

# Washington Park Arboretum Bulletin

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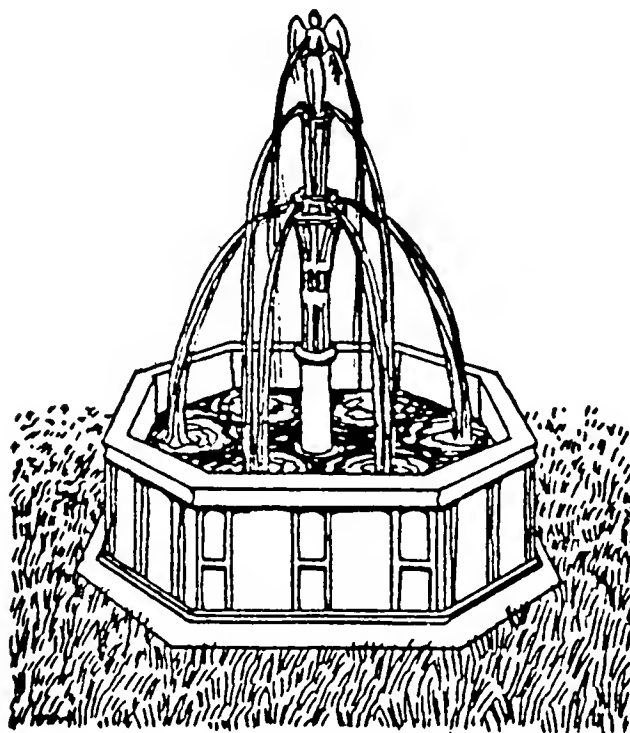
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## Concerning This Issue...

This issue of the Bulletin contains many articles of international interest — starting with Ward Horn's report about the University's involvement in the international seed exchange. In addition we have two fun articles about British gardens; one by Dennis Thompson, plant expert, and the other by Sue Buckles, who has a particular interest in those gardens around the Welsh border. A little closer to home is an article about the University of British Columbia's plant introduction program by Bruce McDonald. So as not to give short shrift to the gardens of the United States, Virginia Morrel has written about Wave Hill in the Bronx. Although technically not international, the University of Washington's Herbarium draws together the plant knowledge from countries all over the world. Melinda Denton, Curator of the Herbarium has written an interesting article about the role of herbaria in general and the University's Herbarium in specific.

This is a good time to sit by the fire and do some armchair garden touring!

Nancy Pascoe  
Editor



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The Washington Park

# Arboretum Bulletin

VOLUME 49, NUMBER 4, WINTER 1986

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## COVER

*Idesia polycarpa*, a well-known  
feature of the gardens at Wave Hill.  
From the book *Icones Plantarum  
Sinicarum*, edited by Hsen-Hsu Hu &  
Woon-Young Chun, published by the  
Commercial Press, Shanghai, China.

# The International Seed Exchange

WARD HORN

We call it the "International Seed Exchange", which is an imposing name for something with no charter or by-laws, no offices or committees, no dues and, perhaps best of all, no meetings. Nevertheless, it exists on a world-wide basis and is a major source of plant material for botanical gardens and arboreta. Its operations are simple; participating institutions collect seeds and offer them to each other on a no-charge basis. Our own Arboretum sends its "Index Seminum" (another imposing name, which freely translated, means "seed list") to about 550 correspondents in 50 countries. They, in turn, send their Index Semina to us. This article will be limited to a discussion of our distribution of seeds to other institutions.

Our Index Seminum of seed collected in 1985 was sent out in January, 1986 and listed 203 items. Fifty-one of these were collected from the wild in California, Idaho, Oregon and Washington.<sup>1</sup> The other 153 items were from the Arboretum or, in a few instances, came from private gardens. All but three of the items were woody plants.

Items listed in the Index Seminum change from year to year depending on seed availability and on the demand or lack of demand in previous years. The list is limited to

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<sup>1</sup>Collectors were Director-Emeritus Brian Mulligan and his wife Margaret, Arboretum naturalist Jan Pirzio-Biroli and her husband Giacomo, graduate student Clayton Antieau, A.L. Jacobson, E. and M. Mason and Ward Horn.

about 200 items. We usually collect more than that number and thus difficult decisions must be made as to what to exclude. This will not be a problem for the 1987 list; many plants did not set seed because of unfavorable weather in 1986 at flowering time.

With few exceptions we offer seeds of species only, and exclude cultivars and hybrids, with the exception of an occasional item which may be useful for breeding purposes and is not widely available. This means that many of the nearly 5,000 different kinds of woody plants in the Arboretum will not be included on our list. In addition, some species may be excluded because of the possibility of cross-pollination. For example, we usually do not list oaks, pines and some other wind-pollinated genera. However, in 1986 we did send out acorns from the *Quercus vacciniifolia* which grows in a location remote from other oaks — it was apparently remote from the squirrels as well! We look for seed plants which are well separated from closely related species or which bloom at different times.

Through September 30, 1986 we had received requests ("desiderata" is the technical term) for seeds from 284 institutions in 41 countries. We had sent out 4,483 packets of seeds and, had we not run out of seeds, could have sent 898 more. The following table shows the number of correspondent institutions in several countries and the number of such institutions which requested seeds.



*Pulpy seeds are soaked in water in plastic bags for a week or two, then put in a blender for a second to break down the pulp. Photo is of the author.*

*photo: Joy Spurr*

### Request Table

The first figure represents the number of Arboretum Index Semina sent out and the second figure the number of requests received from each country.

Argentina	2	1
Australia	5	3
Belgium	13	11
Great Britain	47	32
France	25	21
East Germany	9	8
West Germany	26	19
Iceland	3	2
Hungary	12	7
Japan	10	5
Monaco	1	1
Norway	4	3
Poland	9	7
Russia	51	30

The largest request we received was for 133 items and came from Hungary. Forty-seven requests were for more than 50 items. Eight requests were for one item only, and seven asked for two items. We sent ten items, all wild-collected, to the Royal Botanical Gardens at Kew and received a "thank-you" note from Queen Elizabeth.

We are often asked which items are the most popular. There is always a healthy demand for things collected from the wild. For example, our 1986 list included the Oregon white oak, *Quercus garryana* from two stations in Washington and one in Oregon; many correspondents wanted seed of all three. As another example, we had 54 requests for devil's club, *Oplopanax horridum*! Unfortunately, or fortunately according to one's view, we did not have enough seed to fill all of these requests. With regard to seeds collected in the Arboretum, records from the past five years show that

For three years, Ward Horn has been the stalwart leader of volunteers working on the International Seed Exchange. Although the distribution of seed had long been carried out by Arboretum Foundation members, those of us who became responsible for collecting and cleaning it started from scratch after the death of Joe Witt and the unexpected retirement of Pablo Abellera, who for many years performed these important aspects of the project.

Ward stepped in with his almost daily explorations of the Arboretum in search of plants that were bearing good seed. In addition, he proved to be very inventive when it came to processing seed. He purchased a rolling pin and strainers; he scrounged a hair drier (ideal for blowing away the chaff) and a homemade food drier for initial dehydration of ripe fruits. His small bonehandled pocket knife is in frequent use to cut open fruits or seed to determine their viability.

He is the leader of collecting forays into the Arboretum and has passed on to a host of fellow workers his knowledge of the correct methods for handling the varied array of seeds that we work with. Ward and his cohorts deserve the highest praise for their dedication to a project that keeps us in touch with similiar institutions around the world.

Jan Pirzio-Biroli

species of *Acer*, *Alnus*, *Magnolia*, *Sorbus* and *Stewartia* are much in demand. However not all species of a genus are equally popular, for example we had 32 requests for *Mahonia nervosa*, but only 6 for *M. aquifolium*, our two native Oregon grapes. There was a minimum demand for some other items, as for example 3 for *Koelreuteria paniculata* and 4 for *Photinia villosa*. In 1986 we had heavy requests for the following:

*Dipteronia sinensis*  
*Chamaecyparis thyoides*  
*Viburnum cassinoides*  
*Daphniphyllum macropodum*  
*Sycopsis sinensis*  
*Corylopsis sinensis*  
*Embothrium coccineum*  
*Podocarpus nivalis*  
*Sciadopitys verticillata*  
*Paulownia lilacina*

Until 1984 most of the seeds from the Arboretum were collected, cleaned and processed by an employee, Pablo Abellera. Until 1983 the seeds were packaged and distributed by the Arboretum Foundation units 25 and 66. Since then this work has been done by other volunteers — last year 37 volunteers spent 627 hours in collecting, cleaning and distributing seeds. During the 1985 and '86 collecting seasons volunteers met at 10 a.m. on Monday mornings. We have a saying, "It never rains in the Arboretum on Monday mornings!", because this last year good weather has been with us consistently. Normally collecting begins in June and extends into early November with

most of the items collected in September and October. Decisions on what to collect are made by the Arboretum staff. This has been a popular program for our volunteers since it offers a unique way to become better acquainted with the Arboretum.

Seed cleaning and processing begins about the first of October and continues until late in December. The basic process is screening the fruits to extract the seed. We use a hair dryer to winnow some seed. Fleshy fruits may be crushed and allowed to ferment for a few days in order to break down the pulp, which is then washed away over screens. We sometimes use a kitchen blender (its blades covered with plastic tubing) to break down fleshy fruits. The cleaned seed is stored in a refrigerator at about 40° F to preserve viability. Our Index Seminum is mailed early in January and we begin to send out seeds about the third week of February. In most years the desiderata will have been filled by the end of April, although a scattering of requests will drift in for several more months. In each of the past five years (and probably for many years previously) over 40% of our correspondents have requested seeds. Some of the Index Semina we receive contain more than a thousand items. Our own is limited to about 200 items for reasons noted above and by cost considerations. However, even though it is a small list we try to make it a distinguished one which will reflect credit on the Arboretum, the Center for Urban Horticulture and the University of Washington. The figures sited above indicate that we have achieved this objective.

# The University of British Columbia Botanical Garden's Plant Introduction Scheme — An Innovative Program for the Introduction of New and Recommended Plants

BRUCE MACDONALD

*Bruce Macdonald is Acting Director of the University of  
British Columbia Botanical Garden, Vancouver, B.C.*

It was during 1980 that a group of nurserymen and landscape architects met with Dr. Roy Taylor, the Garden's past Director (currently Director of Chicago Botanic Garden), and his staff to investigate the feasibility of formulating a program by which some of the plant collections within our different Garden components could be selected for commercial use. As the meetings progressed, we became increasingly enthused by the long-term benefits that a plant introduction program of new and recommended plants could provide for the nursery and landscape industries of British Columbia, and subsequently for other areas within Canada and the United States. Six years later, with over a million plants of the first six introductions being commercially produced by the participator nurseries, the program has exceeded our original expectations.

The aim of this article is to outline the structure of the program, the impact it has made, and some brief details of the plants currently publicly released.

The executive committee of the Plant Introduction Scheme of the University of British Columbia Botanical Garden (PISBG) consists of representatives from the British Columbia Nursery Trades Association (BCNTA), B.C. Society of Landscape Architects (BCSLA) and Garden staff. Before recommending procedures for plant introduction, the committee reviewed many other plant introduction programs in different areas of the world and tried to establish the reasons for their success and failure. The major mistakes which had been made were poor communication with the nursery trade, too many plants introduced at any one time, with little or no obligation from the nursery and



*Mother plants of Anagallis monellii 'Pacific Blue' ready for distribution to the participator nurseries.*

*photo: author's*

landscape industries, too few plants available at the date of public release, and poor promotion and publicity. Subsequently, great effort has been made to rectify these problems, for example, a contract is signed between the Garden and each participator nursery and only one to three plants will be introduced each year through the PISBG program.

The initial selection is made by a 35-member invited evaluation panel which includes representatives from wholesale and retail nurseries, landscape contractors, and parks boards. Some twelve to fifteen plants out of the Garden's different 16,000 accessions are evaluated annually. The final selection is made by a five-member introduction and release subcommittee. It is the industry itself which makes the final choice, not the Botanical Garden.

The next phase of the program is at the Botanical Garden nursery where the staff propagate and grow-on to produce some 500-1,000 one- or two-gallon container plants. These stock plants are then sold at a premium price in lots of fifty to the participator

nurseries. The revenue obtained is returned back into the PISBG program. At this stage, a contract is signed for subsequent payment of royalties on the number of cuttings struck by the nurseries. The revenue received for the royalties is also returned to the program.

New plants are registered through the Canadian Ornamental Plants Foundation (COPF), while recommended plants are processed through the Garden. COPF, based in Ontario, is an organization which registers new and improved ornamental plant material in Canada. A number of nurseries in the United States and Europe also belong to COPF.

Plants are also sent for testing across North America. There are currently seven test sites in Canada, e.g., in Alberta and Ontario, while there are five in the United States, e.g., in Illinois and California. The information received from the different geographical locations is then communicated back to the nursery and landscape industries in British Columbia.

The program was very fortunate to receive funding from both the Science Council of British Columbia in Burnaby and the



Devonian Group of Charitable Foundations in Calgary. This not only helped to provide staff, but ensured that our nursery could be further expanded to handle efficiently the production of the stock plants.

Publicity and industry involvement has been a major priority of the PISBG program. Colored information sheets are produced, detailing the culture, nursery propagation and sales potential of the selected introductions. A colorful picture tag label has been designed which must be attached to PISBG plants for retail sales — this helps the public to identify the plant with the program. We actively participate in nursery trade shows to display and inform the industry about the introductions.

Besides radio, television has been a very useful asset through the popular Canadian Broadcasting Company (CBC) garden program "Western Gardener", co-hosted by the Garden's education coordinator, David Tarrant. The British Columbia landscape industry has helped to ensure that the plants have been sited in high profile areas — for example, Expo 86 and the recently constructed light rapid transit system or "Skytrain".

The effectiveness of this promotion and industry involvement has meant that sales have been good, with plants being exported to six different countries. A respected economist hired by the Science Council of British Columbia found that the combined value of wholesale sales for the six introductions in 1985 was just under \$600,000, while a figure of \$1.2 million is estimated for 1986 and with further increase to \$1.9 million for 1987. At the commencement of the program we had ten participator nurseries — that number has risen to twenty-three at the present time.

The following are brief descriptive notes on our first six introductions.

#### **Genista pilosa 'Vancouver Gold'**

An outstanding ground cover or specimen plants given to the Garden by the late E.H. Lohbrunner of Vancouver Island. A mass of intense golden-yellow flowers are borne during May on the undulating mounds of plants. Virtually no seeds are produced and the dead flowers are quickly hidden by the new growth that occurs shortly after flowering. Hardy down to Zone 5.



*Container plant of Viburnum plicatum 'Summer Snowflake'. (Registered COPF cultivar).  
photo: author's*

#### **Arctostaphylos uva-ursi 'Vancouver Jade'**

There was a defined local need for a clone of *Arctostaphylos uva-ursi* which could be propagated readily from cuttings, flowered well and was vigorous in habit with a low susceptibility to some of the foliar diseases. This clone was selected and named by the PISBG program because it met these requirements. The demand for this plant is by the landscape industry and one participator nursery is now producing over 150,000 plants annually for this particular market. Hardy down to Zone 4.

#### **Rubus calycinoides 'Emerald Carpet'**

This selection was collected some 9500 feet above sea level in Taiwan and was subsequently found to be sufficiently distinct from existing clones to be given a cultivar name. It is a vigorous, evergreen ground cover, with a particularly attractive marbled-textured leaf, that provides a useful alternative to ivy on specific landscape sites. Hardy down to Zone 7.

#### **Viburnum plicatum 'Summer Snowflake'**

A very attractive compact clone named by the Garden. A mass of "lace-cap" white flowers occur in May with recurring flushes of flowers continuing through into October. The flowering is followed by fall leaf color of plum-red shades. This deciduous shrub has been very popular for retail sales. Hardy down to Zone 6.



Container plant of *Rubus calycinoides* 'Emerald Carpet'. Registered COPF cultivar.  
photo: author's

### **Anagallis monellii 'Pacific Blue'**

This selection has been very popular with visitors to the Garden. A carpet of eye-catching gentian-blue flowers occurs during sunny weather from mid-May through to early October. Although it is a short-term perennial, it has performed well as a bedding plant and is a useful addition for hanging baskets in sunny locations. Hardy down to Zone 8a.

### **Microbiota decussata UBC clone #12701**

This was introduced to the British Columbia nursery industry as a recommended plant. Originally found in Siberia, it was subsequently introduced to nurseries in Europe. Our clone was obtained from the Royal Botanical Gardens, Edinburgh, Scotland, but was not found to be sufficiently distinct to warrant a clonal name. We have an excellent highway planting of 400 plants on the outside perimeter of the Garden. It is becoming more accepted in British Columbia as a useful alternative to junipers, particularly for shipping to the prairies of eastern Canada. Hardy down to Zone 2.

The committee is reviewing ideas and projections to ensure the future success of the PISBG program. There are sufficient plants for introduction during the next three years and work is being undertaken to select others. Various species are being propagated at the nursery to evaluate their performance as suitable container-grown plants for a typical nursery production schedule. Plants which grow well

in the Garden could well present difficulties in production — one example we experienced was with a weeping form of *Paxistima myrsinites* which is susceptible to *Phytophthora* and *Pythium* when overhead irrigation was used.

We have an open ground nursery evaluation and display area where some 230 plants are established for clonal selection and evaluation by the nursery and landscape industry. This area is also used to show good introductions from other parts of the world which local nurseries should consider for inclusion in their catalogues. Some breeding work is being initiated — for example, Dr. Gerald Straley, the Garden research scientist and taxonomist, is working with some specific perennial plants, e.g., *Meconopsis*, *Schizostylis* and *Alstroemeria* — he is projecting the breeding of a hardy compact form of the latter.

In conclusion, we hope that the PISBG program will encourage other botanical gardens and arboreta to use their collections in a similar manner. We are pleased that the Royal Botanical Garden, Hamilton, Ontario, and the Chicago Botanical Garden have now started similar programs. Considerable interest has been stimulated in Washington State, Oregon and North Carolina. We will always be very pleased to share our experiences.

Visitors are always welcome to the Garden where many of our introductions, identified by a distinctive blue label, are located in the different components. Opening hours for the Garden can be obtained by phoning (604) 228-3928 or (604) 228-4208.

# In The Arboretum

For the past month, Grounds Supervisor, Richard Hart, has been recovering at home from quadruple-bypass heart surgery. Last report is that he is making rapid progress, walking two miles or more each day. We expect Dick's return in early 1987. Meanwhile, Phil Renfrow is doing a great job as acting supervisor.

Two new faces appeared in the Visitors Center in October. We welcome Laurence A. Smith, "Smitty", a retired pipefitter/merchant engineer, who now works as part-time custodian here, as well as at the Center for Urban Horticulture. The new program assistant for the Visitors Center, replacing Eric Nelson, is Dan Dewald. Dan, his wife and two children, recently moved to Seattle from Idaho. He comes from a forestry and wildlife management background. Dan says he is finding his new job working with all three organizational bodies of the Arboretum: the City, the University, and the Foundation both interesting and challenging.

The bulk of work performed by the Arboretum grounds crew has involved renovation of various areas by pruning or removal of overgrown and invasive native species. Take a look at the newly exposed rockery along Lake Washington Boulevard across from the Emperors' Gate to the Japanese Garden. This project, spearheaded by Phil Renfrow and assisted by Bob Hilzinger, has brought delight to those onlookers who are (re)discovering the existence of this landscape feature. Future plans are in the works to highlight this area with appropriate new plantings. Not far from the rockery, a complete renovation of the southeastern-most bed of Azalea Way has been undertaken. John Hushagen along with Phil Renfrow detail-pruned the larger species, such as *Acer monspessulanum*. David Zuckerman and Bob Hilzinger did a fine job reshaping the azaleas and other shrub materials in this bed as well as in other beds farther north along Azalea Way.

Fred Mauch has been concentrating on pruning out the native materials south of the Look-out. Some of the unusual conifer specimens in addition to *Daphniphyllum macropodum* are now exposed to a better view. Thanks are extended to Paul Wiltberger, who donated a day's work to the Arboretum. Assisted by David Zuckerman, Paul's service included pruning of Douglas fir trees that were impacting the *Stewartia* area of the *Camellia* section. All of these projects have brought about an improvement to the Arboretum's appearance.

The interior of the Visitors' Center has taken on a new look as well with the recent addition of unusual plants brought over from the Arboretum's greenhouse by Dean Powell. Dean is happy that some of the more interesting plants such as the *Dioon edule* and the *Solandra maxima* have been accepted into this new home where all Arboretum visitors may appreciate them. The greenhouses are close to being empty now in order that renovation can take place. By the way, the oldest member to leave the greenhouse was a 47-year old *Pyrostegia venusta*.

Dean also cleared out a new nursery bed just north of the existing ones with the assistance of Fred Hoyte and his tractor from CUH. This has allowed me to begin the vast movement of plants from coldframes to lath beds or nursery area. The result is that the lids have been placed on top of the coldframes, winterizing them. Now with my wrist in a cast for six weeks, I've turned my efforts towards inventorying the lath house along with Jan Pirzio-Biroli.

Looking ahead to winter, we all hope that the excessive fall rains do not continue, otherwise the trails — especially Azalea Way — will become impassable without use of high rubber boots or amphibious vehicles.

Barbara Engler  
Gardener in the  
Arboretum

# Small British Gardens Some Personal Favorites

DENNIS THOMPSON

To the British SMALL and GARDEN are almost contradictory terms. They seem to believe anything under 10 acres is a small garden. Definitely, any garden under three acres is small. The American small, MY small, is a garden that would fit on a Seattle lot. For the British garden enthusiast, this is nearing minute. The gardens I present in this article are not ones that appear in the tour guides, yet many are impressive, unrecognized national treasures. They fall into almost every gardening category: public gardens, commercial gardens and private gardens.

## Public Gardens

Old London has many tiny landscapes in hidden corners. Several of my favorites are in conjunctions with churches designed by Christopher Wren, architect for 53 parish churches in the area after the Great Fire in 1666. One such is a small courtyard of raised beds at St. Anne and St. Agnes which adjoins the crumbling remains of the city's outer wall. The carefully planted beds meld into the wildlings scrambling in the old wall. Annual bedding plants blend into butterfly-bush, kenilworth ivy, English ivy, wallflowers,

plantains and ferns. Several other Wren churches have sheltered churchyards or entries. Trees and shrubs, green elegance against old stonework; noontime parks where area workers eat quiet lunches.

The most exciting small garden in Old London is a small park built around a Wren church that did not survive the blitz of World War II. The tower and steeple of St. Dunstan-in-the-East created furor from the beginning. Radical design variations brought prophecy of impending doom. In a biography of Wren written in 1920 architectural critic, Lawrence Weaver, notes:

*The tower of St. Dunstan-in-the-East is unique for its date, and of quite extraordinary interest: any idea of removing it should be resisted with vehemence. But why anyone should be the least concerned with the disappearance of the body of the the church is known only to those who detect beauty in the Gothic adventures of Messrs. Laing and Tite in the Year 1810.<sup>1</sup>*

What the author was unable to accomplish with his prose in 1920, the Germans accomplished

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<sup>1</sup>Weaver, Lawrence. Sir Christopher Wren: Scientist, Scholar and Architect. Offices of "Country Life", London, 1923.



*St. Dunstan-in-the-East..*

*photo: author's*

in the early 1940's. The tower and walls were left standing but the interior was gutted. Old London no longer needed "twenty-eight churches...within the square mile of the City", and chose not to rebuild the chapel. In the 1970's a designer with the City conceived an award-winning plan for the old structure. The tower was turned into a museum and the body of the church into a park.

My first glimpse of the garden was of a large blue *Ceanothus impressus* jutting

through the stone arches of an empty Gothic window frame. It is hard to describe the impact. Romantic. Breath-taking. Wrought iron gates open into the small, tree-sheltered north yard. New office buildings soar over the churchyard making the area seem even smaller. Immediately next to the stone walls is an area paved with round cobbles in cement with a narrow fringe of bracken frothing from a chink between wall and paving. A path bends as it enters the chapel through an old door arch.



*Perennial summer phlox, Phlox paniculata.*

Inside the bombed-out church is a somewhat anachronistic lane that winds through a small lawn with bedding plants and leads to a cobbled seating area with a fountain. The garden is designed to be viewed from this seating area and from the small paths that meander around the walls and through arches at both ends of the chapel. This area is planted with an amazing variety of vines that cling to ruined walls and drape over and tangle through the many windows. *Clematis*, *Hydrangea*, *Ampelopsis*, *Parthenocissus*, *Campsis*, *Lonicera*, *Jasminum*, *Schizandra*, *Polygonum*, *Rhodochiton*, *Vitis* and *Rosa* mingle in almost indistinguishable confusion; distinct only in bloom. Other climbers exhibit their uniqueness by extraordinary foliage like the lusty leaves of *Schizophragma hydrangeoides* and the opulent, velvety green-black dissected leaves of *Parthenocissus henryana* with their silver veins and flashes of pink. The warm gray stone walls provide a variety of exposures and backgrounds. For a melange of material, the overall effect is amazingly unified. Perhaps it is scale and intimacy that allows the success with so much variety. Birds as well as people seem attracted to the site, an oasis in an urban desert.

### Commercial Gardens

There are a number of commercial businesses that have pleasant small gardens. Nurseries frequently include display gardens and two small nurseries that have interesting little

gardens are County Park Nursery at Hornchurch east of London and Edrom Nursery in Scotland.

County Park is entered from a street which gives no hint that either nursery or garden exist. Graham Hutchins, the proprietor, has a mania for New Zealand plants. Stepping through the gate is like entering the Twilight Zone. The grotesqueries of the plant world seem to have gathered for a meeting. The leafless *Clematis afoliata* looks like a climbing Scotch broom. The leafless, brown-felt stems of *Chordospartium stevensonii* growing in a raised bed resembles a Daliesque weeping willow. Pots of *Coprosma* look like baby's-tears under vegetable marbles. Beds, shelves and houses are filled with similar rarities—*Hebe*, *Helichrysum*, *Aciphylla*, *Carex*, *Cotula* and *Raoulia*. There are examples of award-winning miniatures (barely portable) exhibited at the Chelsea Flower Show. Mr. Hutchins has developed a variation on hypertufa (concrete-peat containers) to create tall, totem-like peatbeds for acid loving plants.

Edrom Nursery is much more traditional. The display garden is composed of stone troughs located behind the sales area. It consists of a wide variety of alpines, for sale in frames, which have been grown to perfection in the sinks. Large troughs of select *Gentiana*, *Primula*, *Dianthus*, *Phlox*, *Lewisia*, *Androsace* and *Saxifraga* make barbaric displays, each in its season.

Other commercial ventures with gardens include hotels and crafts shops. The Swan in Lavenham is an excellent example of gardens as outdoor rooms. The hotel is assembled from four 15th century houses joined together in the 17th century. It includes a small interior courtyard and a comfortable patio garden as a portion of the bar. The gardens do not contain unusual materials, but these green rooms enhance the charm of the hotel. The quietness of the gardens is a marvelous complement to the half-timbered and plaster residence.

### Private Gardens

It is difficult to choose among small private gardens, but those of four gardening families would always make my list of favorites, no matter what larger gardens could be added. They are the gardens of the Becketts, the Leeds, the Maules and the Fishers.

Kenneth Beckett's home in King's



*Alpine house, rock wall and border in Mrs. Maule's garden.*

*photo: B.O. Mulligan*

Lynn, Norfolk, is a 2-story warm brick with a very simple front entry of tucked flowers. The low beam in the old house necessitates an occasional duck. The Dickensian book-lined library/workroom opens through French doors onto a crazy-paved, sunken patio with planted urns and cracks. Great tumbling shrubbery rolls across the garden to the hedge which allows only a glimpse of the flint church in back. A small greenhouse at the side of the lot holds collected treasures — blue *Tropaeolum* and rare bulbs. The garden's fauna include Kenneth's son's guinea pigs. Sitting in the library, looking into the garden creates the warm feeling of being wrapped in peaceful, protective green.

*Chestnuts* is the home of Jane and Rodney Leeds in Sudbury, Suffolk. The view from the road through a tall shrub border presents a corner view of the thatch roof and cream stucco reminiscent of a Helen Allingham's painting. The lawn path winds between serpentine beds and shrubs, perennials and alpines which grow in front of the house. The Leeds cultivate, in the ground and in containers, a wide variety of plants from seeds. At the far end of the house is a small greenhouse and

paved patio filled with perennials in containers and troughs of alpines. The rear garden is the largest and includes a sunny lawn with fruit trees. It is surrounded by beds including Martagon lilies and *Cardiocrinums*. A large lattice, partially covered with vines, screens the vegetable garden and more perennials. A cluster of cold frames just outside the vegetable garden protects seedlings and tender perennials. Behind the frames, a large compost pile is bed to one of the garden cats. This garden, as with many British gardens, is ruled and guarded by a rank of garden cats. They are very polite, enticing people about the garden for appreciation and photos. *Chestnuts* is among the best of the miniaturized "estates".

Sheila Maule's *Hannahfield Quarry Home* does not technically fit into this group of gardens. It is in an old five acre stone quarry just outside of Edinburgh, but less than half of the area is under cultivation; the rest is segregated by rabbit fencing to keep these marauders back. I justify its inclusion by the fact that there was no soil in the area when the Maules' began working with the garden. Sheila hauled all of the soil into the area in the "boot" of an old car. "Ruined the coupe", she always



*Eleanor Fisher's garden Colthurst.*

*photo:author's*

giggles. Much of the area is paved with stone in order to hold enough soil in to be able to garden. The lawn sits on bare inches of soil and berms appear in areas where deeper roots had to be accommodated.

The wood frame cottage, an anomaly amid the stone and plaster of Scotland, faces a one acre pond (deeper quarry hole) and steep cliffs of the outer quarry wall. The cracks in the stone have been planted with alpines and the rock chip talus with perennials. Masses of native primroses and naturalized daffodils welcome spring. Raised bulb frames shelter plants collected in Spain, North Africa and the Near East. Cold frames and alpine houses protect buns and polesters from around the world as well as masses of new seedlings. Among the naturalized plants in the garden are Asiatic and alpine *Primula*, *Kirengoshoma*, *Morisia*, *Tropaeolum polyphyllum*, Japanese orchids, *Trillium*, *Lewisia* and many other small exotics. Sheila is one of those growers who seem able to manage almost anything without specialized modern equipment. She is the only person I know to have ever grown our *Saxifraga tolmiei*. Her propagation chamber for

cuttings is an old traveling trunk, half filled with sand and covered with a windshield glass. No heat. No mist. Only skill. The side patio is primarily a display area for alpine troughs. In front of the house is a table made of an old stone grinding wheel, and besides the small formal pool is a finial from John's ancestral home which serves as garden sculpture. A gardener's garden, the effects of loving care are obvious. As a fiftieth anniversary gift, John gave Sheila another 200 feet of rabbit fencing!

*Colthurst* is the second garden of Eleanor Fisher. Besides caring for two teenage sons and a husband, plus volunteering weekly at the Harlow Car Botanic Garden, she maintains one garden at home and a second at their country house. The latter was converted from the old stables of the existing estate, thus the name *colthurst*. The stables and the adjoining walled kitchen garden have been modified as a unit to provide house and garden. The house is a mellow stone and wraps around two sides of the garden. Eleanor is known as a master plantswoman, specializing in perennials and companion plants. The color and form combinations she has assembled are breath-





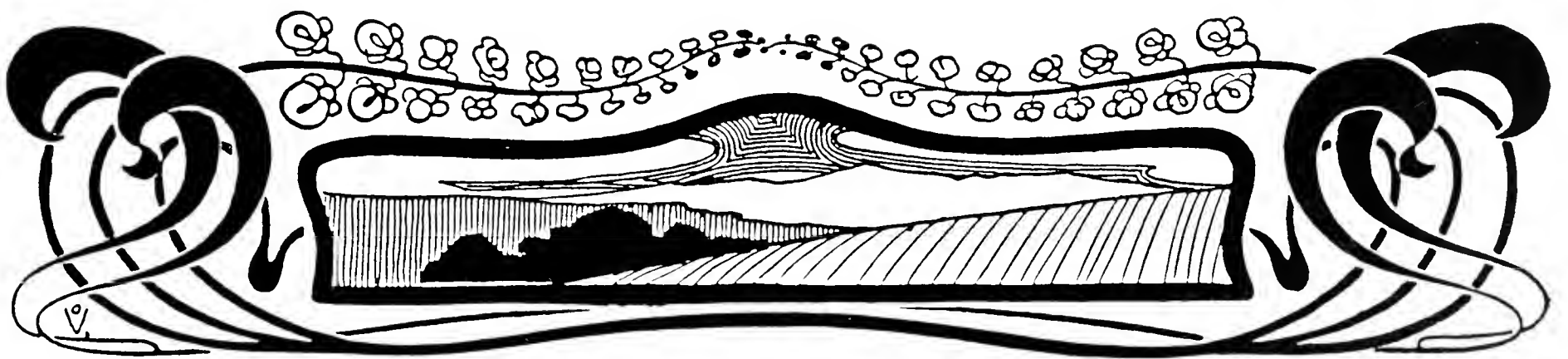
*Colthurst, green and white color combination.*

*photo: author's*

taking. She plans the garden to progress through the seasons with new color schemes against a background planting. Among my favorite groupings are Otto Luyken laurel in bloom with white lily-flowered tulips. Midnight purple and white Rembrandt tulips and purple wallflowers growing through purple-leaved sage produce a striking package, as do the soft pink peonies and shrub roses. When it was time to move the greenhouse out of the enclosed garden, the foundation was not easily disassembled, so the door was sealed up and the foundation became a raised garden pool. Few

gardens, no matter how large, have the stunning staging or effective plant groupings of *Colthurst*.

It is difficult not to continue on, considering the "slightly larger" small gardens; Jenny Robinson's *Chequers*, Dily Davies' *Greyrigg*, Jean and Jack Elliot's *Coldham*, Kenneth Armistead and Jim Ellis' *Bell Cottage* and numerous others. But gardens are like pictures of grandchildren and summer vacations — best presented in small doses in hopes of another invitation!



# Gardens of the Welsh Border Country

SUE BUCKLES

*Sue Buckles is a gardener on the grounds of Childrens' Hospital and Medical Center. As one of a crew of five, she is involved in all aspects of the garden's maintenance, but is particularly interested in perennials.*

The Powis Castle Gardens have been the subject of talks I have given since returning from a three month working period there in 1984. A group from the Northwest visited the gardens last year, as part of a garden tour led by city arborist Marvin Black, so it is one National Trust garden that is familiar to many *Arboretum Bulletin* readers.

Rather than describe Powis again, I would like to describe some its workings, and to suggest other gardens that can be seen in the area of England's western counties and the mid-Welsh border country in which Powis stands. Powis castle is a suitable central point for any tour, standing high on its rocky ridge, and overlooking the town of Welshpool in the Welsh county of Powys.

Practices in propagation and maintenance carried out at Powis may be of interest to gardeners here. No irrigation is available in the gardens, and the many large stone urns planted with annuals are watered by hand only occasionally. The beds, therefore, are mulched heavily in spring with compost which contains only partially decomposed organic matter (small sticks, leaves, pieces of bark, etc.).

Their compost comes from large compost piles, about 15 x 20 feet, into which is thrown all garden clippings, leaves, straw, loam and manure, but no weeds. This compost is not used for potting soil, which comes from sterilized loam, peat and sand. The potting soil varies in the balance of its components according to need. There are set proportions for cuttings, seeding, potting on and for the containers, which are lined with a coarse peat and include a great deal of coarse humus matter, which helps to retain water over long periods.

The perennial borders have many new plants put in every year. I suppose these would be called bedding plants as many are tender and have been propagated by cuttings and held over the winter in the greenhouse. While I was there many new plants were used to fill new beds which had been made the previous year and prepared for the spring planting. The old established beds are filled with new cuttings and divisions from the established beds plants. Annual cuttings are taken from plants such as *Cheiranthus* 'Wenlock Beauty' and *Erysimum* 'Bowles Mauve', *Anthemis cupaniana*, *Chrysanthemum*, *Helianthemum*, *Achillea* and *Dianthus*. The

## The Ideal English Gardener

The head gardener at Powis Castle is Mr. Jimmy Hancock. He has just been awarded the Royal Horticultural Society Associateship of Honour, given to "persons who have rendered distinguished service to horticulture in the course of their employment." This is a well-deserved and appropriate award. Mr. Hancock has a permanent staff of about five, and a very large garden to maintain. His main activities are carried out in the greenhouses and borders. He propagates plants for the beds and containers as well as for the popular plant sale held every day the garden is open. He has an under-gardener whom he has trained to be in charge of the greenhouse area. In the area of the glasshouses are various sheds and a large polythene covered tunnel which gives frost protection to container plants. Mr. Hancock is often to be seen there late at night, working at the propagation bench with a flashlight fixed above his head. He was there when I arrived at Powis, and was taken to the greenhouses to meet him, and he was there when I left. I expect to find him there again when I return on a visit this year. His large family would know where to find him and would send down the youngest boy to tell him, "Dad, your supper's ready". Fifteen minutes later the next youngest would come, "Dad, Mum says you've got to come for your supper". Finally, the eldest daughter, as she passes by on her way out- "Dad, you've missed your supper, G'bye."

Jimmy has various students from horticultural colleges sent to do their time as working apprentices. Then there are young people working for a year on one of the government training schemes for unemployed youth, and older people on similar re-training programs. They have to attend classes one day a week at the nearest community college. To all of them, skilled or unskilled, keen or dispirited, bright or not so bright, Jimmy encourages, teaches, helps, kids along, inspires those who have found gardening to be a sudden wonderful new occupation.

I was included in this grand mixture, put to work straight away, and offered ready answers to all my questions. Those who know something of the chauvinistic nature of British head gardeners, and the conservative character of the horticultural profession, will realize that Jimmy's approach is rare and valuable in one who employs so many young gardeners.

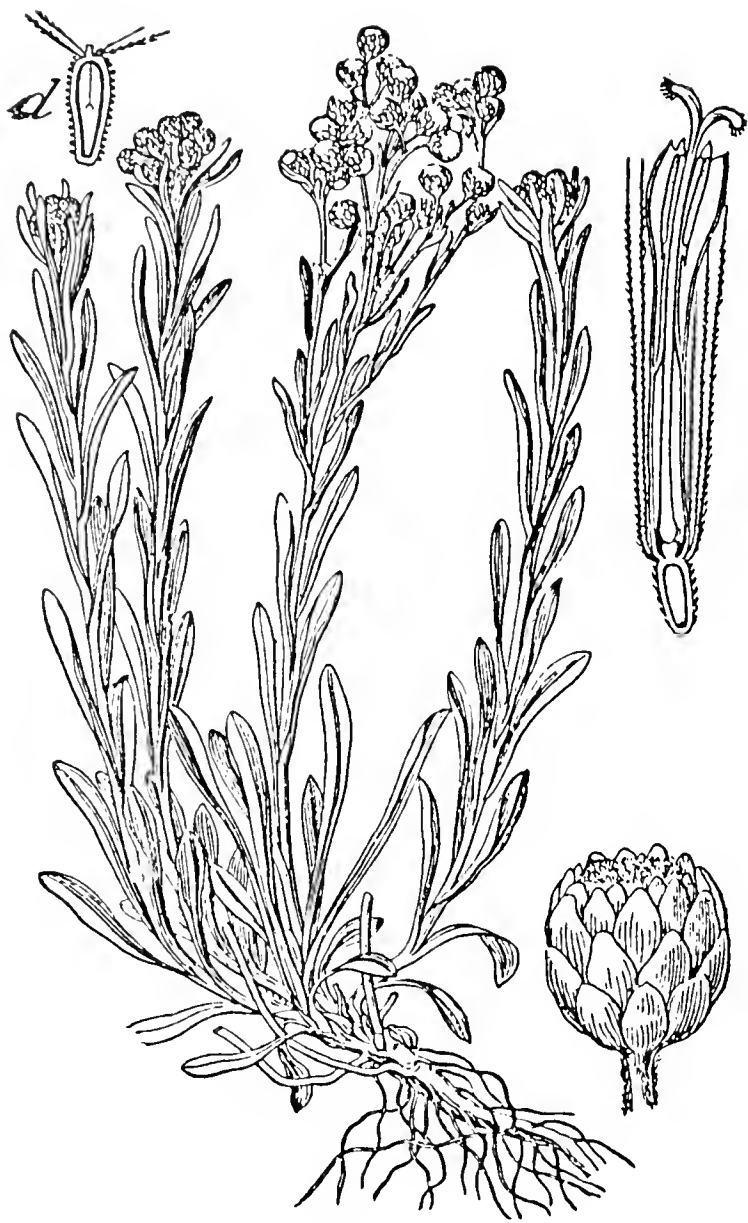
tender plants included many of the *Salvias* — *S. patens*, *S. hians*, *S. uliginosa* and *S. farinacea*, *Mimulus glutinosus*, *M. luteus* and *M. guttatus*, *Felicia amelloides*, *Osteospermum*, *Convolvulus cneorum*, *Jasminum primulinum* and *Solanum jasminoides*. Plants which provide the beddings familiar to us here are used in groupings and for containers — *Nicotiana*, *Pelargonium*, *Fuchsia* and *Helichrysum*.

The plants at Powis are extremely varied. Half-hardy and even more tender species can be used because the gardens are protected. They face, on the whole, south-east, and are situated on a hill from which the frost drops away. Not so the gardens at Burford House, attached to John Treasure's nursery in Tenbury Wells, an hour's drive from Powis.

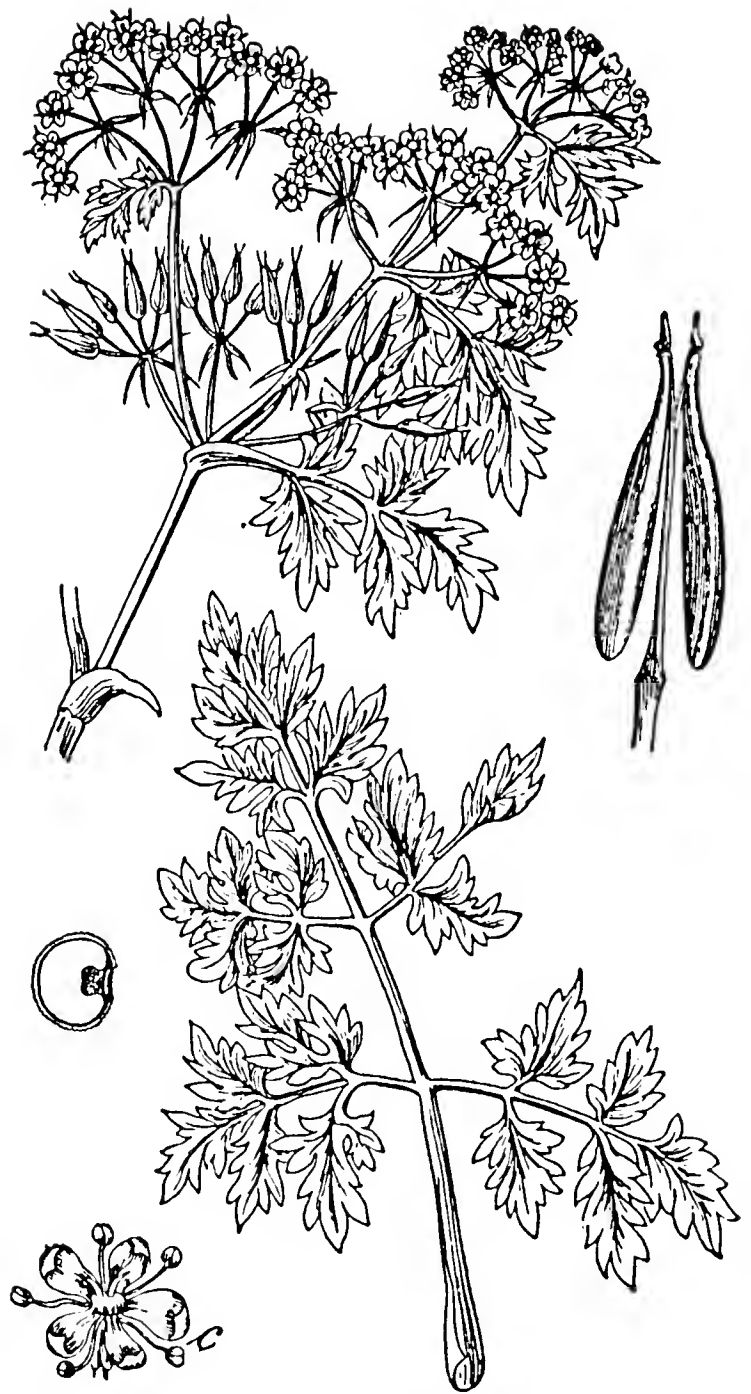
The gardens at Burford House sit in the frost hollow of a river valley and are frost free for only 3 or 4 months of the year. Here you may see unusual and adventurous gardening.

The national collection of *Clematis* is here, and the visitor sees this lovely vine used in many ways — threading through shrubs (dark red *Clematis* 'Niobe' in variegated dogwood) and carpeting the ground between perennials. The garden contains many old roses, and I found particularly interesting the use of stream-side plants and moisture lovers. Varieties of willows line the stream on the far side of the garden and give a background to *Thalictrum*, *Rheum* and *Primula*.

Burford House is a privately owned garden, open to the public most afternoons, but the attached nursery is open all day (with the ubiquitous tea-room!) Unfortunately, Americans cannot take plants back to the States without a good deal of trouble, but the nursery is still a wonderful place for looking and learning. It can get very crowded, especially on weekends — mornings are best, and then one can spend the afternoon in the garden. Most



Above: *Helichrysum*  
Right: *Anthriscus*



other gardens in the area are only open in the afternoon as well, making it difficult to combine several visits in one day. However the surrounding countryside is beautiful. There are many areas which deserve a walking tour rather than a driving through and many mornings can be spent walking the lanes or across low hills.

Another hour from Powis, half an hour from Burford House, is the lovely garden at Hergest Croft at Kington, Herefordshire, which belongs to the Banks family. This is also a private garden, open in the afternoons, and best seen in spring for there are many rhododendrons and azaleas. Here are the national collections of maples and birches, and with these are many other beautiful trees.

Besides these three gardens, which provide a tremendously wide range of styles and plants, there are cottage gardens, scenic views, and wild flowers in the hedgerows all around Powis and Hergest Croft. Halfway between them is a mediaeval manor house, Stokesay, worth a visit if only for the wild flowers growing in the moat that surrounds the fortified

house. These flowers have been encouraged, judiciously thinned and weeded by the custodian, a gardener. Here you can see the masterwort, *Astrantia major*, which is native to Britain and Europe but very rare now in the former. In the lanes about Powis can be found the lovely cow parsley, *Anthriscus sylvestris*, *Smyrnium olusatrum* or Alexanders, not often seen inland, and *Aconitum anglicum*, also rarely seen now as a true native. Around Hergest Croft, in amongst the grasses of the ditches one can see Squinancywort (*Asperula cynanchica*) and the yellow pimpernel (*Lysimachia nemorum*).

There are as many good things to see on the northern and western sides of Powis. Chirk Castle has a good garden, and Erddig a fascinating conservation project — I am just giving you a good start. Stay in the little town of Welshpool, by Powis, or Kington, by Hergest Croft, and you will be able to say to yourself, "If it's Tuesday, this must be the same place I was in yesterday, and I'll still be here tomorrow — Joy!"



*Top: View from R.A. Banks' house. Bottom: Mr. John Treasure's garden.*

*photos: B.O. Mulligan*



# Wave Hill

VIRGINIA MORREL

On a visit to New York City we expect to be caught up in the hustle and bustle of this huge city's life, and so need even more the sanctuary of a delightful and alluring park away from the crowds and noise. One such place is Wave Hill in the Riverside section of the Bronx, overlooking the Hudson River and the Palisades. It was an estate owned by George W. Perkins, whose widow gave twenty-eight acres and two mansions to the city of New York for a city park and cultural center in 1960. The garden is comprised of fifteen acres, and eighteen acres remain wooded. Former residents of Wave Hill include Mark Twain and Arturo Toscanini.

Shortly after Mr. Perkins bought the property in 1903 he hired Albert Villard, a royal landscape gardener from Vienna to design and develop a garden. Today an innovative and imaginative series of gardens have been created within the basic framework of the original garden by Marco Polo Stufano, Director of Horticulture, and John Nally, Curator, and their staff. Upon arriving at the gate you step back in time to a Flower Garden filled with flowers popular in 1910 and 1920. There are numerous dianthus, peonies, clematis, iris, pulmonarias, lilies and artemisias, among others.

In front of the conservatory is a garden of all gray foliage plants, said to be the largest

collection of gray plants in the eastern United States. One greenhouse is filled with a cactus collection, while another houses tropical plants. A new solar greenhouse contains a large collection of rare alpine and rock garden plants. This is the only alpine collection open to the public in the East. In the foundation ruins of an old greenhouse there is the Herb Garden with over 100 different herbs. A Dry Garden has been started within another old stone greenhouse foundation. Many half-hardy plants, such as *Zauschnerias*, *Phlomis*, *Euphorbias*, *Origanums* and *Rosemary* are being grown there.

Up a steep slope, further along the path from the Dry Garden, is the Wild Garden. It is "wild" only in the use of the plant material. Around each curve in the winding path up to the summerhouse is another exciting visual treat. *Crambe maritima*, a frothy white blossoming wild kale from Britain grows happily in an environment far different from its native habitat. *Yucca glauca* grows along with *Asclepias tuberosa* (self-seeded). *Verbascum bombyciferum*, *Zauschneria californica* and *Glauciums* share space with a number of *Carex*. Intermingling are *Iris pseudacorus* 'Bastardii' and *I. chrysographes* 'Black Form' with *Eremurus*, small flowered clematis, *Arctostaphylos uva-ursi*, *Pinus aristata* and cacti. Plants which



*The Wave Hill herb garden.*

*photo: Timothy Hohn*

have never been associated intermingle in an exciting experiment. The Wild Garden is an area where Stufano and Nally dare to do the unusual, and get away with it.

Christopher Lloyd wrote "What a gem their pond garden is", to which he must have referred to the textures and forms of the grasses, reeds, water lilies and arums used. This garden is located at the flat area at the base of the Wild Garden. It is a peaceful spot where an occasional heron comes to fish, and people sit and relax, enjoying the tranquility.

A new Monocot Garden in the curve by the pond near the pergola is planned for the spring of 1987. There will be mainly grasses, bamboos, lilies, species *Iris* and the like. On the pergola grow a most imaginative selection of vines such as gourds, morning glories, moonflowers and cardinal climbers.

A Symmetrical Garden has been created for displaying interesting color from early spring until fall. This garden is made of shrubs and roses, as Stufano says "in a Sissinghurstesque manner".

Great expanses of lawn and huge old

trees separate these gardens. There are oaks, maples, magnolias, elms, parrotias and pines, as well as several *Idesia polycarpa* with its interesting fruit, a tree for which Wave Hill is particularly well known.

Incorporated in all this, scattered about on the grounds, are large pieces of sculpture, on loan from the artists, which are changed from time to time. On going exhibits of garden design, horticultural displays and musical programs are presented in Wave Hill House, along with a variety of educational classes, workshops and training classes for elementary school teachers. The collection and memorabilia of Arturo Toscanini, and 137 tapes of the broadcasts the maestro led with the NBC Symphony Orchestra are housed in the Wave Hill Library.

The entire garden is an imaginative, fascinating, daring creation. The great care given to color, form and texture reflects Stufano's artistic background. The continual seeking out, and use of unusual plant material makes this garden a plant lovers delight. Wave Hill has become an inspirational, exciting, yet relaxing sanctuary in this country's largest city.

# A Collection of Botanical Treasures — The University of Washington Herbarium

MELINDA F. DENTON, CURATOR

Early in man's recorded history, the search for information concerning plant distributions and diversity was based on a need to know more about drug, medicinal, or food plants. The Chinese, for example, had floral pharmacopoeias as early as 5000 B.C. Later, the Hebrews, Babylonians, and Greeks produced herbals that dealt with medicinal substances derived from plants. Given the concern for medical applications, it is no surprise that physicians were the first taxonomists (persons who study the kinds of organisms to determine their identity and extent of variation and to arrange them in an orderly sequence or classification). Their medical skill depended in large measure on an ability to know which plants could be used to treat various illnesses; their gardens were their laboratories. By the early 1700s, physicians and estate-holders were cultivating many kinds of plants and subsidizing expeditions of adventurous collectors who would bring back herbarium specimens, seeds, and exotic plants from remote parts of the world. Plants were preserved for identification purposes or for general reference by making dried pressed specimens, a technique developed in Italy in the 1500s. The earliest herbarium specimens were bound into books; later, single herbarium specimens were filed systematically. The increase in knowledge of plants only increased the appeal of unusual ornamentals

as well as the desire to acquire more of the food and drug plants that grew naturally elsewhere. It soon became evident that classifications were necessary to provide some framework for depicting plant relationships so that identifications could be made readily.

In 1623, Caspar Bauhin published *Pinax Theatri Botanici*, which was a compilation of information concerning all plants known to exist at that time. By the mid-1700s, Carolus Linnaeus constructed an artificial system of classification of flowering plants, based primarily on the number, arrangement, and fusion of male and female reproductive parts of the flowers; this was a landmark contribution in that it arranged the plants known to him in an easily interpretable sequence. Linnaeus and other taxonomists of the 17th and 18th centuries usually did not see more than one or a few specimens of a given species and did not realize the extent of variation that usually exists within a species. Even though their taxonomic decisions were not based on an appreciation of the processes of evolution or populational variation of species, the framework for modern studies in plant systematics was laid by these early taxonomists.

Today, plant systematics (encompassing taxonomy) aims at understanding the nature of plant variation and phylogeny





*Workroom for receiving and fumigating plant specimens.*

*photo: author's*

(pertaining to evolutionary relationships within and between groups) of taxa (whether species, genera, families, orders, or classes). The intensive study of a group of related species provides an understanding of the way those organisms likely have evolved and documents the nature of their phylogenetic relationships. One might ask the value of knowing if plant species A is related to plant species B. The answer becomes especially apparent when plant species A has an important medicinal, nutritional, or ecological property. Plants that are phylogenetically closely related tend to be similar in their chemical and physiological properties. The resources for an important product can be increased if more than one species with the property can be obtained. Such information usually is available only if intensive monographic studies that evaluate the phylogenetic relationships of plants and the processes that have led to diversification have been made. In a monographic study, all aspects of the growth and development of the included species should be investigated to provide a full understanding of the way in which the species have adapted (changed genetically) and evolved.

Systematic studies rely on examin-

ation of numerous plant specimens made of the species being studied. To be thorough, specimens that have been collected throughout the known range of geographic distribution should be examined. Plant specimens, housed in herbaria or plant museums, document the existence of particular kinds of organisms or species at a given time in a specific place; they are vouchers. The preservation of vouchers in a herbarium allows researchers, present and future, to study the extent of species variations as well as to check or confirm the results of others. The continuing refinement of scientific techniques enables researchers to use herbarium specimens for a wide variety of biological studies that seek answers to diverse questions or hypotheses. For example, DNA from plants preserved as herbarium specimens now can be extracted and used for comparative analyses. In some species, seeds can be removed from herbarium specimens, germinated, and used for a particular study where live materials are needed for chromosomal, ecological, genetic, or chemical analyses. In all cases, examination of a representative set of herbarium specimens for a given species can readily depict the range of morphological variation and distribution pattern.



Plant specimens representing a holotype (the specimen on which a name of a plant is based; in this case, the type of *Sedum laxum subspecies flavidum*).

photo: author's

Since rare and endangered plant species are now of state and federal concern, the determination of the status of a plant species (rare, endangered, or threatened) depends on the thoroughness with which plant exploration and collecting have been carried out in a region. If collecting has been extensive in all areas, for example in Washington state, then one can adequately assess the frequency and locations of populations of the native species. Upon examination of the collections kept in herbaria, the geographic distribution is determined. If all or nearly all potential habitats have been explored, then one can assume that the distribution pattern of a given species determined by the examination of herbarium specimens is accurate. While obtaining distribution data, the identification of the specimens examined always should be checked to make certain that errors of identification or filing were not made previously. Such verifications provide a clearly documented basis of the distribution pattern of a plant species.

For the state of Washington, when a flowering plant species is known to be rare or endangered, the location of each population is

noted from the herbarium specimen and the information sent to the Natural Heritage Program, now affiliated with the Washington State Department of Natural Resources in Olympia, Washington. The locations and sizes of the populations of these species are currently monitored by the Heritage Program. Information on the status of rare and endangered species and of other native species that are dominant in particular plant communities is used by the Washington State Natural Areas council and groups such as the The Nature Conservancy to determine priorities for habitat preservation and land management and acquisition.

Once the accumulation of specimens in a herbarium for a given region is representative of the existing plant life, floras or manuals can be written. These volumes are essential for general plant identification of the local plant life and for documenting the geographic occurrences of plants. (The term flora can be used to refer either to the plant life of a given area or to a published work describing the plant life of a given area.) Consultation of available floras or manuals allows one to determine or estimate the overall distribution pattern of particular species, which, in turn, provides data for understanding the phytogeographical relationships of plants. Floras, however, are never really complete. They require periodic revision to account for newly found species as well as those that disappear either by natural or man-made means (usually by alteration or elimination of a habitat). In most floras, introduced plants are not included unless they have become naturalized. In the Pacific Northwest, we have a model flora (The five-volume illustrated *Vascular Plants of the Pacific Northwest* by C.L. Hitchcock, A. Cronquist, M. Ownbey, and J.W. Thompson) and a manual (*Flora of the Pacific Northwest*, by C.L. Hitchcock and A. Cronquist). The collections that document these major works are housed in the University Herbarium.

The University Herbarium was founded in 1879 by the Young Naturalists Society in Seattle, an organization that was active up until 1905. All of the early collections were incorporated into the holdings of the Washington State Museum (now known as the Thomas Burke Memorial Washington State Museum) located on the University campus. Many collections of native plants were made by

early members of the society and by faculty members at that time. By the early 1900s, the Herbarium had started to expand and to be used as a resource for research and teaching. The Herbarium consisted of about 30,000 specimens in 1937 when it was transferred to the Department of Botany where the faculty, mainly C.L. Hitchcock, could use the specimens more intensively in research and teaching. As Curator for 35 years (1937-1972), Hitchcock devoted most of his energies to building the Herbarium through an active collecting and exchange program. By the time of his retirement, the Herbarium had grown to about 400,000 collections.

As Curator since 1972, I have devoted most of my efforts to strengthening the holdings of certain plant groups or families, and improving the physical layout and accessibility of the collections. Since 1980, we have had an assistant curator (Bonnie Tucker, 1980-82; Anna Zeigler, 1982-present) and undergraduate hourly support to help with daily herbarium operations. Over the years, we also have had invaluable assistance provided by volunteers. We now have over 510,000 collections of which 60% is representative of Pacific Northwest taxa. Included in these are over 1,500 type specimens; each serves as the type of a scientific name. Considering all groups of plants, we believe that we have the best representation of native plants from the region that

can be found in any museum or herbarium. In brief, the composition of our holdings is: 324,000 vascular plants (ferns and allies, gymnosperms, and flowering plants), 72,000 bryophytes (mosses), 16,000 hepatics (liverworts and allies), 21,000 algae, 11,000 lichens, and 50,000 fungi. These specimens were collected by many important collectors, the more notable being W.H. Baker, W.C. Cusick, W. J. Eyerdam, T.C. Frye, C.L. Hitchcock and C.V. Muhlick, G.E. Howard, D.E. Stuntz, W.N. Suksdorf, and J.W. Thompson. Today, our acquisition policy emphasizes plant species that occur in remote areas of the Pacific Northwest and western North America in general.

In 1983, the University Herbarium was moved from Johnson Hall to the new biological sciences building on campus, named C. Leo Hitchcock Hall. Along with the move to new facilities, we were able to consolidate all holdings and provide for a 35% increase in storage space. The improvements in physical layout and access to the collections enable us to handle special requests and accommodate the needs of visitors more readily than we could previously. With improved representation of plant groups, the value of the herbarium is increased for purposes of teaching, basic research, and for obtaining information useful in land management and conservation.

## The Arboretum Foundation Used Book Sale at the Donald G. Graham Visitors Center

Take this opportunity to stock up on spring & summer reading!

Friday, March 6th — Arboretum Foundation members' Preview Sale 5:00-8:00 p.m.

Saturday, March 7th & Sunday March 8th — Public Sale 10:00 a.m. to 4:00 p.m.

Books you wish to donate may be brought to the Visitors Center on Wednesday, March 4th and Thursday, March 5th.

# The Donald G. Graham Visitors Center

At the request of the Arboretum Foundation, the Seattle Parks Department has officially named the new building in the Washington Park Arboretum the Donald G. Graham Visitors Center. The Arboretum Foundation feels that this is a most fitting recognition of Mr. Graham's devotion to horticultural causes, dedication to the establishing and development of the Arboretum, and the generous financial support that has continued from its beginnings in the 1930's to the building of the Visitors Center itself.

Donald G. Graham was born in Fort Worth, Texas in 1884, and came to Seattle to practice law in 1921, following his marriage in 1919 to Juanita Fisher. Donald Graham's horticultural interests were well recognized by 1934, when minutes of the September 6th meeting of the Board of Park Commissioners record his appointment to the temporary committee "to make recommendations as to financing and plans" for the "Arboretum Project". Also in 1934, Donald Graham was appointed chairman of an "Arboretum Advisory Council". One of this Council's first actions was to establish the Arboretum Foundation — to serve as a repository for funds and to raise revenues for the Arboretum. At this time Juanita Graham was instrumental in the formation of 18 auxiliary support units to the Foundation and served as the Unit Council President from 1938-1941. Unit 1 is named the Juanita Graham unit, and after fifty years, Mrs. Graham continues her involvement and support of the 75 active and

productive units.

In 1938 and 1939 there were difficulties in resolving and financing the fledgling Arboretum. Thanks to the efforts of a group of dedicated people, the Arboretum survived, "Chief among these perhaps, was Donald Graham, who donated a prodigious amount of time and unusual knowledge and talent to the enterprise at a time when it sorely needed such services." (*The Long Road Traveled*, p. 204) In 1943, Donald Graham was significantly involved in the lobbying that led to a legislative appropriation for support of the Arboretum. In 1963, he was appointed to the "City-University Arboretum Committee", formed as a result of the receipt of Thompson Expressway funds. He was president of the Arboretum Foundation in 1941-42 and again in 1962-64.

Donald Graham was a frequent writer for this publication and a major disseminator of fine plant material throughout this area. He donated many rare plants to the Arboretum which had been brought to this country by his efforts. He was one of the very few men to be made an honorary member of the Seattle Garden Club in recognition of his service to the city. In 1971 he was awarded the Bronze Medal by the Seattle Chapter of the American Rhododendron Society, a chapter he was directly responsible for organizing. In 1972, the year of his death, he was to have received the Amateur Citation Award of the American Horticultural Society.

**The Arboretum Foundation**  
Invites you to join their  
**Spring Garden Tour of**  
**South Carolina, North Carolina & Virginia**  
April 11-25, 1987

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For further information please contact: Barbara Keightley, 232-3556; Mary Ellen Mulder, 232-8119; Heather at Travel Professionals, 236-0990; or the Arboretum Foundation office, 325-4510.

### A Letter to the Editor

Dear Editor,

I noticed an article in the Fall, 1985 issue of the *Arboretum Bulletin* that attributed the design of the south portion of the Japanese Garden to Richard Yamasaki. To lay to rest this subject about which there has been confusion for some years I would like to add the following.


When Juki Iida returned to Japan after the completion of most of the Garden, it was apparent to Fred Mann (then University Architect) that most visitors to the Garden would walk almost the length of the Garden, from the parking lot to the south, before they could enter and the suggestion was made that another entrance should be designed at the south end. The University found funds for this project and asked me to work directly with Richard Yamasaki (who build the original gate and teahouse) and

William Yorozu (who set the original rocks and planting under Mr. Iida's direction). Consequently a collaborative effort was begun to complete the south portion of the Garden in sympathy with the major portion of the Garden already in place.

Richard Yamasaki designed and build the new entrance gate. The dry stream, general grading, paths and rock placement were laid out to my plan and the detailed rock placement and some of the planting was done by William Yorozu. Further planting was completed by Brian Mulligan.

Since the general character of the Garden designed by Juki Iida was eclectic, that is combining several styles of Japanese gardens, it was assumed that the addition was not out of place although it was not originally designed by Mr. Iida.


-Eric Hoyte  
University Landscape Architect



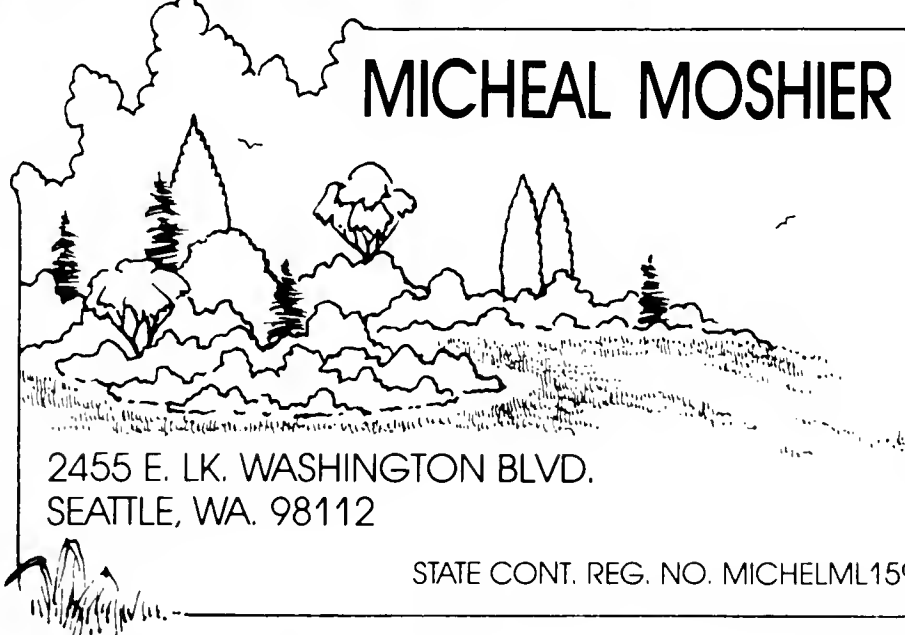
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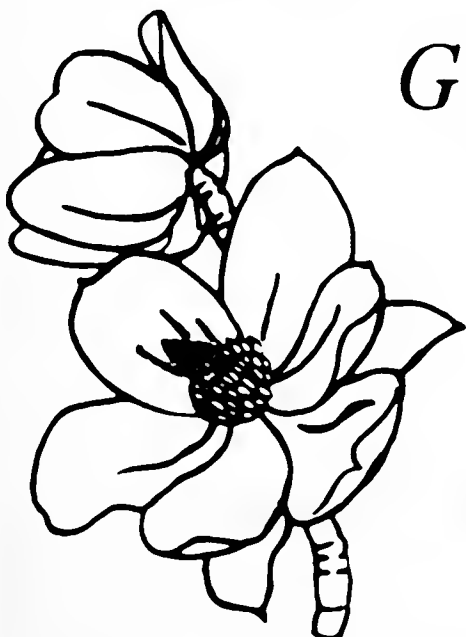
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