

ARBORNOTES

A Newsletter of the Arboretum Associates

December 2009



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www.uidaho.edu/arboretum

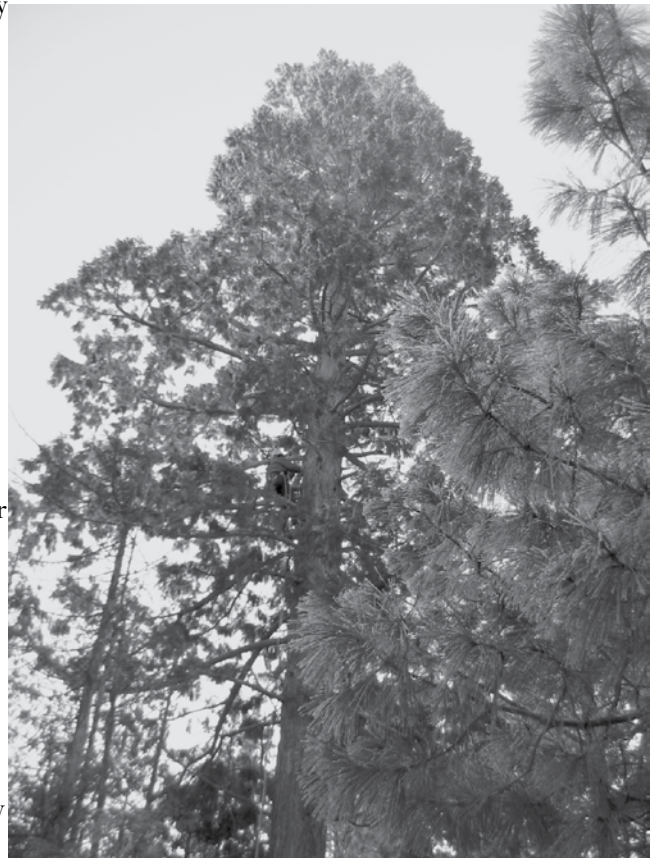
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Cloning the Shattuck Giant Sequoia

In recent years, the possibilities of cloning various animals, including humans, has been in the news frequently. The science of cloning is still developing and only time will tell how we will be affected. Many people may not realize that plants have been cloned for thousands of years. A large majority of the woody plants commonly cultured for food or landscaping are clones. One of the amazing things about most plants is that it is relatively easy to take a small part of a plant, treat it correctly and it will reproduce itself. Perhaps the easiest example would be rooting a stem of ivy in a glass of water. With modern tissue culture it is possible to accomplish the same thing using only a few living cells from a bud.

One of the oldest methods of cloning plants is grafting, the process of taking a piece of one plant and attaching it to another similar growing plant. If the process is done correctly, the grafted piece will knit with the growing understock and resume growth. The first basic requirement in the process is using similar plants for example, an apple can be successfully grafted to another apple, but not to a peach. The second is matching the cambium layers of the two plants. The vascular cambium is a layer of living dividing tissue under the bark. Then the pieces must be bound together tightly until growth resumes.



Ken Dola, campus arborist, climbing the Shattuck Giant Sequoia to get cuttings for grafting. 1-22-09 Paul Warnick photo.

Last winter we started cloning the Giant Sequoia (*Sequoiadendron giganteum*) growing in the Shattuck Arboretum. According to historical records, three Giant Sequoias were planted in the Shattuck Arboretum in 1916. In 1935 they were reported to have the largest diameter trunks of any tree in the Arboretum, although many other trees had

continued

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A Newsletter of
the Arboretum Associates
University of Idaho
Arboretum and Botanical Garden

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DECEMBER 2009

been planted up to six years before the Giant Sequoias. The three trees apparently survived and grew until the severe winter of 1968-69 when temperatures in Moscow reached nearly -50° F. Two of the three trees died the following spring. The third tree survived and continues to grow. It was the largest Giant Sequoia in the state of Idaho for many years, but now it has been replaced as the largest specimen by a tree in Lewiston and another in Boise. Both of those trees have the advantages of a longer growing season as well as some summer irrigation.

Two years ago one of the student crew members graduated and was hired as a horticulturist for the Morton Arboretum in the Chicago area, one of the premier plant collections in the country. Somewhat surprisingly the Morton Arboretum does not have any Giant Sequoias in its collection. Since the Shattuck Sequoia survived the extreme winter of 1968-69 it seems likely that it might be more cold hardy than most Giant Sequoias; so the Morton Arboretum asked if we could get them a start of it.

Last winter I arranged with Porter-Howse Farms nursery in Oregon to graft the Shattuck Giant Sequoia. In January, Ken Dola, the campus arborist, climbed the tree and cut pieces including the current year's growth. I placed those pieces in a plastic bag with moisture and sent them to Oregon. Don Howse of PorterHowse Farms, who was the speaker at the 2009 Arboretum Associates Annual Meeting, provided the following update:

"...In January the scions were grafted, using a side or veneer graft onto young seedlings of *Sequoiadendron giganteum*. The graft technician prepared the scions by cleaning the foliage away from the lower stems of each scion. He or she also prepared the young seedling, also known as an understock, by cleaning off any growth along the lower portion of the stem. We have found that grafting scions of this species is most successful when the scion is grafted onto green succulent wood, rather than older hardened wood. So, the understock seedlings need to be rather young, or the scions need to be grafted higher up the seedling trunk where the wood is more green. Using a very sharp knife a slice, approximately an inch in length, was cut from one side of the scion at the base of the stem, exposing the cambium layer and the heart wood. On the opposite side of the scion a shorter cut was made, so a wedge was formed at the very base of the scion. A cut of similar length was then made on the side of the seedling, which formed a flap, and exposed the cambium layer there. The grafter then placed the scion into the open flap, with the longer cut against the trunk of the seedling. The



Nine month old Giant Sequoia graft. 11-11-09
Don Howse photo.

cambium layers of both the seedling and the scion needed to be in contact. The more contact of the green cambium tissue the better for the tissues to knit together, and a successful graft to occur. With great care the grafter held the two pieces together and did not allow any slippage to occur, while he or she carefully wrapped the wound with a rubber grafting band. The elastic band sealed the wound and held the scion and seedling together. The finished graft was then placed in a nursery tray with the other young grafts and the tray placed on the gravel floor in a cool and humid greenhouse. The young grafts were put under a tent of plastic for the first few weeks, to keep the humidity high. The tents were opened daily to allow air exchange and to prevent bacterial or fungal diseases from occurring. After about six weeks the plastic tent was removed and the young grafts were kept in the greenhouse where there was good air circulation, but also protection from climatic variations outside the greenhouse. The young grafts were inspected daily until

summer when they were moved from the greenhouse and potted up into larger nursery pots. These larger pots were then set outside in a nursery bed with overhead irrigation. The successful grafts are today growing in those pots that reside in the nursery bed....”

The nursery was successful in grafting 86 Giant Sequoias. PorterHowse Farms will keep half of the successful grafts and transfer the balance to the Arboretum. We hope to distribute some of the grafts to other arboreta such as the Morton Arboretum and sell some for a fundraiser. Before we can market the plants we need to name the clone. We are looking for suggestions for an appropriate name. The name should ideally reflect something about where it originated and perhaps something referring to the extra cold hardiness. Please see the accompanying article for more details on rules for naming cultivars and entering your suggested name.

~Paul Warnick

Presidents Report

The Arboretum Associates held their 32nd Annual Meeting April 30th, 2009, in the University of Idaho College of Law Courtroom. During the short business meeting Arboretum Horticulturist, Paul Warnick, provided the audience with an update of activities in the Arboretum as well as a summary of future goals for the spring and summer season. After a report from Treasurer Joy Fisher, Karen Burnett was elected to a Member at Large position on the Arboretum Board and Keith Bromley was elected Vice President. The evening concluded with presentation by Don Howse who shared his passion for collecting, propagating, and selling conifers.

Arboretum Associates once again had a busy year promoting and raising funds for the continued development of the Arboretum. The Arboretum Associates Annual Plant Sale held in June was a huge success. Money raised by events such as this helps to fund key projects such as the construction of the Asian Pergola and continued expansion of plantings.

For the first time in the history of the concert, rain canceled the annual program sponsored by the Lionel Hampton School of Music and the Arboretum Associates in July. Thanks to Professor Dan Bukvich and the many talented musicians who had rehearsed for the performance. We plan to try again summer 2010.

As we enter into the holiday season, it seems timely to give thanks to all who contribute so much to making the Arboretum such an incredibly beautiful place. As always, we are grateful to Paul Warnick, and appreciate his dedication to maintaining and improving the Arboretum, particularly in view of budgetary reductions that resulted in staffing cuts this year. We are also grateful to the members of Arboretum Associates whose generosity and support make it possible to maintain and enhance the wonderful resource the University of Idaho Arboretum and Botanical Garden is to this community.

~Jan Leander

Naming the Shattuck Giant Sequoia Clone

It might seem that naming a tree would be a simple process—but, much like naming a child or a pet it is actually much more complicated than you might think. First of all, there are internationally recognized rules established by the International Society for Horticultural Science (ISHS). They publish a 123 page book, *International Code of Nomenclature for Cultivated Plants*. The code includes detailed rules for names, an extensive glossary, and a list of International Cultivar Registration Authorities. Those authorities are responsible for tracking and registering names within a particular group of plants. For example, the Royal Horticultural Society in Great Britain is the official registration authority for nine different groups of plants: clematis, conifers, daffodils, dahlias, delphiniums, dianthus, lilies, orchids and rhododendrons.

Now that we have been able to successfully propagate the Giant Sequoia from the Shattuck Arboretum, the next step is to create a unique name for the clone. Fortunately, with Giant Sequoia it shouldn't be too hard to come up with a unique name since there are only ten other cultivars listed on the American Conifer Society web page. Most of them have been selected for different attributes—color, variegation, and dwarf growth habits. It would be much more difficult if we were naming a new daylily, where there are currently over 60,000 named cultivars!

There are a few basic guidelines to naming a new cultivar which have to be followed. Cultivar status is indicated by enclosing the cultivar name within single quotation marks. The cultivar name is printed in standard text, and added on to the end of the scientific name for the species printed in italics (i.e. *Sequoiadendron giganteum* 'Blue Iceberg' is an existing cultivar).

The cultivar name can only include 30 characters not including spaces. Each word in the name must start with a capital letter, unless linguistic custom demands otherwise (i.e. *Malus domestica* 'Beauty of Bath' is an accepted name for an apple). Generally speaking the name should not include words in Latin or terms that might be confused botanically (words like form, variety, hybrid, sport, strain). If the name includes the name of a living person, there needs to be documented permission from that person to use their name. Obviously, the name cannot be offensive or make false claims about the attributes of the plant.

After a name is selected, a form is submitted to the International Cultivar Registration Authority (the Royal Horticultural Society in this case). The form includes descriptions of the plant's attributes along with information on the people involved in selecting the cultivar.

Given these guidelines we are holding a contest to name the Shattuck Giant Sequoia. Ideally the name will promote both the University of Idaho connection and the cold hardiness of the cultivar. The winner's name will be included as the nominator when the cultivar name is registered with the Royal Horticultural Society, and the winner will be given one of the new grafted trees and an official certificate when the cultivar name is registered. In the case of duplicate entries, the first entry received will be judged the winner. Contest entries must be postmarked no later than March 15, 2010.

Entries should be mailed to:

University of Idaho Arboretum

P.O. Box 442281

Moscow, ID 83844-2281

ENTRY FORM

Sequoiadendron giganteum ' _____ '

Date: _____

Name: _____

Address: _____

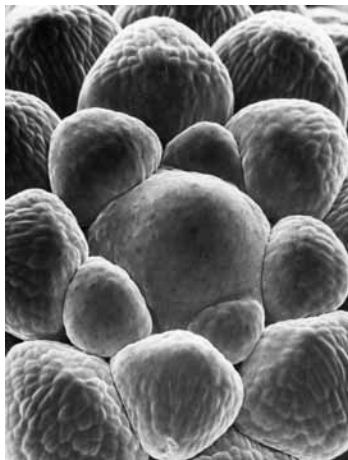
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Campus Conifer Curiosities

In the northern hemisphere conifers typically dominate in our year-end holiday décor. Dried cones (strobili) of the seed-bearing (“female”) kind prevail. In the conifers most species have two kinds of strobili which develop on each tree but commonly at different sites along branches or in the tree crown. Pollen-bearing cones (“male”) are short lived, and are smaller than mature female cones. The male cones fall after pollination; they are typically more numerous than the seed-bearing (“female”) ones. (In the Junipers the female cones have a few fleshy scales which remain tightly appressed through maturation—to the extent that they are falsely called “berries.” Strictly speaking, berries are one kind of fruit and fruits are unique to flowering plants).

Female cones of our common conifers (Pine, Spruce, Larch, Douglas-fir) can range in size from one inch or less to twelve or more inches. Fleshy juniper cones are pea-sized or smaller. In conifers, cones are unbranched and unisexual; with the exception of some junipers and other taxa, our common coniferous trees each have both kinds of cones strictly separated and unisexual. Ultimately, cones, buds, bud scales, and leaves develop from tiny shoot apices (“apical meristems”) at stem tips. What ultimately develops from the apices is determined by complex interactions of a myriad of plant growth regulators (“plant hormones”).

If one carefully opens the scaly terminal buds of a spruce at this time of the year, for example, and microscopically examines the contents, one will find the domed terminal apex (ca. 0.1mm wide) subtended by many young leaf initials (“leaf primordial”). Elsewhere on the spruce stems, one can find the initials of both male and female cones.



Spruce vegetative shoot apex—the central dome ca. 0.1mm diameter—surrounded by newly formed young leaves. Electron micrograph by Helen M. Bobisud.

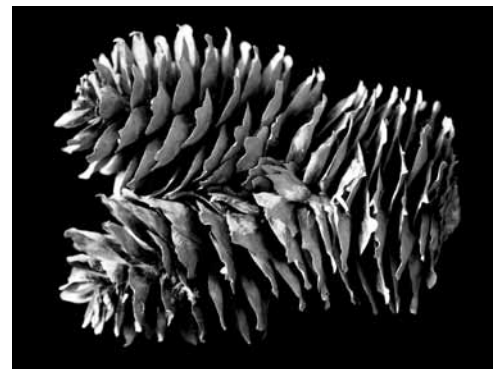
These photographs show three uncommon to extremely rare variations from campus conifers. In some larches (*Larix* species), especially in young trees, the apex of some female cones become vegetative again and small branches develop out of the cone tip—one form of uncommon proliferation.

Most rare of my cone specimens are bifurcated cones such as the forked, museum-quality, Norway spruce cone. It was found on campus by Alvin A. De Jong autumn semester 1971 during his one-year professorship at UI. Apparently the apex which gave rise to this specimen forked after the initial basal scales developed.



Western Larch seed cone with unusual proliferation of the cone apex into a vegetative stem; collected from the Arboretum and Botanical Garden, 2008. Photo by Richard J. Naskali.

The last photograph shows the highly unusual bisexual cones which annually develop on one particular Norway spruce growing at the edge of our Shattuck Arboretum. The tree, at least 50 years



Bifurcated Norway Spruce seed cone found on UI campus, fall 1971 by Alvin A. De Jong. Photo by Richard J. Naskali.

of age, regularly forms a small percentage of its cones, each of which is pollen-bearing (“male”) at its base and potentially seed-bearing (“female”) at its tip. This phenomenon is extremely rare and a special reward to observe!

~Richard J. Naskali

Bisexual Norway Spruce cone—pollen-bearing male at base and potentially seed bearing female at tip—an extremely rare occurrence repeated annually on one Shattuck Arboretum tree. Photo May 25, 2008 by Richard J. Naskali.



Leaning Trees in the Shattuck Arboretum

There is a group of Spruce trees just west of the Shattuck Arboretum Amphitheater which has always leaned somewhat toward the south. During a couple of the summer barbecues that are held in the amphitheater several people mentioned that the trees were leaning more than ever. David Rauk, the campus horticulturist, and Ken Dola, the campus arborist, examined the trees and could not find any obvious signs of damage or signs of the root balls lifting out of the ground. However, Charles Zillinger looked through his photo archives and found with these comparative photos.



Looking west toward the Shattuck Amphitheater, summer 2002, amphitheater renovation is under way. Charles Zillinger photo.



Looking west toward the Shattuck Amphitheater, summer 2009, new chilled water line installation is underway. Charles Zillinger photo.

It is a mystery why the trees would be leaning so severely. They are a significant distance away from any of the current construction disturbance and nothing else has changed in that area since the 2002 photo. The lean is not in line with prevailing winds and due to the slope to the south they really are not leaning toward light. One possible explanation is the heavy snow loads over the last two winters. It has been decided that the two worst 'leaners' are becoming hazardous, and they will have to be removed this winter.

~Paul Warnick

Additions to the UI Presidential Grove on the Administration Building Lawn President F.W. DeKlerk Plants a Tree in the UI Presidential Grove

The Presidential Grove of ceremonial trees on the UI Administration lawn was begun April 10, 1911, when former U.S. President Theodore Roosevelt visited the campus and planted a Colorado Spruce (*Picea pungens* var. *glauca*). Since that special visit, commemorative trees have been added by world



F.W. De Klerk plants a Grand Fir on the UI Administration Lawn April 1, 2008. Photo by Richard J. Naskali

leaders such as President William Howard Taft, U.S. Vice Presidents Thomas R. Marshall and Charles Curtis, Anna Eleanor Roosevelt, U.S. Senator Frank Church, U.S. Envoy Philip C. Habib, and other notables.

During his visit for the keynote 2008 Borah Lecture, Frederik Wilem De Klerk (b. March 18, 1936) planted a White Fir (*Abies grandis*) in the Presidential Grove April 1, 2008. Early in his Presidency of the Republic of South Africa, De Klerk freed Nelson Mandela from some 27 years of imprisonment in 1990—ending apartheid. In 1993, De Klerk and Mandela shared the Nobel Peace Prize.

~Richard J. Naskali

The Arboretum Associates Annual Plant Sale

The Arboretum Associates popular plant sale marks an annual milestone in each year's growing season. As Memorial Day approaches, area gardeners look forward to the sale as an affordable way to find something special: a plant not usually found here, a new cultivar of an old favorite, or a distinctive anchor that could lend new focus to their garden.

They know they will find affordable, attractive plants among the many from local and national growers, and those donated by local plant enthusiasts. In addition, the sale features plants cultured in the Arboretum hoop house especially for the sale. These plants have been planted, dug, divided, potted and nurtured by volunteers, so they are healthy and ready to plant.

This year's sale will include unusual annuals, favorite and rare perennials, trees, shrubs, beautiful conifers, grasses, vines and more. From Idaho and Northwest native plants to daylilies, geraniums, coleus and African daisies, Palouse gardeners know they will be able to find something just right for a pot on the patio, a hanging basket, or the perennial bed.

The 2010 sale will be held on Saturday, June 5, beginning at 9 a.m. in the covered ice rink area of the Latah County Fairgrounds.

In addition to the wide selection from a mixture of annuals and perennials, the sale will offer shrubs, trees, and xeriscape plants, as well as the usual variety of hostas. A knowledgeable and friendly staff of volunteers will stand eager to lend advice and help you carry your plants to the car. And as usual, each patron purchasing \$10 or more in plants will be entered in a raffle for a chance to win a beautiful planted patio pot.

Besides populating local gardens with attractive, unusual, and healthy plants, the Arboretum Associates annual plant sale generates funds that allow growth and improvements to the Arboretum. An annual delight to gardeners, the sale is also a valuable means of ensuring the Arboretum's continued success and health. If you love gardening, the Arboretum Associates' plant sale on June 5 will be the perfect horticultural start to a delightful summer.

~Keith Bromley



Freddie Lau lends a helping hand to his mother Audrey at the 2009 Plant Sale. Bill Bowler photo.



Paige Buehler was the lucky winner of this beautiful planter at the 2009 Plant Sale. Bill Bowler photo.



Thank you to the wonderful group of volunteers that made the 2009 Plant Sale a huge success. The three hour sale generated net income of \$8,830 to support the Arboretum. Bill Bowler photo.

Arboretum Associates Donor Roll

Thank you to the many generous donors who supported the University of Idaho Arboretum and Botanical Garden from July 1, 2008 to June 30, 2009. A total of \$39,504 was received from membership gifts, gifts for Arboretum endowments, and gifts to support specific Arboretum projects. Your support makes a difference.

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My Internship

Over the course of my summer as an intern at the University of Idaho Arboretum and Botanical Garden, I was involved in a few major projects in addition to general maintenance. The projects included expanding the xeriscape garden, planting hostas and European clematis, and installing drip irrigation systems and automatic sprinklers.

A new trail was added to the xeriscape garden the previous summer, and I was involved with placing rocks and plants in the new bed areas adjacent to the trail. The rocks were put in the bed to combat an erosion problem created by water running off the gravel road, but they also help to visually connect the new

bed to the rest of the xeriscape garden. The plantings were laid out in a color scheme with larger specimens placed to act as focal points. Some of the plantings included foxtail lily cultivars (*Eremurus*), *Echinacea*, *Penstemon*, yarrow (*Achillea*), catmint



Beth Moosman photo.

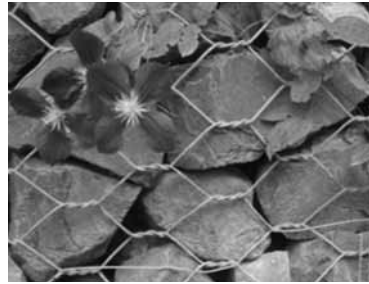
(*Nepeta*), hawkweed (*Hieraceum*), and *Rudbeckia*. I had a lot of fun with this project because I got to decide where to put the rocks, although my co-workers had to maneuver all but the smallest ones in place, and I became acquainted with many visually interesting plants.



Beth Moosman photo.

The European clematis project included a drip irrigation system installation to support the newly planted cultivars. This was my first extensive experience with drip system installation. The water pressure caused trouble for most of the summer because some of the drip emitters would detach from the drip line. Between this project and the hosta garden project, I became quite skilled at reattaching emitters by the end of the summer. I am excited to watch the clematis cover the gabion wall. Their beautiful, colorful blooms will add a lot of visual interest to that area of the Arboretum.

The largest, ongoing project of the summer was the installation of automatic irrigation zones. In total, we installed 12 zones, with an average of 15 sprinkler heads in each zone. It



Beth Moosman photo.

was satisfying to help with the installation from start to finish. This included choosing the area where we were going to install the system, flagging out the heads, installing valve boxes, watching the line puller at work, connecting the poly line into

a continuous system, installing the sprinkler heads, and programming the zones. There is an immense feeling of satisfaction when all the sprinklers pop their heads out of the grass after all those hours of work. The days of dragging hoses and sprinklers all over the Arboretum are numbered.

In addition to these projects, my internship offered a wide variety of experience with pruning and removal, propagation, equipment maintenance, and irrigation troubleshooting and repairs. I spent a lot of time mowing, planting, watering, and hand weeding—one of my personal favorites. Not too far into the summer, my appreciation for automatic irrigation increased when I took the 6 a.m. manual irrigation shift.



Beth Moosman photo.

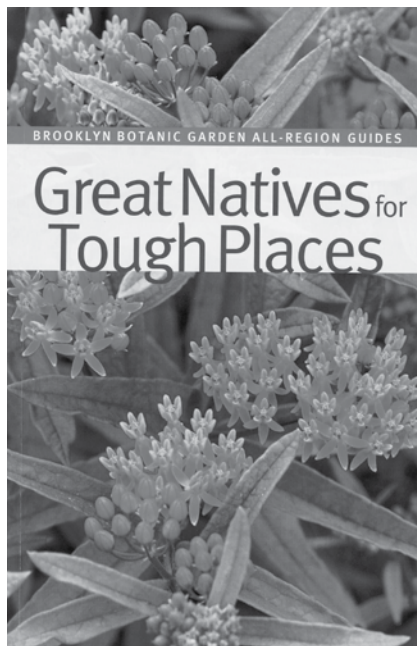
My internship was valuable first-hand experience with the challenges presented in managing a public garden. My respect for those individuals who are responsible for maintaining these areas increased during long days of fixing numerous breaks in an aeration line, cleaning up trees after storm damage, and pulling mowers out of mud. Every day had something new to offer. I feel fortunate to be employed at the Arboretum where I have learned many things I would not learn in a classroom.

~Beth Moosman

Two Fine 2009 Books for Wintertime Study and 2010 Garden Planning

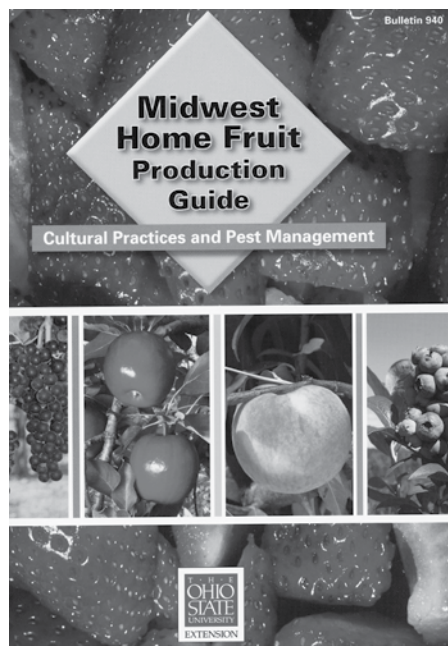
The Brooklyn Botanic Garden (BBG) and The Ohio State University Extension have recently released very timely and valuable books which relate well to gardeners on the Palouse. They are highly meritorious well beyond their price (less than \$15.00 U.S.) for their extensive facts, U.S.D.A. hardiness information, and stunning color illustrations.

The BBG book, part of its long-running Brooklyn Botanic Garden All-Region Guides, is *Great Natives for Tough Places*, 2009, edited by Niall Dunne. It presents an array of seldom discussed native U.S. plants, many of which are appropriate to our Palouse and its U.S.D.A. hardiness zone 5. Emphasis is on ornamental plants rather than human food plants. Woody plants, vines, and herbaceous natives are discussed; there are tips for planting designs, suggestions for matching the plants to soil moisture and various light conditions. The 119 page paperback book, priced at \$12.95 U.S., can be ordered by calling BBG (718-623-7286) or ordering online (bbg.org/handbooks).



From The Ohio State University, *Midwest Home Fruit Production Guide, Cultural Practices and Pest Management* (Bulletin 940), 148 pages, 2009, edited by Gary Gao, is a spiral-bound paperback of exceptional quality and coverage—un-

equalled in any publication of its size and price. It includes exhaustive data for common and very unusual fruits, as well as hard facts and stunning photos relating to pests and diseases and their control. In addition, there are illustrations on how to prune fruits from strawberries to grapes and how to make scaffolding by pruning apples, pears, peaches,



etc. Rehabilitation pruning of old specimens, watering, fertilizing, pollination, frost protection, harvesting, and post-harvest treatments are outlined for homeowners rather than for commercial orchardists. The excellent color photographs even include some photos from our UI Arboretum and Botanical Garden!

This Extension Bulletin 940 at \$14.00 U.S. (includes tax, shipping and handling) can be ordered by calling (740-833-2030) or ordering with a credit card from the OSU Extension's Estore at [<http://estore.osu-extension.org/product-details.cfm?PC=2174>]. You can also order with a personal check for \$14.00 drawn to OSU Extension and sent via the U.S. Postal Service to:

OSU Extension-Delaware, County, Attn: Cindy Kaelber,
149 North Sandusky Street. Delaware, OH 43015.

~Richard J. Naskali

Monthly Email Update

Every month around the 20th I send out a one page email update about what is happening in the Arboretum. I send the update as a PDF file that is always less than 1 MB, so it won't clog up your system with a long download. The update is also posted on the Arboretum web site, on the 'Bulletin Board' page. I occasionally send out an additional message if something in the Arboretum happens to be especially striking. If you would like to receive the update in your email please send an email request to: pwarnick@uidaho.edu. I 'blind copy' everyone on that list, and I will not share the list with anyone else. Your email address will remain confidential.

~Paul Warnick

Lillian Pethtel (1912 – 2009), First President, UI Arboretum Associates

Lillian Pethtel, a long-time Idaho gardener and resident of Kamiah since 1944, served on the volunteer team that founded the UI Arboretum Associates in the summer of 1978—two years before the completion of the master plan for the university's Arboretum and Botanical Garden. She died peacefully at St. Mary's Hospital in Cottonwood, ID Saturday, Oct. 17, 2009 at age 97.



Portrait of Lillian Pethtel at her 95th birthday, March 24, 2007.

Lillian was born March 24, 1912, at Stettler, Alberta, Canada, where her family homesteaded to raise wheat; they returned to the Boise valley in 1917. Initially named Idaho Alberta Gish, her name was changed to Lillian Idaho Gish reportedly on a parental preference for "Lillian." Lillian, schooled in Meridian, ID, and the Links School of Business, worked as a paralegal. She married Thomas Marion Pethtel February 24, 1931, at Meridian. In 1944-45, the Pethtel family moved to Kamiah, ID.

In addition to working with Tom on their dance band, teaching piano, and working their Kamiah land, Lillian became a master gardener, flower show judge, and a zealous gardener. In the latter 1970's she regularly drove to Moscow to participate in the public workshops which culminated in the UI Arboretum Master Plan in 1980. In summer 1978, Lillian teamed with the *ad hoc* group which founded the UI Arboretum Associates and developed its first constitution. In July 1978, its constitution was accepted and Lillian Pethtel was elected its first president; subsequently Lillian served as the secretary and was a member at large on the executive board for some years.

Over several decades Lillian actively worked with Idaho garden clubs and affiliated national committees holding many offices. She was Idaho State President of Garden Clubs (1971 – 1973) and Pacific Region Director National Council of State Garden Clubs (1985 – 1987). She was a Flower Show Instructor and her zeal for Idaho wildflowers led her to create a wildflower coloring book for the State Highway Department and the U.S. Forest Service. In practice, Lillian and other gardeners collected wildflower seeds, froze numbers of them into ice cubes, and cast them along roadsides

to re-establish native flowers. She was an avid student of the Lewis and Clark expedition plants. In 2003, she received an *Esto Perpetua* Award from the Idaho State Historical Society.

The UI Arboretum's prestigious collection of European lilacs (*Syringa vulgaris*) is largely the result of Lillian Pethtel's efforts and solicitations. During the 35th Idaho State Federation of Garden Clubs Annual Convention in Moscow (April 22, 1987), UI President Richard Gibb and many gardeners dedicated the European Lilac Constitutional Grove to commemorate the 200th anniversary of the U.S. Constitution (Sept. 17, 1987). As result of Lillian's political acumen and connections, Idaho Governor Cecil Andrus and Idaho Secretary of State, Pete Cenarrusa, proclaimed April 22, 1987 'Bicentennial Ceremonial Tree Planting Day' for Idaho.

For years after her husband passed away, Lillian continued independent living well into her 90's. She regularly wrote columns and commentary for newspapers including the *Lewiston Tribune*, *The Clearwater Press*, and the *Idaho County Free Press*. In a glowing final tribute to Lillian's legacy, Editor Ben Jorgensen (*The Clearwater Progress*, Oct. 22, 2009) summarized much of Lillian's character: "She didn't look to find fault in others, but had fearless zeal to confront ineptitude or buffoonery. She seemed impervious to what others said about her... She could weave bluntness with a mysterious subtlety in both written and spoken word."



Close-up of flowers of 'Glory' lilac (*Syringa vulgaris* 'Glory') plant contributed to the Arboretum by 'Miss Lillian' as she often was called by her peers. This cultivated variety, which may have the largest individual flowers of any lilac, often has five or more petals per single flower (when the characteristic number is four petals per flower). May 13, 2007. Photo by Richard J. Naskali.

Lillian is survived by her son, Thomas L. (Roy) Pethtel and his wife Mary Lou and three generations of grandchildren. Lillian's lifetime of contributions made a difference to Idaho and gardening well beyond the Clearwater Valley and her 'Plant and Pray Garden Club' of Kamiah.

~Richard J. Naskali

Report from the Horticulturist

It is hard to believe that I have been working at the Arboretum for nine years. I guess that is a testament to what a great place it is to work. Most days working in the Arboretum is the perfect job for me. I get to work with interesting plants outside in nice weather and I have a warm, dry desk job when the weather gets nasty.

Despite of budget cuts that resulted in a smaller crew, we were able to accomplish a lot of things this year. As always, one of my priorities is to be sure that we are able to add lots of new plants to the collection. The major additions this year have been a new collection of European Clematis to help soften the appearance of the rock gabion walls, significant additions to the Hosta collection, and the Xeriscape Garden, and the beginnings of a new collection of Groundcover Roses. Along with the Groundcover Roses, we are also starting a trial planting of several European herbaceous groundcovers. We are looking for an alternative to the big expanses of bark mulched beds under trees and shrubs, especially on the steeper slopes. As the housing construction industry has declined, the lumber mills in the area have cut back production. As a result, the price and availability of bark mulch has made it much less affordable. So, we are looking at planting groundcovers instead of using so much bark. The biggest challenge with using groundcovers is controlling the weeds until the groundcovers become established. We are applying a pre-emergent herbicide after planting the groundcovers. A pre-emergent herbicide prevents plants from growing, usually by inhibiting seed germination. We have tried five different cultivars of groundcovers so far. They have all done fairly well this first year—but the true test will be next spring when the flush of new growth begins.

Although new plantings are not a big priority in the Shattuck Arboretum, I do feel that we need to begin to add new trees there as well. As the Shattuck Arboretum passes the one hundred year mark, many of the trees have reached maturity and beyond and they are beginning to die. There is a Theater Arts class that does outdoor performance art. The students do most of their class work in the Shattuck Arboretum and they enjoy their time there. The class is offered every other year, and for the last two classes they have gotten together as a class and donated money for plantings in the Shattuck. Two years ago we planted a grove of Hemlocks, both Canadian and Western. This year we planted a grouping of flowering crabapples and an Eastern Flowering Dogwood on the fringe of the open area where the class is



Girl Scout volunteers planting groundcovers. 5-17-09 Paul Warnick photo.

usually held. Another donation was made for a planting in the Shattuck by the College of Natural Resources to honor the hundred-year anniversary of the College of Forestry. We transplanted a blister rust resistant Western White Pine (*Pinus monticola*), from the site of the Forest Research Nursery, using the Facilities tree spade.

There were several other new developments in the Shattuck this year where we began a program to install benches. We installed one bench this summer, honoring Vernon Burlison, University of Idaho Extension Forester, and we have another bench ready to install, honoring Ray Steinhoff, College of Forestry alum and local Forest Service Forestry Genetics Researcher. We hope to install ten total benches throughout the Shattuck Arboretum.

The University is in the middle of a project to install a new water tower west of the Shattuck Arboretum. It will store chilled water for cooling campus buildings. The project included installing two large waterlines from the new tower to existing lines by the Administration Building. The water lines had to cross the Shattuck Arboretum which was accomplished by cutting through a narrow spot west of the Amphitheater, then



Vernon Burlison bench, Shattuck Arboretum. 7-23-09 Charles Zillinger photo.

through the grass along the south edge of the Arboretum. The water line project also included installing a new irrigation line connecting to the existing re-claimed water system. That allowed the University to convert a sizable piece of turf irrigation from domestic water to reclaimed water, including the turf around the Amphitheater. Unfortunately, that wasn't completed until too late to get grass established this fall. However, we did get the disturbed area within the Shattuck prepared and hydroseeded with a mix of native grasses. That area will not be irrigated or mowed once it is established. We also made a new wood chip trail across the disturbed area to reduce the number of people tracking across the newly seeded area. In the process of the water line installation the existing cinder block restroom was inspected. The building was so outdated it would require too much money to bring it up to current codes and handicap accessibility; so it was demolished and removed.

Another continuing priority has been installing automatic

underground irrigation to replace the existing primitive hose and sprinkler system. We started the project five years ago; we are now more than half way complete with this Arboretum project. We started with the areas that were the hardest to water with hoses and sprinklers and have dramatically reduced the amount of time required for watering.

We installed three more sections of turf irrigation this year along with new sections of drip irrigation on the hosta and



Tree starting to split at the V. Paul Warnick photo.

continued

Charles Houston Shattuck's Moscow Arrival 100 Years Ago

Dr. Charles Houston Shattuck arrived in Moscow, Idaho September 1st, 1909 after traveling 3000 miles. In 1922, he recalled Moscow as a "dust covered little town...at the close of a long dry season, without one foot of pavement, either with no sidewalks, or more or less dilapidated ones made of boards mostly well worn and badly warped by the summer sun, the only bits of concrete walks being in front of the Hotel Moscow, the First National Bank, and Davids Department Store. So much for Main Street."



Steven Daley Laursen adds soil to the ceremonial tree in the Shattuck Arboretum. Sept. 12, 2009. Photo by Kelly Weaver, UI Photo Services.

In September this year (Sept. 11-12) the university began what will be a series of programs recognizing Dr. Shattuck's

contributions and "Celebrating 100 Years of Forestry Education."

C.H. Shattuck was born November 21, 1867 in Vandalia, MO; he died August 13, 1931 of a heart attack at his home in Idaho Falls, ID. After Shattuck left the University of Idaho in 1917 our historic arboretum was called "Arboretum Hill." Two years after Shattuck's death, the Idaho State Board of Education/University Regents approved renaming the arboretum the "Charles Houston Shattuck Arboretum" in his honor.

On Saturday, September 12, a small group of forestry alumni and friends, under the leadership of Anthony S. Davis (UI Forest Nursery Director) ceremonially planted a Western White Pine in the Shattuck Arboretum to mark one century of forest education in Idaho. Of the many hands shoveling soil around the new tree, Dr. Steven Daley Laursen (UI '80, '85; former Dean and UI President) participated.

For a 2010 issue of ArborNotes, I am writing a biography of Shattuck's life before, during, and after his employment at the University of Idaho.

~Richard J. Naskali



Drilling a hole in the tree at the split to put in a support bracket. Paul Warnick photo.

the clematis. All of the irrigation is controlled with wireless valve controllers which operate with a battery operated remote controller.

The final major project for this year is the construction of the Asian Pergola. That is an overhead trellis structure to support the collection of Asian Vines on the terraced slope in the northwest corner of

the Arboretum. The contract for construction was awarded this fall, and the contractor is currently working on fabricat-

ing the steel support structure. Depending on the weather when the fabrication is complete, it is possible that the installation could still happen this year—but more likely is that it will wait until Spring for better weather.

All of the plantings and other developments within the Arboretum are funded with donations. The only University funds spent on the Arboretum are for my salary and a maintenance budget for the crew of seasonal workers and maintenance materials. Your continued support (both financial and verbal) is greatly appreciated and fundamental to the continued development and improvement of the Arboretum.

~Paul Warnick

Mossy Rose Galls

Moscow roses, especially species roses, sometimes have unusual growths that perplex gardeners. Typically, hybrid tea roses and many other cultivated varieties, do not develop these “mossy rose galls.” These galls are common among our native roses and naturalized plants along roadsides.

The galls are caused by tiny wasps which do not sting people. As new shoots are developing in late spring into summer, the tiny adult wasps lay eggs into susceptible, developing rose shoots. As the eggs hatch, the developing wasp larvae form and emit chemicals which are analogues of naturally occurring plant growth substances (“plant hormones”). These analogues from the wasp larvae cause distorted development of the rose shoots: filamentous growths, somewhat resembling mosses develop in the place of typical rose leaves. The resulting rose gall, which often is one to two inches in diameter, is food to the larvae; it contains the growing wasp larvae through the winter and protects them from predation. The following spring to summer, adult wasps emerge from the now dried gall and the cycles repeat on susceptible roses.

The typical wasp in our area is the Cniped gall wasp, (*Diplolepis spinosa*) which is common from Ontario to Alberta and across the northern United States.



A developing mossy rose gall on a stem tip of the Red-leaved rose, *Rosa glauca*, July 29, 2008. Photo by Richard J. Naskali

These galls usually are not significantly damaging or harmful to your roses. If the galls are aesthetically displeasing, clip them off the shrubs as they develop and place the clipped developing galls into a small black plastic bag which should be tied closed and placed in full sunlight to ‘cook’ the wasp larvae. Insecticide application is ineffective. Alternatively, clip the galls in late summer to autumn (after

leaves have fallen and you can find the galls) and destroy them to reduce or eliminate more galls during the next spring-summer. Enjoy and appreciate the mechanisms that co-evolved between plants and insects.

~Richard J. Naskali

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