor J. T. Curtis of the Botany Department, formerly Arboretum Research Coordinator, has been appointed as the new chairman. He has for many years had an intense interest in the Arboretum and it is the opinion of all concerned that Arboretum affairs will remain in good hands.

Spring Plantings - 1959

The 1959 spring plantings have, in contrast to other such plantings in recent years, been favored by adequate, or as might be plausibly argued by more than adequate moisture. In a summer which has been marked by quite high temperatures with accompanying extremely high relative humidities, with resultant discomfort to humans, Supt. Jacobson reports that, almost without exception, all of the more than 4200 specimens of trees and shrubs set out this spring are thriving, in pleasant contrast to high losses sustained in some other recent years. As usual, a wide diversity of plants was used, particularly in the ornamental plantings in the Small Shrub Area, and in plantings at various points in the Headquarters area. Largest numbers were set out in the different tree plantations, especially in the pine plantings in the Grady Tract where a total of about 1800 red, white and jack pines were planted.

A partial listing of types of plants by areas follows: 1) in the Small Shrub Area - crabapple, gray dogwood, burning bush, Weigelia, Japanese quince, privet, viburnum, barberry, spiraea, elderberry, juneberry, alternate-leaved dogwood, Daphne, honeysuckle, beauty bush, flowering cherry, and juniper; 2) in the Horticultural Tree Area - exotic elm, sycamore, basswood, and ornamental poplar hybrids; 3) in plantings at and near the Headquarters buildings - highbush cranberry, nannyberry, plums, apples, alpine currants, gray dogwood, honeysuckle, crabapple, mountain ash, mugho pine, spice bush, hazelnut, Japanese quince, leatherwood, forsythia, old field birch, spiraea; 4) in the Sugar Maple Area adjacent to the Beltline Highway - bush honeysuckle, mountain ash, bladdernut,

*Preparation of this number has been delayed until late August.

blue beech, yellow birch, mountain maple, and striped maple; 5) in the maple-basswood section of the Camp Woods – mountain maple, sugar maple, striped maple, bladder nut and blue beech; 6) in the southern hardwoods section of the Camp Woods – river birch, swamp white oak, ironwood, blue beech, sycamore, sour gum and beech (*Fagus*); 7) in the Wingra Woods – hemlock, mountain maple, and striped maple; 8) accessory plantings in the Leopold Pines included mountain ash, mountain maple, striped maple, white spruce, and white cedars.

As mentioned, there were substantial pine plantings in the Grady Tract, and in addition large numbers of black, white and red oak acorns were planted in the Oak Forest Area in the west portion of the Grady Tract, as well as interplantings of hickory nuts. About 100 swamp white oaks, as well as some river birches, were added to the already thriving swamp white plantation in the far southwest corner of the Grady. Plantings of silver maples and tall viburnums were made in the low woods area along the Lake Wingra shore, as well as other miscellaneous plantings at various other points. No substantial additions were made in the Monroe Street area this spring.

More Mud from Beltline

At the time of construction of, first, the south lane, and later, the north lane of the Beltline Highway the Arboretum prairie to the north suffered from deposition of mud in the drainage area from the highway. This year, at long last, it had seemed that we would have no more trouble from this source, as the shoulders of the road had a good grass cover and run-off was coming through fairly clean. Our self-congratulation proved to be premature, however. In July construction work was started which involved tearing up the south shoulder of the road, adjacent to the Grady Tract fence. Shortly after this came the heaviest downpour in the history of the Arboretum, five inches or more in one evening, and the next morning there we were, ankle-deep in Beltline mud again!

Attempt to Develop a Lime Prairie

Many recent visitors to the Arboretum have probably noted what appears to be a very large, although leveled-off, pile of gravel in the center of the prairie. We are *not* about to establish a parking area at this point, nor do we plan to integrate the Arboretum fire lanes into the county highway system.

The material in question is mostly very finely subdivided limestone, with some large blocks of the same material placed at the edge of the pile. Wisconsin, until the last twenty years or so had many examples of so-called "lime prairies" with their own more or less distinctive vegetation. They had persisted because the very shallow soil, itself almost entirely disintegrated limestone, did not lend itself to intensive agricultural use, and also because many of these outcroppings were surrounded by cultivated land and not regularly subject to grazing pressure. However, with the increasing usage of agricultural lime on acid and semi-acid soils in Wisconsin, a large number of the best lime prairies have been replaced by gaping holes in the ground. In line with our policy of attempting to preserve representative samples of Wisconsin vegetation we felt it desirable to establish, if possible, a reasonable facsimile of a lime prairie before it was too late to obtain plants and seeds for stocking it.

Ed Cawley, Arboretum Botanist, has already set out a number of mature plants in the area. It is hoped that the majority of these will survive and provide a seed source in the future. We expect to collect seed of appropriate species this fall, stratify them over winter, and get them out on the limestone next spring at a very early date, which will be possible because the limestone will require no preparation. Thus, we will be able to take advantage of any early spring

precipitation, including snow, and forestall the disastrous effects of late spring droughts which have often plagued our spring seedings in past years.

Lime prairies support some very showy plants, including the small blazing star, *Liatris cylindracea*, pasque flowers, bird's foot violets, and the highly attractive silky-leaved aster, *Aster sericeus*, for which we now have no really satisfactory sites on the Arboretum.

Interesting Plants of the Arboretum #12 Some Shrubby Willows

There are about twelve species of willows of the genus *Salix* which grow naturally or are cultivated in the Arboretum. Among the shrubby species are several which have considerable promise as horticultural plants for landscape use. It is our intention to collect as many variants of each of these species as possible, and plant them in trial gardens so that their relative merits may be studied. The various species exhibit a considerable range in their size at maturity and thus may be of value in a variety of landscape situations.

Perhaps the smallest species is *Salix humilis* Marsh, the Prairie Willow. This (or the closely related *S. tristis* Ait) may form dense, low mats, twelve to eighteen inches high, abundantly clothed with small, ascending leaves. It can tolerate very dry conditions, as it is found on some of the most xeric prairies in Wisconsin.

Salix discolor Muhl, the Pussy Willow, occurs on a wide variety of sites, from wet fens and shrub carrs to dry sand plains and open oak woods. A form common on the sand flats of central and northern Wisconsin is of low stature, seldom more than two feet tall. This has been introduced to the small shrub garden. Other strains may reach a height of eight or ten feet. Considerable variation is also exhibited in leaf size, stipule size and in number and placement of the flowering catkins. Most strains tend to have a rather straggly growth-form when mature, but they respond well to severe pruning in the spring.

The wet lands along Lake Wingra contain two species of great interest. One of these is the Summer Willow, *Salix serissima* (Bailey) Fern. It flowers in June or July and ripens its seeds in late August. The leaves are large and deep green on top, with a waxy and very glossy surface. So far, we have had little experience with it under upland conditions.

The second species is *Salix candida* Fluegge which is easily recognized by the copious, flocculent mass of white hairs on the lower leaf surfaces. It tends to be rather ungainly in appearance, but this may possibly be improved by suitable pruning. Other species found along the Lake Wingra shore include *Salix bebbiana* Sarg and *Salix interior* Rowlee.

Two species which are more or less restricted to the sand dunes along Lake Michigan have recently been introduced to the Arboretum from Manitowoc County and are thriving in our nursery. These are *Salix glaucophylloides* Fern and *Salix cordata* Michx. The last is particularly attractive, with a dense, felt-like coating of gray hairs on the new twigs and with large, ovate leaves closely spaced along the stems. Both species are adapted to dry conditions and should do well in gardens.

..... J. T. Curtis

Arboretum Prairie at Height in 1959

Weather conditions have been most favorable for lush development of the typical prairie species, which respond quickly and spectacularly to high moisture, particularly, it would seem, following an exceptionally dry year, such as 1958.

The Madison *Capital Times* of August 15 featured a picture spread of the prairie and, in the next few days, many people came out to see it.

Among the most striking plants this year are the prairie grasses, notably big bluestem, *Andropogon gerardi*, some of which approaches 9 feet and all of which is 6 feet tall, or more. Another feature is the massive and beautiful display of the gleaming, yellow-brown heads of Indian grass, *Sorghastrum nutans*. There has been a notable flowering of *Liatris* species (blazing stars), as well as of various other showy plants.

Arboretum Personnel

Chairman of the Arboretum Committee	J. T. Curtis
Executive Director	G. W. Longenecker
Research Coordinator <i>pro tem</i>	J. T. Curtis
Superintendent	J. R. Jacobson
Botanist	E. T. Cawley
Editor, Arboretum News	H. C. Greene

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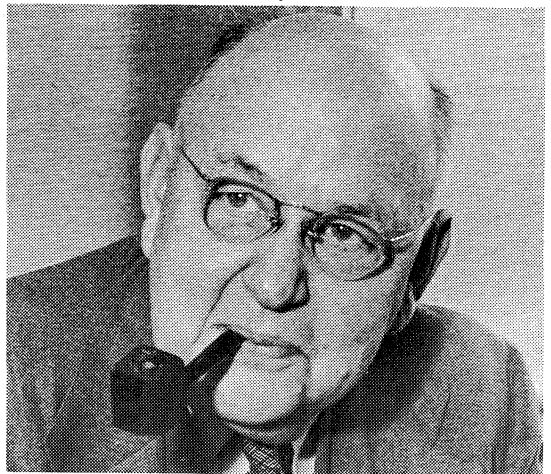
October 1959

Dinner Honoring A. F. Gallistel

Mr. A. F. Gallistel, retired University of Wisconsin Director of Physical Plant and Planning, until last summer, for many years Chairman of the Arboretum Committee, was guest of honor at a dinner given at the Memorial Union on last September 17th. Present were Arboretum Committee members, past and current, and other friends. Those attending were: J. T. Curtis, Department of Botany and newly named Chairman of the Arboretum Committee, I. L. Baldwin, Department of Bacteriology and Special Assistant to Pres. Elvehjem, J. W. Jackson, Madison civic leader and long prominently identified with Arboretum affairs, G. Cottam, Department of Botany, J. G. Dickson, Department of Plant Pathology, L. E. Engelbert, Department of Soils, G. W. Foster, Law School, H. C. Greene, Department of Botany, F. D. Hole, Department of Soils, J. R. Jacobson, Superintendent of the Arboretum, G. W. Longenecker, Department of Horticulture and Executive Director of the Arboretum, R. A. McCabe, A. W. Schorger, and F. B. Trenk, all of the Department of Forestry and Wildlife Management.

Following the dinner, Professor Curtis spoke briefly and introduced the speakers of the evening, Professor Baldwin and Mr. Jackson. Prof. Baldwin, for many years prominently associated with the University administration as Vice President for Academic Affairs, spoke of Mr. Gallistel's many contributions to the

overall benefit of the University, particularly during the latter's long tenure, from 1927 to 1947, as Superintendent of Buildings and Grounds. Mr. Jackson concerned himself with Mr. Gallistel's many and effective contributions to the Arboretum since his appointment as Chairman of the Arboretum Committee in 1939, pointing out his special qualifications for the position. He, as well as did Prof. Baldwin, expressed his personal pleasure in his long years of active, fruitful and friendly association with Mr. Gallistel.



A. F. Gallistel

Following Mr. Jackson's remarks, Prof. Curtis announced that the woods to the northeast of the Arboretum Headquarters, hitherto somewhat ambiguously known as the "Camp" Woods (due to its proximity to the CCC camp formerly close by), has been officially renamed The Gallistel Woods, and that a permanent and appropriate marker will be installed at the southwest entrance to the woods.

Mr. Gallistel responded with a brief, informal address, expressing his appreciation and recounting various interesting events which occurred during his long service to the University, starting 52 years ago in 1907.

Changes in Arboretum Committee

In line with the current all-University policy of reducing the size of committees, the Arboretum Committee has been cut to six members, as follows: J. T. Curtis, Botany Dept., Chairman, A. F. Gallistel, Emeritus, H. C. Greene, Botany, A. D. Hasler, Zoology, G. W. Longenecker, Horticulture, and R. A. McCabe, Forestry & Wildlife Management.

Since, owing to the reduction in size, the committee can no longer represent all the various interests involved in Arboretum activities, it seemed desirable to the University administration to set up an advisory committee to work with the Arboretum Committee. Members of the Advisory Committee and their departments are as follows: D. M. Benjamin, Entomology, C. Bunn, Law, G. Cottam, Botany, R. J. Dicke, Entomology, J. G. Dickson, Plant Pathology, G. W. Foster, Law, F. D. Hole, Soils, T. T. Kozlowski, Forestry & Wildlife Management, J. E. Kuntz, Plant Pathology, W. G. Reeder, Zoology, W. L. Sachse, History, A. W. Schorger, Forestry & Wildlife Management, and J. H. Wilde, Art Education.

"The Vegetation of Wisconsin"

A book thus titled, by J. T. Curtis, ecologist of the University of Wisconsin Botany Department and new Arboretum Committee Chairman, has recently been issued under the imprint of the University of Wisconsin Press. This book, the product of almost thirty years of keen observation and study of the vegetation of our state by a highly qualified ecologist is now, and without question will remain, the definitive work on the subject. There is a descriptive account of the Arboretum on p. 475, as well as a considerable number of incidental references to work done by ecologists in the area.

Rainfall in Noe Woods.

By Grant Cottam

Since the Arboretum contains several different plant communities, we have the opportunity to make comparative studies of the effect of these communities on the internal environment. A start in this direction was made this summer when Judith Reigle, one of last year's students in plant ecology, made a study of the environment in Noe woods. She came up with some interesting statistics, especially on rainfall. Much of the precipitation that falls on the trees never reaches the ground at all, and it was expected that the average rainfall under the trees would be less than that outside. It was also expected that there would be some variation within the woods. Because of this expected variation, we set out 20 rain gauges in the woods and four in an adjacent open area. The equipment was simple—juice cans held to metal stakes with rubber bands. In ordinary years this equipment would have been adequate, but this year we had several storms where the total precipitation exceeded the capacity of the rain gauges.

Two surprising facts are apparent from the data. The first of these is the extreme variability of precipitation inside the woods. In all but the heaviest rains, some of the rain gauges inside the woods had twice as much water as some of the others, and in light rains the difference was even greater. On June 10, the quantity of precipitation recorded by the rain gauges varied from 0.00 inches to 0.09 inches and on July 23, from 0.03 to 0.19 inches. In heavy rains the percent difference was less, but still great. A rain on June 28 showed figures varying from 1.87 inches to 2.82 inches.

The other surprise in the data came from the fact that some of the rain gauges inside the woods consistently recorded a greater amount of precipitation than the gauges outside. This difference may be due to a greater loss from evaporation outside the woods, but it occurred so consistently – 13 times out of 19 during July and August – that we suspect that some of our gauges were located at spots in the woods where water accumulated in the canopy before it dropped to the ground. It is apparent that a single figure giving the precipitation inside the forest is meaningless. Actually, during the summer months, places as little as 10 feet apart – the distance between our rain gauges – may vary as much as 50% in the amount of rainfall they receive.

The heaviest rainfall of the season occurred in the late afternoon of July 29, when one of the gauges recorded over 5 inches of rain. This is more than the capacity of our makeshift rain gauges, but the inadequacy of the rain gauges was more than compensated for by the zeal of our observer. She was out in the middle of this storm, carefully measuring and recording the precipitation. In view of the circumstances, the data for this storm are probably not accurate to the nearest hundredth of an inch, but even so, we want to congratulate Miss Reigle for a performance above and beyond the call of duty.

A comparison of the results from this study with the data taken at the weather bureau will be presented in a later issue of the newsletter.

Fall Planting Program

J. R. Jacobson, Arboretum Superintendent, states we have just carried out one of the largest and most promising series of fall plantings in a number of years. Free of the drouth conditions which have often hindered our operations in recent years, the soil was in excellent condition for transplanting. We are using an ever increasing amount of stock started in our own seed beds which is then transplanted to our nursery, and finally, at the proper time, removed to permanent locations. This system has a distinct advantage over merely planting out, directly into the field, stock received from diverse sources and unknown as to hardiness and other growth characteristics. As past experience has amply demonstrated, such stock, while perhaps not always initially very expensive, tends to become so due to labor lost on plantings which fail. We are fortunate in that Mr. Jacobson is a very skilful and successful propagator who has worked hard and effectively to bring the Headquarters Nursery to its present excellent condition.

Dam Functions Well in 1959

The dam in the woods north of the Teal Pond, and controlling its drainage, has been quite effective during the past season. Early in the season Bentonite, a colloidal material used for sealing the bottoms of ponds against downward escape of water, was applied to the pond at the dam. Owing to the fact that we had a very wet summer and fall we cannot be certain that the water retention was entirely due to the Bentonite, but considering the rapid loss of water in the past, under almost any conditions, we are hopeful that the Bentonite did help.

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