THE NEWSLETTER
LANDIS ARBORETUM
Esperance, New York
FALL 2002 VOLUME 21, NO. 4

WHAT'S Inside

Nick Zabawsky, chair of the Fall Plant Sale Committee, making last-minute adjustments to a sales table.
Photo by Gloria Van Duyne

FROM THE GARDEN

Photo by Fred Breglia

Gloria Van Duyne, Executive Director

We are nearing the end of another year. I know that I've spent a lot of time with Fred because my metaphors are taking on a similar theme. Fred likes to compare trees to people.

Looking back at 2002, I find myself comparing Landis to a young tree growing here on the hills above the Schoharie Valley. The flat, fertile river valley of Schoharie County is famous for its agricultural productivity. Historians refer to the Schoharie Valley as the "breadbasket of the American Revolution."

Conversely, the hills around the valley can be arduous. Bedrock often breaks the surface of hard, nonporous clay soils. Winds increase and temperatures decrease as one goes up in elevation. There are many other factors here that challenge the growth of a tree. The environmental conditions on Lape Road are not what we would choose if we were seeking a location for a new arboretum. But, we are working with what we have.

The health and progress of a tree is determined by observing the parts obvious to us—the foliage and branches—but this is only a portion of the tree. The most important component of the heath of a growing tree is root development. Roots take in nutrients and provide stability for the greater structure. Without proper root development, the rest of the tree could not be supported long term. Conditions on the hills of the Schoharie Valley can be difficult for root development. The dense and rocky soils provide challenges and obstacles.

I see a connection between young trees at Landis and the Arboretum's own development. We continue to grow, although it is not always obvious. We also have challenges that we meet as best as we can at that time and hopefully that path will be productive.

The past year is marked by the following accomplishments:

- WE HAVE received more press coverage in the last year than any previous year.
- WE HAVE a new website in progress at www.landisarboretum.org. Have a look and let us know what you think.
- OUR STRATEGIC Master Plan, after several years of hard work, is complete and will soon be ready for distribution.
- OUR INVOLVEMENT with other organizations in the community and other gardens across the country has resulted in strong support and useful contacts.
- WE PURCHASED our first piece of new mowing equipment – a commercial grade riding mower with funds donated by a foundation that wishes not to be thanked publicly.
- THE SPRING PLANT SALE grossed more than any previous sale. The book sales in 2002 raised over $1,400 thanks to the hard work of Mervyn Prichard and Herm Finkbeiner.
- THE FALL PLANT Sale raised $14,000. It was the best Saturday for a Fall Plant Sale (sales). Sunday was the worst day in the history of arboretum sales due to the threat of torrential rains that actually didn't start until 15 minutes before the end of the sale!
- OUR "TOUGH TREES FOR TOUGH SITES" collection is nearly complete.
- WITH THE HELP of a grant from the Iroquois Gas Pipeline, we will have all of our large photo-metal interpretive signs installed before the end of the year.
- PLANNING HAS BEGUN for renovation of the meeting house into a year-round facility.
- FRED HAS REPRESENTED the Arboretum and participated as a speaker at regional and international conferences. Fred's column (page 3) includes many more accomplishments.

Like the roots of a tree, growth continues at Landis, not always obvious and not without challenges. Sometimes an event or fundraiser is a

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Volume 21, Number 4
THE LANDIS ARBORETUM NEWSLETTER is published quarterly for its members. The Arboretum's mission is to provide natural history and horticultural education through its programs and through its plant collection.

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HORTICULTURIST'S Corner

by Fred Breglia, Head of Horticulture and Operations

Tree Topping Is a "Crime"

Topping a tree is the most harmful tree pruning practice known. Despite more than 25 years of education, research, and literature explaining the harmful effects, topping is still a common practice. Topping trees is the cutting back of tree branches to stubs, or to lateral branches that are not large enough to assume the terminal role. Anytime you cut back a branch to a lateral branch, the branch you are cutting back to should be at least one-third the diameter of the branch you are removing.

The most common reason for topping trees is to reduce the size. People often feel that trees get too large for their property and fear that these large, often tall trees pose a hazard to their homes and vehicles. Topping is not the answer. In fact, this practice creates even more hazards.

Since topping removes 50 percent or more of the leaf surface of the tree's outer crown, it also removes 50 percent of its food making mechanisms, the leaves. Trees can literally starve to death from topping. This severe type of pruning also triggers a survival defense mechanism. The tree will grow multiple shoots just below each cut in an attempt to put back those leaves that were removed so it can continue to produce the necessary food. Depending on tree species and whether or not the tree has enough reserves to put on this new growth, the tree may become seriously weakened and/or die.

Any tree under stress is always more vulnerable to insect and disease problems. Topping cuts are usually large and it is almost impossible for trees to seal these wounds, which leads to decay.

The survival mechanism that causes trees to put out multiple shoots can create a very dangerous condition. Unlike normal branch development in which branches grow from sockets or collars that are securely anchored to trees, sprouts that grow from topping wounds are very weakly attached to the tree. When these branches become larger, they are prone to breakage from wind, snow, and ice. The paradox here is that the goal of having the trees topped was an attempt to reduce the trees height and make it safer, but in the process, it is now much more hazardous than it was before any pruning was done.

There are times when a tree must be reduced in height. An alternative to topping trees is to perform a drop crotch technique. This involves taking the branches to be shortened back to the point of origin. If a branch must be shortened then you should cut back to a lateral large enough to assume the terminal role. The rule of thumb is to cut back to a lateral at least one-third the size of the branch that is being removed. This method of pruning helps to keep the original form of the tree intact.

Aside from all the long-term health problems associated with topping of trees, aesthetics are also an issue. Trees that are topped appear disfigured and ugly. Before you decide to have a tree pruned, be certain that the tree service you hire doesn't top your tree.

Remember tree topping is a "crime," so please honor Nature's laws!

From the Garden, **page 1**

bust or a previous source of funding is no longer available. A storm could destroy significant specimen trees. A volunteer suddenly is unable to devote their valuable time to the Arboretum as they have in the past.

Over the last seven years, I have seen steady progress toward Landis playing a more significant role in its community and becoming a world-class arboretum. It is currently one of the four most significant arboreta in New York State. We are where we are today because of each and every member and volunteer. Every dollar and every hour you contribute ensures our growth and future stability.

I thank all of you for your generosity. I also thank you for the opportunity to meet and work with many of you. Not-for-profit organizations draw people with diverse backgrounds and personal styles. The net result is a group of people who work toward a common goal and in the process enhance our own lives.

As the Director, I will ask you to watch for our Annual Appeal in the mail. Please respond generously—every dollar counts. Let us know what part of Landis is special to you. If you enjoy a particular collection or program let us know. If you enjoy working with the staff or other volunteers, we'd like to know that too.

COLLECTIONS News

by Fred Breglia, Head of Horticulture and Operations

Fall is a season of change. As I write this I look outside and see the bright reds and yellows of early-changing red maples, blending with the purplish tones of the white ash. The scarlet fire of the sassafras and amur maples combine with the brilliant orange of New York State's tree, the sugar maple, to form a wonderful color palette. There is no place in the world like the Northeast in the fall. As I walk the grounds and work outside, I find myself overwhelmed by the approaching color peak of autumn.

The trees of the Landis Arboretum are not the only things undergoing change around here. In fact, the already-beautiful grounds are receiving even more attention and are in the process of receiving yet another face lift.

Improvements to Grounds and Collections

The Camp Summit crew, part of the NYS Department of Correctional Services, has been helping us clear the hillside that you see as you approach the entrance of the Arboretum. As part of our Master Plan we will renovate the entire hillside to make our entry area a grand display to welcome visitors. The first step is to remove most of the invasive plants growing there, including buckthorn, black locust, and honeysuckle. Next we will need to rent a stump grinder to rid the area of the larger stumps left behind. After the stumps are removed we can begin to brush-hog the hillside to deter these invasive plants from growing back. The final steps include the selection and arrangement of plantings to create the grand vision.

With the help of the Private Industry Council (PIC) crew, we were able to get all of our collections mulched. The addition of mulch around specimen plants can enhance plant health by conserving water, controlling weeds, keeping mowers and trimmers away, and improving aesthetics. Proper mulching, pruning, and fertilizing are the key to how we can continue to improve the health and increase the vigor of the Landis collections.

We have completely recovered from the ice storm this spring with the last of the debris cut and cleaned up. I am happy to report that the large Fred Lape-planted laurel willow that broke apart during this year's storm has re-sprouted and is now over 12 feet tall. The laurel willow, with its dark, almost-black/green glossy foliage, and its twisted sister, the corkscrew willow, are my favorites in the willow (*Salix*) genus. We will have a limited number of corkscrew and laurel willows available at the 2003 Spring Plant Sale.

Seasonal cutting of our natural meadows is necessary to maintain these areas. You will notice the newly-cut areas as you walk the Willow Pond native plant trail and the northern-most boundaries of our natural areas. Brush-hogging has also been done along Lape Road near the Fred Lape Memorial Stone.

New Labels and Signs

We continue to improve the labeling of our collections. We have installed many more 3×5 inch photo-metal signs for our specimen trees, in particular the "Tough Trees for Tough Sites." The Landis Arboretum continues to work toward growing all of the trees Cornell University recommends as suitable for difficult planting conditions. I am proud to say that we are only 26 trees away from having every species and cultivar growing here at Landis.

Photo by Gloria Van Duyne

Anita Flanagan, Public Relations Manager, Iroquois Gas Transmission System

The Landis Arboretum was awarded a grant from the Iroquois Pipeline Land Enhancement and Acquisition Fund (LEAF) to purchase and install new 12 × 20-inch photo-metal interpretive signs around the grounds. These new signs will be installed in the collection areas as well as the native woodlands, and will greatly add to the visitors' experience by explaining in detail the many environmental wonders that you will see. The new signs have been ordered and will be installed late fall of 2002 or early spring 2003. As part of the LEAF grant we will be adding trailhead markers to our main trail heads as well.

A pine bush ecosystem display planting has been added to the Arboretum, just above the parking lot hillside. Using funds we received from The Nature Conservancy and the Albany Pine Bush Preserve Commission, and with our existing pitch pine as a foundation, we have incorporated woody plants and perennials to complete the demonstration ecosystem. Our soils here at Landis are definitely not sandy, but rather a clay-loam structure. This clearly shows the adaptability of many of the pine bush plants.

Photo by Gloria Van Duyne

We have also added a 12 × 24-inch photo-metal interpretive sign to aid in informal education. Photo-metal signs are the standard of the industry for arboretums and botanical gardens and the Arboretum is making great strides to convert all our signage to this style. These new signs come with a 30-year guarantee from defects and fading—and I am saving all the receipts.

Landis Garden Volunteers

Part of our Van Loveland Perennial Gardens have been renovated as part of the Perennial Garden Design and Plant Propagation Workshop given this past August by Fred Breglia, Ken Carnes, and Paul Blair. Areas of the gardens had all plants lifted and divided. Buckets of Freedom Organic Compost were incorporated into the existing beds. Paul Blair, Carol Loucks, and a small core of garden volunteers, with the help of the PIC crew, renovated the garden by the library. The old chip mulch was removed and crushed stone mulch was added to revitalize the alpine/rock garden design originally planned for this garden. The Beale Peony Collection, with increased care, gave us close to a month of bloom this year. Recently a group of volunteers from the Key Bank of Cobleskill spent the day at the Arboretum. We renovated the island garden in the lower parking lot—and it looks better than ever. The sedum and ornamental grasses combine to form a spectacular autumn display.

Native Plant Committee

The Native Plant Committee continues to add more exciting native plants along the Willow Pond Trail. In addition to the trees, many more tree labels and signs have also been used to help visitors understand the family grouping of these natives. The bog garden proved to be a successful venture. The water level dropped and rose depending on the rainfall received and the plants seemed to thrive regardless of the water level changes.

New York Old Growth Forest Association (NYOGFA)

On September 28 Landis Arboretum, headquarters for the Eastern New York Old Growth Forest Survey Team, gave an educational training day at Hartwick College in

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European Hornbeam

Carpinus betulus

by Laura Milak, Horticultual Intern

The European hornbeam is a beautiful, medium-size tree that is relatively pest free and contributes year-round interest to the landscape. It offers ornamental bark and buds that add visual spice to the winter garden; for the spring it presents pendulous, bract-topped catkins; in the summer its dark green, textured leaves form a beautiful, lush canopy; and in the autumn, it displays pretty, yellow bracts.

The steel-gray, fluted and muscled trunk gives it an architectural quality. Michael Dirr describes it as having an "air of aloofness unmatched by any plant." Aloofness is a very appropriate description! This tree can definitely stand on its own merit. It doesn't need an elaborate fringe of flowers at its feet to be beautiful or a nearby ornamentation of granite or marble to lend an air of significance. It is singularly important and handsome without overstating or flaunting itself in a brash sort of way.

Drawing by Anne Jaster

The European hornbeam has a symmetrical, ascending branching habit that contributes to its more formal appearance, making it ideal for use as a specimen tree in the larger lawn or garden. While it is a medium-size deciduous tree that commonly reaches 40 feet tall by 30 to 40 feet wide, it is capable of reaching heights of 70 or even 80 feet tall. It displays an oval habit when young, becoming more rounded and spreading in maturity.

The dark green leaves are alternately arranged, anywhere from 2.5–5 inches long and an average of 1.5 inches wide. The leaves are rounded at their bases, and ovate to oblong in shape with a double serration on their margins. They contain 10–13 sets of noticeably impressed veins. Unfortunately, the European hornbeam is not grown for attractive fall color. Its foliage display is unreliable, but if you keep it real happy, you might be rewarded with a nice golden color in October. Otherwise you can seek comfort in the pretty yellow bracts instead.

The decorative, reddish brown, imbricate buds are conical, long and slender. They are slightly pubescent and seem to curl around the twig. The stems and twigs are glabrous, slender and of an olive-green color; in addition they display interesting, distinct lenticels. Branches are smooth gray with older wood beginning to develop the characteristic muscled appearance that is the tree's trademark.

The trunk is clothed in a smooth, steel gray, fluted, muscled bark, which is perhaps the most handsome feature of this tree. It contributes to its overall uniqueness, especially when the tree is utilized as a focal point in the garden.

The non-ornamental flowers are monoecious, meaning that separate male and female flowers are present on the same tree. They are formed before the leaves emerge in the spring on catkins that dangle from pairs of three-lobed bracts. The pistillate (female) and staminate (male) catkins are then wind-pollinated with spring breezes.

After pollination, the ribbed, nutlets form at the base of the bracts. These brown fruits mature in September and October. They are surrounded by the three-lobed bracts (now yellow) that form roof-like structures. These fruits are heartily relished by birds seeking a tasty meal.

The European hornbeam appears to resent fall planting. It is best to transplant young, balled and burlapped or containerized trees in the spring for the most favorable results. It has a preference for moist but well-drained soil, but it is fairly tolerant of most soil types and acidity levels. Full to partial sun exposure is optimum, but here again, this exceptional tree is forgiving and it will endure light shade. It is also moderately tolerate of pollution, making it a possible candidate for urban landscapes. Once established, it is a long-lived tree able to reach a maximum age of 150 years-old.

Carpinus betulus, or the European hornbeam, is a member of the Betulaceae. Its name carpinus is Latin, and betulus means "like birch." Its natural range was in temperate Europe, Asia Minor, southeast England and south Wales. In its European homeland, the European hornbeam is used extensively for clipped hedging and formal allées. In this country, we have utilized its beauty as an ornamental shade tree, either as a specimen or in small groupings. Although it requires very little pruning by nature, it will tolerate pruning; consequently it makes a very cooperative screen or hedge. As hedges or specimens the trees can create a quite formal atmosphere.

The European hornbeam is hardy from Zones 4–7. It has relatively few pests, but it can, on occasion, be subject to either Japanese beetle or leaf miner damage. It has also been known to occasionally suffer from canker and stem dieback. The most interesting pest is the beaver, who seems to find it quite attractive.

This tree has high quality timber that has been used for firewood, charcoal production, paneling, flooring, furniture, butcher blocks, tool handles and cogwheels. In addition, the Chippewa boiled the roots for medicine to fight lung hemorrhages, used the branch heartwood to create a decoction for kidney ailments, and combined it with white cedar leaves to formulate a cough syrup.

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Laura Milak moved to New York four years ago from Pennsylvania, where she owned and operated a retail garden center. While living in the Scranton area, she served as a Penn State master gardener and a local 4-H leader. She earned an Associate of Applied Science degree from SUNY Delhi in 2001. She expects to receive a Bachelor of Technology degree in landscape and nursery management this spring and an Associate of Arts degree in social sciences in the summer of 2003. Laura hopes to continue working toward a masters degree in public horticulture.

WELCOME New Members

Aimee Alluad
Erynne Ansel
Doris Baier
Paul & Pauline Bono
Mike Breglia
David & Gail Browning
Walter & Barbara Buist
Susan Thompson
Cindy Chase
Nora Dougherty
Tom & Irene Dowling
Gerald A. Dwyer
Barbara Flaming
William & Cheryl Film
Linda Greenwald
Peter Henner & Nancy Lawson
William Hotaling
Abha Lamb
Michael Martinket
Deborah Murphy
William & Bernice Resinger
Joan Revitt
Katherine Skelly
Anna Socha
Gary Thamer
Richard Vroman
Ted Vroman

Collections, from page 3.

Oneonta. We had a great turnout for the day with over 20 participants ranging from students to local citizens. Fred Breglia, co-founder and first president of New York Old Growth Forest Association gave a slide show on how to visually recognize old growth and a pictorial tour of some of New York's finest old growth forests. As part of the workshop we performed a survey of the college's Pine Lake Forest and documented a virgin red spruce, larch, mountain holly, and balsam fir ecosystem with trees ranging between 200–300 years old and with diameters of only 12 inches. This type of ecosystem is usually found much further north, but due to the 1800 foot elevation, this bog ecosystem is flourishing in its southern location.

The next day the team visited the oldest white pines in New York in a state forest near Syracuse. The oldest pine was dated to 464 years of age. This swamp ecosystem is as primeval as it gets, with large amounts of blowdown, no trails, and moss growing everywhere. This forest also includes ancient white cedars and hemlocks ranging in ages from over 200 to 300 years old. It made us feel as if we had traveled back in time. Who says there is no such thing as time travel? The Old Growth Forest Association is planning to conduct tours of some of these magnificent forests next year in conjunction with Landis Arboretum. These tours will provide a great chance for the public to visit some of New York's best forests as well as to raise funds to help both organizations. Be sure to check out the calendar of events for 2003.

Bluebird Report

The year of 2002 has been a record year for fledging our beautiful New York State bird. This year we successfully fledged 30 bluebirds beating our past record by more than eight birds, in a difficult year with the hot dry weather and the abundance of blowflies. The parasitic larvae of blowflies feed on the blood of young birds in the nest. As part of our monitoring plan we had to rebuild many infested nests in order to protect our baby birds. This year we have also added many Gilwood style boxes to our ever-growing Bluebird Trail with the donation of over 20 new boxes by Bob McCulfough and Dur Degroff.

We also had a wonderful bluebird day on August 31 with Ray Briggs and other bluebird professionals at the Arboretum. Over 25 participants showed up to see a slide show on our state bird and go on a tour of the Arboretum's blue bird trail. We are planning another bluebird day next year as well as hosting a meeting of the Schoharie County Bluebird Association in April.

Website: www.landisarboretum.org

Our website for the Landis Arboretum is currently under construction and already looking very sharp. Be sure to visit our website for updates and calendar information. In addition to information about the Arboretum we have also posted our entire collections database to the website.

The staff and the Education Committee have begun planning another program-packed year in 2003. Many new things will be slated to help make this upcoming year more exciting than ever. Come out and see the noticeable enhancements to your Arboretum.

I will leave you with the quote recently given to me by Terry Staley, an active volunteer. It seems like an appropriate close to my article.

"Even in warfare, you shall not destroy the trees."

—Deuteronomy 20:19

European Hornbeam, from page 4.

There are several cultivars and forms. However, there are two major cultivars: *Carpinus betulus* 'Columnaris' that grows to a height of 25 feet with a width of 10 feet and the most common cultivar, *Carpinus betulus* 'Fastigiata'. 'Columnaris' does not develop a single central leader but rather a central co-dominate leader that may present future competition between branches that can result in decay or disease problems.

Propagation is not for the impatient. Germination of seed is poor at best due to the low percentage of viable seed. Once gathered in September, the seed should be sown while still green, or cold-stratified for three to four months, thus avoiding the double dormancy that sets in if the seed is allowed to dry. If the seed is dry you will need warmth (68°F.) for one to two months, followed by a three- to four-month cold (41°F.) stratification period.

Cuttings are possible but success is difficult. Collect your six to eight-inch cuttings in July, wound the base, apply a two percent solution of IBA and insert them in a media of perlite and peat moss. If they root they require a 32° dormancy period over the winter before transplanting in the spring.

Side veneer grafting onto seedling "under stock" is attempted in mid-winter. The roots must be actively growing and the scion wood must be dormant. This is not frequently used as a method of propagation.

The European hornbeam would be a wonderful addition to any landscape. It is not hard to understand why it is part of the Arboretum's "Notable Tree" collection. The Arboretum specimen is located below the Lape Memorial. The hornbeam is carefree, long-lived and handsome, but unfortunately underused in the average landscape.

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Do We Discard the Pit?

Paul Blair

The sun-pit, located behind the farmhouse, is in a state of major decline. Currently it may be viewed as an eyesore and a potential hazard, or as a part of the Arboretum's history and a working exhibit of interest to visitors.

The Buildings and Grounds Committee has wrestled with this issue for some time. The committee is just about evenly split regarding the fate of the sun-pit. At the last Board of Trustee's meeting the Buildings and Grounds Committee presented the issue to the Trustees. They requested further information regarding the sun-pit, and would like to address the issue in six months. To help clarify the issues, I'm listing reasons to discard or rebuild the sun-pit, along with a bit of background information for you to consider.

Reasons to discard

- Currently an eyesore and a safety issue.
- Lack of funds to rebuild.
- Not a priority on wish list.
- Could take emphasis away from other fundraising projects.
- Requires staff time to maintain.

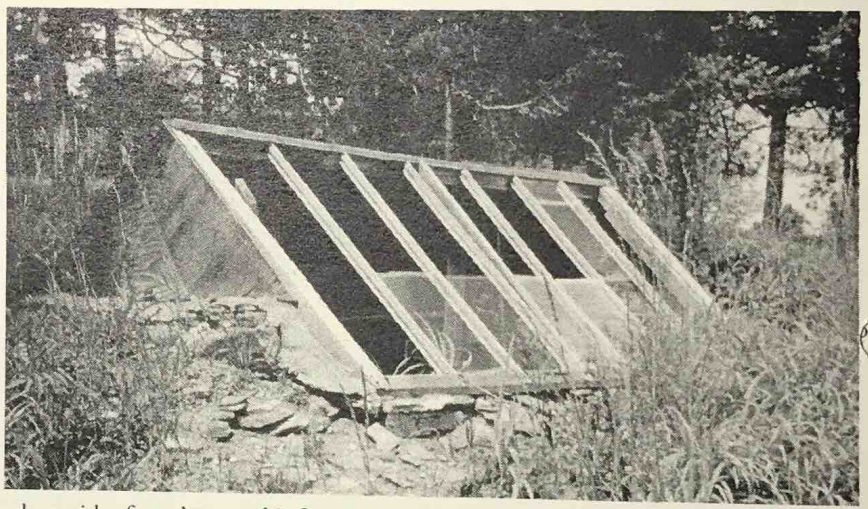
Reasons to rebuild

- A strong part of the Arboretum and Fred Lape's history.
- Provides demonstration of NYS rural history dating back to the late 1800s.
- Gives the Arboretum an excellent tool to help embellish our educational goals.
- Adds another point of interest to the Arboretum
- Could be used to provide new tree, shrub, and alpine seedlings to expand and replace the Arboretum's collections.
- Use of added solar heating could provide another educational display.

From pit to pit to plant

The original sun-pit at the Landis Arboretum is approximately ten feet long by seven feet wide and about six feet high in the center. The back stonewall is five feet high; the front wall is four feet high. It was built into the earth on three sides with soil piled up against the front wall. There is an entry enclosure on the east wall to protect the door from wind and snow. The sun-pit was relatively east to maintain and it received minimal care while Fred was spending his winters in Mexico. As Fred's health began to wane, the sun-pit also began to decline.

Stone fruits, such as peaches, cherries and plums have their seed encased in a hard pit surrounded by succulent fruit. Most of us love the fruit but discard the pit believing it has little value. Others can appreciate the value of the pit, which contains the beginning of a new fruit tree. A friend of mine is an avid collector of all kinds of seed. He collects and germinates these seeds. In his zest for life, he uses these new plants in numerous ways. He embellishes his garden for the joy he receives in watching new life begin. He gives seedlings as gifts to neighbors and friends and provides free plants to his former vocational school, thereby providing a supply of plants for student projects.



Fred Lape's sun-pit as it appears today.
Photo by Paul Blair

What most of us discard he finds valuable. Whenever he travels, and especially when he visits gardens, he searches for treasures. Landis Arboretum founder Fred Lape, had a similar fascination with collecting seeds. He developed a Landis seed exchange program in order to collect seeds from around the world to help develop the Arboretum.

In collecting his seeds Fred Lape had to consider how to germinate these seeds and hold them over the winter before bringing the seeds out of the nursery. Fred needed to build a pit greenhouse. In his writings in the February 1977 issue of *Organic Gardening and Farming* magazine, Fred defined what he called his "sun-pit." "A sun-pit is basically nothing more than a hole in the ground covered by an inverted V-roof, with glass windows on the southern side." It is an oversized walk-in cold frame. The primary use of this structure was for the propagation of seedlings and cuttings to be transplanted outdoors to a nursery. This humble beginning sprouted much of today's collection of trees and shrubs at the Landis Arboretum. Lape also used the sun-pit to store his bonsai collection and over-winter a few tubbed azaleas and camellias. Besides sowing seeds in the fall, cuttings were also used as a means of propagation.

In chapter four of Lape's book *A Garden of Trees and Shrubs, Practical Hints for Planning and Planting an Arboretum,* he writes: "An Arboretum will need three buildings: one with space for an office, another for tools and equipment, and a third to serve as a propagating unit. I recommend a sun-pit, properly located and constructed, a sun-pit will maintain an average winter temperature of around 40°F., the proper level for allowing seeds to germinate."

James B. DeKorne writing in the *The Solar Greenhouse Book* states "one of the simplest forms of solar season-extender is the pit greenhouse, which has a long and fruitful history in this country. In fact one of the country's first pit-greenhouses built in Waltham, Massachusetts, in the early 1800s is still in existence."

De Korne explains the rational for constructing a pit house: "A few inches below the frost line, the earth maintains a constant year-round temperature of about 50°F. If you put your greenhouse underground, you can take advantage of the insulating properties of the earth." Pit houses were relatively inexpensive to build and heat. They were popular growing structures used in the early 1900s throughout New York and New England.

Fred Lape's sun-pit was vital to the early development of the Landis Arboretum.

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WISH LIST

We are looking for the following items (or estimated dollar amount to purchase items).

Books

The Ortho Problem Solver, edited by Michael Smith ($200)

Lilacs: The Genus Syringa, Fr. John L. Fiala

Equipment

- Laminating machine
- New computer for Windows version of collections database. ($150)
- Picnic tables and benches. ($250)
- Professional climbing saw ($150)
- D.R. brush mower ($2500)
- Hardback rakes, shovels, loppers, and mulch fork ($200)
- Four-wheel drive pickup in good shape
- Troy Built hand cart

And always, the large tractor—

- A John Deere 790 (or machine of equal quality) 4wd, 30hp, with backhoe and loader. ($20,000)
- Trowels and other small gardening tools

Acorn Shop

- clear plastic containers for storage: Three 6" deep × 11" high × 26" long Ten 9" deep × 11" high × 15–18" long

Project Wish List

We are looking for volunteers familiar with the following tasks (or equivalent dollar amount to complete these projects).

- Stone walkways to and from the farmhouse need rebuilding. ($1000)
- Stone walls around the greenhouse and walls around perennial garden need rebuilding. ($800)
- Machinery maintenance volunteer to do oil changes, tune-ups, etc., on

THE NEW BOG GARDEN

Ed Miller

Would you like to see a pitcher plant, or perhaps an insect-eating sundew, close-up and without getting your feet wet? Come out to the Arboretum and see our new Bog Garden! It's out in back of the greenhouse on the trail to the Great Oak—and it's a real floating bog. We have simulated nature by providing a peat-covered log raft that floats in a 300 gallon tank of water. The raft is about waist high, and because it's small, all of the plants are within easy viewing distance. You can even look at the flowers with a hand lens without picking one—and please **don't** pick!

Land-owning friends have provided specimens of a dozen species of woody bog plants plus another dozen or so herbaceous plants. In addition to the pitcher plant and the sundew, we even have a third kind of insect-eating plant, the horned bladderwort, but it's nearly invisible when it's not blooming. A container at the Bog Garden carries a list of these plants, some temporarily labeled in pencil; a comprehensive information sheet about bogs and fens is in preparation.

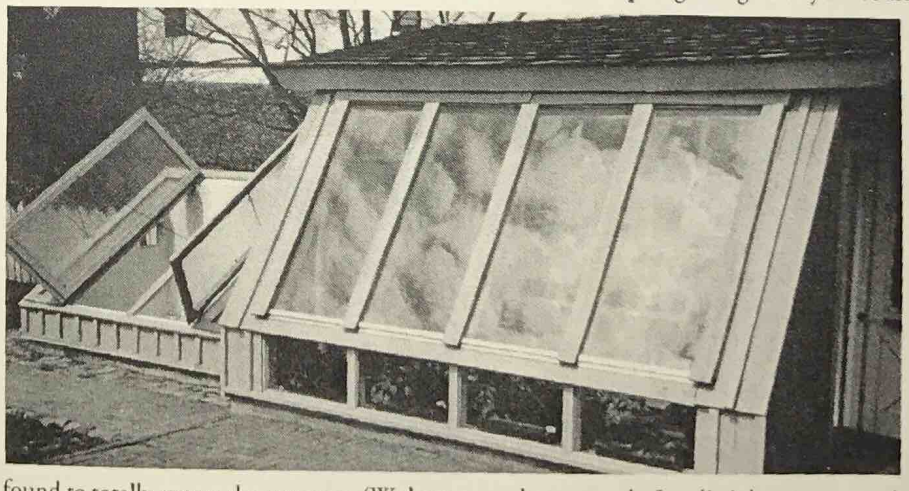
Next to the Bog Garden information container is another with a description of the native plant collection found along the Willow Pond Trail. Plants added this year are small and it will take a few years for these plantings to reach their educational potential. Look for more detail about the Bog Garden in a 2003 newsletter. If you have a particular interest in learning about native plants, we think that, even now, you will find the Willow Pond trail interesting.

Do We Discard the Pit, from page 6.

Not only was it one of his three recommended buildings needed to start up an arboretum, but many of the arboretum's extensive tree collection had been germinated in the sun-pit.

With this background information the Board of Trustees has a number of options they could act on.

- The sun-pit could be dismantled and the pit filled in (discarded), eliminating an eye sore.
- The sun-pit could be stabilized and given a new roof until such time that sufficient funds could be found to totally restore the structure. (We have a contractor willing to do this at his own expense). Funds could be solicited to fully restore the sun-pit to the original specifications and/or upgraded into a new attractive solar operated sun-pit to demonstrate the history of sun-pits, as well as to demonstrate modern techniques in solar greenhouse operation.
- We are first and foremost an educational institution. A final option would be to restore the original sun-pit and to construct a new modern solar-operated sun-pit to offer a great educational opportunity for the arboretum to teach the public about some types of home greenhouse structures. Our current library greenhouse could be part of this overall educational display.



An example of a modern sun-pit

Photo by Paul Blair

Give us your opinion

The Buildings and Grounds Committee and the Board of Trustees would like to hear from our memberships regarding what you would like to see happen to the Landis Arboretum sun-pit. Rebuild or discard? Write or e-mail the office with your comments. If your response is in favor of rebuilding, would you be willing to contribute to a capital improvement fund to restore this feature? Is there a single donor or group of donors who would make a memorial donation for this project, or is there a contractor amongst our membership who would donate his labor to rebuild this historic structure?

Let us hear from you.

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MANY THANKS

to the following people and businesses for their generous gifts and continuing support. (in no particular order)

Book & Plant Sale

CATNAP Books, Owl Pen Book Store, Book House of Stuyvesant Plaza, Old Saratoga Book Store, Constance Compton, Holly Hall, Nancy Boericke and **Ron Neadle** for their donations to our book sale.

Herm Finkbeiner and **Mervyn Prichard** for their time and efforts for the book sale.

Cheryl Fisher, Florence Grimm, Nancy Boericke, Meg Buglar, Alyce Lyons, Jodi Buffo, Dawn Johnson, Gina Nielsen, and **Marie DiCristofaro** for donations of baked goods and/or their time to the bake sale.

Bob Ringlee and his grandson **Callum King** for all their help in putting up plant i.d. signs.

Gil O'Brien for the hens & chicks.

Nancy Boericke, Viktoria Serafin, Gloria Van Duyne, Nick Zabawsky, Rose Elliot, Cheryl Fisher and all others who donated plants for the plant sale.

Gary DeLuke, White Birch Nursery, for paper-bark maple tree for our Spring Plant Sale.

Chris Krause and **Ryck Proctor** for their hard work in transporting plants to customer's cars during the plant sale.

Perennial Gardens

Photo by Gloria Van Duyne

The Cobleskill Key Bank volunteers for all their help in the perennial gardens: **John Apair, Denise Sawyer, Bonnie Squadere, Janice Gile, Melinda Gutman, Rebecca Starks, Colleen Crofts,** and **Kevin Kissane**

Carol Loucks, Carol Wiley, Vivan Gross, and **Alfred D'Alauro** for their continued support in the Van Loveland Gardens.

Bluebirds & Brush

Durward DeGroff for his home made jams, bluebird boxes and other small carpentry projects.

Ray Briggs for his wonderful presentation at our Bluebird Day celebration.

Bob Yunick for his help with the bluebird banding and data collection on our bluebird program.

Camp Summit Correctional Facility Crew for many hours of brush clearing.

Sam Bass for the use of his brush mower.

The Acorn Shop & the Office

Barbara Hunt, Judith Lott, Joan Sondergaard, Gladys Sasowski, Jean Mooney, Rita Krom and **all others** who volunteer in our gift shop.

Jane Kirstel, Nan Ferry, and **Rita Krom** for all their help in the office.

All the volunteers who spent precious time and contributed expertise, equipment, and money to help further the mission and maintain the Landis Arboretum.