

# Arboretum



# News

SEPTEMBER-OCTOBER 1999 • VOLUME 18, NUMBER 5

UNIVERSITY OF MINNESOTA

## Celebrate the Season at Fall Festival

### INSIDE

- 2 Director's Message
- 3 News & Announcements
- 5 Vegetative Propagation
- 6 Fall Gardening Tips
- 7 Classes & Calendar
- 11 Goblins in the Garden
- 12 Language of Plants
- What's in Bloom
- 13 Observing the Turtle
- 14 Leon Snyder  
Heritage Society
- Volunteers at SPM
- 15 Citrus Trees in Minnesota



IN MINNESOTA, NATURE BIDS FAREWELL TO THE GROWING SEASON IN A BLAZE OF GLORY, AND THE Arboretum's Fall Festival offers a great opportunity to enjoy its many splendors. Join us on September 25 for our annual extravaganza, featuring incomparable foliage and seasonal family activities: cider pressing, sampling apples, and apple sales sponsored by the HRC; special apple treats prepared by the Tearoom; sale of fall bulbs and gardening supplies; live entertainment, crafts, and tram rides, to name but a few of the day's attractions. Master Gardeners will be on hand to answer questions and talk about harvesting techniques. And the Arboretum Auxiliary will feature its annual fall sale of one-of-a-kind dried flower arrangements and decorations, along with a live plant sale and the drawing for the Auxiliary's handmade quilt, a stunning all-white creation. This event is open to the public and free with paid admission.

## Director's Message

# Family's Tribute to Loved One Carries on Her Vision

BY PETER J. OLIN  
Director

It is always a pleasant experience to open the mail and find that one of our Arboretum friends has enclosed a large check to help us maintain the Arboretum. It is not at all pleasant, however, to find in the mail or morning paper that one of our good friends has died. The latter is happening all too frequently these days, as many of our long-time members, founding fathers and mothers are passing away.

So it was a year ago when I learned that our dear friend, Marion Andrus, had passed away. Marion and John Andrus were some of the first people I met at the Arboretum when, by chance, I sat down at their table at a fall event. Marion was an avid gardener who wanted to share her expertise and love for gardening. She had helped start the children's education program at the Arboretum in the late 1970s and was an instructor-volunteer until just a few years before her death. In fact, John and Marion helped finance the construction of the Children's Learning Center, the source of our children's programming.

The Learning Center combined two important concepts for Marion, says Manager of Youth Education Sandy Tanck. "Her strong feeling for the beauty of nature and its intricacies and how important plants are to all of us was deep-seated in her beliefs. She also loved children and felt that children deserve our finest work to prepare them to understand nature."

I can still hear Marion's voice asking about the newest projects at the Arboretum and responding with real interest and enthusiasm. I remember fondly the famous picnic lunches she had with family and friends, and her charm and wit and that twinkle in her eye. Marion was at home in many places but especially at the Arboretum. It's a place where she and nature melded.

As sad as their loss was, Marion's family came back to the Arboretum with



Marion Andrus. Photo courtesy John Andrus

a commitment to carry on a program at a place that she loved so much. A gift of \$1 million from Marion's husband, John, and their children will create an endowment to maintain the Learning Center and assure that the children's program always has a manager. In her honor we have named our facility the Marion Andrus Learning Center.

I know Marion would be pleased. It's the kind of deed she would have approved of whole-heartedly, and it's an ongoing extension of her philosophy of gardening and learning about our biological world. And of course the place to start such learning is with our children.

We salute you, Marion and John and family, and so do all 30,000 schoolchildren served by the Arboretum.

At the end of June, eight staff members attended the American Association of Botanical Gardens and Arboreta in Vancouver, B.C. Each year a different garden, or group of gardens, hosts this important annual conference (we did this in June 1991), which has grown to over 600 participants from 42 states and 8 countries.

The focus of this year's convention was "A Century of Plants" and featured speakers on famous plant explorers, plant nomenclature, the historic role of botanical gardens, and conservation. Other ses-

sions addressed communications, fundraising, education, marketing, garden development, and board governance. Maria Klein, our editor, led a session on producing effective newsletters, and I gave a presentation on restoring Spring Peeper Meadow.

Each conference has its share of beautiful gardens to visit, and Vancouver was no exception. Tours included Butchart Gardens, Minter Gardens, Van Dusen Botanical Garden, the University of British Columbia Botanical Gardens, and Dr. Sun Yat Sen Garden.

Attending the AABGA convention always produces a step forward for the Arboretum. It provides an excellent learning experience for staff, sending us home with lots of good ideas from experts from all over the world. But the best learning comes from the informal gathering with peers throughout the four days, and the wonderful exchange of ideas that continues long after we return home. ❁

## Arboretum News

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*To request a copy of this publication in alternate format, please call (612) 443-2478.*

# News & Announcements

## September

### Rock Garden Society Picnic

Sunday, September 12, 12 noon

The Minnesota Chapter of the North American Rock Garden Society will hold its annual meeting, potluck, and plant sale. Public welcome. For more information, call Florence Keller at 612-941-4611.

## MEMBER EVENTS

### Behind the Scenes At the Arboretum

Monday, September 27, 10 a.m.

Join the Arboretum's own special agent, **Extension Horticulturist Mike Zins**, on a behind-the-scenes tour of the Arboretum. This tour will feature the trees and shrubs of the Arboretum, rich in their autumn finery. If you've ever wondered what the Arboretum horticulturists do to prepare our plants and trees for winter, here's your chance for you to talk with an expert and take home ideas to ready your own garden for winter. Cost: \$15/member. Meet in the Snyder Building lobby.

Pre-registration required by **September 10**; tour limited to 15.

## ARBORETUM EVENTS

### Fall Prairie Tours

Sundays through September, 1-2 p.m.

Guided tours of the Bennett-Johnson Prairie will continue through September. Meet in the prairie parking lot. No extra charge. See calendar for specific blooms.

17th Annual Arboretum

### Flower & Garden Show

 Fun With Flowers 

Saturday, September 18, 1-4 p.m.

Sunday, September 19, 11 a.m.-4:30 p.m.

Enjoy end-of-summer beauty and bounty at the annual exhibit sponsored by the Arboretum and the Federated Garden Clubs of Minnesota. For a copy of the rules and schedule, call Nancy at Andersen Horticultural Library, 612-443-2440.

### Volunteer Barbecue

September 14, 5:30 p.m.

Allow us to thank some extra special people—you—at an extra special event. Watch for your invitation in the mail.

### Sam Bass Warner to Lecture

Thursday, September 16, 6:30-9:00 p.m.

Sam Bass Warner, Jr., will give a lecture based on his new book, *Restorative Gardens: The Healing Landscape*. Features history and role of restorative gardens and examines the role of six American health care centers where the garden is central to the therapeutic process. Includes a guided tour of the Sensory Garden. Cost: \$25/person.

For further information, contact Jean Larson, 612-443-2460, ext. 527, or larso095@tc.umn.edu.



### Fall Festival

Saturday, September 25  
9 a.m.-4 p.m.

Celebrate the end of the growing season at the Arboretum's annual autumn extravaganza.

Please turn to page 1 for further details.

## October

## MEMBER EVENTS

### New Member Reception

Saturday, October 9, 1-4 p.m.

If you're a new member of the Arboretum and would like a chance to meet other newcomers, learn more about our almost 1,000 acres of gardens and research, or would simply like a great excuse to come view the Arboretum at its autumn best, please come to the New Member Reception.

Members who have become first-time members since June, 1998 are invited to join us for light refreshments, music, and an opportunity to meet some of the Arboretum's staff. Join a walking tour,

*Friends of*  
ANDERSEN HORTICULTURAL LIBRARY  
*present the 10th Annual*  
**PREVIOUSLY READ BOOK SALE**  
Friday, Saturday & Sunday,  
October 1, 2 & 3, 10 a.m.-4 p.m.  
Bargains galore! Unique and rare books! High value and low prices! It's not too late to donate books to the sale. You may drop them off at the Library during weekday business hours until September 15. Questions? Call 612-443-2440.

ride the Trumpet Creeper with one of our expert tour guides, and learn what's in store for you over the fall and winter at your own secret garden. Snyder Building.

RSVP by **September 30**. No phone calls, please.

### Aunties' Tea

Wednesday, October 27, 3-5 p.m.

They're back! The Aunties have returned to share the gossip of the day. Reserve your seat at an Auntie's table in advance and enjoy an afternoon of tasty treats, amusing conversation, and a rollicking good time. Sold out in '98, Aunties' Tea is an exceptional event to celebrate an occasion or treat your own special auntie to a grand time. Served in our Fireplace Room with linens, a choice of teas, finger sandwiches, and traditional teatime pastries. Cost: \$25.

RSVP for Aunties' Tea by **October 10**. Limited to 40. No phone calls, please.

*To sign up for fall member events, please use form on page 4.*

## ARBORETUM EVENTS

### Green Link Station

Sundays, October 3 & 10, 11 a.m.-3 p.m.

Special encore appearance of Green Link Station to celebrate fall. Get your senses into nature—join us in the Home Demo Gardens for a sip, taste, look, and a pound.

*News continued on page 4*

News continued from page 3

### Japanese Tea Ceremony

Sunday, October 3, 1-4 p.m.

Participate in a truly refined custom as tea masters demonstrate an ancient tradition. The tea ceremony is held in the Japanese Garden; free with paid admission.

### Rose Tipping

Saturday, October 16, 8 a.m.

Meet in the Wilson Rose Garden to observe or participate as Minnesota Rose Society and Arboretum gardeners cover the roses using the Minnesota Tip Method (see *News* September-October 1998).

## ARBORETUM NEWS

### Fall School Programs Now Open [Arboretum.real.learning.come!](http://Arboretum.real.learning.come!)

Sharpen those pencils, load that backpack, and call the Arboretum for fall field trip reservations! The apples are ripening, the woods are glowing with autumn color,

and a full range of fall programs are available to immerse students in real, hands-on learning about plants, science and the natural world. Visit the orchard for sessions on apple pollination, taste trials and old-time cider pressing as well as an orchard tour. Meet a talking tree and examine earthworms to prepare for an investigation of decomposers at work along the forest trails. Learn from a Dakota storyteller about the traditional ways Dakota people use trees, cattails and red osier dogwood in their stories, music and crafts. Arboretum programs link children with plants and the earth through direct experiences of all kinds!

The Plantmobile is also booking reservations for fall programs at greater metropolitan area schools. Call 612-443-2460, ext. 772, to receive a school programs brochure and more information.

### Last Call for Tram Rides

The official tour season ends October 16. The last day for Trumpet Creeper tours is Sunday, October 17. If we get an early snowfall, the season will end sooner. Until then, a Trumpet Creeper tour is a great way to enjoy fall color at the Arboretum. \$1.50/person, no reservations required.

### Afternoon Tea at the Arboretum

Wednesdays, 3-4:30 p.m.

Our very popular Teatime at the Garden resumes Wednesday, November 3. For information, call 612-443-2460, ext. 402.

## VOLUNTEER OPPORTUNITIES

If you like working with children, the Learning Center can use your help with school programs this fall.

### Apple Harvest

Training: Wednesday, September 8,  
Programs: September 13 - October 12

### Fall in the Forest

Training: Thursday, September 9,  
Programs: September 13 - 24

### Mother Earth: Native American Ways with Plants

Training: Friday, September 10,  
Programs: September 28 - October 26

### Trees for Minnesota

Training: Thursday, September 9,  
Programs: September 13 - October 5

### Interdependence: Links Between Plants & Animals

Training: Tuesday, September 14,  
Programs: September 20 - October 5

Contact Tim, 612-443-2460, ext. 167, to RSVP or get more information (you must RSVP to attend the training). Minimum commitment: One half-day per week.

Also, we need many volunteers to help set up and oversee children's activities at Fall Festival on September 25, in two shifts, 9:30 a.m. - 12 p.m. and 12 - 3 p.m. Interested volunteers should contact Gail at 612-443-2460, ext. 170.

## ARBORETUM TRAVEL

### Last Call for Cape Town

October 1-10

Director Peter Olin will host an Arboretum Tour to South Africa's jewel city. Our tour will feature the highlights of the region plus some of South Africa's finest gardens. Extension trips to Victoria Falls, or to Kruger Park, and Johannesburg are also available.

For information, call Dayton's Group Holidays at 612-375-2881.

### Southern California

November 3-9

A wonderful overview of the great gardens and dramatic natural areas of the California coast from San Diego to Santa Barbara. Includes Huntington Gardens and the sensational new Getty Center. The brochure is now available; the price is \$1,745 including airfare.

Call 612-443-2460 ext. 0 to obtain further information about the California trip, to request a travel brochure, or to add your name to our mailing list for future travel opportunities. ❁

## REGISTRATION FORM—FALL MEMBER EVENTS

Yes! I would like to attend the following event(s):

Behind the Scenes at the Arboretum (\$15/person)

Number attending \_\_\_\_\_

New Member Reception (no charge)

Number attending \_\_\_\_\_

Aunties' Tea (\$25/person)

Number attending \_\_\_\_\_

Member Number \_\_\_\_\_ Total enclosed \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Daytime phone \_\_\_\_\_

Please mail completed form with your check to Membership, MLA,  
3675 Arboretum Drive, P.O. Box 39, Chanhassen, MN 55317.

NOTE DATES BY WHICH RSVP MUST BE RECEIVED (SEE PAGE 3).

## Cloning by Any Other Name Is...Vegetative Propagation

Second of two articles on propagation

BY JEFFREY L. JOHNSON  
*Arboretum Horticulturist*

**C**ultivar, F-1 hybrid, grafted plant, own root, budded, rooted cuttings, bare root, container grown, top-worked, containerized, annuals, biennials, perennials, shrubs, small trees, shade trees. . . horticulturists have a lingo all their own. Like other professionals, we use these special terms to communicate. To the uninitiated lay person, the terminology can be daunting and confusing.

A particularly confusing category of horticulture is propagation. Propagation is the process of increasing the number of plants. Using sexual means (seed) or asexual means (cloning via vegetative<sup>1</sup> plant parts), we increase plant numbers. When horticulturists discuss cloning a plant, we are talking about growing a complete plant from a vegetative plant part either through natural processes or by artificially forming necessary organs where they would not form otherwise. These “forced” organs are called adventitious.

The simplest form of vegetative propagation is **colonization**. Some plants naturally spread via rhizomes<sup>2</sup>, stolons<sup>3</sup>, or tillers<sup>4</sup> to colonize an area with multiple **crowns**, or growth centers. Division of perennials is an extension of this most basic method of vegetative propagation. Humans learned that replanting a portion of a colonizing plant kept it **true to type**, or cloned.

From division comes layering, a slightly more complex means for plants

- 1) Plant parts that are not involved in sexual reproduction
- 2) Rhizomes are subterranean plant stems, usually horizontal, producing shoots above and roots below.
- 3) Stolons are horizontal branches that produce new plants from buds at their tips or nodes.
- 4) Tillers are sprouts from the base of plants or from the axil, i.e., base of the leaf-stem, of lower leaves.
- 5) Cambium is the growth layer that produces vegetative plant tissue in stems.



Researcher sorts and trims azalea stem cuttings in preparation for rooting them. Photos on pp. 5 & 6: Jeff Johnson

to spread. Some plants layer naturally: a branch or a stem of a plant touches the ground and roots into the soil. Early horticulturists artificially layered plants by fastening stems to the ground, sometimes burying the stems until they rooted. A more artificial twist on natural layering is **mound layering**, whereby a propagator mounds a rooting medium over a portion of a clump of stems. The stems produce adventitious roots into the medium. Then the medium is carefully removed and the “rooted” stems are cut from the mother plant and transplanted.

An extreme form of layering is **air layering**. In this technique, the propagator wounds a segment of a stem by cutting into the cambium<sup>5</sup> and builds a medium around the wounded portion of the stem. The medium is held in place with a fastener and kept moist until roots form and the rooted stem can be cut from the mother plant and transplanted.

On a different propagation track, humans discovered how to root cuttings, possibly by observing fallen leaves or twigs rooting into a suitable soil medium. Stem cuttings, leaf cuttings, and root cuttings all use basically the same techniques:

introducing a plant part into a rooting medium (e.g. moist sand, perlite, peat) and forming adventitious plant parts.

Plants differ in their ability to form adventitious plant parts. Many trees and shrubs do not form adventitious growth. The lack of adventitious organ formation in some plants led humans to the development of grafting—again, probably by observing natural grafting that can take place when two plants of related species grow in contact with one another. The plants form common wood to the point of uniting.

The first horticulturists used this observation to enhance their ability to clonally propagate desirable plants. The basic principle is the same for all grafting. If two compatible plant cambium layers are held tightly in contact with one another for a sufficient period of time at the correct time of year, the two cambium layers will “knit” together to form common new wood.

We clone plants by applying the concept of cambium-to-cambium contact to all grafting techniques, including top working, side, cleft, whip and tongue, splice, root, approach grafting, and bud-

*Propagation continued on page 6*

## Tending Your Garden This Fall

BY SHIRLEY MAH KOOYMAN

### September

- There is still time to plant evergreen trees and shrubs grown in containers or are balled-and-burlapped.
- Best time to get rid of stubborn broad-leaf weeds such as dandelion, thistles, etc., is in the fall. Treat the weeds with a weed killer. This will weaken the weeds over winter. Spot-treat again in spring.
- Lawns can be seeded until middle of the month.
- Harvest seeds from open-pollinated plants for next spring's germination. (To learn more, see page 10 for a class, Techniques for Collecting and Saving Seeds, on September 16.)
- Check for insects on houseplants that have been living outdoors before bringing them indoors. (They will probably need washing.)

### October

- Rake leaves and remove from lawn to prevent them from compacting the grass during the winter, which could lead to turf diseases.
- Apply the Minnesota Tip Method to tender roses by burying them in the ground (See *News*, September-October 1998.) The Minnesota Rose Society buries the Arboretum's roses in the Wilson Rose Garden on Saturday, October 16, 8 a.m.
- Don't remove fruiting structures from ornamental grasses or other perennials. They add extra interest in the winter garden.
- All hardy bulbs (daffodils, hyacinths, minor bulbs) except for tulips should be planted by mid-October.
- Create your own indoor flowering bulb garden by potting up bulbs and treating them to a cold period of 14-16 weeks. Attend the class, Making Spring Bulbs Bloom Indoors, on Friday, October 29 and learn how to do it. ❁

### Propagation continued from page 5

ding. All are used on specific plants and in specific circumstances for the same purpose: to grow a cloned scion<sup>6</sup> on a stock (rootstock) into a desirable plant.

The twentieth century has inaugurated the era of **micropropagation**. Micropropagation uses the very small meristems<sup>7</sup> of a plant. The meristematic cells are manipulated with growth regulators and different growing mediums (gelatin agar with nutrients) to form new plantlets, very small plants on the scale of seed embryos—nearly complete, but very small and fragile. These plantlets can then be grown and transplanted en masse into commercially saleable plants, genetically identical to the original parent plant.

The capacity for clonal propagation originates from the basic genetic principle that every cell contains all the genetic information necessary to create an entire, new organism identical to the original. **Mitosis** is the cellular process of replicating the genetic material and dividing it equally into two new cells. This happens in all living organisms, and is one definition of "life".

What is generally lacking in any artificial cloning (vegetative propagation) process is the ability of, or conditions for, cells to replicate and differentiate into specialized cells much different from the original mitotic cells—i.e., into stems, leaves, or roots. This ability to replicate and then differentiate varies to extremes. In the plant kingdom, an example of a very easy, naturally occurring replicator is



Numbered azalea cuttings take root in a pearlite mix.

ferns. The leaves of some ferns can literally be ground up and poured onto soil to make thousands of new plants. An example of the other extreme is evergreens, which require grafting to clonally propagate.

Fortunately for plant propagators, nature's healing mechanism, callous<sup>8</sup> cell formation, leads to redifferentiation into other cell types. When cuttings are taken from a parent plant, it forms callous cells at the wound sites. The callous on its own begins to differentiate into either root or shoot cells; further differentiation eventually follows.

Plant propagation is a fascinating and essential specialty in horticulture, a profession unto itself, with its own techniques and jargon. It is an active, basic component of horticultural crop research, including the fruit and woody plant research at our own Horticultural Research Center. And there are further specializations within the field of plant propagation. As part of the University of Minnesota, the Arboretum advocates continuing education if this area interests you. Further reading in Andersen Horticultural Library; a trip to the University of Minnesota's MacGrath Library on the St. Paul Campus; or a for-credit course in plant propagation in the Department of Horticultural Sciences, through the University of Minnesota's Continuing Education and Extension, will help you pursue your interest. ❁



Atypically large bump shows where scion was grafted to stock.

6) Scion is the top portion of a plant, in this case the cultivar targeted for propagation.

7) Meristems are formative plant tissue capable of indefinite cell division; the tissue that grows at the tip of a plant part.

8) Callous is a mass of undifferentiated cells.

# SEPTEMBER

C A L E N D A R

<i>Sunday</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>
	<p><b>Calendar Legend</b>                      C=Class or Workshop L=Lecture                      M=Member Event                      P=Public Event                      S=Symposium</p>					
			1	2	3	4
<p>P–Blooming Prairie Tours                      1–2 pm                      New England Aster</p>						<p>C–Landscaping for Wildlife                      10 am–12 noon</p>
5	6	7	8	9	10	11
<p>P–Blooming Prairie Tours                      1–2 pm—Bottle Gentian                      P–Rock Garden Society                      Annual Meeting, Potluck &amp;                      Plant Sale                      12 noon</p>		<p>M–Volunteer Barbecue                      5:30 pm</p>		<p>C–Techniques for Collecting                      and Saving Seeds                      6–8 pm                      L–Sam Bass Warner, Jr.                      6:30–9 pm</p>		<p>P–Flower &amp; Garden Show                      “Fun with Flowers”                      1–4 pm</p>
12	13	14	15	16	17	18
<p>P–Flower &amp; Garden Show                      “Fun with Flowers”                      11 am–4:30 pm                      P–Blooming Prairie Tours                      1–2 pm                      Downy Gentian</p>			<p>M–Leon Snyder Heritage                      Society Luncheon                      12–2 pm</p>			<p>P–Fall Festival                      9 am–4 pm</p>
19	20	21	22	23	24	25
<p>P–Blooming Prairie Tours                      1–2 pm                      Grasses and Forbs</p>	<p>M–Behind the Scenes at the                      Arboretum                      10 am</p>			<p>C–Photographing Nature                      6–8 pm</p>		
26	27	28	29	30		

M I N N E S O T A L A N D S C A P E A R B O R E T U M

# OCTOBER

C A L E N D A R

<i>Sunday</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>
			<p>Calendar Legend                      C=Class or Workshop                      L=Lecture                      M=Member Event                      P=Public Event                      S=Symposium</p>		P-Andersen Horticultural Library Used Book Sale 10 am-4 pm	P-Andersen Horticultural Library Used Book Sale 10 am-4 pm
					<i>1</i>	<i>2</i>
P-Andersen Horticultural Library Used Book Sale 10 am-4 pm P-Green Link Station 11 am-3 pm P-Japanese Tea Ceremony 1-4 pm		C-Ornamental Grasses for MN 10 am-12:30 pm	C-Treasures From the Kingdom of Fungi 6-8 pm	P-Houseplant Repotting Clinic 11 am-12 noon C-Designing Your Entryway 6:30-8:30 pm		M-New Member Reception 1-4 pm
<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
P-Green Link Station 11 am-3 pm P-Reception for Marian-Ortloff Bagley 1-5 pm			C-Dried Floral Vertical Swag Session 1: 10 am-12 noon Session 2: 1-3 pm			P-Rose Tipping Day 8 am start Tour season officially ends
<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
Last day of tram operation						S-Well-Chosen Garden: Designing w/ Distinctive Plants 8 am-4 pm
<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>
<i>31</i>		C-Lavender & Its Many Uses 1:30-3:30 pm	M-Aunties' Tea 3-5 pm		C-Making Spring Bulbs Bloom Indoors 10 am-12 noon	C-Ponds & Water Gardening 10 am-12 noon
<i>24</i>	<i>25</i>	<i>26</i>	<i>27</i>	<i>28</i>	<i>29</i>	<i>30</i>

## C L A S S E S

**ORNAMENTAL GRASSES FOR MINNESOTA\***

Tuesday, October 5

10 a.m. – 12:30 p.m.

**MARY HOCKENBERRY MEYER**

With their attractive foliage color and texture, distinctive plant habit, showy floral and fruiting structures, many grasses have more than one season of interest. Learn which ones are hardy and easy to grow in Minnesota.

Mary Hockenberry Meyer is coordinator of the Master Gardener Program in Minnesota. She specializes in ornamental grasses and co-authored *Ornamental Grasses for Cold Climates*.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 2.

**TREASURES FROM THE KINGDOM OF FUNGI\***

Wednesday, October 6

6 – 8 p.m.

**TAYLOR F. LOCKWOOD**

Discover and appreciate the beauty and variety of mushrooms and other fungi. This photo-journey lecture features fungi from all over the world, especially from Southeast Asia and Thailand.

Taylor F. Lockwood is a world traveler, photographer, and mushroom enthusiast who believes in showing nature's beauty in the best light.

Class fee: \$15 members, \$25 non-members. Class limit 50. Meet in the Auditorium.

**DESIGNING YOUR ENTRYWAY\***

Thursday, October 7

6:30 – 8:30 p.m.

**DIANE KLAUSNER**

Learn how to avoid common landscaping mistakes and create entryways that welcome visitors to your home.

Diane Klausner is a registered landscape architect with McCaren Designs, Inc. in St. Paul, Minnesota. She specializes in residential landscape and garden design.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 2.

**DRIED FLORAL VERTICAL SWAG WORKSHOP\***

Wednesday, October 13

10 a.m. – 12 noon (Session 1) *OR*

1 – 3 p.m. (Session 2)

**DUANE & RENEE OTTO**

Learn how to work with dried flowers (everlastings) and make a floral swag to use in any room of your home or your front entry.

Duane Otto is a landscape gardener at the Arboretum. Renee Otto is a floral designer and decorator. Together they own Otto's Floradora in Watertown, Minnesota.

Class fee: \$30 members, \$40 non-members. Fee includes all materials. Class limit 20. Meet in the Auditorium. Bring pruning shears, scissors and ribbon of your choice.

**LAVENDER AND ITS MANY USES\***

Tuesday, October 26

1:30 – 3:30 p.m.

**HELOISA MELO HOKENSON**

Learn how to utilize lavender, the 1999 Herb of the Year, in creating different products for your own use or as gifts. Everyone will make and take home four items: lavender tea blend, facial, toner and bath salts.

Heloisa Melo Hokenson is a certified aromatherapist, natural beauty care specialist and teacher.

Class fee: \$30 members, \$40 non-members. Fee includes all materials and handouts. Class limit 20. Meet in Classroom 1.

**MAKING SPRING BULBS BLOOM INDOORS\***

Friday, October 29

10 a.m. – 12 noon

**SHIRLEY MAH KOOYMAN**

Greet spring in February with your own potted bulb garden.

Learn how to induce spring-flowering bulbs to break dormancy and bloom indoors. Workshop includes a discussion of different types of bulbs, especially some interesting dwarf bulb cultivars.

Shirley Mah Kooyman is a botanist and the Adult Education Manager at the Arboretum.

Class fee: \$25 members, \$35 non-members. Fee includes all materials. Class limit 15. Meet in Classroom 2. Bring a towel for cleaning your hands.

**PONDS AND WATER GARDENING\***

Saturday, October 30

10 a.m. – 12 noon

**SONI FORSMAN**

A naturally balanced water environment will bring years of pleasure without the invasion of algae. Learn about site selection, proper pond conditions, materials and construction. Also find out how to select and care for water plants for northern climates.

Soni Forsman owns *Water Lilies by Forsman* in Eagan, Minnesota. She began growing water plants 19 years ago during a long, cold Minnesota winter.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 2.

*Other Learning Opportunities***HOUSEPLANT REPOTTING CLINIC**

Thursday, October 7

11 a.m. – 12 noon

Your houseplant needs repotting, but you don't know how? Join us for the *free* session and learn how simple it really is. Bring your root-bound plant and a larger, new container for repotting. Meet at the Keating Greenhouse in the Home Demonstration Gardens, located across the road from the Wilson Rose Garden.

**THE WELL-CHOSEN GARDEN:****DESIGNING WITH DISTINCTIVE PLANTS**

Saturday, October 23

8 a.m. – 4 p.m.

This 4th annual symposium is a collaboration between the Arboretum and Horticulture Magazine in Boston. Speakers include: Rob Proctor (*Agreeable Companions—Bulbs and Herbs for the Border*), Barbara W. Ellis (*Bold and Brilliant Perennials*), C. Colston Burrell (*Garden Design Priorities—New Ways to Design with Plants*) and Roger Gossler (*Elegant Small Trees*).

Fee: \$95 Arboretum members, \$109 non-members. Includes continental breakfast, lunch and handouts. Symposium will be held at University of St. Thomas in St. Paul. For registration information and a brochure, call 800-395-1901 or 612-443-2460, ext. 180.

# C L A S S E S

**WATER GARDENING FOR EVERYONE**  
Thursday, September 2  
8:30 a.m. – 2:30 p.m.

A collaborative effort between Minnesota Water Garden Society and the Arboretum, this first annual symposium on water gardening will feature two lectures by Helen Nash. Nash is the author of many books on water gardening and editor and publisher of the magazine Ponds & Garden. She will speak on Designing the Aquatic Container Garden and Plants and Fish for Container Water Gardens. The program will also feature Carol Felsing, owner of Pond Reflections in White Bear Lake, Minnesota, who will present A Special Water Feature for the Garden.

Class fee: \$30 members of Arboretum and MINNESOTA Water Garden Society, \$40 non-members. Fee includes handouts, lunch, and refreshments. Meet in the Auditorium.

**LANDSCAPING FOR WILDLIFE\***  
Saturday, September 11  
10 a.m. – 12 noon  
**L. PETER MACDONAGH**

Gain the knowledge to incorporate specific plant communities into your home landscape to create refuges for birds, mammals, insects and amphibians with ecological sensitivity and beauty. Learn ways to combine plants for visual and ecological impact and what trees, shrubs, vines and perennials are best for wildlife.

L. Peter MacDonagh, of The Kestrel Design Group, Inc. in Edina Minnesota, is a licensed landscape architect, arborist and horticulturist who specializes in ecological solutions to land design and planning with over 12 years of experience in the field.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 1.

**TECHNIQUES FOR COLLECTING AND SAVING SEEDS\***  
Thursday, September 16  
6 – 8 p.m.

**BOB QUIST**

Learn strategies and techniques for saving your own seeds, especially heirloom annuals and vegetables. Learn how to hand-pollinate, select plant stocks, collect, and save and store seeds from different varieties.

Bob Quist manages the Minnesota Historical Society's Oliver Kelley Farm, a living history farm from the 1850-1876 period, located in Elk River, Minnesota.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 2.

**PHOTOGRAPHING NATURE\***  
Thursday, September 30  
6 – 8 p.m.

**MARK A. MADSEN**

Take better nature photographs by knowing proper techniques for photographing outdoor scenes, plants, and landscapes. Other topics

include equipment, composition, exposure, lighting, depth of field, film type, capturing movement, and close-up, night, and water photography.

Mark A. Madsen, a landscape architect and photographer for over 20 years, specializes in landscape photography. He is owner of Natural Outdoor Images located in Bloomington, Minnesota. His work was on exhibit at the Arboretum from July 10–August 29.

Class fee: \$15 members, \$25 non-members. Class limit 30. Meet in Classroom 2.

## Other Learning Opportunities

For the programs listed below, no reservations are needed. Programs are free with paid admission.

**HOUSEPLANT REPOTTING CLINIC**  
Thursday, September 2  
11 a.m. – 12 noon

Your houseplant needs repotting, but you don't know how? Join us for the free session and learn how simple it really is. Bring your root-bound plant and a larger, new container for repotting. Meet at the Keating Greenhouse in the Home Demonstration Gardens, located across the road from the Wilson Rose Garden.

**ART EXHIBIT:**  
September 4 – October 31

Featuring artwork by **MARIAN-ORTLOFF BAGLEY** in the Snyder Building display case and balcony gallery. Open during normal Snyder Building hours.

**MEET THE ARTIST** at a reception on Sunday, October 10, 1–5 p.m.

## CLASS REGISTRATION FORM

*One form per person, please. Photocopy as needed.  
Sorry, no phone reservations.*

- |                          |  |          |
|--------------------------|--|----------|
| <input type="checkbox"/> | Water Gardening for Everyone             | \$ _____ |
| <input type="checkbox"/> | Landscaping for Wildlife*                | \$ _____ |
| <input type="checkbox"/> | Techniques for Collecting, Saving Seeds* | \$ _____ |
| <input type="checkbox"/> | Photographing Nature*                    | \$ _____ |
| <input type="checkbox"/> | Ornamental Grasses for Minnesota*        | \$ _____ |
| <input type="checkbox"/> | Treasures from the Kingdom of Fungi*     | \$ _____ |
| <input type="checkbox"/> | Designing Your Entryway*                 | \$ _____ |
| <input type="checkbox"/> | Dried Floral Vertical Swag*              | \$ _____ |
| <input type="checkbox"/> | Lavender and Its Many Uses*              | \$ _____ |
| <input type="checkbox"/> | Making Spring Bulbs Bloom Indoors*       | \$ _____ |
| <input type="checkbox"/> | Ponds and Water Gardening*               | \$ _____ |

TOTAL ENCLOSED \$ \_\_\_\_\_  
(Cash or check only please)

\* Volunteer vouchers accepted § Gate fee waived with paid tuition

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Telephone \_\_\_\_\_ Day \_\_\_\_\_ Evening \_\_\_\_\_

I am an Arboretum member. \_\_\_\_\_  
Member Number

\$35 Single  \$55 Dual  
 \$45 Single + One  \$70 Dual Plus

I have enclosed \$ \_\_\_\_\_ for a \_\_\_\_\_  
level membership with my tuition payment.

Make checks payable to Minnesota Landscape Arboretum. Mail with this form to **CLASSES**, Minnesota Landscape Arboretum, 3675 Arboretum Drive, P.O. Box 39, Chanhassen, MN 55317.

### ABOUT CLASS REGISTRATION

**ADVANCE REGISTRATION.** By mail or in person only. If registering by mail, use the form on this page and send it with your check to **CLASSES** at the Arboretum.

**REFUNDS.** Registration fees will be refunded if requested at least one week prior to the first class session. If the Arboretum must cancel a course, we will contact you and refund the fee. No refunds otherwise.

**CONFIRMATION.** Your canceled check is your **ONLY** confirmation.

# GOBLINS IN THE GARDEN



Spontaneous combustion nearly led to disaster. A planter identical to the one at far left was filled, prior to planting, with peat, nitrogen pellets, and fertilizer. The planters both had drainage holes in the bottom. They sat all summer on a deck that faced south. Fire officials ruled out several possible causes—e.g. dryer vent, cigarettes—and deduced that the planter overheated as the sun's path shifted and light shone more directly onto the planter in early September, when the fire occurred. Photos courtesy Chanhassen Fire Department

## First of two parts

BY DIANA ANDERSON

If you're not careful, an unwanted goblin may find its way into your garage, basement, or garden shed this fall. This goblin is more dangerous than most because it's fire. And unwittingly, you may create the proper conditions for a "visit." So, as another gardening season nears its end, be attentive not only to cleaning and rehang- ing your garden tools, but also to properly storing potentially hazardous equipment and supplies used throughout the summer.

Chanhassen Fire Marshall Mark Littfin offers a few guidelines to protect yourself from fire hazards; in particular, storage- related hazards. Most organic materials, he says, are subject to oxidation and spon- taneous heating. Though combustion rarely happens, some organic materials, such as linseed oil and charcoal, do create heat at faster rates. And, because heat release is so slight, it's often imperceptible. If improperly discarded or stored, organic materials can combust spontaneously.

Here are some things Mark Littfin says to consider.

**1. Gasoline used in lawn mowers and rototillers** is a volatile liquid. According to Littfin, "Vapors from gasoline, or paint thinners, stored improperly in an attached garage can creep downstairs into a house's base- ment, reach the water heater, and

explode." One gallon of this toxic vapor, he says, is equivalent to eight sticks of dynamite. "You can leave gasoline to over winter in these machines," Littfin says, "but keep caps on tight and follow directions for stor- age in the owner's manual."

**2. Charcoal can spontaneously combust** in hot sun on a deck or balcony.

**3. Keep rags or paper towels soaked** in linseed oil, wood stains, or other wood- finishing materials in metal, water- filled containers or hung out on clothes lines until disposed of at a hazardous waste station. Do not ball them up and leave them in a pile or throw them into garbage cans. "We've put out several garage fires started from piles of lin- seed oil-soaked rags or paper towels," says Littfin, adding that in tests, piles of balled-up rags soaked in linseed oil started to smoke in only 45 minutes.

**4. Pesticides and fertilizers** (organic, inorganic, or synthetic ones containing nitrates and organic matter) can be safely stored in their original contain- ers away from curious children. "The biggest problem is when people experi- ment and begin to mix pesticides and fertilizers on their own," Littfin says. "Clean out containers after using them, especially ones that had nitrate fertiliz- ers in them."

**5. Planter boxes with peat and fertilizer pellets**, when given the right mix of sun and water, may combust. "It took

just the right combination of these things," says Littfin, "but we've put out two fires in five years that started in window boxes. Be aware. If you smell smoke, check the window boxes on your balcony or deck, too."

**6. Improperly cured (wet) hay and manure** can spontaneously ignite.

**7. Read and follow all manufacturers' instructions.** "If a product requires fresh air and ventilation for use, dis- posal, or storage," says Littfin, "then you'd better have fresh air and proper ventilation there."

**8. Garages are extremely hazardous** places for fires. The first tell-tale sign of spontaneous heating may be odors. If you smell something, check all con- tainers including mowers, rototillers, gas cans, and bags of charcoal.

**9. Lock up pesticide and fertilizer** con- tainers and keep all hazardous materi- als (gasoline and other volatile liquids) out of the reach of children.

**10. Keep working fire extinguishers on hand at all times.** ❁

*Diana Anderson is a Twin Cities writer, editor, and Master Gardener.*

**COMING IN THE SPRING:** There are many spring "goblins" you'll want to learn about before you begin digging in your garden. They'll get under your skin, force you to squeak an "eek," or put you under the weather for a spell. We'll tell you what to look for and how to combat other goblins in your garden.

## Language of Plants Getting Through Winter

BY GREG BURDICK

**BUD SET.** Woody plants form buds during the growing season. These buds should be fully developed and healthy by fall. A good "bud set" can serve as an indicator of the health of the plant. Prominent, uniformly shaped, and succulent buds indicate the plant has enough energy to leaf out the following spring. These buds form next year's leaves, and on early spring flowering shrubs, like lilacs, they form the flowers too. No buds in the fall, no leaves in the spring.

**DORMANCY.** All plants in our climate (zone 3-4) are dormant through the winter. Cellular division for vegetative growth, repair and reproduction cease, as well as most constituent metabolic processes.

Deciduous, woody plants that lose their leaves obviously have no means of generating energy during the cold winter months, and await the warmer temperatures of spring to "break dormancy" and continue growing. Gymnosperms (evergreens), while retaining their foliage through the winter, also remain effectively dormant all winter.

Keeping a live Christmas tree indoors, for example, is somewhat impractical. It must either remain dormant and thus be kept indoors for a very brief period of time, or be allowed to break dormancy and be treated subsequently as a house plant until temperatures warm sufficiently to harden it off to the outdoors again.

**HARDINESS.** In its simplest form, this term refers to a plant's ability to withstand cold temperatures. This definition, however, does not address the myriad of variables that research at the Minnesota Landscape Arboretum has shown also to be factors in winter survivability. Hardiness is generally thought to be a function of genetics. Selective breeding can improve cold tolerance, yielding a few individuals from the second generation that are hardier than the first. The

## What's in Bloom in September and October

### *Bottle Gentian and Downy Gentian*

BY CHASE CORNELIUS

September brings a changing of the color guard to the prairie. The long, fluttering yellow petals of gray-headed cornflower, *Ratibida pinnata*, leave the scene and we begin to discover the striking blue flowers of the bottle gentian, *Gentiana andrewsii*.

Discover is probably the most apt word to use with bottle gentian because the plant is usually less than 16 inches tall and likes to grow in grassy areas. What catches your eye is not just the unusual, intense blue of the clump of flowers on the stalk, but the closed cylinder formed by the petals of each flower and the plants' dark green leaves that are as smooth and shiny as patent leather.

Bottle gentian can be found at several spots along the foot path on the prairie, marked by posts 1 and 2. Pick up a brochure at either the prairie parking lot or the entrance to the prairie on the north side of Three-Mile Drive. The brochure contains a walking map of the prairie showing all the paths and marker posts.

In late September the elusive downy gentian displays its very deep blue flower when the sun is shining. In cloudy weather or in the late afternoon, the plant spi-

'Lights' series of Azaleas, developed at the Arboretum, are examples.

Certain other environmental conditions, however, also influence hardiness: the health of the plant prior to the dormant period, the rate at which the temperature falls, the magnitude of the temperature drop, the range of temperatures a plant is exposed to through the winter, and the frequency of temperature fluctuation, to name a few. Research continues here at the Arboretum and the Horticultural Research Center on the selection and development of hardy plants, and the factors that make them so. ❁



Bottle gentian, also called closed gentian, has its flower so tightly closed that bees are about the only pollinators strong enough to force their way into the flower. Photos this page: Chase Cornelius

als its trumpet-shaped flower closed so tightly that it forms a sharp point.

The best way to see the downy gentian is to take a Sunday prairie tour. Your guide will help locate a blooming plant.

There are no guided tours of the prairie in October, but the prairie grasses do put on their own display of deep rich fall colors. The downy gentian keeps right on blooming until the first hard freeze. ❁

*For the fall schedule of blooming prairie tours, see page 3. Detailed weekly bloom lists are posted at the Snyder Building through the growing season. Note that bloom periods vary year to year depending on the weather.*



Downy gentian is best located on a sunny day. Plants are only half as tall as the bottle gentian, but the deep blue color is even more intense.

## Amazing Turtles Demonstrate Winter Survival "Skills"

BY MATT SCHUTH  
Wildlife Specialist

As far back in time as Aesop's fable, "The Tortoise and the Hare," the turtle has been a symbol of slowness. Today, our tractors, lawn mowers, and other machines bear the turtle as a symbol of slow acceleration. In nature, however, turtles are capable of quick bursts of speed as they dive from a log or scamper off a muskrat house.

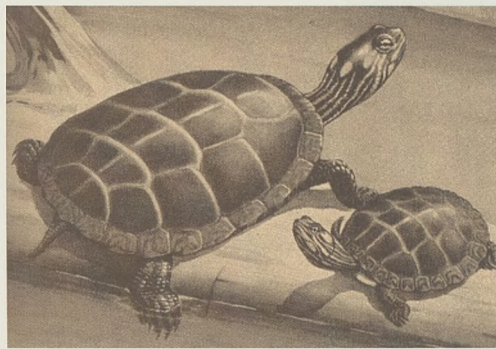
Although turtles are mute and deaf, they have excellent eyesight and a keen sense of smell. Turtles have survived for thousands of years secure in their protective shells. The portion that covers the back of the turtle is called the **carapace**, and the underside is called the **plastron**. The outer surface of the shell is covered with bony plates called **scutes**. A thin layer of living skin between the shell and the scutes allows the turtle to feel anything touching its skin.

Unlike other animals whose sex is determined by chromosomes, a turtle's sex is determined by temperature. Higher temperatures produce predominantly females, lower temperatures mostly males.

### Painted Turtles

Minnesota has nine native species of turtles. The Arboretum has two, the painted and snapping turtles. Painted turtles are distributed statewide and are the most populous turtle species in Minnesota. The reddish-orange color on the edge of the carapace and under the plastron allows for easy identification. Painted turtles become active in mid-April and can be seen basking in the sun on warm days.

Mating takes place in May, eggs are laid in June, and hatching begins in August. Painted turtles often lay two clutches of eggs in a year, with eight or nine eggs per clutch. With her hind legs, the female digs a hole three inches deep in loose, sandy soil, often on beaches, railroad rights-of-way, and road should-



Painted turtle illustration from *National Geographic*, May 1952. For more about turtles, consult *Handbook of Turtles* by Archie Carr, available for study in Andersen Horticultural Library.

ders. Adult turtles crossing roads are likely females moving to and from their nesting sites, as turtles rarely move from their foraging areas. Painted turtles live in the wild about 40 years.

Painted turtles have developed two amazing features that could have major implications for humans. Young painted turtles, after hatching, sometimes remain in the next through the winter despite temperatures dropping into the teens. As the hatchlings freeze, ice grows inward to the body core, and eventually the heart-brain corridor freeze. In this state, the young turtles experience no muscle movement, no breathing, no heartbeat, and virtually no brain activity.

They can accomplish this remarkable feat because fluids freeze between the body's cells. Within the cells, a special protein is produced to promote the formation of tiny ice crystals. This protein acts to keep the ice crystals so small that no damage is done to fragile tissues. Only the hatchlings have this special ability.

Although adult turtles cannot withstand freezing temperatures, their winter survival is no less spectacular. They bury themselves in the mud of river and lake bottoms where no oxygen is available. Studies have found that they can live in 37-degree water, without oxygen, for 150 days.

Painted turtles have developed the greatest tolerance for oxygen deprivation of any vertebrate animal. Their metabolic

rate goes into arrest and, with a tenfold drop in the rate, the fuels they have stored for the winter last much longer.

### Snapping Turtles

The snapping turtle is Minnesota's largest. The record snapping turtle was captured in Itasca County and weighed 65 pounds! The snapper is aggressive and can be dangerous. It can deliver a damaging bite and needs careful handling. If you must pick one up, never hold it by its tail, as this will severely damage its spinal cord.

Snapping turtles are omnivorous. They feed on amphibians and reptiles as well as on birds, small mammals, and aquatic plants. They must feed while submerged because they require water pressure to swallow.

Adult female snapping turtles lay their eggs in June. Nests contain 20-30 white leathery eggs that resemble ping-pong balls. Little snappers appear in 55 days.

### Blandings Turtle

A third turtle species that we don't have at the Arboretum but nevertheless merits special concern is the Blandings turtle. Classified in Minnesota as threatened, it receives total protection. It is easily recognized by its yellow neck and chin. The best place in Minnesota to view this turtle is at the Weaver Dunes in Wabasha County, which may have the largest population of Blandings in the world.

At the Arboretum, painted turtles have appeared at Spring Peeper Meadow and other wetland research areas. They can be seen basking along the pond behind the Snyder Building. Snapping turtles usually appear in our area in May and June. Several years ago a snapper was seen laying her eggs in the yard at the lake cabin at the Horticultural Research Center.

While we still have much scientific information to learn from turtle behavior, perhaps the most important lesson humans can learn from turtles is to slow down and bask in the sunshine for a while. ❁

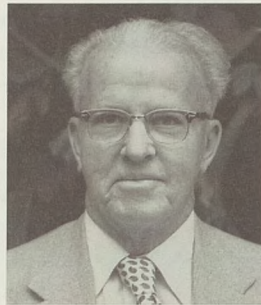
## Arboretum Honors Those Who Leave Legacy

BY HARLAN CAVERT  
Planned Giving Officer

At the Arboretum, we have a “hall of fame” called the Leon Snyder Heritage Society. Named for the Arboretum’s founder and first director, Dr. Leon C. Snyder, the Society was established to honor our friends who include the Arboretum in their estate plans. Its members have committed to “leave a legacy” to underwrite the Arboretum’s work in future years or future generations.

Leon Snyder Heritage Society members’ commitments take many forms. They include bequests in wills and living trusts, beneficiary designations in life insurance and retirement plans, and life-income arrangements such as charitable gift annuities, charitable remainder trusts and lead trusts. It’s not the amount of the gift that counts; it’s the discernment to plan ahead and provide today for tomorrow’s needs.

*If only we had known!* The Arboretum



Dr. Leon Snyder

recently received surprise bequests of over \$150,000, and over \$500,000 from the estates of donors we never had the opportunity to thank. Of course, we very much appreciated the gifts. Most of the funds will go into our general endowment, where they will produce income to maintain the gardens and strengthen our education and research programs far into the future.

But our pleasure is tempered by the regret that we did not have an opportunity to express our gratitude to these benefactors. If we had known of these bequests while the donors were living, we would have let them know how much their gifts would mean to the Arboretum.

Saying “thank you” is important. So we encourage our philanthropic friends to tell us when they include the Arboretum in their estate plans. When they do, we welcome them to membership in the Leon

### LEON SNYDER HERITAGE SOCIETY LUNCHEON

The Arboretum Foundation will host members of the Leon Snyder Heritage Society at a luncheon on Wednesday, September 22, 12–2 p.m. This event will honor and recognize the Society’s members, celebrate the spirit of philanthropy, and provide an update on exciting new developments at the Arboretum.

Invitations are being mailed to Heritage Society members. If you are a Society member and do not receive your invitation, or if you are not currently a member and have included a gift to the Arboretum in your estate plans, please call 612-443-2460, ext. 231, by September 3. We would be honored to acknowledge your planned gift by offering you membership in the Society and inviting you to the luncheon.

Snyder Heritage Society, and invite them to attend special events (see notice above) and be listed in our annual report.

To learn more about the Leon Snyder Heritage Society and how to leave a legacy at the Arboretum, contact Harlan Cavert, planned giving officer, at 612-443-2460, ext. 231, or email [Harlan@arboretum.umn.edu](mailto:Harlan@arboretum.umn.edu). ❁

## Volunteer and Community Support Makes Great Things Happen at Spring Peeper Meadow



Planting for the future, volunteers create a legacy as they help reforest the hillside at Spring Peeper Meadow. Photo: Julia Bohnen

BY JULIA BOHNEN  
Wetland Restorationist

Our knowledge about the diversity of animal life in Spring Peeper Meadow keeps increasing, thanks to many volunteers. Two birdwatchers, Arlene Matson and Mary Heltsley, pass along their lists of birds observed at the site. Two elementary school children and their teacher are conducting a monarch butterfly study in conjunction with a scientist at the University. Two American kestrel houses were built last winter by Bob Schmidt.

During the growing season of 1999, staff and 200 volunteers helped plant about 5,000 trees in the forest restoration area. The seedlings were planted in difficult conditions. Much of the area has com-

pacted clay soil, which made digging very hard and tended to form large thick clods.

A small grant from the Minnesota Department of Transportation enabled us to seed the roadside along County Road 41 and 82nd street with native grasses. The MnDOT performed the actual seeding as part of the grant. (The grasses germinated and continue to grow.)

You still have time to enjoy SPM’s beauty. Here are a few things you might see in early fall: *Bidens spp.* (Beggar’s ticks); *Aster puniceus* (Red-stemmed aster); *Boltonia asteroides* (White boltonia); *Aster lanceolatus* (Swamp aster); *Aster umbellatus* (Flat-topped aster); *Gentiana andrewsii* (Bottle gentian). Grasses will be turning russet, red, and gold! Other plants will be in seed, attracting many seed-eating birds. ❁

## Northern Prickly-Ash—The Toothache Tree

### *A Citrus Tree in Minnesota?*

BY MARY C. SCHUMACHER

The woods are full of citrus trees! While walking the trails of the Minnesota Landscape Arboretum, I encountered an understory tree that emitted a lemony scent. Transplanted from my native state of California to a midwest region with a “big trees” environment, you can imagine my excitement when I discovered a “citrus” tree here in the Minnesota woods!

I noticed the tree blended well with other woody plants in thickets growing along the northern edge of the trail around Green Heron Pond. Its short smooth trunk grows up like a brownish-gray pole with thorns 1/3-inch to 1/2-inch long. Larger trees are clad in a peculiar bark that erupts all over with prominent bumps and knobs and warts.

The tree had dark green, oval leaflets arranged alternately on the leaf. They numbered 5, 7, 9, 11 or 13 to a leaf, depending upon the maturity of the stem. Some of the stems had tiny (1/5-inch long) capsules of reddish brown clustered together. When I split them, I discovered lustrous tiny black seeds inside that had an aromatic lemon odor.

My field guide identified the tree as *Zanthoxylum americanum*. The first name means “yellow wood” and the second, of course, means “American.” Commonly known as prickly-ash, it belongs to the *Rutaceae*, the Rue Family, which smells strongly of citrus and, in fact, is the family of orange and lemon trees. It is often considered a nuisance tree, but for me, the delicious citrus aroma overpowered the nuisance of the thorns.

Upon further research, I discovered that prickly ash can grow up to 25 feet tall. It is considered a shrub or a small tree, typical of understory trees of the native big woods of Minnesota that reach for the sunlight beneath larger tree canopy above them. Prickly-ash can form dense



Author Mary C. Schumacher, right, and fellow Arboretum tour guide and plant explorer, Gay Schmidt, admire a specimen of the northern prickly-ash/toothache tree. Photo courtesy Mary Schumacher

thickets in forest edges. It is abundant in moist woods from southern Canada and Minnesota to eastern Kansas and Virginia (zones 3 to 7).

An interesting fall visitor to the tree is the caterpillar of the giant swallowtail butterfly (*Papilio cresphontes*). It has the appearance of a bit of bird manure and, when disturbed, throws back its head and shoots out a pair of red glandular horns, giving off an odor like putrid orange or lemon peels. The caterpillar is originally found in the south in orange groves and works its way north on the leaves of the prickly-ash.

The Chippewa Indians of the region called the common prickly-ash the “Toothache Tree.” When the seeds, bark, and leaves were chewed, they tasted hot and astringent. The juice can have a numbing effect. Therefore, the tree is also known as the “Novocaine Tree.” Today, the lemon-scented oil, zanthoxylin, is used in some drug preparations. (My walking companion, Arboretum Tour

Guide Gay Schmidt, and I decided not to engage in the fabled protocol of pesky plant people: “It takes one to eat it and one to take notes.”)

The handsome, dark green leaves will soon turn yellow. I can hardly wait until next summer to experience the tree again and see if the leaves and fruit have the same delicious lemony aroma. It seems less painful now to reminisce about the orange and lemon groves of my native California when I can enjoy the prickly-ash’s citrusy fragrance right here at the Minnesota Landscape Arboretum. ❁

*Mary Schumacher is an Arboretum tour guide and writer/poet. In June 1999 she received a Master’s degree in education from the University of Minnesota. She is the facilitator of a program called Compare and Compose, an experiential nature walk through diverse plant communities, combined with creative writing. Mary introduced the program, which is suitable for any population or environment, at the Arboretum in 1996. In May 1999, the second grade class at St. Therese School in Deephaven participated in the program. Their poems are currently on exhibit in the small display cases near the auditorium of the Snyder Building, along with more information about this unique environmental education program.*

*Thanks to volunteers Greg Burdick, Chase Cornelius, and Mary Schumacher for their contributions to this edition of the newsletter.*

## DIRECTORY

GENERAL NUMBER  
(612) 443-2460

DEPARTMENT	#
General Info	1
Plant Info	2
Tours	3
Classes	4
Events	5

DEVELOPMENT  
(612) 443-3010

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(612) 443-2440

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(612) 443-2460, ext. 180

MEMBERSHIP  
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RESERVATIONS  
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Ext. 772

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(612) 443-2460  
Ext. 113

FAX (612) 443-2521

WEBSITE  
www.arboretum.umn.edu



MEMBERSHIP  
PRIVILEGE NUMBER  
(612) 624-4776

SUMMER HOURS  
Through September  
9 a.m.–3 p.m.

WINTER HOURS  
9 a.m.–1 p.m.  
Weekdays

Present name and member number. Always dial the above-listed number for the direct Arboretum member line. This benefit of membership is a call-in service only and is non-transferable.



### FOR MEMBERS ONLY—FALL BOOK FEATURE

Want to improve your gardens? Spend this winter reading *Growing Perennials in Cold Climates*. The first book ever of its kind, it's now available at a special 15% discount for members. Authors Mike Heger and John Whitman list more than 1,700 plants proved to thrive in cold climates (including ratings for selecting top performers), discuss how and when to transplant perennials, and *much* more. Regularly \$49.95.

Discount on this item only. No further discounts on featured book. Bring in this notice to receive discount. Valid until November 1, 1999.

GENERAL ADMISSION: \$5 for adults, free for members and for children 18 and under. Gate fee is waived after 4:30 p.m. on Thursdays all year.

PLEASE NOTE: Pets are not permitted on Arboretum grounds, with the exception of dogs working to assist persons with disabilities.

### Apple House Is Open Through October 31

Come to the Arboretum's Apple House for the finest in apples, grapes, plums and other fruit, as well as caramel apples, apple butter and cider. The on-site gift shop offers a delightful assortment of apple-related books, gift items, and other treats. Members receive their usual 10% discount on all purchases.

HOURS: MON.–SAT., 10 AM–6 PM; SUN., 12–6 PM

### HOURS—THROUGH OCTOBER

	MONDAY–FRIDAY	SATURDAY	SUNDAY
GROUNDS	8 AM–SUNSET	8 AM–SUNSET	8 AM–SUNSET
SNYDER BUILDING	8 AM–5:30 PM	8 AM–5:30 PM	11 AM–5:30 PM
LIBRARY	8 AM–4:30 PM	11 AM–4:30 PM	11 AM–4:30 PM
GIFTSHOP	10 AM–5:30 PM	10 AM–5:30 PM	11 AM–5:30 PM
TEAROOM—LUNCH	11 AM–2:30 PM	11 AM–3:30 PM	11 AM–3:30 PM
TEAROOM—SNACKS	10 AM–3:30 PM	10 AM–4:30 PM	11 AM–4:30 PM

### GIFT OF MEMBERSHIP

*Year-round gifts* for year-round giving—birthdays, anniversaries, housewarming, weddings, or any special occasion.

*Gift of memberships* to the MLA are a gift of beauty, education and entertainment that will bring you a lifetime of memories and enjoyment.

*If you enjoy your Arboretum membership*, won't you share the Garden with someone special in your life? Call the Membership Office at 612-443-2478 or visit our Lobby Information Desk for more information.



MINNESOTA LANDSCAPE ARBORETUM FOUNDATION  
3675 ARBORETUM DRIVE, P. O. BOX 39  
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