

Lilacs

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INTERNATIONAL LILAC SOCIETY is a non-profit corporation comprised of individuals who share a particular interest, appreciation and fondness for lilacs. Through exchange of knowledge, experience and facts gained by members it is helping to promote, educate and broaden public understanding and awareness.

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Lilac Walk at Central Experimental Farm, Ottawa.

Editor's Note

These proceedings reflect the character and personality of the convention chairman, Mr. Trevor J. Cole, and the development of Canadian horticulture. Trevor organized and managed the events with the aid of an invisible staff who invited gifted speakers to present informative and interesting papers. He brought out the several dignitaries responsible for Canadian agriculture and municipal horticulture. Much of the photographic record is his work. This was the Society's second visit to Ontario, our first to the nation's capital. We received gracious hospitality and favorable weather, and exceptional lilacs in bloom both in Ottawa and at the Central Experimental Farm. Reports of the tours were published in the July and August numbers of the *Lilac Newsletter*, therefore these have been excluded from the Proceedings.

Two papers of considerable interest are appended: one being excerpts of a 1980 booklet on lilacs and their culture in the USSR in which recommendations of fifty cultivars are given, the other being a hardiness report covering some thirty years at the George Landis Arboretum at Esperance, New York, where plant hardiness is a critical factor for growing plants successfully. -R.B.C.

Miss Isabella Preston, Plant Breeder Extraordinary

by Daniel Cameron, Retired, Agriculture Canada,
Central Experimental Farm, Ottawa K1A 0C6

My acquaintance with Isabella Preston took place in the summer of 1936, when, as an employee of the Federal District Commission, I found myself suddenly in charge of the maintenance of the grounds of the Ottawa Civic Hospital. One of the features of the landscape design of these grounds was a formal rose garden containing some six hundred rose bushes - consisting of climbers, ramblers, hybrid perpetuals, hybrid teas, and a number of the recently developed floribundas. Not being familiar with the variety names I requested help from the Central Experimental Farm across the road, and was directed to the office of Miss Preston who was happy to oblige me by visiting the hospital grounds and identifying all the rose plants in the several beds. This kindness was typical of her character.

During the next three or four years, until the outbreak of war, I had the infrequent occasion to consult Miss Preston about horticultural matters, but not until two years after the end of World War II, did I become aware of the magnitude of her contribution to the world of horticulture. In 1948, I left the Federal District Commission to join the staff of the Division of Horticulture, at the Central Experimental Farm, a few months after Miss Preston's position had been declared vacant. As I had been appointed to continue with her projects, my first assignment was to familiarize myself with her work, and prepare a review for the Progress Report of the Division on Ornamental Plant Breeding covering the years from 1934 to 1948.

During the next summer or two, Miss Preston arranged to be in Ottawa during the months of June, July and August, in order to keep in touch with the development and propagation of certain lily selections she had made shortly before her retirement, and to discuss the program that involved further work in *Rosa*, *Syringa*, *Malus* and *Philadelphus*.

Born at Lancaster, England, in 1881, her early education was received in private schools, and since her parents had a garden, Isabella in childhood developed a keen interest in gardening. Later, she attended the Horticultural College for Women at Swanley, Kent.

In 1912 she came to Canada, taking lectures at the Ontario Agricultural College at Guelph, making a special study of plant breeding, and, for seven years under the direction of the late Professor J.W. Crow, engaged in the breeding of various vegetable crops, fruits and flowering plants, including lilies.

In 1920 she joined the staff of the Division of Horticulture at the Central Experimental Farm in Ottawa to undertake the extension of the work being conducted in the breeding of ornamental plants under the direction of the late Dr. W.T. Macoun, the Dominion Horticulturist.



Rapt attention to one of the speakers.

As certain genera of ornamental plants were beginning to receive considerable attention from both amateur and professional plant breeders, Dr. Macoun suggested that Miss Preston's plant-breeding efforts be directed to genera less likely to attract attention from other plant breeders, and yet in which good results might be expected. These genera were: *Aquilegia*, *Iris sibirica*, *Lilium*, *Malus*, *Syringa*, and *Rosa*.

Aquilegia

The *Aquilegia* breeding program was eventually discontinued because of the lack of effective controls of the columbine borer. In the other genera, however, many new and superior varieties were developed and distributed to commercial nurserymen in Canada, the United States, and in Great Britain.

Lilium

It was probably her success with garden lilies and lilacs that contributed largely to Miss Preston's international fame as a plant breeder of outstanding varieties. At the time these new lilies were being introduced, most of the commercially available garden lilies were imported from the Orient more or less infected with a virus disease that gradually destroyed the plant, and discouraged gardeners from further planting of lily bulbs. The new Preston varieties, being virus-free, colorful, of excellent form and ease of propagation, became immediately popular and much in demand.

Twenty-one varieties were named; some after stenographers in the Division, and others, descendants of the stenographers; some were named after British fighter aircraft, and released through the normal arrangements with commercial nurserymen. In competition in North America and Great Britain eleven of these new lily varieties received no less than sixteen awards for garden excellence. The popularity of these two groups of lilies was largely responsible for the revival in lily growing that has continued to the present time.

Iris sibirica

In this project, two varieties, 'Gatineau' and 'Ottawa', from crosses involving *I. sibirica* X *I. orientalis* received awards from the American Iris Society and from the Royal Horticultural Society. Another sixteen varieties were named and introduced and some of these are still available from specialists in herbaceous perennials.

Rosa

Miss Preston's object in rose breeding was to develop varieties of shrub roses that would be hardier than those generally available, and thus extend the planting range and enable homeowners to enjoy roses over a much wider area. Using species such as *RR. rugosa*, *rubrifolia*, *harisonii*, *cinnamomea*, *spinosissima*, and *helenae*, a large number of seedlings were raised. In all, about twenty-five varieties from several various crosses were named and distributed through the commercial nurseries.

Malus

A breeding project in this genus was begun in 1920, with the object of obtaining hardy ornamental trees with reddish summer foliage and colorful flowers or fruit, to take the place of trees with colored foliage, such as *Prunus cerasifera (pissardii)* 'Atropurpurea' which is not hardy in many parts of Canada. The Redvein Crab, *Malus pumila* var. *niedzwetskyana* was crossed with different forms of hardy crabapples and from the widely differing resulting seedlings, several were selected for their various useful qualities and given the names of Canadian lakes. As a group, they are known as the Rosybloom Crabapples, two of which have received awards from the Royal Horticultural Society.

Twenty-eight named varieties are listed in the Progress Reports for 1928, 1930 and 1934-48, and have been widely distributed by commercial nurserymen. A few, with special qualities are still being used as breeding material by other plant breeders, as a source of hardiness, resistance to apple scab, plant structure, fruit and foliage color, and double flowers.

Syringa

The common *Syringa vulgaris*, with its varieties, is not a reliable plant in many sections of Canada, where the flower buds or bloom are frequently caught by late spring frosts. In order to develop lilac varieties for these areas, crosses were made, in 1920, between two hardy, late blooming species: *Syringa villosa* and *S. reflexa*. This cross gave rise to a large number of seedlings which were named *Syringa prestoniae* in honor of Miss Preston, the first plant breeder to make this cross.

This hybrid group attracted much attention among horticulturists and a large number of selections were made, with several of the better varieties being distributed to commercial growers here and abroad. Other crosses involving *SS. reflexa*, *josikaea*, and seedlings of the *prestoniae* group, resulted in eight named varieties: 'Guinevere', 'Bellicent', 'Enid', 'Lynette', 'Elaine', 'Kim', 'Ethel M. Webster', and 'Fountain'. From a large number of the original *Prestoniae* seedlings that were named, the following eight are considered to be the best for general garden performances: 'Isabella',

'W.T. Macoun', 'Audrey', 'Desdemona', 'Elinor', 'Miranda', 'Ursula', and 'Virgilia'. Of these, 'Audrey', 'Isabella' and 'Elinor' were awarded the A.M. (award of merit) at the Royal Horticultural Society. The hybrid variety *S. x josiflexa* 'Bellicent' received the F.C.C. (first class certificate) Royal Horticultural Society (1946).

A review of the records of this project concerning *Syringa* breeding reveals that over fifty selections were given varietal names, but as many of these varieties were so similar to other selections that it was virtually impossible to distinguish one from the other, except by reference to the permanent attached metal labels. For this reason, many of these named varieties were not propagated, and existed for a number of years as the original seedling trees, set out in a hedgerow surrounding one of the nursery areas. Eventually, in order to extend the garden display area, it was necessary to destroy many of these trees.

Miss Preston, as a plant breeder, was unique. With a profound knowledge of plants her interests included all aspects of ornamental gardening; woody plants; trees, shrubs, ground covering vines, herbaceous perennial plants, plants for rock gardens, and annual garden flowers.

The seedlings from her many and various plant breeding projects were observed and watched carefully for each change in their development as if they were her own children. She knew them intimately, and from a long association with plants of many families she seemed to know how to choose the best plants to mate, in order to obtain the results she wanted.

In spite of the demands of her many projects, she found time to be the author of two books on lily culture, and she was a fre-



Syringa prestoniae, 'Isabella', the original Preston lilac.

quent contributor on horticultural topics to several publications dealing with gardening problems. She was not known ever to accept an invitation to address an audience from a platform, but if a group of visitors encountered her in her garden, she would enjoy talking with them for an hour or more, quite at ease with them, as they were fellow gardeners, and not a silent audience.

With so many honors awarded to plants that Isabella Preston originated, it is not surprising that she was the personal recipient of a number of medals and awards:

Macoun Memorial Diploma - for outstanding achievement in originating ornamental plants 1930.

Large gold medal - Massachusetts Horticultural Society, for experimental work with lilies 1931

Carter medal of the Ontario Horticultural Association - for Horticultural Achievement 1937.

Veitch Memorial Medal in Gold - R.H.S. England - for work in raising good garden plants 1938.

Honorary Life Member - of the Pennsylvania Horticultural Society 1938.

E.H. Wilson Memorial Award for a noteworthy contribution to the cultivation of Lilies - by the North American Lily Association 1961.

Corresponding Member - Massachusetts Horticultural Society

Member Lily Committee - American Horticultural Society

Member Lily Committee - Royal Horticultural Society England.

Within a year or two of her retirement she moved to Georgetown, New York, where she bought a home with a large lot that she developed into a fine garden, where she could grow some of her own originations. There she received visitors and prominent horticulturists from many countries. It was there in 1965 that she, a plant breeder extraordinary, died in her 85th year.

Discussion

Rogers: *I would like to ask a question about the naming of her lilacs. Most of her lilacs have feminine names. Did she have a pattern for this?*

Cameron: *She was a great reader of Shakespeare and a lot of the names given were those of Shakespearean characters.**

*Adriana, Antipholus' wife in *The Comedy of Errors*

Alice, Katherine's lady-in-waiting in *The Life of King Henry V*

Ariel, an airy spirit in *The Tempest*

Audrey, a country wench in *As You Like It*

Beatrice, Leonato's niece in *Much Ado About Nothing*

Bianca, Cassio's mistress in *Othello*: Baptista's daughter in *The taming of the Shrew*

Blanch, John's niece in *The Life and Death of King John*

Caliban, a savage and deformed slave in *The Tempest*

Calpurnia, Caesar's wife in *Julius Caesar*

Cassandra, Priam's daughter, a prophetess, in *Troilus and Cressida*

Celia, Frederick's daughter in *As You Like It*

Charmian, Cleopatra's attendant in *Antony and Cleopatra*

Cleopatra, Queen of Egypt in *Antony and Cleopatra*

Constance, Duke Arthur's mother in *The Life and Death of King John*

Cordelia, Lear's daughter in *King Lear*
 Cressida, Calchas' daughter in *Troilus and Cressida*
 Desdemona, Othello's wife, daughter of Brabantio, in *Othello, the Moor of Venice*
 Diana, a Florentine widow's daughter in *All's Well that Ends Well*
 Dorcas, shepherdess in *The Winter's Tale*
 Elinor, John's mother in *The Life and Death of King John*
 Emilia, Iago's wife in *Othello*; Hermione's lady-in-waiting in *The Winter's Tale*
 Francisca, a nun in *Measure for Measure*
 Gertrude, Queen of Denmark in *Hamlet, Prince of Denmark*
 Helen, Menelaus' wife in *Troilus and Cressida*; Imogen's lady-in-waiting in *Cymbeline*
 Helene, in love with Demetrius in *A Midsummer Night's Dream*; gentlewoman protected by Countess of Rousillon in *All's Well that Ends Well*
 Hermia, Egeus' daughter, in love with Lysander, in *A Midsummer Night's Dream*
 Hermione, Leonte's queen in *The Winter's Tale*
 Hero, Leonato's daughter in *Much Ado About Nothing*
 Imogen, Cymbeline's daughter in *Cymbeline*
 Iras, Cleopatra's attendant in *Antony and Cleopatra*
 Isabella, Claudio's sister in *Measure for Measure*
 Jacquenetta, a country wench in *Love's Labor Lost*
 Jessica, Shylock's daughter in *The Merchant of Venice*
 Joan (la Pucelle) commonly called Joan of Arc in *The First Part of King Henry VI*
 Julia, Proteau's beloved in *The Two Gentlemen of Verona*
 Juliet, Capulet's daughter in *Romeo and Juliet*; Claudio's beloved in *Measure for Measure*
 Katherina, Baptista's daughter, the shrew, in *The Taming of the Shrew*
 Lavinia, Titus' daughter in *Titus Andronicus*
 Lucetta, Julia's lady-in-waiting in *The Two Gentlemen of Verona*
 Luciana, Adriana's sister in *The Comedy of Errors*
 Lychorida, Marina's nurse in *Pericles*

Margaret, the queen in *King Henry VI*
 Mariana, Angelo's betrothed in *Measure for Measure*; a Florentine widow's friend in *All's Well that Ends Well*
 Miranda, Prospero's daughter in *The Tempest*
 Nerissa, Portia's maid in *The Merchant of Venice*
 Oberon, king of the fairies in *A Midsummer Night's Dream*
 Octavia, Antony's wife, sister of Caesar, in *Antony and Cleopatra*
 Olivia, heroine in *Twelfth Night; or What You Will*
 Ophelia, Polonius' daughter in *Hamlet*
 Patience, Katherine's lady-in-waiting in *The Famous History of the Life of King Henry VIII*
 Paulina, Antigonus' wife in *The Winter's Tale*
 Perdita, Leontes' and Hermione's daughter in *The Winter's Tale*
 Phebe, shepherdess in *As You Like It*
 Phrynia, Alcibiades' mistress in *Timon of Athens*
 Portia, rich heiress in *The Merchant of Venice*; Brutus' wife in *Julius Caesar*
 Puck, Robin Goodfellow in *A Midsummer Night's Dream*
 Regan, Lear's daughter in *King Lear*
 Romeo, Montague's son, in love with Juliet, in *Romeo and Juliet*
 Rosalind, banished duke's daughter in *As You Like It*
 Silvia, Valentine's lover in *The Two Gentlemen of Verona*
 Tamora, queen of the Goths in *Titus Andronicus*
 Timandra, Alcibiades' mistress in *Timon of Athens*
 Titania, queen of the fairies in *A Midsummer Night's Dream*
 Ursula, Hero's gentlewoman in *Much Ado About Nothing*
 Valeria, Virgilia's friend in *Coreolanus*
 Viola, heroine in *Twelfth Night; or What You Will*
 Virgilia, *Coreolanus' wife in Coreolanus*
 The names: Bellicent, Elaine, Enid, Geriant, Guinevere, Gwynne and Lynette would seem to be those from the King Arthur literature; while the names of Grace, Maureen, Muriel, and Norah apparently are those of personal friends or associates, and, of course, W.T. Macoun was Dominion Horticulturist and her mentor.

Clark: *Did she ever speak about her trips to Boston or Philadelphia?*
 Cameron: No I never heard her speak about these, she received

awards from all over the world, but she didn't say very much about herself.

Clark: *Her material of Syringa reflexa came from the Arnold Arboretum, and I wonder if she ever commented about that?*

Cameron: Oh yes, she had a lot of correspondence with gardens and plant breeders and collectors all over the world. I know a lot of material that we've got at the Farm came from the Arnold Arboretum, and there were some collectors in China and Korea who sent material over to people in Canada and we were able to do some horse-trading and get some plant material for our own purposes.

Rogers: *That brings up immediately the next question, has any of that correspondence been preserved?*

Cameron: No, I don't think the correspondence has been. As a matter of fact, I think that when Miss Preston was doing most of her plant breeding work, and most of her correspondence, they didn't have the horticultural staff or the stenographic staff they have nowadays. Much of her correspondence was done by herself in long hand, and no records are extant.



Syringa prestoniae, 'Gwynne'.

Lilacs at Ottawa

by Arthur Buckley, Curator Emeritus, Dominion Arboretum, Ottawa

Everywhere at Ottawa lilacs are planted, on large estates, public parks and gardens, and around small homes, except perhaps in some new landscaping projects where the architect has thought possibly that lilacs are outdated and have no place in his plans. Obviously he is unaware of the adaptability of the lilac - its ruggedness and the ability of most cultivars to withstand extremely cold winters - and the wide range of soft ethereal colors they produce. If he were aware of their beauty of flower and foliage he would forego his dedication to form and line and consider planting them in masses to produce pictures of unsurpassed beauty by combining them as backgrounds to spring bulbs plantings or in masses wherever beauty is desired in late spring, or as mere masses of foliage in summer.

The National Capital Commission of Canada is well aware of the beauty of lilacs, for these showy shrubs may be seen in masses along the N.C.C. driveways, and exquisitely fitted into the landscape schemes of large government buildings for which it is responsible.

The most famous and best known collection is to be seen at Canada Agriculture's Dominion Arboretum and the ornamental grounds of the Central Experimental Farm. The development and evaluation of lilacs has been a major project there since the early days about one hundred years ago.

In 1884 the Canadian Government appointed a Select Committee to inquire into the best means of encouraging and developing agricultural interest in Canada. This committee asked many questions concerning this matter. Question no. 7 was "Would the establishment of an experimental farm or garden where varieties of foreign grain, fruit, trees and fertilizers might be tested and later distributed throughout the Dominion be advisable?" With this question in mind William Saunders, Canada's leading agriculturist and horticulturist, was requested to secure the needed information.

Dr. Saunders visited many of the Experimental Farms in the United States and completed the report in February 1886. He outlined the work being carried on in thirty-three states, from a single paragraph in Delaware to seven whole pages for Illinois. This report ranks as one of the most important documents in Canada's history. It ultimately led to the passing, three months later, of an "Act respecting Experimental Farms and Stations".

In October 1886 Dr. William Saunders was appointed Director of the Central Experimental Farm and Stations. His foresight in having sixty-five acres set aside for a Dominion Arboretum and Botanic Garden and his immediate work into seeking out further cultivars of short season grains, were just the replica on a larger scale of his own hobby - a mini-experimental farm. This ultimately led to the discovery of the Marquis Wheat that allowed millions of acres of grain to be grown in the cold Canadian prairie regions. He also obtained considerable information on hardy trees and shrubs, including our favorite woody plant - the lilac. Members of the International Lilac Society may not have heard of Marquis wheat nor of William

Saunders, but he had five famous sons, one of whom was Albert Percy Saunders, Professor of Agriculture and Chemistry at Hamilton College, Clinton, New York who became more famous though, for his work in breeding a new race of hybrid peonies. Among his most beautiful cultivars were 'Laura Magnuson', 'Alexander Woolcott' and 'Silvia Saunders', the latter named after one of his two daughters who carried on his work for many years, in the same house on the campus of Hamilton College.

Clearing the land, removing large stones and tilling was carried out on the site set aside for the Dominion Arboretum during 1887 and 1888. Planting began in the fall of 1889 when two hundred taxa of woody plants, two or more of each, were set out. Among these were fifteen lilacs including 'Charles X', 'Lemoinei', 'purpurea', 'virginalis' and 'alba'.

By 1894 many other lilac cultivars were added, notably 'Albert the Good' and 'Prince of Wales', which were probably supplied by James Dougall. Since Sir John Carling, Minister of Agriculture, William Saunders and John Dougall each lived in London, Ontario, at that time, no doubt they knew each other well. 'Mme. Leon Simon', 'Croix de Brahy', 'President Grevy' and 'Andenken and Ludwig Spaeth' were also planted by 1894. By 1899 the number of lilacs listed were one hundred and thirty taxa of which one hundred and twelve were *Syringa vulgaris* cultivars. Most of them were obtained from such renowned nurserymen as Louis Freres and the Lemoines, Spaeths in Germany, and Ellwanger and Barry in the United States. The Arnold Arboretum, Rochester Parks and Missouri Botanical Garden also supplied many kinds.

Throughout the years many other lilacs have been tested, first in the Dominion Arboretum and later by the Central Experimental Farm. The Horticultural Division of the Experimental Farm removed lilacs from many places including the arboretum, to plant the Lilac Walks in the Ornamental Display Gardens.

From 1895 to 1933 Mr. W.T. Macoun took over the collections as Horticulturist of the Central Experimental Farm and Curator of the Dominion Arboretum. His writings and reports on all of his studies were fabulous both for their clarity and detail. Formerly a forester, he did a remarkably fine job as horticulturist. The Macoun Memorial garden near the lilac walks was erected in 1933-34. It is a formal water garden with an inscribed sundial that stands on the site of his house.

Among Mr. Macoun's many achievements was the establishment of the hedge collection of 1889. No less than one hundred and eighty-six taxa of woody plants were tested up to 1929. Among these were many lilacs including *Syringa chinensis* and varieties *metensis* and *saugeana*, *S. Josikaea*, the Hungarian lilac, *S. villosa* and the common lilac. Only the Hungarian lilac was recommended for a clipped hedge or windbreak. Despite clipping, it bloomed every year and was one of the highest rated of all hedges with its glossy leaves and branches that were quite close to the ground. Planted in 1891 it attained the height of nine feet with a width at the base of eleven feet by 1930. It is still growing in the hedge collection, taller and wider, but just as at-

tractive. As a clipped hedge it was so superior to the other lilacs that it was suggested it should be used instead of any other types. However, *s. chinensis* and its varieties were recommended for use as unclipped hedges.

In 1960 one of my projects as horticulturist of the Central Experimental Farm and Curator of the Arboretum was the evaluation of groups of perennials and bedding plants. Since I felt that the method of evaluation I had been using could be applied to woody plants, I started a program to include a group that would give me some insight into the problem. Crabapples seemed logical since we had a large collection of cultivars, but so much depended upon whether or not they were alternate flowering varieties. Thus I decided on lilacs which I knew to be more dependable every year to produce a good crop of flowers if they were treated properly.

By pruning the plants severely to produce eye-level flowering, I worked for eight years and started the process all over again in 1968. Periodic renewal pruning is an essential practice to successful lilac growing. Most lilacs soon become overgrown and the few flowers that are produced will be borne at the ends of tall branches. To prevent this, a balance should be maintained between the new and old growths. On young plants, new shoots from the soil level should be encouraged, but older plants will sometimes become so crowded with new shoots that they take on an unsightly appearance and will produce fewer blooms. It is difficult to apply a hard and fast rule to keep a balance of new and older shoots on the plants. Generally, if the desired height is less than 10 feet, the older stems should be cut to ground level every two or three years. Thin out new shoot growth, keeping in mind the ultimate height and shape of the plant.

If you have an already established lilac that is not blooming as well as it has in the past or is giving you inferior blooms, perhaps it needs rejuvenating. This may be done by heavy pruning and feeding. If the plant is very old and has formed many stems, during July cut one-half of these to ground level. Next year cut out the rest and thin the new shoots that arise to leave no more than a half dozen; then feed with a good fertilizer such as 6-9-6 and water well. If the plant is not too old, a good feeding each year with about one pound of 6-9-6 sprinkled about the plant and watered in will promote vigorous growth.

Evaluating lilacs is not easy, for so many varieties are alike, and I had first to ascertain their regularity of bloom. After taking notes for many years prior to the evaluation, I found most of them produced a good crop of blooms each year. In 1968 I began a trial evaluation, and compiled a system that I thought was as near perfect as I could get. I devised a ratings card based on the following criteria.

First to consider was floriferousness, the number of flower clusters per plant. Next was the length of flowering period, size of flowers, size of trusses, formation of trusses and resistance to fading, and of course fragrance. Flower color, intensity of color, and color saturation were other factors. The color charts used for this evaluation were from the Royal Horticultural Society's color chart that consisted of a

large number of pages for each color group. It is the one we found most valuable and easier to use than any previously published.

Code: Column A: Name
 Column B: Originator Column C: Year
 Column D: Color Column E: Rating

A	B	C	D	F
Abel Carriere	Lemoine	1896	DIII	65
A.B. Lambertson	Dunbar	1916	DVII	75
Adelaide Dunbar	Dunbar	1916	DVII	70
Souvenir d' Alice				
Harding	Lemoine	1938	DI	85
Ami Schott	Lemoine	1933	DIII	84
Andenken an				
Ludwig Spaeth	Spaeth	1883	SVII	80
Belle de Nancy	Lemoine	1891	DV	75
Boule Azuree	Lemoine	1919	SIII	No
			Blooms	
Candeur	Lemoine	1931	SI	78
Capitaine Baltet	Lemoine	1919	SVII	90
Capitaine				
Perrault	Lemoine	1925	DV	65
Carmen	Lemoine	1918	DV	85
Charles X	Unknown	1830	SVI	80
Charles Baltet	Lemoine	1893	DIV	65
Christophe				
Colomb	Lemoine	1905	SIV	83
Comte Adrien de				
Montebello	Lemoine	1910	DIV	75
Comte de				
Kerchove	Lemoine	1899	DVI	80
Condorcet	Lemoine	1888	DVI	75
Congo	Lemoine	1896	SVI	75
Cora Brandt	Clarke	1947	DI	80
Crepuscule	Lemoine	1928	SIII	60-75
Danton	Lemoine	1911	SVII	80
Decaisne	Lemoine	1910	SIII	83
de Saussure	Lemoine	1903	DVII	60
Diplomate	Lemoine	1930	SIII	85
Doyen Keteleer	Lemoine	1895	DIV	75
Duc de Massa	Lemoine	1905	DIII	80
Edith Cavell	Lemoine	1916	DI	80
Edmond About	Lemoine	1908	DVI	60
Emile Gentil	Lemoine	1915	DIII	80
Ethiopia	Brand	1946	SVII	80
Etna	Lemoine	1927	SVII	80
Etoile de Mai	Lemoine	1905	DVI	80
Firmanent	Lemoine	1932	SIII	80
Frank Paterson	Schloen	1960	SVII	75
Georges Bellair	Lemoine	1900	DVI	75
G.J. Baardse	Maarse	1943	SVI	80
Godron	Lemoine	1908	DIII	65
Helen Schloen	Schloen	1960	SVII	—
Henri Martin	Lemoine	1912	DIV	70
Henri Robert	Lemoine	1936	DII	85



Syringa prestoniae, 'Elinor'.

Henry Wadsworth				
Longfellow	Dunbar	1920	DVI	75
Hippolyte				
Maringer	Lemoine	1909	DIV	80
Hugo de Vries	Keesen	1927	SVII	80
Jacques Callot	Lemoine	1876	SIV	70
Jean Mace	Lemoine	1915	DV	75
Jeanne d'Arc	Lemoine	1902	DI	60
Mons J. de Mes-				
semaeker	Stepman	1908	SVII	65
Jules Ferry	Lemoine	1907	DV	78
Jules Simon	Lemoine	1908	DIII	65-80
Julien Gerardin	Lemoine	1916	DIV	75
Katherine Have-				
meyer	Lemoine	1922	DV	85
LaMauve	Lemoine	1893	DV	70
LeNotre	Lemoine	1922	DII	65
Leon Gambetta	Lemoine	1907	DIV	60
Mons. Leon				
Mathieu	Stepman	1908	SVI	70
Leon Simon	Lemoine	1888	DIV	75
Linne	Lemoine	1890	DVI	50
de Louvain	—	—	SV	75
Lucie Baltet	Baltet	1888	SV	80
Madeleine				
Lemaire	Lemoine	1928	DI	75-80
Marceau	Lemoine	1913	SVI	65
Marc Michel	Lemoine	1898	DV	65



Syringa prestoniae, 'Audrey'.

Marechal de			Monique		
Bossompierre	Lemoine 1897 DVI	60	Lemoine	Lemoine 1939 DI	80
Marengo	Lemoine 1923 SIV	75	Mons. J. de		
Marie Finon	Lemoine 1923 SI	70	Messemaeker	Stepman 1908 SVII	65
Marechal Foch	Lemoine 1924 SVI	75	Mons. Leon		
Marechal			Mathieu	Stepman 1908 SVI	70
Lannes	Lemoine 1910 DIII	60	Mons. Van		
Marie Legraye	Legraye 1879 SI	75	Aerschott	Stepman 1923 SIV	50
Maud Notcutt	Notcutt 1956 SI	85	Montaigne	Lemoine 1907 DV	80
Maurice Barres	Lemoine 1917 SIII	80	Mont Blanc	Lemoine 1915 SI	85
Massena	Lemoine 1923 SVI	84	Monument	Lemoine 1934 SI	80
Michel Buchner	Lemoine 1885 DIV	80	Mrs. Edward		
M. Maxime			Harding	Lemoine 1922 DVI	80
Cornu	Lemoine 1886 DV	70	Mrs. Harry Bickle	Rolph 1956 SV	80
Mme. Abel			Mrs. W.E.		
Chatenay	Lemoine 1892 DI	70	Marshall	Havemeyer 1924 SVII	85
Mme. Antoine			My Favourite	Klager 1928 DVI	80
Buchner	Lemoine 1909 DV	75-80	Olivier de		
Mme. Casimir			Serres	Lemoine 1909 DIII	85
Perier	Lemoine 1894 DI	80	Patrick Henry	Dunbar 1923 DIV	80
Mme. Charles			Paul Deschanel	Lemoine 1924 DVI	75
Souchet	Lemoine 1949 SIII	80	Paul Thirion	Lemoine 1915 DVI	70
Mme. F. Morel	Morel 1892 SVI	80	Perle von		
Mme. Florent			Stuttgart	Pfizer 1910 SIV	60
Stepman	Stepman 1908 SI	75	Planchon	Lemoine 1908 DVI	65
Mme. Lemoine	Lemoine 1890 DI	75	Pierre		
Mme. Leon			Joigneaux	Lemoine 1892 DIV	65
Simon	Lemoine 1897 DIV	72	Prodige	Lemoine 1928 SVII	80
Monge	Lemoine 1913 SVII	80			

President Carnot	Lemoine 1890 DIV	65
President Fallieres	Lemoine 1911 DIV	75
President Grevy	Lemoine 1896 DIII	80
President Lincoln Dunbar	1916 SIII	70
President Loubet	Lemoine 1901 DVI	80
President Poincare	Lemoine 1913 DVI	85
President Viger	Lemoine 1900 DIII	75
Primrose	Maarse 1949 SI	75
Professor E.H. Wilson	Havemeyer 1943 DI	80
Rene Jarry		
Desloges	Lemoine 1905 DIII	85
Rochambeau	Lemoine 1919 SVII	75
Ronsard	Lemoine 1912 SIII	60
Ruhm von Horstenstein	Wilkie 1921 SVI	—
Saturnale	Lemoine 1916 SIII	75
Siebold	Lemoine 1906 DI	60
Souvenir D'Alice Harding	Lemoine 1938 DI	85
Souvenir de Simone	Bruchet 1923 DI	60
Saint Joan	Blacklock 1953 DI	85
Taglioni	Lemoine 1905 DI	65
Thunberg	Lemoine 1913 DIV	60
Tombouctou	Lemoine 1910 SVII	75
Toussaint		
L'Ouverture	Lemoine 1898 SVII	80
Turenne	Lemoine 1916 SVII	70



Arthur Buckley delivers his talk, 'Lilacs at Ottawa'.

Vestale	Lemoine 1910 SI	60
Victor Lemoine	Lemoine 1906 DIV	80
Viscountess Willingdon	Lemoine 1906 DVII75-80	
Viviand Morel	Lemoine 1902 DIV	75
Wm. Robinson	Lemoine 1899 DIV	75

Discussion

Kidd: Thank you very much Mr. Buckley, that was a very interesting description. I was interested in what you said about the Preston lilacs because I am quite ignorant about lilacs and when I first got interested in lilacs I found out about the Prestonean lilacs, and I got some catalogues and information from the Department of Agriculture. I noticed a magnificent lilac tree at the Experimental Farm which was Elinor. It was in full bloom, and a very beautiful tree. I tried to get one of these plants and after a lot of work I found out I could not buy it in Canada, nor in the U.S. It would have meant bringing it from England to get it. I was quite surprised that such a beautiful plant, developed in Canada, could not be bought in Canada.

Rogers: I would ask one question in terms of the planting of lilacs in Ottawa. One of the things I noticed as we drove around is that there are a very large number of the tree lilacs planted around Ottawa, but that there was a relatively small number of any of the late-blooming species.

Buckley: The Preston lilacs are not spread around as they should be, although in the earlier days at the Experimental Farm it was the practice of the director to propagate an awful lot of

the plants they grew, especially new plants, and send them throughout the country, mostly in Ottawa. So you will see more plants in the gardens in Ottawa than anywhere else.

Cameron: Canadian nurserymen generally do not seem to want to



Dr. J.J. Cartier, Director of the Central Experimental Farm in Ottawa.

propagate Canadian material. A few years ago when I was at the Farm we had sent out to a Canadian nursery material of the variety 'Elinor'. The nurserymen planted it in a back section of the nursery and did not look at it for quite a few years. Finally he took a walk through his nursery one spring and he found 'Elinor' in full bloom. He asked his foreman, "Where did that plant come from?" They checked his records and found it had come from the C.E.F. We got a telegram, followed by an airmail letter from the nurseryman: Where could he

get 10,000 plants of that lilac? If it had been sent to the States and propagated there, everybody would have been happy.

Anon.: *How do lilacs withstand pollution?*

Buckley: I haven't noticed any particular problems. Plants growing on the roadside seem unaffected.

Anon.: *Salt, for instance, how do plants handle that?*

Buckley: No damage noticed.

Anon.: You will find in Washington, D.C. in gardens along the belt highways, that pollution seems to bother lilacs. But then, conditions near Baltimore and Washington are not like yours. Crab apples are even worse than lilac, they don't like pollution at all. They have them planted on these loops and the backyards come right up to Rt. 270, 4 lanes on either side. The pollution plus the humidity just comes right over the fences and you can hardly breathe. The trees just don't like it.

Cole: You saw the lilacs that were planted on the Queensway ramps. They get salt spray off the roads above and below them, and they don't seem to suffer. At that end of the city it is fairly light soil and so the salt drains through fairly quickly with the spring rains. It's no good putting evergreens in there, however.

The Dominion Arboretum

The Dominion Arboretum covers about 35 ha. The soil is chiefly a sandy loam with some areas of heavy clay. The climate is quite severe with a winter low reaching -39°C on occasions and a summer high of 35°C. On average, the climate corresponds to hardiness Zone 5a on the Canadian map.

The site was cleared in the 1880s and many of the native trees were left standing. A few of these are still there but many, particularly the elms, have become diseased and have been removed. The first plantings were made in 1886 to determine which trees would survive in this climate zone. In the beginning it was not intended to create an arboretum, but when it was realized how many species would survive here, the arboretum evolved and now contains about 2,000 species and varieties.

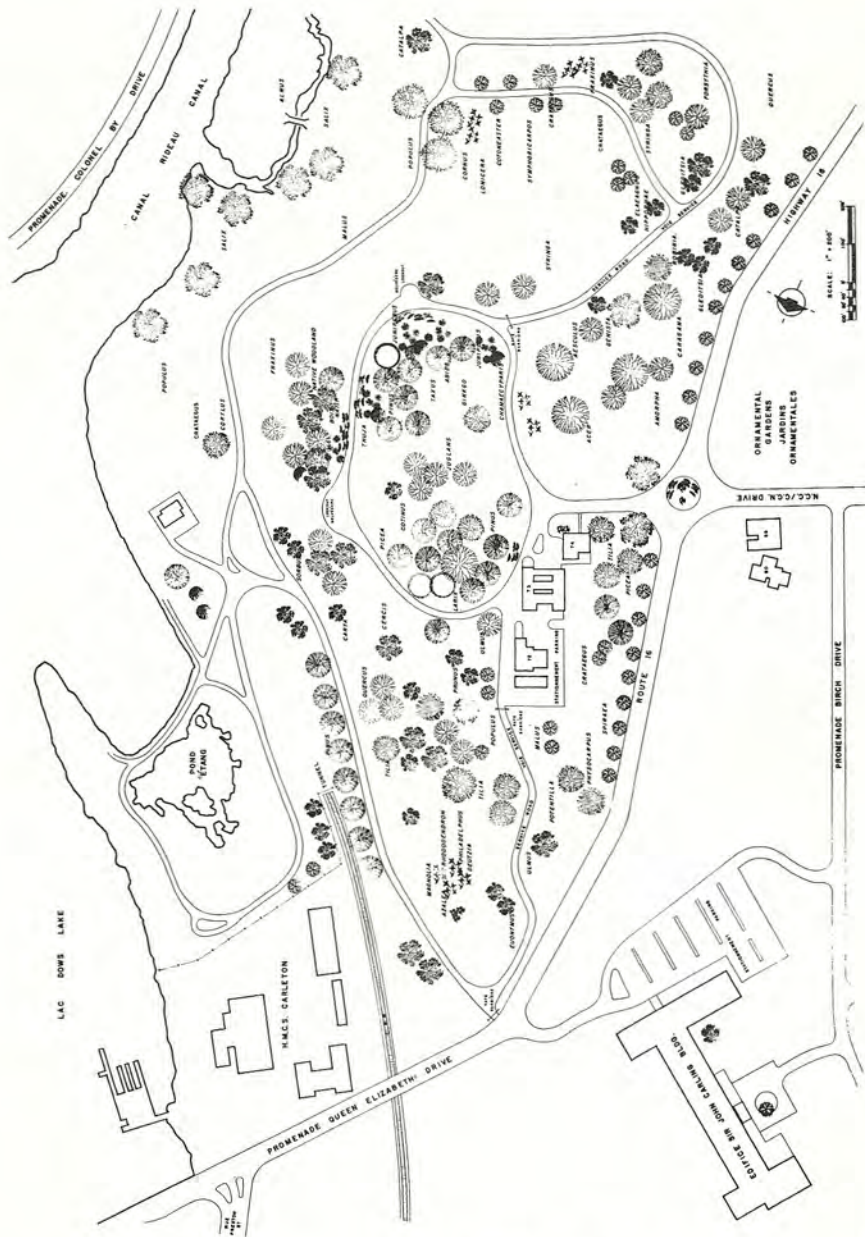
Because of the nature of its beginnings the Dominion Arboretum has never developed along formal taxonomic lines. Thus, although most of the maples are in one area, some are scattered far and wide. This results in a more interesting display for the public because flowering is not concentrated in any given spot.

Although the climate is Zone 5a, the northeast corner has its own microclimate and is equivalent to Zone 6. Many unusual plants, rarely seen in Ottawa, are grown in this area, for example, the collection of magnolias is thriving and flowers profusely each spring. A *Magnolia tripetala* planted in 1907 is now over 13 m tall. Also in this area are the beds of azaleas and rhododendrons, a wistaria, Dawn redwood, *Metasequoia*, and several fringe trees, *Chionanthus*.

SYRINGA SPECIES and CULTIVARS at the CENTRAL EXPERIMENTAL FARM OTTAWA

Code: C - Campus
LW - Lilac Walk ARB - Arboretum
N - Nursery BG - Botanic Garden

x chinensis	LW	Lamartine	LW
f. metensis	LW	Maureen	C
f. saugeana	LW	Mirabeau	LW,N
emodi	LW	Montesquieu	LW?
x henryi Lutece	LW	Muriel	C
x tomentella Prairial	LW	Necker	LW
x hyacinthiflora Alice Eastwood	LW,N	Norah	C
Assessippi	LW	Patricia	C
Berryer	LW	Peggy	LW,N
Buffon	LW,N	Pocahontas	LW,C
Catinat	LW	Vauban	LW
Charles Nordine	BG	Viscountess Willington	LW
Churchill	LW,N	x josiflexa Bellicent	LW
Clarkes Giant	LW	Guinevere	LW,N
Esther Staley	LW,N	Lynette	LW,C
Evangeline	N	Royalty	LW
Gertrude Leslie	LW	Rubra	LW
Grace	LW,C	josikaea	ARB



meyeri Palabin
 microphylla Superba
 oblata
 oblata var. dilatata
 pekinensis
 x prestoniae Adriane
 Alice
 Audrey
 Coral

BG Desdemona
 BG Donald Wyman
 ARB Dorcas
 N Elinor
 C Ethel M. Webster
 N Fountain
 N,BG Freedom
 LEW Helen
 BG Isabella

N
 BG
 LW
 C,BG
 C
 C
 LW
 LW
 LW,BG

Jacquinetta	N,C	Edmond Boissier	LW,N
Jaga	LW	Edouard Andre	LW,N
Katherina	LW	Ethiopia	LW,N
Lavinia	N	Etna	LW
Lucinia	N	Etoile de Mai	LW,N
Mrs. J.Herbert Alexander	LW	Frank Paterson	LW
Nike	LW	General Sherman	N
Octavia	BG	Georges Bellair	LW,N,ARB
Silvia	N	G.J. Baardsee	ARB
reflexa var. pallens	LW	Godron	LW
reticulata	LW,C,N	Heavenly Blue	LW,BG
Ivory Silk	C	Helen Schloen	LW
reticulata var. mandschurica	ARB,C	Henri Martin	LW
sweginzowii var. densiflora	LW	Henri Robert	LW
Superba	C	Hippolyte Maringer	LW
tigerstedtii	LW	Hugo de Vries	LW,N
villosa	ARB,LW,C	Jacques Callot	LW,N
Rosea	LW	Jean Mace	LW
villosa x chinensis	N	Jeanne d'Arc	LW
villosa x sweginzowii Hunting		Jessie Gardner	LW
Tower	LW	Jimmy Howarth	LW
villosa x sweginzowii Hedin	C	Johann Mensing	LW
velutina	LW	Jonkheer G.P. van Tets	LW
vulgaris	C	Julien Gerardin	LW
A.B.Lamberton	LW	Katherine Havemeyer	LW,N
Adelaide Dunbar	LW,C	Koenigin Luise	LW
Alba Grandiflora	LW,N,ARB	Komsomolka	LW
Ami Schott	LW	Kosmas	LW
Andenken an Ludwig Spaeth	LW	La Tour d'Auvergne	LW
Annabel	N	Lavender Lady	N
Anna Shiach	N	Leon Gambetta	LW
Belle de Nancy	LW	Le Printemps	LW
Boule Azuree	LW	Linne	LW,N,ARB
Bright Centennial	LW,N	Lucelle	LW,N
Candeur	LW	Madeleine Lemaire	LW,N
Capitaine Baltet	LW	Macrostachya	LW,N
Capitaine Perrault	LW,N	Madame Charles Souchet	LW,N
Charles X	LW,ARB	Marc Micheli	LW
Charles Joly	BG	Marechal Foch	LW
Christophe Colomb	LW	Marengo	LW
Col. Wm.R. Plum	LW	Marechal Lannes	LW,N
Comte Adrien de Montebello	LW,N	Margot Grunewald	LW
Cordoret	LW	Marie Finon	LW,ARB
Congo	LW,N	Marie Legraye	LW,N
Crepuscule	LW	Marleyensis Pallida	LW
Croix de Brahy	ARB	Massena	LW,N
Decaisne	LW	Maud Notcutt	LW
de Louvain	LW	Maurice de Vilmorin	LW
de Saussure	N	Maximowicz	LW
Diplomate	LW	Michel Buchner	LW
Downfield	N	Mieczta	LW
Doyon Keteleer	LW,N	Mireille	LW
Dr. Maillot	LW	Miss Ellen Willmott	LW,N
Duc de Massa	LW	Mme. Abel Chatenay	LW,N
Edith Cavell	LW	Mme Antoine Buchner	LW
Edmond About	LW	Mme. Casimir Perier	LW,ARB

Mme. Florent Stepmen	LW,ARB	President Loubet	LW,N
Mme F. Morel	LW,N,ARB	President Poincare	LW
Mme. Lemoine	LW,N,C	President Viger	LW
Mme. Leon Simon	LW,ARB	Primrose	BG
M. Maxime Cornu	LW,N	Princess Marie	ARN
Monge	LW,N	Prodige	LW,N
Mons. Leon Mathieu	LW	Purpurea	LW,ARB
Mons. Lepage	LW	Reaumur	LW,N
Mons. van Aerschot	LW,N	Redbud	LW,N
Montaigne	LW,N,C	Rochambeau	LW
Mont Blanc	LW,C	Ruhm von Horstenstein	LW,N
Mrs. Calvin Coolidge	LW	Souvenir de Henri Simone	LW,N,ARB
Mrs. W.E. Marshall	LW	St. Joan	LW
Naomi	N	St. Margaret	LW
Nouveau	LW,N	Thunberg	LW,N
Oliver de Serres	LW	Tombouctou	LW,N
Paul Deschanel	LWW	Tousaint L'Ouverture	LW
Perle von Stuttgart	LW,N,ARB	Triomphe de Moulins	LW
Pierre Joigneaux	LW,N,ARB	Vestale	LW,N
Pink Dan	N	Victor Lemoine	LW
Pinkie	LW	Violet Glory	LW
Pink Mist	N	Viviane Morel	LW,ARB
Planchon	LW	William H. Judd	ARB
Pompom	LW,N	William S. Riley	LW
President Carnot	LW,N	William Robinson	LW,N
President Fallieres	LW	Woodland Blue	LW,N
President Grevy	LW,N,BG	wolfii	ARB
President Lincoln	LW	var. hirsuta	LW

Member and Guests at the the Eleventh Annual Meeting

Jack Alexander, Middleboro, MA	Elsie Kara, Columbus Station, OH
Dorothea Baschnagel, Rochester, NY	George & Joan Kidd, Nepean, Ontario
Dr. Alf Bolton, Ottawa, Ontario	Mrs. Myrna Kimball, Rumford, ME
Arthur Buckley, Nepean, Ontario	Bernard McLaughlin, S. Paris, ME
Daniel Cameron, Kars, Ontario	Donald & Agnes Muir, Hamilton, Ontario
John & Ann Carvill, Latham, NY	Walter & Gloria Oakes, Rumford, ME
Ben & Marie Chaykowski, Mantua, OH	Max, Darlene, Beth, & Jeff Peterson,
Thomas & Alice Chieppo,	Ogallala, NE
Woodbridge, CT	Dr. Owen Rogers, Durham, NH
Gertrude & Robert Clark, Meredith, NH	Daniel Ryniec, Brooklyn, NY
Trevor & Brenda Cole, Ottawa, Canada	Col. Hanssen & Sally Schenker,
Walter Eickhorst, Naperville, IL	Freedom, NH
William & Nancy Emerson, Delhi, NY	Ruth Sipp, Durham, NC
Dr. Louis & Elizabeth Erickson,	Jacqueline SippReynolds, Durham, NC
Riverside, CA	Peter Thiede, Detroit, MI
Sue Ferguson, Rochester, NY	William Utley, Clyde, NY
Pauline Fiala, Spencer, OH	Jack van Gemeren, Montreal, Quebec
Prof. E. Hasselkus, Madison, WI	Freek Vrugtman, Hamilton, Ontario
Charles & Theodora Holetich,	Don Wedge, Alberta Lea, MI
Hamilton, Ontario	Kenneth Wood, Madison, WI
William Horman, Detroit, MI	Tessa Wynkoop, Lake Charles, LA
Mrs. Anne Hutchinson, Lake Charles, LA	Isabel Zucker, Bloomfield, MI
Travers & Mrs. Hutchison,	
Toronto, Ontario	

Lilacs at Montreal Botanic Gardens

by Jack van Gemeren

The Montreal Botanic Gardens were founded in 1930 with the objectives to introduce native flora and to test plants from all over the globe for hardiness, hence priority is given to species over the cultivars. Our inventory shows how to find the location of the plants, but it became apparent that *not all* of the shrubs were properly identified. I am a horticulturist: first, a nurseryman, next a rhododendron fanatic and the rest of my time is devoted to 30 or more collections, one of which is the species *Syringa* growing at Montreal Botanic Gardens.

S. emodi: Acquired in 1952. Is now 12 feet high and 16 feet broad. Native of West Asia and now Afghanistan. Rated as Zone 7, it nonetheless flowers well for us. Rated 85 per cent.

S. yunnanensis: A late arrival, 1977. Grows very well.

S. josikaea: Arrived as seed from Poland in 1938, is now 7 feet high and 8 feet across.

S. wolfii: Comes from Korea and Manchuria. Arrived as seed in 1972, but so far our plant is nothing to write home about. Zone 4.

S. reflexa: Dates from 1937. Received as seed from Berlin, is native to Hupeh province. It was repropagated a few years ago and is too small to comment on.

S. komarowi: Zone 6. Arrived as seed from Edinburgh in 1933, was repropagated in 1952, native to West China. It is 8 feet tall and 10 feet broad. A very healthy plant, also flowers well. *Szechuan* province also abounds in rhododendrons of which only one species is hardy. The others are rated as Zone 7-8-9!

S. villosa: Native to Chili and Shansi provinces. The hardiest of all, Zone 2. We received seed from Boyce Thompson Arboretum of Yonkers, New York in 1937. Our plant is now 10 feet in height, 10 feet broad. It flowers until the end of July.

S. tomentella: Found in China, many locations are given. Hardy in Zone 6. A vigorous plant, but seems to suffer from frost every few years. Growing near the Tibetan border indicates it may not be all that hardy, since many tender cotoneasters and rhododendrons come from this area.

S. sweginzowii: Native to Szechuan. Grafts from Boyce Thompson Arboretum in 1936, repropagated in 1953. It grows well and by now is 10 feet by 15 feet wide.

S. velutina: Native to Korea, it was received as seed in 1976. It seems hardy. Correctly called *S. patula*. Some branches are variegated. Has some late flowers with us.

S. pinetorum: Came from Boyce Thompson from Yonkers, New York in 1936. Native to *Yunnan*. Rated as Zone 7, however, it is 8 feet tall, but is 15 feet broad! Doesn't smell all that nice. It likes our harsh climate; I only hope it is properly identified.

S. microphylla: Comes from many Chinese provinces. Rated Zone 4. Came from Smith College, Northampton, Massachusetts in 1950. It is 8 feet in height, 13 feet across. It seems very happy and flowers well.

S. oblata: Many Chinese provinces are listed. Rated Zone 4. Grows well and is 10 feet in height and 10 feet across. But I am not sure of its identity. Because it grows more north than most others, it should be very hardy.

S. persica: Although I am not sure if this is considered a true species, our plant came from Grootendorst of Holland in 1950 and is about 8 feet in height and across. I invite comments as to its origin.

S. reticulata (*S. amurensis*): From Manchuria. Our plants came from the Forest Research Station of Moscow in 1938 and was re-propagated in 1953. It is 14 feet in height and 16 feet across. It is the king of the castle in our collection.

S. pekinensis: Native to many Chinese provinces, but a newcomer to the garden. So far it has done well but seems to take its time in producing flowers.

S. tigersstedtii: Whether this is a true species, I can not tell you. It grows much like a tree. I would like to know more about it.

We have, of course, many hybrids, or maybe I should say "hybrats", between species. Last but not least we grow the common lilacs known as *Syringa vulgaris*.

Cultural Practices

The MBG is sitting on 20 to 40 feet of heavy clay. Most plants of the olive family can cope with this kind of soil, which is alkaline and does not provide good drainage. Lilacs grow even better in acid soil, I am sure. We do little grafting because we seldom need to multiply. Privet seems to be a poor choice and is not compatible.

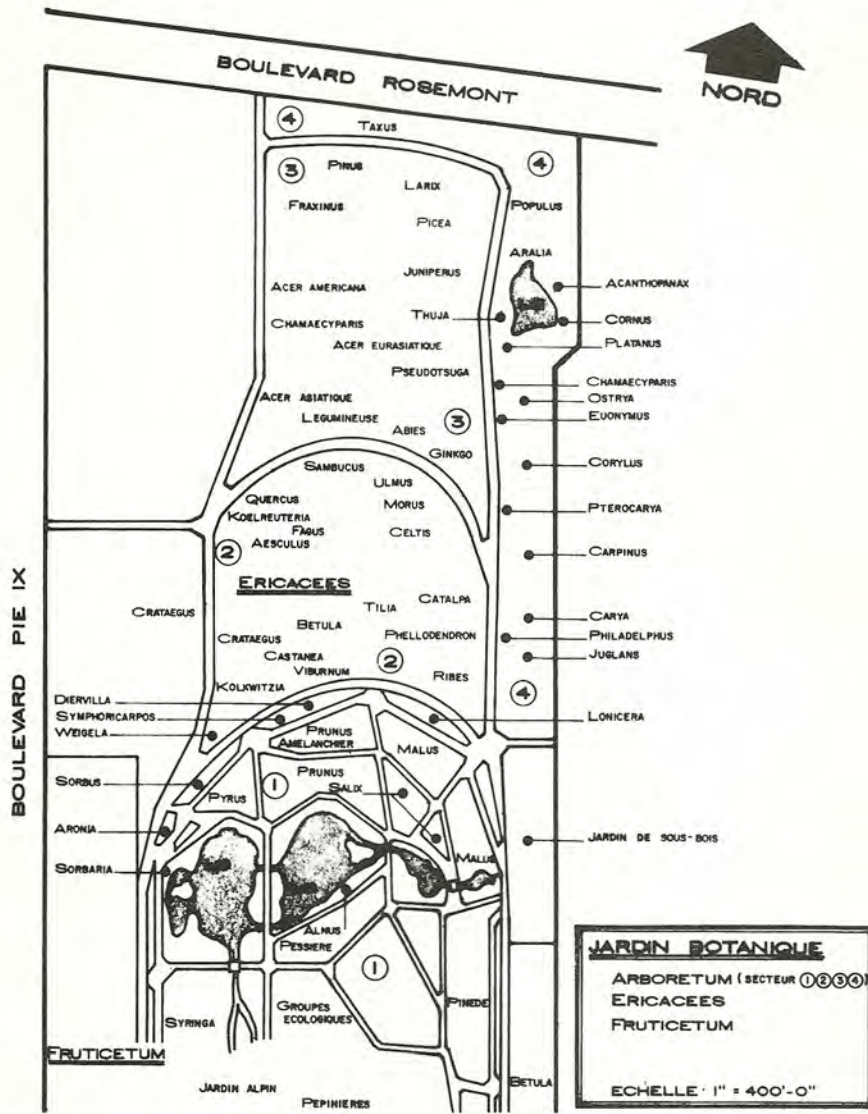
Some of the older plants have been replaced by plants growing well from cuttings. This eliminates the suckers from *Syringa vulgaris*.

If we have time we will "dead head" the flowers, but this is luxury. Pruning consists of removing branches dead or broken due to vandalism or to heavy ice and snow. Because our budget is cut, and politicians have other priorities, some of our collections have room for improvement.

Every year some lilacs are forced into flower for the spring show, but for *that* purpose smaller plants are set aside. Diseases do not cause a problem. Sometimes in dry weather we get some mildew, but that is not the end of the world.

I brought with me our records and if you have time please go through them and, of course I welcome comments. Overall we can say that, even if we have a harsh climate, lilacs are hardier than most other genera of the Oleaceae family.

CODES:	Col. A - Name	Col. B - Location	Col. C - # of Plants		
A	B	C			
Syringa chinensis Rubra	Syringa swegiflexa		S-1 (1)		S-1 (1)
Syringa chinensis Saugeana	Syringa sweginzowii		S-1 (1)		S-1 (2)
Syringa diversifolia William H. Judd	Syringa sweginzowii		S-1 (1)		S-1 (2)
Syringa emodi	Densiflora		S-1 (1)		S-1 (2)
Syringa emodi X villosa? ou X wolfii?	Syringa tigerstedtii		S-1 (1)		S-1 (4)
Syringa Hedin	Syringa tomentella		S-1 (1)		S-1 (1)
Syringa henryi	Syringa uralensis		S-1 (1)		S-1 (1)
Syringa henryi Alba	Syringa velutina		S-1 (1)		S-1 (1)
Syringa henryi Lutece	Syringa villosa		S-1 (1)		S-1 (2)
Syringa hyacinthiflora	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa hyacinthiflora Churchill	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa hyacinthiflora Clarkes Giant	Agincourt Beauty		S-1 (1)		S-1 (1)
Syringa hyacinthiflora Evangeline	Syringa vulgaris Albida		S-1 (1)		S-1 (1)
Syringa hyacinthiflora Excel	Syringa vulgaris Amethyst		S-1 (1)		S-1 (1)
Syringa hyacinthiflora Laurentian	Syringa vulgaris		S-1 (2)		S-1 (1)
Syringa hyacinthiflora Sister Justina	Belle de Nancy		S-1 (1)		S-1 (1)
Syringa josiflexa Elaine	Syringa vulgaris Bleuatre		S-1 (1)		S-1 (1)
Syringa josiflexa Guinevere	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa josiflexa Royalty	Capitaine Baltet		S-1 (2)		S-1 (1)
Syringa josikaea	Syringa vulgaris		S-1 (2)		S-1 (4)
Syringa komarowii	Capitaine Perrault		S-1 (1)		S-1 (1)
Syringa microphylla	Syringa vulgaris Cavour		S-1 (1)		S-1 (1)
Syringa microphylla Superba	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa nanceiana Rutilant	C.B. Van Ness		S-1 (2)		S-1 (1)
Syringa oblata	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa oblata var. dilatata	Charles Joly		S-1 (1)		S-1 (1)
X Syringa hyacinthiflora Pocahontas	Syringa vulgaris Colbert		S-1 (1)		S-1 (3)
Syringa pekinensis	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa persica	Col. Wm. R. Plum		S-1 (1)		S-1 (1)
Syringa pinetorum	Syringa vulgaris Comsomolka		S-1 (1)		S-1 (1)
Syringa prestonae Coral	Syringa vulgaris Condorcet		S-1 (1)		S-1 (2)
Syringa prestonae	Syringa vulgaris Congo		S-1 (1)		S-1 (1)
Donald Wyman	Syringa vulgaris De Louvin		S-1 (1)		S-1 (1)
Syringa prestonae Dorcas	Syringa vulgaris Dr. Maillot		S-1 (1)		S-1 (1)
Syringa prestonae	Syringa vulgaris		S-1 (1)		S-1 (1)
Ethel M. Webster	Duc de Massa		S-1 (1)		S-1 (3)
Syringa prestonae Freedom	Syringa vulgaris Edith Cavell		S-1 (1)		S-1 (2)
Syringa prestonae Helen	Syringa vulgaris Edmond About		S-1 (1)		S-1 (1)
Syringa prestonae Isabella	Syringa vulgaris Etna		S-1 (1)		S-1 (1)
Syringa prestonae Jaga	Syringa vulgaris Flora		S-1 (1)		S-1 (1)
Syringa prestonae Jessica	Syringa vulgaris		S-1 (3)		S-1 (1)
Syringa prestonae Katherina	Frank Klager		S-1 (1)		S-1 (1)
Syringa pretonae	Syringa vulgaris		S-1 (1)		S-1 (1)
Miss Canada	Gen. Pershing		S-1 (1)		S-1 (1)
Syringa prestonae	Syringa vulgaris		S-1 (1)		S-1 (1)
Mrs J. Herbert Alexander	General Sherman		S-1 (1)		S-1 (1)
Syringa prestonae Nike	Syringa vulgaris		S-1 (1)		S-1 (1)
Syringa reflexa	Georges Bellair		S-1 (2)		S-1 (1)
Syringa reticulata	Syringa vulgaris		S-1 (2)		S-1 (2)
Ivory Silk (japonica)	Hugo de Vries		S-1 (3)		S-1 (2)
Syringa reticulata	Syringa vulgaris Hugo Koster		S-1 (2)		S-1 (2)
var. mandshurica	Syringa vulgaris		S-1 (2)		S-1 (1)
	Hunting Tower		S-1 (2)		S-1 (1)
	Syringa vulgaris		S-1 (2)		S-1 (1)
	Jessie Gardner		S-1 (2)		S-1 (1)
	Syringa vulgaris		S-1 (2)		S-1 (1)
	Johann Mensing		S-1 (2)		S-1 (1)
	Syringa vulgaris		S-1 (2)		S-1 (1)
	Jonkeer G.P. Van Tets		S-1 (2)		S-1 (1)
	Syringa vulgaris		S-1 (2)		S-1 (1)
	Katherine Havemeyer		S-1 (2)		S-1 (1)
	Syringa vulgaris Kosmos		S-1 (2)		S-1 (1)



Syringa vulgaris		Syringa vulgaris	
Krasavitsa Moskvj	S-1 (1)	Margot Grunewald	S-1 (1)
Syringa vulgaris		syringa vulgaris Marie Finon	S-1 (1)
Leon Gambetta	S-1 (2)	Syringa vulgaris	
Syringa vulgaris Leon Simon	S-1 (1)	Marie Legraye	S-1 (1)
Syringa vulgaris		Syringa vulgaris	
Le Printemps	S-1 (1)	Marlyensis Pallida	S-1 (1)
Syringa vulgaris		Syringa vulgaris Massena	S-1 (1)
Lucie Baltet	S-1 (2)	Syringa vulgaris	
Syringa vulgaris		Maurice de Vilmorin	S-1 (1)
Marechal de Bassompierre	S-1 (1)	Syringa vulgaris Mechta	S-1 (1)
Syringa vulgaris		Syringa vulgaris Mireille	S-1 (1)
Marechal Foch	S-1 (1)	Syringa vulgaris	
Syringa vulgaris		Miss Ellen Willmott	S-1 (3)
Marechal Lannes	S-1 (1)		

Syringa vulgaris		Syringa vulgaris Pinkie	
Mme. Antoine Buchner	S-1 (2)	Syringa vulgaris Pom	S-1 (1)
Syringa vulgaris		Syringa vulgaris	
Mme. Casimir Perier	S-1 (3)	President Lincoln	S-1 (1)
Syringa vulgaris		Syringa vulgaris	
Mme. Emil Dupont	S-1 (1)	President Poincare	S-1 (1)
Syringa vulgaris Mme.		Syringa vulgaris Primrose	S-1 (1)
Francesque Morel	S-1 (1)	Syringa vulgaris Prodige	S-1 (1)
Syringa vulgaris Mme. Kreuter	S-1 (2)	Syringa vulgaris f. purpurea	S-1 (3)
Syringa vulgaris Mme. Lemoine	S-1 (1)	Syringa vulgaris Renoncule	S-1 (2)
Syringa vulgaris Monge	S-1 (1)	Syringa vulgaris Souvenir	
Syringa vulgaris Mons. Lepage	S-1 (1)	of Ludwig Spaeth	S-1 (3)
Syringa vulgaris Mont Blanc	S-1 (2)	Syringa vulgaris Souvenir	
Syringa vulgaris Montaigne	S-1 (3)	de Simone	S-1 (1)
Syringa vulgaris		Syringa vulgaris	
Mrs. Edward Harding	S-1 (1)	Triomphe de Moulins	S-1 (1)
Syringa vulgaris		Syringa vulgaris Vestale	S-1 (1)
Mrs. W. E. Marshall	S-1 (1)	Syringa wolffi	S-1 (1)
Syringa vulgaris		Syringa yunnanensis X	
Perle von Teltow	S-1 (1)	tomentella	S-1 (1)

Discussion

Rogers: *You mentioned one lilac, that had some winter injury. S. tomentella. Are there lilacs which you have had experience with that are, in fact, not winter hardy in Montreal?*

van Gemeren: We have tried another seven or eight species through the years, and the records show that they are dead. But really, I cannot tell you whether they were stolen, broken or frozen, because, up to six or seven years ago, they were just listed as "no longer here" with no cause given.

If I may, I would like to tell a little bit about our climate. This year our lowest temperature was -39°C., last it was -40°C. In 1952 it was -52°C. These are in degrees Celsius, but at -40° both scales are the same. The year before last on Christmas Eve at noon it was +2°C. The next morning it was -40°C.

Anonymous: *How long does this cold last?*

van Gemeren: Extreme cold usually lasts two days, sometimes three, but I don't think it is the actual temperature that is so important. It is the way nature goes about it. The trees warm up in the sun, and the side of the stem away from the sun might be 20°C. lower than the sunny side. At 3 or 4 o'clock, when the sun loses its strength, the part that had been heated by the sun drops in temperature very rapidly and this leads to splitting.

Anonymous: *How much snow cover do you get with these low temperatures?*

van Gemeren: It varies from year to year. The time we had this sudden drop, there was only 4-5 inches on the ground, at other times it might be 2-3 feet, which helps cotoneasters and low growing plants.

Rogers: You can also make the opposite comment, that there are lilacs which have survived these very low temperatures and bloom well following these winters.

van Gemeren: Yes, even at -40°C. I think lilacs are hardier than that, and they are definitely hardier as a group than some other genera in the same family, such as privet, (we cannot grow that many privets) and some of the ashes will freeze with us.

Anonymous: *I would like to have a little discussion on acidity. Do lilacs like acid or sweet soil? Is lime good for them? And what is the ideal pH for them?*

van Gemeren: We are sitting on clay, and the only site that has really been improved in the gardens is where we grow vegetables. The entire site of the ericaceous garden was properly prepared with peat moss and pine needles and so forth, but where the lilacs are, they are sitting in clay. We had a white lilac which was wrongly named, so I planted it in the rhododendron dell three years ago when it was only two feet tall. In this beautiful acid soil, the yearly growth is between two and three feet. The leaves are bigger than any lilac in the collection and are glossy and dark.

I am from Holland originally, and they force a lot of lilac branches for the cutflower markets all over Europe. The main area for this is a marshy land, where the water table is 18 inches down and the soil is acid. The lilacs for forcing are growing in this and will grow 20-30 inches a season, and will form flower buds that year. They are dug up, forced and replanted, so you get a trunk several inches in diameter after 20 years or so. What the growers want is a long branch, two years old at the most, that produces big spikes.

Rogers: On the question of acidity, I don't have an acid soil. But I have an opinion that all the recommendations that lilacs require lime was based on their growth in England. They grow in Brighton on the chalk soil with a pH of 8.4 and do very well. But you will also see lilacs that have been growing in a wood for 100 years without any lime and they also do very well. So it appears that the lilac can grow over an incredible pH range.

van Gemeren: That could be, since most of them are from China and some of the species I checked on grow in the areas that have produced 30 or 40 species of rhododendrons that grow in acid soil. Unless the lilacs all grow in little areas of limestone among the rhododendrons, but I cannot see that.

Anonymous: The soil in Rochester, around where I am, is a very sweet soil. I can't grow things that need an acid soil without adding a great deal.

Vrugtman: At the campus of University of British Columbia the soil is acid. It is a very gravelly soil, but poorly drained because of hardpan. During the seven years that I was there we tried to grow lilacs. In cultivated soil in the nursery it was all

right but as soon as lilacs were planted out in other locations they deteriorated. Again, opinion comes in, in well cultivated and well buffered soil, whether acid, neutral or slightly alkaline soil, lilacs will thrive. But if you don't improve the soil, if there is not enough organic matter, then they won't grow. Acidity, by itself, is not a deciding factor.

Anonymous: *I can't understand it, you are saying 18 inches was the lowest water?*

van Gemen: Not in Montreal, but in Holland where the lilacs are grown for forcing.

Anonymous: But, I've always been told lilacs don't like moisture.

van Gemen: Well, I thought that too, but as a child my father had a nursery with canals all round it. Our house was about 10 feet away from the water line. There was a lilac bush growing right on the edge of the canal, hanging into the water. In the spring, when he wanted to cut a few flowers for in the house, he reached over, took the plant and straightened it up (because it was deeply anchored in the soil) cut the flowers and let it fall back again. I thought as a kid, it was on hinges.

Anonymous: I have a part of my garden below a dam. I put soil on top of hardpan and although I thought I had made drainage, the water flows between the hardpan and the soil and lilacs don't do very well there.

Anonymous: *Is there a difference between a water table of 18 inches below the surface or a hole dug in hardpan that will trap water when there is rain, and will dry out if there is no rain?*

Rogers: Yes, the same difference as between a water table and a pot.

Anonymous: They'll stop when they get to the water table if they don't like it, but they can't if it is trapped.

Holetich: *Would that 18 inch water table be maintained winter and summer?*

van Gemen: Within a fraction of an inch by windmills and sluice gates.



Travers Hutchinson, George & Joan Kidd, and Ruth Sipp at the luncheon at City Hall.

James Dougall, 1810-1888*

By Freek Vrugtman, Hamilton, Ontario

The year was 1826 when a fifteen or sixteen year old Scotsman named James Dougall arrived in Canada with a consignment of Paisley shawls and joined his older brother John who had come to Canada a little earlier (Armstrong, 1982). After brief stays in Quebec City and Montreal James moved to York (now Toronto) in 1828 and on to Sandwich Ferry (now Windsor) in 1830. In partnership with his brother John, who remained in Montreal, James established the first general store in the area under the name of J. & J. Dougall. Business flourished. The store was enlarged, a wharf built and two ships purchased. James became agent for a bank. At age 27 he was appointed magistrate and notary public, offices which he held for the rest of his life. (Brother John meanwhile married into the wealthy and influential Redpath family and the Montreal branch of the business became Dougall & Redpath.) James purchased land just north of Amherstburg, imported horses and cattle from Scotland and took up residence on his estate which he called "Rosebank". When the local Agricultural Society held its first Fall Fair in 1846 James Dougall was president of the Society (Cross, 1961). However, his business career was not always a smooth one; the prosperity of the 1830s and early '40s was followed by the depression of 1847, and a disastrous fire in downtown Windsor in 1849 caused damage to buildings and inventory.

About the same time James must have become interested in the nursery business, because in the April 23rd, 1849, issue of the weekly MONTREAL WITNESS, published by John Dougall, the following advertisement appeared (Cross, 1961):

For Sale, at Rosebank Nurseries near Amherstburg, Canada West, Flowers and Flowering Shrubs, consisting of the largest collection of choice, named Tulips on this Continent at very reduced rates. A very fine collection of Double and Single, named Hyacinths of all colours and shades. A large assortment of choice Dahlias. Roses comprising many of the finest varieties of Hardy June, Moss, Bourbon, Perpetual, Hybrid, Noisetts, Boursault, Bengal and Tea Roses, etc., etc., at very low prices.

Paeonies - Tree and Herbaceous, as well as nearly all the choicest Flowering Shrubs and Perennial Flowers, Bulbous and Herbaceous, can be supplied. Flower Seed of the best kinds for sale. Orders by mail, or left at the WITNESS office in Montreal will be carefully attended to and forwarded with dispatch. JAMES DOUGALL

In the June 11th, 1849, issue of the same paper another advertisement appeared (Cross, 1961):

Fine Tulips
Specimens of the Rosebank Nursery Collection of

* Contribution No. 49, Royal Botanical Gardens, Hamilton, Ontario, Canada.

Tulips consisting of about 150 named kinds may be seen in full bloom at the Garden of Mr. John Dougall, head of Mountain Street, for a few days. Catalogues will be furnished to visitors who may desire them, and orders may be left at the WITNESS office.

The collection of tulips at the "Rosebank" estate was an extensive one, ". . . the result of 30 years careful collecting and propagating to produce a collection probably unrivalled on the Continent" (Cross, 1961). John Dougall, who acted as his brother's agent in Montreal, must have shared this fondness for tulips, because his garden was ". . . celebrated for his extensive collection of tulips and hyacinths" (Smith, 1858), and at one time the MONTREAL WITNESS offered an award of one dozen tulips for bringing in two new subscriptions to the paper (Cross, 1961). James produced and sold not only ornamental plants; an advertisement in 1853, placed by his brother John, reads as follows (Cross, 1961):

The undersigned can furnish excellent sorts of Gooseberry, Raspberry and Currant Bushes and Strawberry plants, also Roses and Border Flowers, on application at his garden, head of Mountain Street, *before eight o'clock in the morning.*
JOHN DOUGALL

In 1850, at the age of 30, James Dougall established Windsor Nurseries "opposite Detroit at the Old Ferry Landing" (Cross, 1961). We are reasonably well informed about the public life of James Dougall because he was active in community affairs. He gave Windsor its name and when it was incorporated as a village he served on the first council; he also served as a member of the first town council and for several terms was mayor of Windsor; for 24 years he served as chairman of the Windsor school board. He held a number of other public offices at various times.



Members arriving at City Hall.

About his horticultural career we are less well informed. Was his interest in animal husbandry and horticulture at his "Rosebank" estate originally a hobby and did he decide to "go commercial" when the depression of 1847 and the fire of 1849 had struck?

The MONTREAL WITNESS advertisement of 1853 suggests his interest in fruits. This is confirmed by his introduction, about 1854, of a new peach selection he named 'Rose Bank' (Hedrick, 1917) and two cherries, 'Weeping Napoleon' in 1871 and 'Dougall' or 'dougall's Early' in 1874 (Hedrick, 1915). Only one copy of a catalogue is known to exist; its title page reads:

DESCRIPTIVE CATALOGUE
OF
FRUIT TREES,
Grape Vines, Small Fruits,
CULTIVATED AND FOR SALE
at the
WINDSOR NURSERIES
WINDSOR ONTARIO, CANADA
ESTABLISHED 1850
JAMES DOUGALL
PROPRIETOR

"WITNESS" PRINTING HOUSE, MONTREAL.

1874.

This 32-page catalogue provides a measure of growth of Windsor Nurseries over a span of 25 years. The catalogue lists 268 varieties of fruits and 25 ornamentals. The single largest category is that of the apples, 82 cultivars. Pears follow with 56 cultivars, plums 43, grapes 20; at the bottom of the list is one strawberry variety. The surprise comes in the ornamentals. Norway spruce and weeping willow represent the trees. There are several lilacs:

Common purple and common white.

'Charles X' - Handsome.

Siberian - Very beautiful, large flowers.

'Prince of Wales' - A new seedling, the handsomest dark purple lilac, flowers large, recurved petals.

'Princess Alexandra' - A new seedling, superb, pure white, flowers double the size of common white, very showy and desirable.

'Queen Victoria' - Very dark purple, a splendid new seedling, none superior, one year from bud.

'Albert the Good' - This bids fair to be the finest, largest flowered dark purple lilac.

The above four seedlings, together with thousands of others, have been raised from seed at Windsor Nurseries.

Double Purple - A new, very fragrant lilac.

New Double Purple - A new seedling from the previous,
much darker and finer.

Dark Blue - A beautiful dark blue variety.

Dark Red - One of the finest English varieties.

'Duchess de Namours' - Very fine purple.

Susan D. McKelvey (McKelvey, 1928) had not seen this catalogue. When writing her monograph, "The Lilac", she based the date of introduction of the lilacs 'Albert the Good', 'Prince of Wales', and 'Princess Alexandra' on the Ellwanger & Barry catalogue of 1886; the 'Queen Victoria' lilac was not handled by Ellwanger & Barry.

In the January 1879 issue of the CANADIAN HORTICULTURIST appeared an article by James Dougall entitled, "On raising fine fruits from seed" (Dougall, 1879). In the introduction he wrote: "I have devoted very little time or trouble to raising new varieties, and I have never hybridized. . ." Of interest to us is the paragraph with the subtitle "Seedling Lilacs":

In ornamental trees and shrubs I have not done much, except in roses and lilacs. Having imported all the best varieties of lilacs from Europe, which were planted in a nursery row, where they stood some years, several seedlings grew up beside them. One, when it flowered, was by far the best dark-purple that I had seen. The petals of each flower were reflexed, and the spike so long that it had some resemblance to an ostrich feather. I called it the "Prince of Wales", owing to its resemblance to his crest. Its beauty induced me to sow the seeds from the best varieties, from which several thousand have flowered, all good, and of every shade of color. From these I selected several very superior, which I named after the royal family of England. The second fine one that flowered was a superb white, the flower and truss more than double the size of the old white. This I called "Princess Alexandra". "Queen Victoria" is a very dark bluish purple, tipped with almost white. "Albert the Good" is by far the finest very dark red purple yet raised. "Azure", now called "Marchioness of Lorne", is a beautiful pale clear blue; another, a very dark double purple, while others nearly equally good have not been as yet named or propagated.

Another note by James Dougall appeared in the July 1880 issue of the CANADIAN HORTICULTURIST (Dougall, 1880) in which three additional names are listed, namely 'Princess Louise', 'Princess Beatrice' and 'Marquis of Lorne', unfortunately all without description.

James continued to be interested in stone fruits and made several more selections. In 1881 Ellwanger & Barry introduced his 'Windsor' sweet cherry (Hedrick, 1915), and in 1884 a yellow plum was named 'Dougall Best' (Hedrick, 1911).

James Dougall died in Windsor in 1888. Of his lilac introductions only 'Albert the Good', 'Prince of Wales', and 'Princess Alexandra' are still in cultivation, of the others we have found no

trace. It is an interesting touch of Providence that the settlement he named WINDSOR grew into an important industrial city and that the cherry he named 'Windsor' became commercially important and, until 1956, was ". . .regarded as the main sweet cherry variety in Ontario" (Bradt, 1974).

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The Schenkers fill their plates at the President's Banquet.

Diseases of Lilac

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Unlike many plant groups lilacs (*Syringa* species) are not susceptible to a great number of pathogens and I am sure that this is one of the reasons they are grown in almost every garden in many countries of the world. Very often a plant or shrub that produces extremely desirable flowers or foliage is subject to many growing problems including diseases, insects and lack of winter-hardiness. The lilac, even in Ontario, is one of the easiest flowering shrubs to maintain.

Although diseases do not occur to the extent that a great deal of permanent injury results, they do, at times, cause considerable damage and lack of some degree of protection may allow the plants to become quite unsightly.

Mildew

A good example of this is powdery mildew caused by the fungus *Mycosphaera alni*, which is very common on most lilacs causing the development of a white powdery growth on the upper surface of the leaves. This powdery growth is made up almost entirely of spores of the fungus and these are readily spread by wind and/or rain, to healthy leaves. The leaves presently turn yellow, curl up and die. In Ontario the symptoms usually appear late in the summer and, by frost, the entire plant may be defoliated. Besides making the shrub look anything but attractive the infection, if it occurs year after year, can cause stunting and death of several branches until the plant becomes quite misshapen. A fungicide such as Karathane, if applied two or three times at 2-week intervals beginning in late July, usually gives good control. However, in most cases, the disease does not cause sufficient damage to prevent flowering the following spring and, after flowering many people ignore the poor lilac until it is time to flower again.

Blight

Another disease - and one not so readily ignored - that occurs on lilac from time to time is bacterial blight. This disease is much like fire-blight of apple and pear although the bacterium, *Pseudomonas syringae*, is unrelated to the one causing fire-blight. The symptoms appear as black spots on the leaves, and these enlarge and run together finally to involve entire leaves. Infection develops most rapidly on young leaves and shoots and inflorescences become limp and die in a short time. Flower buds may become completely blackened. Wherever infection occurs, millions of bacteria are produced and these ooze out of lenticels on the stems or stomata on the leaves and are readily transported by rain or cutting tools to healthy plants. The disease becomes manifest during hot humid weather - especially early in the season when the foliage is growing rapidly.

Control of bacterial blight is very difficult once it has reached an advanced stage. Affected parts should be removed immediately

using cutting tools that can be disinfected with Lysol or sodium hypochlorite (bleach) between cuts. These plant parts (because they contain large amounts of bacteria) should be destroyed. Most fungicide sprays are quite useless for controlling the bacterium although Bordeaux mixture, because it contains copper sulfate, will reduce spread of the disease somewhat.

Phytophthora blight is a serious disease of lilacs and often causes a considerable amount of killing of entire plants. Although the symptoms are much like those of bacterial blight, this disease is caused by a fungus similar to the one that causes late blight of tomato and potato. This fungus inhabits the soil and grows up into the plant through the roots and affects young shoots, leaves, and flowers. Millions of spores, or zoospores, are produced by the fungus mycelium that grows on the surface of the infected parts and these are disseminated by rain, wind, cutting tools, and so on. Once the fungus invades the plant, it becomes almost impossible to eradicate, but the spores produced on the surface can be destroyed by fungicides, such as Bordeaux mixture. It is important to cut out and destroy infected tissue making sure to cut well below the part showing symptoms because the fungus usually also grows a certain distance inside the plant. Good pruning and thinning practices help aeration around the plants and discourage growth of fungi and bacteria.

Wilt

Verticillium wilt is becoming more and more common on lilacs. This is partly due to the fact that many homes are being built in the areas around cities where much of the land was used for agriculture and many of the agricultural plants were susceptible to this disease, and allowed the fungus to spread and persist in the soil. Lilacs, although not as susceptible as many of the horticultural crops such as tomatoes, potatoes, and so on, when planted in soil containing large numbers of infective propagules, become infected through the roots. The water supply to the upper parts of the plant is cut off and wilting occurs. If infection is severe enough, the area affected by the fungus gradually dies. This usually involves one branch or one side of the shrub at any one time but, presently, the entire plant succumbs. This disease is difficult to control also and lilacs should not be planted in soil formerly occupied by tomatoes, potatoes or eggplants.

Bacteria and Fungi

Many other bacteria and fungi cause foliage diseases of minor importance. Leaf blight caused by a species of the fungus, *Cladosporium*, can be quite damaging to lilacs during long rainy periods. The fungus grows on the surface of the leaves and the velvety mycelium can be seen with the naked eye. When the weather becomes dry, the infected areas dry up and fall out leaving a shot-hole effect. Other leaf spots can be produced by several fungi and usually occur after a prolonged hot humid period. If these become severe enough, spraying with a fungicide such as Captan, Cyprex, or Zineb will arrest further spread and infection.

Several diseases affecting roots, stems or trunks and branch

tips, occur from time to time on lilac. It is not correct to refer to these as minor diseases because when they are present they may - and often do - cause death of the plant. Crown gall does not appear often, but when it does, the plant usually dies. Thread blight often kills the plants on which it occurs. *Cytospora* and *Physalospora* attack lilac only after it has suffered from some other injury, but can lead to severe dieback.

Two virus diseases occur on lilac. These are becoming more common and should be included in an account of diseases of this plant. Ring spot produces a distinct pattern on lilac leaves. The symptoms are expressed by yellowing or target spot patterns. The leaves presently drop resulting in stunting, and, eventually, death of the plant. Witches' broom is a descriptive name given to the virus disease that causes proliferation of stunted leaves on the plant. Usually only a few branches of the shrub are affected, but the disease gradually spreads until most of the plant is involved. Since a virus works from the inside of a plant and spreads to all parts, it is impossible to eradicate it. Therefore, it is not enough to remove affected parts. The best solution to the problem is removal of the infected plant and replacement with a healthy one.

Although the lilac is resistant to most diseases under optimum conditions for the plant, an unhealthy plant - either through lack of care, environment, or stress from other sources - can become infected by various pathogens. This, of course, is true for most plant species, and the greatest enemy to plant survival is lack of what is often referred to in the world of ornamental plants as "tender loving care".

Discussion

Anon.: *Is the delphinium blight the same as the blight that would be on a lilac?*

Bolton: No, it won't go from delphinium to lilacs.

Anon.: *Would there be any adverse reaction to having rye or buckwheat around lilacs?*

Bolton: No.

Rogers: *I do have one comment. Now I know why people do not put on more sprays for lilac mildew. First under good circumstances it doesn't stop the plant flowering, it's only unsightly. Second, in order to get the control you must put the sprays on before you see the disease, so, particularly for people who are just beginning with lilacs and haven't had this experience over the years, they don't realize that you have to do that. How can you spray in July to prevent mildew in August, if you are not aware of the problem?*

Anon.: *What do you do for Oyster shell scale in your area?*

Bolton: Lime sulphur - it is still a matter of painting it on early in the spring.

Anon.: *Do you have much of a pest problem up here?*

Bolton: Not really, it isn't all that bad.

Anon.: *What do you do for the 17-year locust? We are infested with them this year.*

Bolton: We live with it for one year out of 17.

Anon.: We'll be glad to give you some gypsy moths if you like.

We have the gypsy moth, maple worm and bagworm.

Bolton: Well, that's why I didn't talk about insects.

Clark: *I have a question about mulch. I have heard that the resins from pine bark and certain resins from redwood chips are toxic to lilacs?*

Bolton: I cannot give you a good answer to that, I really don't know.

van Gemeren: *We do have the occasional injury from witches' broom, not only on lilacs but also on some of the ash. Is there no other remedy than to remove the plant?*

Bolton: Well you can just cut out the witches' broom, because it usually occurs on one side. Whether it grows back into the plant is a different matter. I could not find anything in the literature on how systemic the witches' broom virus is, but it becomes quite stationary. Once one side of the plant begins to develop, the other side is generally quite healthy.



Owen Rogers, Walter Oakes and Freek Vrugtman at Rideau Hall gardens.

Why Register Cultivar Names?

by Freek Vrugtman, Registrar, Royal Botanical Gardens, Box 399,
Hamilton, Canada L8N 3H8

Seven years ago, at the Lombard Park District, a newly appointed and very green Registrar got up and faced the ILS members with a talk on "Lilac Registration and its Implications" (LILACS 4:13-15; 1975). In that talk I summarized the duties of the Registrar. I went back to Hamilton, got the registration forms ready, sharpened my pencil. . . there were no registrations of new lilac names that year.

However, we discovered that Hines Wholesale Nurseries of Santa Ana, California, had taken out plant patents in the United States for four new lilac cultivars and introduced them commercially in 1975. One of these lilacs was named 'Pink Lace', a name that had already been used by Jacob Sass and which had appeared in Wister's Lilacs for America (1953). We acted quickly and Hines Nurseries registered the name 'Heather Haze' for this selection.

In 1970 Professor W. Bugala, now Director of the Kornik Arboretum in Poland, registered the name 'Diana' for a new *S. x prestoniae* selection; the fact that this name had been used by Miss Preston in 1928 went unnoticed, but came to light in Rogers' Tentative International Register (1976). Subsequently Bugala renamed his selection 'Agata'.

In 1968 Father J.L. Fiala introduced a lilac he named 'Summer Skies'. Since this name had been used for a lilac introduced twenty years earlier by Clarke Nursery of San Jose, California, Father Fiala renamed his selection 'Sunrise', a name which has not been used before for a lilac and can be accepted if submitted for registration. *Avoiding duplication of names* is one reason for registering cultivar names.

In 1963 Mrs. Cora Lyden registered a lilac she had raised and named 'Ken Berdeen', named for Kenneth Berdeen of Kennebunk, Maine. Kenneth Berdeen, in turn, has a lilac selection he would like to name 'Kenneth W. Berdeen, 2nd' for one of his grandsons. This name has not been submitted for registration; if it were submitted it would have to be rejected because such a name would lead to confusion.

For at least six years the J.W. Jung Seed Co. of Randolph, Wisconsin, has offered the 'Canada Gem' and 'Canada Tree' lilacs. These are nonsense names and the story has been written up in THE PIPELINE (2(9):2) of September 1976. *Avoiding confusion of names* is another reason for registering cultivar names.

The International Code of Nomenclature for Cultivated Plants, or the "Cultivated Code" as it is often referred to, came into being in 1953, was revised in 1958, 1969, and 1980. The Cultivated Code sets guidelines for nomenclature and cultivar name registration. Article 3 begins thus, and I quote: "The aim of the present Code is to promote uniformity, accuracy and fixity in the naming of. . .cultivars . . .". The Cultivated Code is used by all International Registration Authorities (IRAs); at the latest count there are 71 IRAs. Furthermore, since November 1981 a valid cultivar name is a required part

of a U.S. Plant Patent, and since early 1982 a valid cultivar name is required before the Canadian Ornamental Plant Foundation (COPF) will accept a new registration in its program of providing financial return to plant breeders. The Commissioner of U.S. Patents and Trademarks has requested a list of all lilac cultivar names registered and future registration lists when they become available. Registration of cultivar names is a voluntary and cooperative procedure. I discovered long ago that I cannot just sharpen my pencil and wait for the registrations to come in. This brings me to yet another reason for registering cultivar names, namely to *bring about valid publication of a cultivar name together with an adequate description and background information*. Only when all available information has been assembled can one begin to answer the many questions that are being asked.

Why, for instance, was the single lilac 'Heavenly Blue' listed for many years as having double flowers? Because the first listing in a catalogue was erroneously as "double"; based on that listing John Wister entered it as a double in *Lilacs for America* (1953). conversely, the lilac 'Mildred Luetta', erroneously listed as "single", has turned out to be a double lilac.

In summary cultivar name registration is one of the tools used to bring about ". . . uniformity, accuracy and fixity in the naming of cultivars", at the same time it provides available information and helps to avoid duplication of names and confusion of names.

Discussion

Holetich: *Would a registration form, with probably a little excerpt from the code explaining the procedures on how to fill out that form, as a centerfold in the Lilac Newsletter be useful?*

Rogers: I think it would be educational.

Holetich: If people had something they could look at, it may remind them and they would say "yes, I do have a lilac, and here I have a form."

Vrugtman: Even if you got one or two answers, it would be worth it.



Trevor and Brenda Cole, and Charles and Theodora Holetich at City Hall.

Secretary's Report

President Owen Rogers opened the meeting at 7:45 p.m. and called for a moment of silence to honor those members who died during the past year. They were: Freda Forster, Fred van Orden, and Leonard Slater.

Approximately 50 members and guests were present.

The minutes of the 1981 Annual Meeting were read and accepted.

The Treasurer's Report was read and accepted showing a net worth of \$11,796.12.

Convention Chairman, Mr. Trevor Cole, expressed thanks to Mr. and Mrs. George Kidd for their help on convention preparations. All agreed that the timing was perfect for lilac bloom. Mrs. Isabel Zucker recommended that the Society extend a family membership to Mr. and Mrs. Cole.

Mr. Walter Oakes, Corporation Secretary reported that the overwhelming direction of the society was forward due to the dedication of certain individual members who have put in many, many hours of hard work. The Society owes much gratitude to those who "made it go" in the early years, especially to William Utley who spent three years revising the By-Laws, and to many others like him who have contributed so much time, energy, even money to the Society. Please help the continued growth of the Society by communicating to the Board of Directors ideas you may have and by helping to attract new members.

Col. Schenker reported on the 1981 auction. 285 plants and lilac related articles were auctioned off bringing in a total of \$1,450. Over the last several years \$4,000 has been earned by the auction. Col. Schenker expressed his thanks to his helpers and to the money handlers. A list of plants available for the 1982 auction was read.

Professor Edward Hasselkus and Mr. Kenneth Wood, the 1983 Convention Co-Chairmen, were introduced. The Convention will be held at the University of Wisconsin at Madison on May 13 and 14, 1983.

Mr. Holetich reported on membership stating that the strength of the Society is in the diversity of its people. Currently there are 316 members - 268 from USA, 33 from Canada and 15 from other countries, chiefly Europe. A reminder to pay dues is printed in the January and February Lilac Newsletter. Individual notices go out to those who haven't paid by June or July. If dues are not paid by August, mailing of their Newsletter is suspended.

Mr. Alexander reported on the Propagation and Distribution project. One of the difficulties of providing rare plants is to find enough propagating material. There were many more orders than plants this year due to losses suffered in the April blizzard. Next year's propagation will be of *Syringa pubescens* and a Russian cultivar 'Krasavitsa Moscvy'.

Freek Vrugtman reported that during the past year there were no lilac registrations, however thirty names of unregistered lilacs are currently under investigation. Progress on additions and cor-

rections to Dr. Rogers' "Tentative International Register of Cultivar Names in the Genus *Syringa*" is delayed owing to the need for computer processing. Meanwhile research continues into biographical data of lilac investigators and amateurs.

The 'Upton Scrapbook of Lilac Information' is available to members for \$22.50. Mrs. Zucker reported that the books are listed by a firm in England for 22.50 pounds sterling.

Mrs. Kara reported from the Central Region that Father Fiala's test gardens are visited by many university groups. Mrs. Kara also reported that Father Fiala's book on lilacs is in the publisher's hands, and will be out soon.

Mrs. Pauline Fiala, President of the Ohio Chapter, presented Col. Schenker, the auctioneer, with 100 numbered paddles to be used by participants at the auction. The numbered paddle will identify the bidder and aid in the bookkeeping. The paddles were made by members of the Ohio Chapter.

Dr. Rogers conveyed greetings from Mrs. Philip Hodgdon. She is now in her 80s and is starting a new lilac and viburnum planting. He also read a letter from Mary Smith, Newsletter Editor, expressing regret that she could not attend (she suffered a broken right wrist this spring), and extending her greetings.

If you will be discussing the Newsletter at any of your meeting, I will appreciate any suggestions or criticisms you all come up with. Most of the time I simply use what people send to me and what some of them send to me when I ask. Otherwise each issue is not terribly planned. Charles sometimes has to run notices that he may receive. He has been very helpful and cooperative. Have you given any further thought to making a basic information leaflet available to members, new members especially?

Mrs. Emerson reported that Mrs. Lourene Wishart continues to be very active in showing and promoting lilacs around Lincoln, Nebraska. She recently received the Award of Excellence in a Lincoln Flower Show and was asked to exhibit her arrangement in Omaha. She uses lilacs whenever possible and promotes lilacs wherever she goes.

Dr. Clark reported for the Election Committee. 46 per cent of the members cast valid ballots. 146 were returned from the USA, 10 from Canada, and 4 from other countries.

The slate was elected to the Board for a three year term.

Dr. Robert B. Clark - Meredith, NH
Father John L. Fiala - Medina, OH
Mr. William R. Heard - Des Moines, IA
Mr. Charles Holetich - Hamilton, Ont.
Mr. Walter W. Oakes - Rumford, ME
Mr. Max Peterson - Ogallala, NE
Dr. Owen Rogers - Durham, NH
Mr. William A. Utley - Clyde, NY

Only eight names were on the ballot due to the fact that no nominations came from the members. There were three write-in votes.

The meeting was adjourned at 8:45 p.m.

Respectfully submitted,
Sarah N. Schenker
 Recording Secretary I.L.S.

**INTERNATIONAL LILAC SOCIETY
 FINANCIAL REPORT
 MAY 1982**

Balance Brought Forward		\$ 9,685.80
RECEIPTS		
Member ship	\$ 1,976.00	
Upton Scrap Book	565.25	
Donation (Carvill)	20.00	
Publications	16.50	
Lilac Auction	1,446.00	
Hans Conraid Memorial (Dr. Margaretten)	50.00	
Eastern Canada Region	250.00	
Jessie Hepler Sales	201.50	
Convention Return	156.28	
Interest	466.29	
Total Receipts	\$ 5,147.82	
		<u>\$ 5,147.82</u>
Total		\$ 14,833.62
EXPENDITURES		
Bill Heard Convention Advance	\$ 500.00	
Trevor Cole Convention Advance	500.00	
Nominating Committee (M.P.)	61.13	
J & J Printing, Inc.	870.50	
Publicity, Mailings for		
Upton Scrap Book	160.55	
Awards (Merks Trophies)	426.80	
Mary Smith (Editor's Expense)	58.11	
Nimrod Press (Ship 2 lots of Upton)	118.00	
Postage, Xerox, UPS, Phone (W.E.)	44.77	
Postage - Membership \$18.00		
Upton Scrap Books 18.00	36.00	
National Council of State Garden		
Club Dues	15.00	
Oxford Printing - Env. (W.O.)	23.52	
Film Education Program (O.R.)	19.56	
Handling & Shipping Jessie Hepler (N.A.)	83.56	
Weston Nurseries - Propagation of		
80 Rooted Cuttings	120.00	
Total Expenses	\$ 3,037.50	
		<u>\$ 3,037.50</u>
Total All Accounts		\$ 11,796.12

CASH BALANCE RECONCILIATION

Life Membership	\$ 2,250.00
Legal	295.63
By Laws	210.25
C.C. Clark Fund	300.00
Upton Scrap Book	2,272.71
Donation Carvill	20.00
Education and Research	3,321.94
Hans Conraid Memorial	50.00
Operating	<u>3,075.59</u>
Total	\$ 11,796.12

Respectfully submitted,
Marie F. Chaykowski
Treasurer, I.L.S.

**INTERNATIONAL LILAC SOCIETY 1982 CONFERENCE
FINANCIAL STATEMENT**

(Canadian Currency)

INCOME		EXPENDITURES	
From International Lilac Society	597.75	Chimo Inn	2,169.25
Conference Fees	3,336.11	City Hall	300.00
Interest: May 81 - August 82	167.04	Buses	213.00
Hospitality	239.70	Hospitality	276.15
Ritchies Feed & Seed	50.00	Refund (Mrs. Slater)	130.00
Sheridan Nurseries	100.00	Printing	9.63
Agriculture Canada	311.00	Auction	57.40
	<u>\$4,801.60</u>	Postage	49.47
		Books	7.25
		Photographs	66.93
		Service Charge	2.25
		Gratuities, Etc.	50.00
			<u>\$3,781.33</u>
		Cash in Bank	1,020.27
			<u>\$4,801.60</u>

Respectfully submitted,
Trevor J. Cole

Auctioneer's Report

Ninety lilacs and related articles were donated by the Royal Botanical Gardens, by Agricultural Canada, by Trevor Hutchison and members and friends of the Society. Forty cultivars were auctioned and the sale netted more than \$225.

Special thanks are tendered the Ohio Chapter for their donation of 100 numbered paddles which helped to expedite the proceedings; to our Treasurer, Marie Chaykowski, and Board members Pauline Fiala and Elsie Kara for efficient handling of transactions; to plant handlers John Carvill, Walter Eickhorst, Bill Emerson and

Max Peterson; and to Sally Schenker whose accurate notes made this report possible.

Generous donation of lilac plants and related items plus spirited bidding resulted in another successful auction. Come to our 12th Annual Meeting in Madison, Wisconsin, May 13th and 14th, 1983 to obtain a variety of quality lilacs at reasonable prices with mutual benefit to the Society and the purchaser.

Respectfully submitted,
Hanssen Schenker
Chairman of Auction Committee

Report of Membership Committee

International Lilac Society membership as of May 25, 1982 stands at 316, consisting of 268 members from the U.S.A., 33 from Canada, and 15 from various other countries of Central America and Europe.

Classification:

	Paid Up 1982	Currently Unpaid	Life	Honorary	Compli- mentary
U.S.A.	110	137	20	1	
Canada	26	5		1	1
Others				1	14
Total	136	142	20	3	15

Propagation and Distribution Committee Report

In late May of 1981 cuttings of *Syringa* cultivars 'Sumierki' and 'Mieczta' were supplied to Weston Nurseries Inc. of Hopkinton, Massachusetts. These cuttings were then rooted, potted and wintered in cold storage. After being brought out of storage however a fluke April snowstorm apparently caused the loss of plants of Cv. 'Sumierki'.

This spring we received seventy orders for just over 150 plants of each cultivar, which was far more than the quantity available. We were able to fill sixteen orders on a first-come-first-serve basis, shipping a total of 42 plants. These shipments went to members in thirteen different States. Fifty-five orders could not be filled and the money will be refunded. Shipping service was provided by Alexander's Nursery of Middleboro, Massachusetts.

Total receipts from orders	\$157.20
Estimated expenses	136.14
Weston Nurseries for propagation of 47 plants at 1.50/ea.	70.50
Alexander's Nursery for shipping at 50¢ per plant plus postage	50.64
Miscellaneous for photocopy, postage, etc.	15.00

Respectfully submitted,
J. Alexander
Chairman

Lilac Registration Committee's Report

by Freek Vrugtman

1. Registration of new cultivar names of lilacs—
A number of lilac originators requested registration forms, but no new lilac names were registered.
2. Un-registered cultivar names of lilacs introduced in North America—
Since the publication in April 1976 of the *Tentative International Register of Cultivar Names in the Genus Syringa* by O. M. Rogers a number of unregistered cultivar names have appeared in catalogues and price lists, and in publications of the ILS. Since one of the aims of cultivar name registration is to avoid duplication of names it appears to be desirable to publish a list of these unregistered names in current use. Wherever possible the originators or introducers of these cultivars have been contacted, but no registration has resulted. A list of 30 unregistered cultivar names has been submitted for publication in the *AABGA BULLETIN* and is scheduled to appear in the July 1982 issue. It should be stressed that it is not intended to provide valid publication for these names under the International Code of Nomenclature for Cultivated Plants, nor does the publication of this list constitute registration of these cultivar names.
3. Checklist —
Work on correcting and updating the *Tentative International Register of Cultivar Names in the Genus, Syringa* (Rogers, 1975) is in progress.
4. Biographical research—
The search for biographical information on originators of lilac cultivars also continues.

Respectfully submitted,
Freek Vrugtman
Registrar



Don Wedge, Elsie Kara and friends on Lilac Walk at the Dominion Arboretum.

Election Report

Election of members to the Board of Directors is one of the important privileges of ILS membership. At present the Board is composed of 24 members, 8 of which are elected each year. This year the Nominations Committee headed by Max Peterson collected nominations from the entire membership and mailed ballots to everyone for the election. The results were announced at the 1982 Convention held in Ottawa, Canada. The members elected or re-elected to a three-year term were:

Mr. Robert Clark	Fr. John Fiala
Mr. William Heard	Mr. Charles Holetich
Mr. Walter Oakes	Mr. Max Peterson
Dr. Owen Rogers	Mr. William Utley

They join these incumbents on the board:

Serving Until 1984

Mr. John H. Alexander III	Mr. Thomas N. Chieppo
Dr. Donald Egolf	Mrs. Elsie Kara
Mr. George Kidd	Mr. Maurice Lockwood
Mr. Roger Luce	Mrs. Sarah N. Schenker

Serving Until 1983

Mr. John Carvill	Mrs. Marie Chaykowski
Mr. Walter Eickhorst	Mrs. Nancy Emerson
Mrs. Pauline Fiala	Dr. Joel Margaretten
Mr. Winfried Martin	Mr. Freek Vrugtman

On Saturday, May 29, 1982 the Board elected the following officers to serve the Society in 1982-1983.

President Dr. Owen M. Rogers
Executive Vice President - Mr. William Utley
Corporation Secretary - Mr. Walter Oakes
Recording Secretary - Mrs. Sarah N. Schenker
Treasurer - Mrs. Marie Chaykowski
Editor of the Newsletter - Mrs. Mary Smith
Regional Vice Presidents -
New England - Mr. Thomas Chieppo
South - Dr. Donald Egolf
Mid-West - Mrs. Elsie Kara
Eastern Canada - Mr. George Kidd
Western Canada - Vacant
Mid-Atlantic - Mr. John Carvill
West - Mr. Max Peterson
Pacific Coast - Dr. Joel Margaretten
Northwest - Vacant

These officers were elected to serve the whole Society, so if you have any suggestions, criticisms or brilliant ideas, please get in touch with one or all of them.



Trevor Cole and his wife, Brenda, receive award.



Arthur Buckley receives award.



Dr. Vern Burrows receives award for Agriculture Canada.



Ed Hulobowicz receives award for National Capital Commission.



John Robinson receives award for Ottawa Horticultural Society.



Colonel Hanssen Schenker receives award.

Lilac Species and Cultivars in Cultivation in U.S.S.R.

by L.I. Rubtzov, N.L. Mikhailov and V.G. Zhogoleva, Kiev, 1980.

Brief History of Lilac Breeding in U.S.S.R.

The first domestic (i.e. Russian) lilac forms were raised by I.V. Michurin. He first obtained a dwarf form, *Siren stolovaya*, suitable for growth in restricted space: height of this form does not exceed 35 cm, (13.78 in.).

Beginning with the year 1916 lilac selection and introduction of new forms was the principal occupation of the horticulturist Leonid A. Kolesnikov. In the following thirty years over 100 lilacs were introduced of which 52 are listed in Rogers' "Tentative International Register of Cultivar Names in the Genus *Syringa*". For his achievements Kolesnikov was awarded "Gosydarstvennaya premiya U.S.S.R." and "Golden Lilac Branch", the latter by the International Lilac Society.

In the U.S.S.R. work on introduction, hybridization, selection and creation of new lilac forms is carried out in regional botanical gardens and plant introduction centers. Three such centers are described herein.

Principal Botanical Garden, Academy of Science U.S.S.R., Moscow

This collection features 38 species and related subspecies, 56 domestic and 296 foreign cultivars, totaling 390 lilac taxa. The display of lilacs began in 1946, and selection in 1951. Initially the

FIFTY BETTER LILAC CULTIVARS RECOMMENDED FOR MASS PROPAGATION IN THE U.S.S.R. BY THE PRINCIPAL BOTANIC GARDEN AT MOSCOW

S. x hyacinthiflora 'Buffon'	Mme. Florent Stepman
Esther Staley	Mme. Lemoine
Minnehaha	Marechal Foch
Necker	Marie Legraye
S. patula (<i>velutina</i>)	Maximowicz
S. reticulata (<i>Japonica</i>)	Mechta
S. sweginzowii	Miss Ellen Willmott
S. vulgaris 'Alenushka'	Monge
Amethyst 2, not Spaeth 1887	Monique Lemoine
Andenken an Ludwig Spaeth	Mont Blanc
Capitaine Baltet	Monument
Congo	Mrs. Edward Harding
Descaisne	Olimpiada Kolesnikova
Emile Gentil	Ostankino
Excellent	Pamyat'o S.M. Kirove
Flora	Pasteur
Fuerst Buelow	President Grevy
Gortensia (<i>Hortensia</i>)	President Loubet
Katherine Havemeyer	President Poincare
Kirasnaya Moskvyy	Reaumur
Kosmos	Ruhm von Horstenstein
Krasavitsa Moskvyy	Souvenir d'Alice Harding
Leonid Leonov	Tombouctou
Mme. Casimir Perier	Vestale
Mme. Charles Souchet	Yubileinaya

material for selection consisted of open-pollinated seedlings of the better foreign cultivars, followed later by controlled pollination. Additional lilacs were brought into the collection by means of scion-wood. In 1948 scions of 70 varieties were obtained from Spaeth of Berlin; in 1961 scions of 101 varieties were obtained from Maarse (The Netherlands); and during the succeeding six years scions were obtained on an exchange basis from the Morton Arboretum and other dendrological gardens of the United States. The scions of several species and varieties were obtained from the Institute of Dendrology, Academy of Science, Kornik, Poland. In 1970 scions of 40 valuable species and varieties were obtained from the Royal Botanical Gardens, Hamilton, Ontario.

During the next 18 years, species and cultivars were subjected to phenological observations to learn which give better blooms, have better clusters, which are hardy and other important factors. The selection of better cultivars is governed by a selection method developed by the floriculture department of the Principal Botanical Garden. Beginning with 1951 better lilac selections were distributed among various scientific organizations and floriculture lovers.

BLOOMING SEASON OF LILAC CULTIVARS AT KIEV

COLUMN A - Median Date of Bloom (May)

COLUMN B - Average Duration of Bloom (Days)

COLUMN C - Number of Years Recorded

Cultivar	A	B	C	Cultivar	A	B	C
Leon Gambetta	5	15	7	Princess Clementine	10	10	4
Katherine Havemeyer	7	15	5	Reaumur	10	12	4
Leon Simon	7	12	7	Jeanne d'Arc	11	10	3
Mme. Casimir Perier	7	12	5	Congo	11	13	5
President Grevy	7	12	5	Michel Buchner	11	14	5
President Loubet	7	16	6	Perle von Teltow	11	11	4
Belle de Nancy	8	12	6	Paul Hariot	11	12	3
Mme. Lemoine	8	13	5	Prince de Beauvau	11	11	2
Ruhm von Horstenstein	8	12	6	Andenken an Ludwig Spaeth	12	11	5
Capitaine Baltet	9	10	5	Hugo Koster	12	11	5
Marechal Foch	9	13	5	Mrs. Edward Harding	12	13	5
Gloire d'Aalsmeer	10	12	6	Vestale	13	10	3
Hugo de Vries	10	13	5	Excellent	14	15	2
Duc de Massa	10	13	5	Miss Ellen Willmott	14	10	2
Charles Joly	10	13	5				
Charles X	10	13	5	X HYACINTHIFLORA			
Mme. Florent Stepman	10	11	6	Buffon	8	11	5
Marie Legraye	10	12	5	Necker	10	10	2
Maximowicz	10	11	7	Catinat	16	10	2
Mont Blanc	10	14	5				

Central Republic's Botanical Garden, Academy of Science, Ukrainian S.S.R., Kiev

The lilac collection has 27 species and related subspecies, 39 domestic and 79 foreign cultivars totaling 141 taxa. The majority of species and cultivars were obtained from the Principal Botanical Garden at Moscow, from Mleebesk Fruit Experimental

Station, Cherkaask Region, from originators of or introducers, prize-winners of public awards of U.S.S.R., such as L.A. Kolesnikov, from a firm in the German Democratic Republic, and from other foreign and domestic establishments. The collection occupies 1½ hectares, forming a monocultural ornamental garden or *Syringetum*. Every cultivar is represented by from 5 to 20 specimens.

A concentration of plants of a single genus in an area creates beauty and enhances the landscape where formal layout, balanced form and color of flowers gives the ornamental effect. Owing to its exceptional beauty the *Syringetum* is very popular with workers of Kiev and visitors from other cities of the Soviet Union. During the blooming season it is often visited by up to 40,000 people per day.

The *Syringetum* was founded in 1948. With the first bloom in 1952 breeding work of open- and controlled-pollination was initiated. Seed collected from open-pollinated cultivars of Marechal Foch and Katherine Havemeyer produced 10,000 seedlings. In 1954 three cultivars were selected from these seedlings: *Bogdan Khmel'nitskii*, *Ogni Dombassa* and *Taras Bul'ba*. All three cultivars were exhibited at the International Exhibition "Flora Olomoutz 1975", in Czechoslovakia. *Bogdan Khmel'nitskii* received a gold medal and *Ogni Dombassa* a silver medal.

Breeding work in the *Syringetum* is oriented toward the creation of cultivars with small growth, compact form of cluster, improved quality of flower (sound floriferousness, color brilliance) and late bloom.

Central Botanical Garden, Academy of Science, Belorussian S.S.R., Minsk

This lilac collection features 18 species and subspecies, 41 domestic and 117 foreign cultivars, totaling 176 taxa. During a period of seven years I.V. Smol'skii and V.F. Bibilova, employees of the Garden, made 8387 intervarietal, 38,150 interspecific and 14,309 interfamilial crosses. Tests reveal that intervarietal crosses are achieved the easiest. The most appreciated hybrid progeny distinguished by highly decorative quality are *Reammur*, *S. x hyacinthiflora* and *Necker* and *Mme. Abel Chatenay*. From several thousand hybrid seedlings 16 better decorative hybrids were selected and recommended. They received high appraisal in 1967 on exhibition of national economic achievements in U.S.S.R. and were recommended for use in the parks of Belorussian S.S.R. The best mark for their decorative quality were given to hybrid seedlings: *Partizanka*, *Paulinka* and *Lebedushka*.

The best results of interspecific crosses were obtained in Series *Vulgares* and *Villosae*. Species in Series *Villosae* cross better when they are closer morphologically (*S. x henry*, *x S. josikaea*, *S. josikaea x S. emodi*, *S. x henryi x S. wolfii*). Interspecific crosses which belong to different series and subgenera, as a rule, are not successful. The ability to set seed with interspecific crossing which belong to different series improves considerably by using the method of preliminary rapprochement, i.e. by grafting. Owing

to this process first used at this Garden, hybrid seedlings were obtained from crossing species in Series Villosae with species in Series Vulgares (*S. vulgares* x *S. josikaea*, *S. reflexa* x *S. vulgaris*) as well as with species of the Subgenus Ligustrina (*S. vulgaris* x *S. reticulata*). In the selection plots of the Botanical Garden are 856 hybrid lilacs of two combinations of interspecific crosses.

SOVIET-BRED LILACS OF *SYRINGA VULGARIS* L.. A SELECT LIST COMPILED FROM THE 128 PAGE CATALOGUE-HANDBOOK BY L.I. RUBTZOVA, N.L. MIKHAILOV AND V.G. ZHOGOLEVA AT KIEV IN 1980.
Asterisk (*) Indicates "Pronounced Fragrance"

S VII	Aelita, Vekhov 1952, 'Vestale seedling		Grigor'ev 1955, 'Andenken an Ludwig Spaeth' x 'Jeanne d'Arc'
S I	Agidel, Sakharova, 'Mme. Lemoine' x 'Marie Legraye'		Gaizin'kalus, Upitis
D III	Academic 'Burdenko', Kolesnikov	S I	* Galina Ulanova, Kolesnikov
D VII	Akademic Maksimov, Kolesnikov	S II	Gastello, Kolesnikov, <i>Kapitan Gastello</i>
S II	Aleksandr Pushkin, Potutova	S III	Golubaya, Kolesnikov
S II	Aleksei Mares'ev, Kolesnikov 1951	S II	* Gortenziya, Kolesnikov 1930, <i>Hortensia</i>
S V	Alenushka, Shtak'ko & Mikhailov 1956, 'Maximowicz' seedling	S V	Gul'nazira, Sakharov, 'Congo' seedling
S VI	Alesha, Sakharova, 'Andenken an Ludwig Spaeth' x 'Marie Legraye'	S IV	Indiya, Kolesnikov 1955, 'Zarya Kommunizma' x unknown dark-flowered seedling
S II	* Alma-Atinskaya, Melnik, Volcan seedling	D III	Iran, unknown breeder
IV	Ametist 2, Shan'ko & Mikhailov 1956, 'Prince de Beaubau' seedling	D I	I. V. Michurin, Kolesnikov 1941, 'Grand Duc Constantin' x 'Michel Buchner'
D IV	Andryusha Gromov, Kolesnikov	D IV	Kapriz, Kolesnikov 1952
S VII	Azhurnaya, Mel'nik 1967, 'Mechta' seedling	S IV	K. A. Timiryazev, Kolesnikov 1955, Kolesnikov No. 110 open pollinated
D VI	Bal'zak, Kolesnikov	S IV	* Kazakhstanskaya, Mel'nik, 'Volcan' seedling
D V	* Belaya Noch, Vekhov 1954	S V	* Kazakstanskii Suvenir, Mel'nik
S IV	Belorusskie Zorie, Smol'skii & Bibikova 1964, 'Andenken an Ludwig Spaeth' x 'Hyazinthenlieder'	S V	Kievlyanka, Rubtsov & Zhogoleva 1956, 'Katherine Havemeyer' seedling
D V	Bogdan Khmel'nitskii, Rubtsov, Zhogoleva & Lyapunova 1954, 'Marechal Foch' seedling	S VII	Knipper-Chekova, V. & Z. Klimenko & Grigor'ev 1955
D II	* Bol'shevik, Kolesnikov 1938	D IV	Kolkoznitsa, Kolesnikov
S VII	* Devich'e Schast'e, V. & Z. Klimenko & Grigor'ev 1955	D IV	Komsomolka, Kolesnikov
	D. Nehru, Kolesnikov	S V	* Konstantin Zaslouov, Smol'skii & Bibilova 1964, 'Hyazinthenlieder' x 'Reaumur'
	Dobeles Sapnotais, Upitis	D IV	Konfetti, Kravchenko, 'Belle de Nancy' x 'Congo'
D I	Elena Vekhova 1952, 'Vestale' x mixed pollen from several cultivars	D II	Kosmonaut, Vekhov 1952
	Emel'yan Yaroslavkii, Kolesnikov	S II	Kosmos, Shyan'ko & Mikhailov 1956, 'Mrs. Edward Harding' seedling
S II	Fioletovyi Sultan, V. & Z. Klimenko	D I	Krasavitsa Moskvyy, Kolesnikov 1947, 'Belle de Nancy' x 'I.V. Minchurin'

S VII	Krasnaya Moskv. Kolesnikov	D V	* Nezhnost, Vekhov 1952
S IV	Kremlevskie Kuranty, Kolesnikov	D IV	* Niebo Moskv. Kolesnikov 1963, 'Mme. Casimir Perier' x 'Snowflake' Nikolai Kostetskii, unknown breeder
S III	Krymskaya Krasavitsa, V. Klimenko 1955		
S III	Krymskaya Lazur, V. & Z. Klimenko & Grigor'ev 1955	S VII	Noktyurn, Potutova, <i>not</i> 'Noc- turn' Preston 1936
S I	Lebeduska, Smol'skii & Bibilova 1964, 'Mme. Abel Chatenay' x 'Reaumur'	D II	Obmanshchitsa, Kolesnikov
D II	Leonid Kolesnikov, Kolesnikov	D IV	Ogni Dombassa, Rubtzov, Zhogoleva & Lyapunova 1956, 'Charles Joly' seedling
S IV	Leonid Leonov, Kolesnikov 1941	S VII	Ogni Moskv. Kolesnikov
D	* Lesostepnaya, Vekhov 1952, 'Comte de Kerchov' seedling	D V	Olimpiada Kolesnikova, Kolesnikov 1941, 'Berryer' x 'Tamara Kolesnikova'
S VII	Lesya Ukrainka, V. & Z. Klimenko & Grigor'ev 1955, 'Mme. Lemoine' x <i>S. vulgaris</i>	S III	Ostankino, Shtan'ko Mikhailov 1956, 'Maximowicz' seedling
D IV	* Lilovaya Piramida, Mel'nik, 'Henri Martin' seedling	S IV	Pamyat'o Akademike K. I. Satpaeva, Mel'nik, 'Henri Martin' seedling
S V	Lilovaya Purga, V. & Z. Klimenko & Grigor'ev 1955 'Andenken an Ludwig Spaeth' x 'Mme. Casimir Perier'	S VII	Pamyat'o Chekhive, V. & Z. Klimenko & Grigor'ev 1955
S V	Lilovaya Raketa, V. Klimenko 1955, 'Andenken an Ludwig Spaeth' x <i>S. vulgaris</i>	D II	Pamyat'o S.M. Kirove, Kolesnikov 1943, 'Belle de Nancy' x 'I.V. Michurin'
II	* Lipchanka, Romansva & Egorova	S IV	Pamyat'o A.T. Smol'skii, Smol'skii & Bibilova 1964, 'Andenken an Ludwig Spaeth' x 'Hyazinthenflieder'
D	Luch Vostoka, Mel'nik, 'Katherine Havemeyer' seedling	D V	* Pamyat'o Vavilove, Vekhov 1952
D I	Lunnyi svet, Smol'skii & Bibilovca 1964, 'Mme. Abel Chatenay' x 'Reaumur'	S IV	Partizanka, Shtan'ko & Mikhailov 1956, 'Andenken an Ludwig Spaeth' x 'Hyazinthenflieder'
S V	Maiskoe Utro, Mel'nik, 'Congo' seedling	D VII	Pavlinka, Smol'skii & Bibilova 1964, 'Mme. Abel Chatenay' x 'Reaumur'
S III	Marat Kazei, Smol'skii & Bibilova 1964, 'Hyazinthenflieder' x 'Reaumur'	S VII	Pioner, Kolesnikov 1951, 'Zarya Kommunisma' x <i>S. vulgaris</i> dark-flowered seedling
D V	* Marshal Vasilevskii, Kolesnikov 1963	D V	P.K. Ozolin, Kravchenko
S IV	Marshal Zhukov, Kolesnikov 1948	S VII	* Polesskaya Legenda, Smol'skii & Bibilova, 'Andenken an Ludwig Spaeth' x 'Hyazinthenflieder'
S II	Marsianka, V. Klimenko 1955 'Andenken an Ludwig Spaeth' x 'Jeanne d' Arc' Mate Ede Upitis, Upitis	D I	Polina Osipenko, Kolesnikov 1941
S IV	Mechta, Kolesnikov 1941, 'Sholokhov' seedling, <i>Mieczta</i>	S IV	* Pol' Robson, Kolesni- kov 1965
S VII	Mechta Materi, V. & Z. Klimenko & Gregor'ev 1955	S II	Poltava, Rubtzov & Zhogoleva 1956, 'Ruhm von Horstenstein' seedling
S II	* M.I. Kalinin, Kolesnikov 1941	D VI	Pozdnyaya Vishnevaya, Kravchenko
S II	* Minchanka, Smol'skii & Bibilova 1964, 'Mme. Abel Chatenay' x 'Reaumur'	D III	P. P. Konchalovskii, Kolesnikov 1956
D IV	Nadezhda, Kolesnikov		
S V	* Nepovtorimaya, Vekhov 1952, 'Comte de Kerchov' seedling		

S V	Radostnaya, Kravchenko	S VII	Svityazanka, Smol'skii & Bibilov 1964, 'Hyazinthenlieder' x 'Reaumur'
S VII	Radost Pobedy, V. & Z. Klimenko & Grigor'ev 1955	D IV	S. V. Lavrov, Lavrov
S VI	Radzh Kapur, Kolesnikov	D IV	Tamara Kolesnikova, Kolesnikov
S V	Rozaoya Radost, Mel'nik, 'Mechta' seedling	S V	Tanechka, Smol'skii & Bibilova 1964, 'Hyazinthenlieder' x 'Reaumur'
S IV	Rozovoe Oblako, Rubtzov & Zhogoleva 1956, 'Ruhm von Horstenstein' seedling	D IV	Taras Bul'ba, Rubtzov, Zhogoleva & Lyapunova 1956, 'Leon Gambetta' seedling
V	* 'Rus', Vekhov 1952	S II	Topaz, Zhogoleva 1976, 'Reaumur' seedling
D II	Russkaya Pesnya, Vekhov 1952, 'Marechal Lannes' seedling	D V	* Utro Moskvyy, Kolesnikov 1938, 'Emile Lemoine' x 'Mme. Lemoine'
S VII	Russki Suvenir, Potutova	D II	* Utro Rosii, Vekhov 1952
D II	Salavat Yulaev, Sakharova, 'Congo' x 'Mme. Lemoine'	D V	Valentina Grizodubova, Kolesnikov
S II	Sapun-gora, V. Klimenko 1955	D V	Valentina Tereshkova, Kravchenko, 'Congo' x 'Lamarck'
S IV	* Sevastopol'skii Val's, V. Klimenko 1955, 'Andenken an Ludwig Spaeth' x 'Mme. Casimir Perier'	S V	Vera Khoruzhaya, Smol'skii & Bibilova 1964, 'Mme. Abel Chatenay' x 'Reaumur'
D I	Serebristy Landysh, Potutova	S II	Vesennyya Krasa, V. Klimenko 1955
S IV	Shkol'nitsa, Shtan'ko & Mikhailov 1956, 'Prince de Beauvau' seedling	D VII	Vesna 1942, Kolesnikov
S V	Sholokhov, Kolesnikov	S VII	'Yaltinskaya Prelest', V. & Z. Klimenko & Grigor'ev 1955, 'Andenken an Ludwig Spaeth' x 'Jeanne d' Arc'
S VII	Sirenevaya Piramida, Potutova	S V	Yubileinaya, Shtan'ko & Mikhailov 1956, 'Congo' seedling
S IV	Sireneyi Kashad, V. & Z. Klimenko & Grigor'ev 1955, 'Andenken an Ludwig Spaeth' x 'Mme. Casimir Perier'	S V	'Yunost', Vekhov 1952
D I	Sovietskaya Arktica, Kolesnikov	D V	Yurii Gagarin, Loss
S IV	Sorok Let Komsomola, Kolesnikov	S VII	Yuzhanka, V. Klimenko 1955
S III	Soyuz-Apollon, V. Klimenko	S II	Yuzhnaya Noch, V. Klimenko 1955
	* Sumierki, Kolesnikov 1954		



The Maine Delegation at the President's Dinner.



Mayor of Ottawa, Marion Dewar, welcomes delegates.

Successes and Failures, an Assessment of Winter Damage, 1980-1981*

By Fred Lape, Esperance, New York

The winter of 1980-81 was the most destructive winter in the thirty years of the Arboretum's history. Since the Arboretum has about as severe a climate as any in the United States, it seems valuable to put the damage on record, both for the hardiness level of various species as well as the always unsolved problem of just what in a winter does the damage and why certain winters are damaging to certain species and not to others equally tender. The severity of the winter may be judged by the fact that our dawn redwood, *Metasequoia glyptostroboides*, set out in 1951 and never before damaged by winter cold, was killed two-thirds back to its base, and a ten-foot cedar of Lebanon, *Cedrus libani*, of the Arnold Arboretum hardy strain was killed completely, and our one specimen of Daimio oak, *Quercus dentata*, never before damaged, was killed three-quarters of the way to the base.

Since the Arboretum is closed winters, no records were kept, however the daily extremes of temperature at nearby Albany for December 1980 and for January 1981 are given in Table I. Temperatures for the Arboretum would be slightly lower because of the higher elevation.

TABLE I

Daily Range of Temperatures in Degrees Farenheit for Months of December 1980 and January 1981 as Recorded at Atmosphere Science Research Center, State University of New York, Albany, by Raymond Falconer

DECEMBER 1980			JANUARY 1981		
Date	High	Low	Date	High	Low
1	53	34	1	21	1
2	58	31	2	27	1
3	44	14	3	7	-4
4	26	11	4	-2	-13
5	29	10	5	19	-9
6	32	11	6	25	10
7	34	14	7	30	8
8	57	31	8	10	-5
9	45	29	9	20	-5
10	34	27	10	20	0
11	31	11	11	5	-10
12	33	8	12	11	-16
13	39	18	13	8	-14
14	33	9	14	11	-9
15	23	-1	15	22	1
16	24	11	16	18	13
17	16	-5	17	20	7
18	33	-2	18	30	-4
19	34	0	19	36	30
20	15	-16	20	34	5
21	22	-10	21	24	-6
22	23	-5	22	34	3
23	30	20	23	36	28
24	29	3	24	32	19
25	3	-20	25	35	4
26	17	-9	26	42	30
27	27	4	27	44	34
28	35	-1	28	35	24
29	36	31	29	24	9
30	34	5	30	18	7
31	17	2	31	30	4

Temperatures for December and January averaged below normal, but there were no long spells of very subnormal temperatures, the longest being the four days of January 11-14th. Even then temperatures were not what we would consider disaster level, since we expect one or two spells of -20°F each winter, and have recorded -28°F with a wind blowing. It seems more likely that the damage was done by the occasional drops from a thawing day to -20°F or lower, such as those of December 23-25th or January 2-5th. The recorded highs of the warm days would not reveal the

temperatures acting at midday on flower buds, which are large, in spots in full sun sheltered from wind. Our guess is that this was sufficient to cause on those days a slight expansion of the buds to be struck by the immediate severe drop in temperature at night. This is indicated by the fact that the greatest damage was in just such situations and to flower buds, not to leaf buds.*

**The reverend Gilbert White's Letter LXI, undated, to the honourable Daines Barrington, from "The Natural History of Selborne", London, 1788.*

As the frost in January 1768 was, for the small time it lasted, the most severe that we had then known for many years, and was remarkable injurious to ever-greens, some account of its rigour, and reason of its ravages, may be useful, and not acceptable to persons that delight in planting and ornamenting, and may particularly become a work that professes never to lose sight of utility.

For the last two or three days of the former year there were considerable falls of snow, which lay deep and uniform on the ground without any drifting, wrapping up the more humble vegetation in perfect security. From the first day to the fifth of the new year more snow succeeded, but from that day the air became entirely clear, and the heat of the sun about noon had a considerable influence in sheltered situations.

It was in such an aspect that the snow on the author's evergreens was melted every day, and frozen intensely every night, so that the laurustines, bays, laurels, and arbutuses looked, in three or four days, as if they had been burnt in the fire, while a neighbour's plantation of the same kind, in a high cold situation, where the snow was never melted at all, remained uninjured.

From hence I would infer that it is the repeated melting and freezing of the snow that is so fatal to vegetation, rather than the severity of the cold. Therefore it highly behoves every planter, who wishes to escape the cruel mortification of losing in a few days the labour and hopes of years, to bestir himself on such emergencies, and, if his plantations are small, to avail himself of mats, cloths, pease-haum, straw, reeds, or any such covering, for a short time, or, if his shrubberies are extensive, to see that his people go about with prongs and forks, and carefully dislodge the snow from the boughs, since the naked foliage will shift much better for itself, than where the snow is partly melted and frozen again.

It may perhaps appear at first like a paradox, but doubtless the more tender trees and shrubs should never be planted in hot aspects, not only for the reason assigned above, but also because, thus circumstanced, they are disposed to shoot earlier in the spring, and grow on later in the autumn, than they would otherwise do, and so are sufferers by lagging or early frosts. For this reason also plants from Siberia will hardly endure our climate, because, on the very first advances of spring, they shoot away, and so are cut off the the severe nights of March or April.

Dr. John Fothergill and others have experienced the same inconvenience with respect to the more tender shrubs from North America, which they therefore plant under north-walls. There should also perhaps be a wall to the east to defend them from the piercing blasts from that quarter.

And here it may be proper to observe, on what has been said above, that though frosts advance to their utmost severity by somewhat of a regular gradation, yet thaws do not usually come on by as regular declension of cold, but often take place immediately from intense freezing, as men in sickness often mend at once from a paroxysm.

To the great credit of Portugal laurels and American junipers, be it remembered that they remained untouched amidst the general havock: hence men should learn to ornament chiefly with such trees as are able to withstand accidental severities, and not subject themselves to the vexation of a loss which may befall them once perhaps in ten years, yet may hardly be recovered through the whole course of their lives.

As it appeared afterwards the ilexes were much injured, the cypresses

were half destroyed, the arbutuses lingered on, but never recovered, and the bays, laurustines, and laurels, were killed to the ground, and the very wild hollies, in hot aspects, were so much affected that they cast all their leaves.

By the 14th of January the snow was entirely gone, the turnips emerged not damaged at all, save in sunny places, the wheat looked delicately, and the garden plants were well preserved, for snow is the most kindly mantle that infant vegetation can be wrapped in: were it not for that friendly meteor no vegetable life could exist at all in northerly regions. Yet in Sweden the earth in April is not divested of snow for more than a fortnight before the face of the country is covered with flowers.

In early February the weather turned warm, remaining above normal through most of March, and buds expanded ahead of their normal time. Then in late April and early May, when flower buds were not killed by the mid-winter freezes were just opening, a series of late freezes either destroyed the opened flowers or prevented the fertilization of those not destroyed. No fruit was set on apples, pears, plums, and about one-half of the Oriental crab apples.

It may be valuable to record that some orchardists of the area saved their crops by spraying the trees with water during these late freezes, a system that the Principal Botanic Garden of Moscow uses to keep dahlias in full flower long after the first autumn frosts.

The most damage was done before these late freezes as evidenced by the great number of flower buds that failed to show any expansion in the early warm spring. In all sections of the Arboretum the great destruction was of flower buds. Leaf buds and stem growth suffered on some species, but not to the extent of flower bud damage. This was true even of our local flora. Flower buds on all flowering dogwoods, *Cornus florida*, both on cultivated trees and in native stands, were killed. About half of the flower buds on all shadbushes, *Amelanchier* species, were either killed or deformed. On the other hand there was no leaf bud or twig damage on these, nor on any of the orchard apples and pears. Against this may be set the damage by the most destructive winter of the century in our area, the winter of 1933-34, when half of the old apple trees in local orchards were killed.

Having given the general picture, we now turn to individual genera and species. Among the conifers damage was most severe on species that in previous years had shown tenderness. The one exception was the damage to the dawn redwood, already mentioned. This tree was about forty feet tall and had fruited once. A few leaf buds opened in spring near the top of the tree but quickly withered. By the end of summer the top two-thirds of the tree was leafless and presumably dead. The lower branches had some leaf bud damage and never regained their visual vigor during the summer.

Cone-Bearing Evergreens

Cedrus libani, cedar of Lebanon. Of this species nine specimens have been set out since 1951. Only two were still alive in 1980. One had reached a height of about ten feet, the other, of the same age, not more than three feet. Both of these specimens

were among six small plants received originally from the Arnold Arboretum, out of their hardier strain. Four of these were dead after five years. The fifth survived, never growing well, but the sixth, either from favored location or from a hardier genetic makeup, had grown slowly but well, and had formed a nicely shaped young tree. The leaves burned badly some winters but the buds always seemed to be safe, so it gave hope for the future. Unfortunately it was killed down to the lowest small branch, probably under snow, and this branch seemed to be dying during the summer. It is vaguely possible that next year it may sprout from this now half dead branch, but not likely. It is a sad loss, because the specimen had never yet fruited, and, if it was genetically resistant to cold, its strain is lost.

Abies nordmanniana. The four specimens in the Arboretum have always grown slowly, tending to dense squat form rather than tall upright. Two of them have always shown some winter-burning of leaves and bud damage. Last winter one was killed to the very lower tiers of branches, which were probably under snow. Both of the others suffered very severe bud damage. None opened any leaf buds until almost mid-summer, and then the growth on these was puny. It remains to be seen how well the trees can recover or whether the damage was so severe that they will gradually deteriorate and die. The species must be rated as one of questionable value in our area, though the best specimen, approaching twenty feet tall, was a beautiful tree with dense dark green foliage from the ground up. Not one of the four has ever fruited.

Abies pinsapo. Three specimens were set out in 1952. One soon died. A second survived but never grew beyond a squat shrub three feet high. The third had grown into a tree about twenty feet tall with good shape. It has suffered winter-burning in some years but no bud damage. Last winter it was killed down to about three feet from the ground, to the lower tiers of branches which were probably under snow. Probably this species, too, must be written off for our area.

Pinus armandi. Two specimens set out in 1955 showed no damage for ten years and it was hoped that this species with its semi-drooping needles might prove a cold country substitute for *Pinus Griffithii* which has completely failed here. But then, with no significant change in winter conditions, both specimens began to show erratic winter-burning, sometimes moderate, sometimes severe. Both however continued to grow well and the taller has attained to about thirty feet. Both specimens were badly leaf-burned last winter and had considerable bud damage, but by the end of summer showed all signs of rapid recovery. The tallest specimen has already fruited and we will try to develop a hardier strain from seedlings.

One of the specimens of *Pinus armandi* illustrates one of the problems for the cause of the winter's damage. It and the most badly damaged *Abies nordmanniana* and the *A. pinsapo* were growing on the same slope, facing east, with local forest growth behind, and the severe damage seemed to follow a line right down

from the *P. armandi* at the edge of the woods through the other two trees. The live branches at the bottom of the two firs indicate that there was some snow cover on the slope, where snow does often accumulate. A probable explanation is that the damage occurred on one sunny winter's day with a high temperature for winter and then a sudden shift to -20°F . The reflection of sun from the snow would have raised the temperature on the tops of the trees above the snow so that the drop of temperature on these upper branches was more severe.

Sciadopitys verticillata, Japanese umbrella-pine. One of the pleasant surprises was that our 35-foot tree was quite undamaged. We have had trouble with young plants of this species, so it may be that our specimen is of a hardy strain. The tree however has twice suffered breakage of its leading top branches by early fall or late spring wet snows, and this weakness will probably always be a disadvantage to this species in deep snow country.

Another pleasant surprise was that among the Northwest Coast conifers where we might have expected great damage there was little. The two twelve-foot specimens of *Thuja plicata* were burned slightly and lost a few tip branches but nothing more severe than usual.

Flowering Trees

Since the great destruction was on flower buds of deciduous trees and shrubs, our usual spring display of flowers amounted to practically nothing. Trees of the rose family particularly suffered. Flower buds on edible pears and domesticated plums were all killed during the winter. The ornamental pears, however, like *Pyrus calleryana*, were unharmed. About half of the flower buds on orchard apples opened, but were killed by the late freezes. About half of the flower buds on the Oriental crab apples opened and produced fruit, but practically all flower buds on *Malus halliana* were killed. This has happened once before to this species. There was no leaf or stem damage on any of these.

Prunus. Flower buds on *P. americana* opened, but the flowers were distorted and of poor color. All flower buds on *PP. sargentii*, *incisa*, and *yedoensis* were killed.

Cornus. All flower buds on *CC. florida* and *kousa* killed. Flowers of *C. mas* opened but were destroyed by the late freezes. The other types of *Cornus* were unharmed.

Halesia. All flower buds on both *HH. carolina* and *monticola* killed.

Lilacs, *Syringa*. About half of the flower buds of the French hybrid lilacs (hybrids of *S. vulgaris*) were killed, particularly across the tops of the bushes where flower buds were transformed, probably early in the spring, into leaf buds giving heavy foliage over the tops. This is a phenomenon I have rarely seen, except on certain species of *Rhododendron* where the transformation goes on in late summer. Many flower buds not killed by the winter freezes were either destroyed or distorted by the late spring freezes. There was no leaf or stem damage. There was no damage at all on the summer-blossom-

ing lilacs, not even on the flower buds of *S. microphylla* which are frequently damaged here.

Viburnum. Most flower buds on all of the Oriental viburnums were destroyed, and there was much stem damage. *V. opulus* was unharmed, as well as the natives, *V. trilobum*, *lentago*, *acerifolium* and *refinesquianum*.

Rhododendrons

The *Rhododendron* section deserves special attention, since we are about at the northern limit of successful rhododendron culture and anything that will succeed with us is likely to succeed in most of the northern United States east of the Rockies. It should be pointed out, however, that in this climate few rhododendrons or azaleas will succeed without the protection of high shade, preferably of oaks and pines, and with a year-round mulch, for which we have found the needles of the native white pine, *Pinus strobus*, most successful. This past winter was the second in thirty years when most of the flower buds on even the so-called ironclad *R. catawbiense* hybrids were killed. But two years out of thirty with no permanent damage is not bad.

Though in the whole *Rhododendron* section about nine-tenths of all flower buds were killed, there were certain exceptions. The two native azaleas, *RR. roseum* and *viscosum*, were unharmed. *R. mucronulatum* 'Cornell Pink' was in full blossom when the first late freeze destroyed all of its flowers. Cultivar 'PJM' was beginning to open a few flower buds, but the freeze finished off both the half-opened trusses and the remaining buds. *R. schlippenbachii* had all flower buds killed. All above-snow-line flower buds on the Gable and *R. Keampferi* hybrid azaleas were killed and all flower buds on *R. keiskei*. Two azaleas unharmed were *RR. japonicum* and *dauricum*.

Flower buds on *R. smirnowii* and its hybrids were about one-half killed, and the trusses which opened were distorted and pale. *R. yakusianum* opened about half of its trusses, but these were also malformed. Completely unharmed were all flower buds on *R. brachycarpum* and its hybrids including our own early May-flowering hybrid. This suggests that *R. brachycarpum* might profitably be used more for hybridization in the North, although change in the form and color of the flowers seems difficult to obtain.

Our two most promising Dexter hybrid rhododendrons are worth comment. We have had 'Scintillation' for twenty years, during which time the plant has twice had its foliage almost completely burned in winter and most of its flower buds destroyed. Each time it has recovered quickly in the following summer. It is a fine rhododendron with pure pink flowers, rare for our climate, and is worth growing even with its occasional failures. It failed last winter.

Our other good Dexter hybrid, Cherry Hill Nursery No. 202, had most of its flower buds killed last winter but this was the first time in its 25 years here! Even last winter it suffered no leaf or stem damage. It is now a head-high bush six feet in spread. Its flowers in color and form are close to pure *R. fortunei*. It makes a valuable variation to the usual *R. catawbiense* hybrids and is therefore valuable for our cold climate.

Our old *R. fortunei*, the only survivor out of five, was also probably killed, though a little life was visible in late summer. *Rhododendron discolor*, which had endured for thirty years in the Arboretum with never a flower in that time, was finally killed outright and we must write it off as completely unsuitable for our climate. In general there was little permanent damage to the deciduous trees in the Arboretum. Our magnolias were harmed no more than usual. *MM. kobus*, *stellata*, and *kobus* hybrid "Doctor Merrill" were just opening all of their flower buds when the late freeze destroyed the flowers and distorted the yet unopened buds. The native *MM. acuminata* and *virginiana* both flowered and produced fruit. Strange to say three young tulip-trees, *Liriodendron tulipifera*, one eight feet tall, were unharmed. In spite of several tries we have so far been unable to grow a mature tree of this species, although there are a few old-planted trees in the Albany-Schenectady area at a lower elevation and on sandy well-drained soil. Why none was injured last winter is a puzzle.

Deciduous Trees

Our attempts to find Oriental maples of small stature and with small leaves, suitable for small yards, have been disappointing. The various forms of *Acer palmatum* do reasonably well in the Albany-Schenectady area, but at our higher elevation and in hard clay soil they often suffer winter damage and grow so slowly as to be almost unusable.

So far the only completely successful ones have been the Amur maple, *A. ginnala*, and its near relatives, all perfectly hardy. *A. ginnala* tends to grow multiple-stemmed, but it can be trained to a single standard. It grows rapidly, is covered with cinnamon-colored fruits much of the summer, and turns a beautiful crimson in the fall. It has self-sown everywhere in the Arboretum and will undoubtedly become naturalized in our area. *A. tataricum* is so much like it, except for the slight variation of leaf form, that I doubt they ever should have been separated into two species, especially since they seem to intergrade.

Runnerup for success has been the paper-bark maple, *A. griseum*. Last winter a few branches were partially damaged on our oldest tree, but the damage was not serious, and this is the first time the tree has ever suffered. However, other specimens have simply failed to grow well, and it is obviously particular about its location for soil and good drainage. It is, however, a beautiful tree well worth growing but difficult to propagate, since a good share of the yearly seed crop is usually of empty shells.

We thought for a while we might succeed with the trident maple, *A. buergerianum*, a beautiful small tree with the smallest leaves of any of the maples, and it is much used by the Japanese for bonsai. Young plants are tender, but as they grow deeper-rooted they seem to grow hardier. We had at one time two fine eight foot tall specimens. Unfortunately, like many of the Oriental maples, the bark seems to be a magnet for mice in winter, and since the species also tends to grow multiple-stemmed, protection is difficult. At the moment we have lost all of our older speci-

mens, but we still have hopes that it may prove usable.

Most of the damage by the winter to the oaks might have been expected. Specimens of the Southern oaks, *Q. phellos* and *Q. falcata*, were killed back badly, but this has happened before. The unexpected damage was to the Daimio oak, *Q. dentata*, mentioned earlier. Our only specimen, set out in 1953, has grown slowly and had reached a height of about fifteen feet. It has heavy branches and the largest leaves of any plant we have ever had in the Arboretum, except *Magnolia tripetala*. It has never been vigorous, since it obviously was grafted onto an incompatible stock for just at ground level is a large bulge where stock and cion join. Each year it has put out innumerable flowers, like some trees about to die, but none ever developed into acorns. We have tried to graft it onto *Q. macrocarpa*, but with no success. We have never been able to secure seed or another specimen. Last winter it was killed three-quarters to the base, but the lower branches grew vigorously last summer, and presumably the plant will recover. But whether it will ever produce fruit or become a tree is problematical.

So much for the destruction of the winter and the probable causes of it. Obviously neither extended cold nor sudden drops of temperature are sole causes. Why did our young tulip-trees not suffer at all when others in the past have been killed by milder winters? There are also two strange anomalies to this winter's destruction. One was minor. I have mentioned the destruction to the flower buds of *Cornus kousa*. One specimen, now a small tree, had much destruction of leaf and branchlet growth on its lower branches, instead of near the top as on other trees. Our only explanation is that the tree was in full sun and that the damage came from the reflection of the sun from the snow beneath.

Bulbs

The other anomaly is harder to explain. There was practically no destruction to anything growing close to and just under the surface of the ground. Perennials and spring-flowering bulbs came through the winter unharmed. So did low shrubs. The daphnes had no trouble. We usually count on a loss of 20% of hybrid tea roses. Last winter our loss was 3%. Everything in the Spring Bulb Garden blossomed luxuriantly, species crocus and tulips, chionodoxas, scillas, puschkinias, bulbous iris. Even the crown imperial *Fritillaria imperialis*, suffered only a slight bleaching of its flowers in the May freeze. But the daffodils must have suffered deep damage during the midwinter freezes, for many of them sent up no flower stalks. Ordinarily we cannot carry over chrysanthemums in open ground, but must transfer a clump of each variety to a cold frame. Last winter most of the plants left in the open ground came through the winter as well as those in the cold frame. The alpine and rock garden plants in the Quarry Rock Garden were equally unharmed.

The snow cover was not deep, but obviously it managed to keep the upper surface of the ground at a stable and not too low temperature. But how can the loss of buds on the daffodils be ex-

plained? The frost did not go deep in the ground, down to five feet in places. Did the sun on the snow keep the upper surface of the soil slightly warmer than the foot-deep zone?

There are still many unanswered questions about the cause of winter destruction. Each species seems to have a set of conditions, not one or two, to which it is vulnerable. It is therefore always difficult to assess the hardiness of any species from the hardiness zone maps, and any buyer of plants should take such assessments with reservation. Here the dawn redwood could grow thirty years without trouble, and then be over-half killed. In the winter of 1933-34 apple trees that had borne fruit for nearly a century were killed outright. In the long run, for any questionable species, one has to balance the enjoyment from the successful run of years against a final possible or near disaster.