



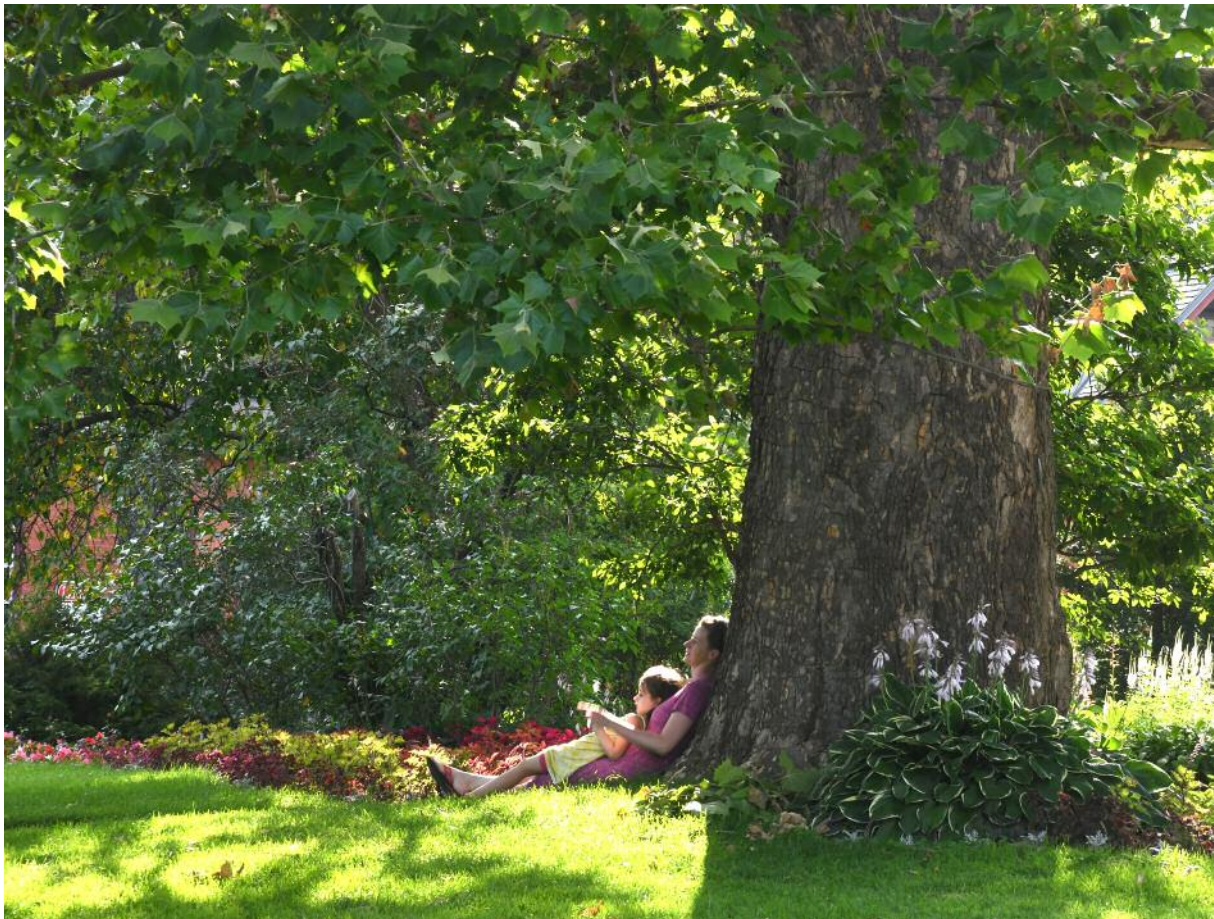
# Friends of the Central Experimental Farm

Summer 2020 Newsletter

Volume 32 No. 3

## A Wellness Garden Experience for the New Normal

By Susan J. Kehoe



R. Hinchcliff

Macoun Memorial Garden, July 2018.

The year 2020, here in Ottawa, in Canada, and indeed the world, is unlike anything most of us have experienced in our lifetime. The COVID-19 pandemic has touched everyone in some way and safer-at-home restrictions have altered lives, homes, loved ones, and work on a daily basis. Right now, we are required to focus almost entirely on maintaining our physical well-being, to the exclusion of mental, emotional, intellectual, and social well-being. This way of life cannot be

sustained indefinitely. Balance is the cornerstone of living well.

Wellness gardens are a trending topic in gardening today. A wellness garden is generally an outdoor space designed to meet physical, psychological, spiritual, and social health needs. It is a place in nature where there is opportunity to be distracted, to allow one's mind and senses to decompress, and to be coaxed into relaxation so as to reduce stress, anxiety, pain, or depression. It aims to lift one's mood, soothe one's soul,

provide physical relief to the body, and allow one to find solace in the moment. Even the most stressed-out person can experience enhanced health, life balance, and connection to nature in a wellness garden.

In the centre of Ottawa, you can find a fabulous piece of land, with a rich history of over 130 years, which fits the description of a modern-day wellness garden. The Central Experimental Farm (CEF), consisting of

*Continued on Page 3*

## Small Pleasures

This is a time to take pleasure in small things. A stick. A stone. The end of the road.

A stick: pick out your favourite tree. There are many to choose from in the Arboretum. The tree blossoms there were wonderful this spring. Take for example the 'Butterflies' Magnolia, a hybrid of North American and Asian magnolias. The North American parent is commonly known as the Cucumber Tree because its cones are cucumber-like when young. The Asian parent (Yulan Magnolia) is also parent to many well-known cultivars.

A stone: choose your favourite rock. Visit the Ornamental Gardens' Rock Garden. Its linear setting was brought to life last year with a new water feature that sets off the form and colour of the plants, which also have their own stories to tell. Or visit the Macoun Garden and discover the beautiful rock that tells this special garden's story.

The end of the road: visit the Shelterbelt, located at the end of McCooley Lane, which runs from Ash Lane across Fisher almost all the way to Merivale Road. You will find a few parking spots there for the Shelterbelt. This planting of trees and shrubs forms a buffer between the noisy traffic of the western side of the Farm and the fields. Although it is a narrow section of green space, it creates a microclimate of its own and includes a variety of places to relax and enjoy the view.

Sometimes the small pleasures are the best. And the current situation has made this National Historic Site more priceless than ever.

"A stick, a stone  
it's the end of the road, . . .  
it's the end of all strain  
it's the joy in your heart."

(from "Waters of March," by Antonio Carlos Jobim)

*Eric Jones*

*President, Friends of the Farm.*

## Petits plaisirs

Nous avons bien le temps, ces jours-ci, de prendre plaisir aux petites choses. Une brindille. Une pierre. Le bout de la route.

Une brindille : Désignez votre arbre favori. Il y en a une multitude dans l'Arboretum. Au printemps, les branches des arbres étaient parées de magnifiques bourgeons. Le magnolia de type « Butterflies » n'y a pas fait exception. Il est le produit de croisements de magnolias originaires de l'Amérique du Nord et de l'Asie. Le parent nord-américain est mieux connu sous le nom de magnolia acuminé, car ses cônes ressemblent à des concombres quand l'arbre est jeune. Le parent asiatique, le magnolia Yulan, s'apparente également à certains cultivars bien connus.

Une pierre : Choisissez votre favorite. Visitez la rocaille des jardins ornementaux. L'installation d'une nouvelle fontaine, l'an dernier, a revitalisé son emplacement de forme linéaire. La fontaine contrebalance les formes et les couleurs des plantes, et chacune d'elles a son histoire à raconter. Ou si vous voulez, visitez le jardin Macoun et découvrez-y une magnifique pierre qui, à sa façon, raconte l'histoire de ce jardin particulier.

Le bout de la route : Visitez le brise-vent, érigé à la bordure de la ruelle McCooley, laquelle s'étend de la ruelle Ash, traverse l'avenue Fisher et poursuit sa route presque tout le long jusqu'au chemin Merivale. De nouveaux espaces de stationnement ont été aménagés pour donner accès au brise-vent. Une telle plantation d'arbres et d'arbustes sert de zone tampon entre les bruits de la circulation perçus du côté ouest de la Ferme et les champs. Bien qu'étroite, cette bande de verdure crée en soi un microclimat et offre ainsi une variété d'endroits où il fait bon se laisser aller à la détente et admirer le panorama.

Parfois, ce sont les petits plaisirs qui font le plus de bien. Qui plus est, compte tenu de la situation actuelle, ce lieu historique national demeure plus que jamais un bijou inestimable.

« É pau, é pedra, é o fim do caminho . . .

É a promessa de vida no teu coração »

(Extrait de « Águas de Março », d'Antônio Carlos Jobim)

*Eric Jones*

*Président, Les Amis de la Ferme.*



Le magnolia 'Butterflies' Magnolia



Macoun Memorial Garden / Le jardin commémoratif de Macoun



Merivale Shelterbelt / Le brise-vent Merivale

Photos by Eric Jones

## A Wellness Garden Experience ... *(continued from Page 1)*

426 hectares, is a National Historic Site and a Cultural Heritage Landscape as well as being an important agricultural research facility. The public spaces of the Farm include an arboretum, ornamental gardens, and a shelterbelt, as well as a museum, a wildlife garden, and a tropical greenhouse. This jewel in Ottawa's landscape can be your source of renewal in the new "normal" after the craziness of COVID-19.

The park-like atmosphere in these public spaces provides an opportunity to interact with nature and to experience its benefits. The Farm combines large stretches of lawns and fields, winding paths and pleasing water vistas which enhance nature's inherent beauty. You can make a connection with nature at the Farm in the varied and intricate Ornamental Gardens where there is always something in, or about, to bloom. The Gardens include the perennial collection, the rock and rose gardens, as well as the Macoun Memorial Garden, and a number of specimen plantings such as lilacs and peonies. Or you can listen to the whispering sounds of the Arboretum, with its magnificent trees and shady hosta garden. In the Fletcher Wildlife Garden, opportunities to watch and hear the wildlife abound. And you can enjoy the new trees and shrubs beside the recreational path through the Shelterbelt along Merivale Road. Each venue will offer new sights and sounds to be explored as the seasons change.

The Farm is an important place for safe exercise and social interaction. Its expanse allows visitors to maintain the physical distancing likely to be required for some time for Ontarians. Its variety of picturesque heritage promenades, features, and landscapes can be explored at your own pace, with or without company. It will most certainly provide you with a distraction, and a tranquil place to escape the stress and anxiety that most of us may be experiencing

in this pandemic. Visiting the Dow's Lake and Rideau Canal shorelines, wandering through groves of trees and shrubbery, and walking the winding pathways will improve your mental outlook, provide some serenity, and even offer hope and inspiration. It is almost guaranteed to make you feel better.

Recent research has indicated that Ottawa residents living within a few kilometres of the CEF receive public health benefits due to this proximity. Carleton University's Professor of Health Sciences, Paul Villeneuve and his students have been studying the Farm's impact on air and noise pollution as well as temperature levels of neighbouring areas. The preliminary monitoring studies carried out over the past few years indicate that the Farm does indeed help reduce harmful environmental exposures and provides health benefits.

Regional health officials have recently indicated that while some restrictions related to the COVID-19 pandemic have been relaxed, there will continue, for the foreseeable future, to be rules governing crowd gatherings, physical distancing, and hygiene practices in public places. There is a great demand for access to outdoor spaces to allow for walking, exercise, and enjoyment of nature and fresh air. While observing the rules, consider using the CEF, its gardens, and the Arboretum as your personal wellness



Patricia Jasen

'Distancing' picnic on the Main Lawn, June 2020.

garden space. We are so fortunate to have these natural assets at our disposal right here in our city's backyard. Let us use them as a means to getting back to a more balanced approach to living well.

*Susan J. Keboe is a volunteer with the Friends of the Farm and a member of the Board of Directors.*

## While Visiting the Gardens and Arboretum ...

The Arboretum and the Ornamental Gardens are open for people to enjoy during the COVID-19 pandemic. People are currently allowed to park in the designated parking areas and access the public spaces, although washrooms remain closed.

The trees and flowers and weather are bringing everyone in as before. But there are a few things to consider while on these beautiful grounds.

- Don't come if you have symptoms. Enough said.
- Follow Ontario's rules as to maximum number of individuals in a group. (As of this writing, the rules are not more than 10 individuals together in a group).
- Keep physical distance (2 metres). Safe distancing needs to be respected by anyone sitting on a park bench or engaging in conversation with others, as well as when walking around the Farm.
- It is best to avoid common "touching" areas. For example, it's better to sit on a blanket, grass, or lawn chair than on a bench that may harbour the virus. If you are sitting on a bench, it is

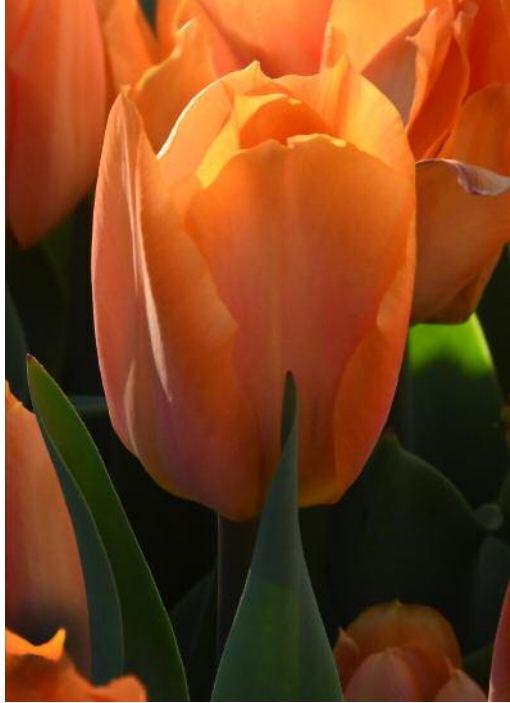
desirable that you wipe down any touched area with a disinfecting wipe when you leave.

- Keep dogs under control. The Arboretum and Ornamental Gardens have always been on-leash areas. It's especially important to avoid unwanted interaction with dogs during COVID-19.
- Don't drive or park on the grass, or otherwise abuse the site. This isn't about the virus, but it is about keeping the Arboretum and Ornamental Gardens beautiful.
- Wash or sanitize hands when you return home. This is important enough to be said over and over again. Please do walk, run, and cycle in appropriate areas and enjoy. Be a POTS (Part of the Solution) and not a POOP (Part of Our Problem)!

Board of Directors  
Friends of the Central Experimental Farm

## An Inspired Choice

By Blaine Marchand



R. Hinchcliff

When the Dutch women, men, and children rushed into the streets to welcome the Canadian soldiers who liberated their country in 1945, they waved orange cloth, a long-standing and unique Netherlands tradition. For the Dutch, the colour orange represents their country and is a symbol of national pride. So it was appropriate that 'Liberation75' tulips, created to commemorate the freedom the Canadians brought to the Netherlands, are that colour.

The 9,000 tulips, which the Friends donated to Agriculture and Agri-Food Canada (AAFC), proudly waved their

orange petals in the Ornamental Gardens in the month of May. This gift was made to show the pride that the Friends and the staff of AAFC have in the men and women who fought so valiantly in the Second World War and in the people of the Netherlands, who have retained a soft spot for Canadians.

As most Ottawans know, the tulip has a long historical association with Holland. In 1945, Queen Juliana sent 100,000 tulips to express her thanks to Canada for allowing her and her children to live in Ottawa during the Nazi occupation. Since then, this gesture has continued and evolved into the annual Canadian Tulip Festival, organized by the National Capital Commission. The Friends, in offering the 'Liberation75' tulips to AAFC, became a community partner in this year's Festival.

The site selected for the Farm's 'Liberation75' tulips, in the lilac row a short stroll from the Macoun Memorial Garden, was an inspired choice. That Garden was "a magnet" for Queen Juliana and her children during the war, as the late Helen Smith writes in the book (co-authored with Mary Bramley) *Ottawa's Farm: A History of the Central Experimental Farm*.

The worldwide pandemic has brought universal restrictions. It required that the Tulip Festival and its many activities go on-line. In

addition, access to the Farm was limited during the blooming time of the tulips. But the fine display of orange filtered by sunlight was a bright reminder that liberty is something we must cherish and hold dearly through the decades, especially at times of uncertainty and crisis.

*Blaine Marchand is a peony team volunteer and the director on the Friends' Board responsible for the Gardens.*



Joan Butcher

## Upcoming Events

COVID-19 has affected our upcoming events.

Please check our website, [www.friendsofthefarm](http://www.friendsofthefarm), for their current status.

**Victorian Tea** (Cancelled)

**Art on the Farm** (Cancelled)

**Master Gardener Fall Lectures** (Cancelled)

**Annual General Meeting** (Postponed)

**Used Book Drop-off** (Stayed tuned)

# In Memory, Beryl Anderson

**B**eryl Anderson was a volunteer with the Friends of the Farm for over 20 years, beginning in 1989, one year after the organization was founded. She died on May 6, aged 95.

Beryl was highly educated and well-travelled. Born in Nova Scotia, she graduated with a BA and an M.A. in Classics from Dalhousie University. She was a teacher at local elementary schools and taught Classics at Dalhousie. At McGill University in Montreal, she added a Bachelor of Library Science degree and was Associate Professor at the Graduate Library School there for 15 years. She moved to Ottawa to head the Library Documentation Centre at the National



Beryl Anderson, Victorian Tea, 2002

Library of Canada and, deftly balancing career and studies, earned a PhD (Library Science) from Walden University in 1980.

While at the National Library, Dr. Anderson travelled extensively representing Canada at Special Libraries Association's council meetings. Following early retirement in 1987, travel became a big part of her life and she visited every continent but Africa. She made several trips to excavation sites in Greece and Turkey with the American Archeological Institute. Crete was her favourite destination.

## Giving back

Beryl was a familiar figure in the Friends' office. She claimed to have "a black thumb" and knew that she would be a liability to the gardening teams. Over the years Beryl carved out a niche for herself - recording donations and memberships. She was finally unable to continue when she couldn't manage the stairs in Building 72.

Beryl also maintained the Friends' small library, labeling donated books and periodically tracking down missing items. She helped with many of the Friends' fundraisers - pouring at the Victorian tea, selling tickets and memberships at events, and contributing home-baking to the craft and bake sale.

She firmly believed in "giving back to the community." And whether the "community" was her family or the Friends of the Farm, she just stepped in and did what had to be done.

Our sincere condolences to her family and friends.



Beryl Anderson, 2009

Photos by R. Hinchcliff

## Bench Program Back in 2021

In 2019, FCEF purchased five benches. Two of them were installed in the Shelterbelt area with plaques noting that they were purchased with Shelterbelt Project funds donated by contributors to the Project. The other three benches were installed in the Arboretum with dedication plaques purchased by individuals. The benches are located at Agriculture and Agri-Food Canada-approved sites selected by the Friends.

More donations have been received for benches in the Arboretum and we are hoping to continue with the installation of these benches in 2020, but timing is uncertain because of COVID-19 challenges. Any further applications under the Bench Program have been put on hold until 2021. We thank you for your understanding. Please check <https://friendsofthefarm.ca/bench-program/> or write [bench@friendsofthefarm.ca](mailto:bench@friendsofthefarm.ca) for further information.

Board of Directors  
Friends of the Central Experimental Farm

# Saving and Enhancing the Hosta Garden

By Linda McLaren

It was evident in 2009 that the retaining walls in the Hosta Garden needed rebuilding. After years of service, these walls, constructed with railway ties, were giving way, endangering the terraced planting areas and possibly the safety of the public.

Below the upper terrace in the original garden was a long wall, which had a wide pathway at its base with a staircase halfway along. There was a second planting terrace below this path. There were two entrances to the garden, one at the top from the Arboretum roadway, and a second at the bottom on the other side, joining a pathway that leads from the canal up to the Arboretum's southern lookout.

## Building a new wall

By 2011, Agriculture and Agri-Food Canada (AAFC) and the Friends of the Farm agreed to share the cost of replacing part of the upper retaining wall. The first plan involved replacing the wall from the

upper entrance to the staircase. An attractive stone wall design was selected. Before construction could start, the Hosta and Arboretum teams dug up and moved all the affected plants to the far end of the garden. This monumental task was completed in one session. Once work had begun, the contractor found it was not possible to replace only a section of the wall, so it was decided to replace the entire top wall. This required another quick plant moving job. By the fall of 2011, the new wall was completed. One other change required by the work was the removal of a tree at the upper entrance, which meant that there was less shade in that area. This project also involved removing the arbour at this entrance, enlarging the entrance and placing large flat rocks to create a rustic stair entry.

In 2012, the Hosta team replanted the upper terrace created by the new wall. The predominantly clay soil was augmented with over 70 bags of black

earth. The team carefully designed the placement of plants by size and colour. This took most of the summer. We mulched by putting down layers of newspaper, and topping these with the mulching material provided by the AAFC staff. Two student members of the Arboretum team helped with that work. We placed mulch under the very interesting cedar at the garden entrance. This old tree has grown horizontally over the years, making weeding under it extremely difficult. To this day, the mulch prevents most weeds from growing there.

## Rearranging the garden

In 2013, it was decided to redesign the rockery area. The plants were very large, overflowing the small terraced pockets, and the rocks were collapsing. So, we moved and divided plants, placing as many smaller varieties as possible in the rockery, added about 20 bags of soil, and reset the rocks. This was a lot of back-breaking labour!



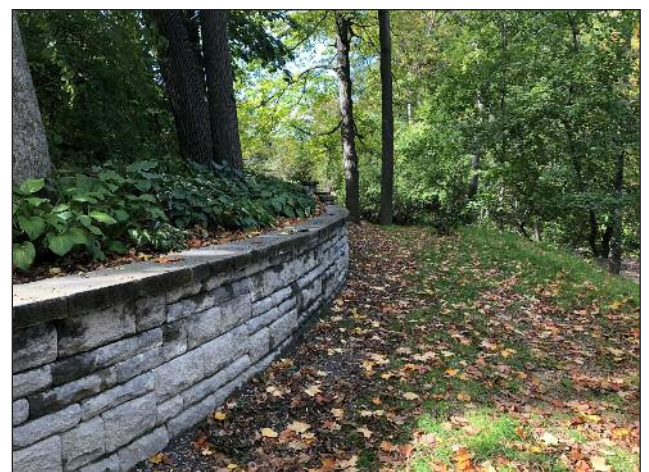
Replanting the upper terrace, 2012.



The redesigned rockery area.



The completed tree garden.



The new area of the garden, 2019.

## Saving and Enhancing the Hosta Garden ... *(continued from Page 6)*

There is an unknown variety of hosta that acts more like a ground cover, as it spreads quickly and does not stay in clumps like other hostas. It is a bit of an outlaw. We decided that year to move it all to an area at the side of the Hosta Garden near a fence so the overall garden would not be spoiled. Exile turned out to be a good idea. This hosta blooms quite late in the season, and has an unusual deep purple flower. In late August, when virtually all the other plants have lost their flowers, this purple beauty is on full display.

Also in 2013, we received some large hostas that had been removed from another part of the Farm. Most of these were planted under the trees at the upper entrance to the garden, where hostas had not been placed before. This area also has violets and other spring flowers as well as a grouping of Solomon's Seal.

### Losing an ash tree, gaining some ferns

For a few years the hosta team rested on its laurels, doing regular weeding and maintenance. We really needed the rest! Change is not always human-inspired, though. In 2015, the ash borer infestation took out most of the ash trees at the CEF, including a large one located in the new retaining wall at the Hosta Garden. The removal of this ash could not be done by machinery so the staff had to resort to old-fashioned felling techniques. No hostas were injured in this action, though one or two shrubs took a beating. Since six feet of tree remains in the wall, the trunk should not rot quickly, ensuring that the integrity of the wall will be maintained.

A fern garden was also established in

2015 at the far end of the garden in the upper tier. This is an ongoing process, as, regrettably, not all the ferns are surviving or thriving. Since the soil needs a lot of humus, we have added leaves from one team member's yard a few times, plus fallen leaves from the garden area. We will not stop trying to support the ferns!

### The latest change

It became clear during the next few years that the remaining wooden retaining walls were failing. Concerned by the possibility of people falling, AAFC staff tried to keep the public from entering the garden at the lower entrance by erecting temporary fencing. But visitors seemed determined to walk through the area. One Sunday afternoon I saw a string quartet, carrying their instruments and wearing formal attire, walk from the canal up through the garden to the fence near the roadway.

In 2018, AAFC decided to award a contract for a major project, i.e., removing all the lower retaining walls as well as the wooden stairs, closing off the lower pathway to the garden, and creating a woodland area engineered to support the upper stone wall. Therefore, we needed to get a large number of plants out of the way once again. We moved about 130 plants to an area under the trees along the roadway. There was some attempt at design, but placement really depended more on tree roots than art. We were able to apply newspaper and mulch to most of this area. AAFC staff helped with additional soil and watering. This garden is in much deeper shade than most of the Hosta Garden, so we do not expect a lot of bloom, but the plants should do well there.

### "A quiet, shady place to relax and dream"

The overhaul having been completed in 2019, the garden now features a large area that will eventually be underplanted with shrubs or smaller trees. We have moved about a third of the hosta collection to the upper area under the trees along the roadway, and the remaining plants are in the old rockery and the terrace created by the stone wall. AAFC staff also planted two new locust trees in the rockery area. Due to the removal of the tree in the wall replacement and the general loss of ash trees, the rockery area was in full sun, not the best condition for hostas! These new trees will provide welcome dappled shade in the future.

Had you visited the garden in 2010, only returning a decade later, you might be astounded by the change. Although this transformation was a fix for a problem, not a re-design, the result is an enhanced Hosta Garden and a happy Hosta Team. With the help of other Friends of the Farm teams and AAFC staff and management, the Hosta Garden will continue to provide a needed quiet, shady place to relax and dream. *(Until the COVID-19 crisis is over, though, please observe appropriate etiquette.)*

*Linda McLaren is a retired federal employee, who has been volunteering with and been a member of the Friends since 2010, working in the hosta and Explorer rose gardens, book sorting, and Victorian Tea cup and saucer washing.*

## Consider joining the Friends of the Farm!

Find our membership form on the website and pay by PayPal or send in a cheque:  
[www.friendsofthefarm.ca/become-a-member/](http://www.friendsofthefarm.ca/become-a-member/)

Benefits include discounts on Master Gardener lectures hosted by the Friends, one free adult admission per visit to the Canada Agriculture and Food Museum, quarterly printed newsletters by post, and monthly Farm Notes e-newsletters.

We also accept donations to support our activities and events, which also support the garden teams that maintain the cherished Ornamental Gardens. A variety of donations can be made through our webpage:  
[www.friendsofthefarm.ca/donations/](http://www.friendsofthefarm.ca/donations/).



# Helping Make Vaccines and Other Biologicals Safe for Human Use – the Research of Dr. Michel Girard

By Joan Butcher

Michel Girard, who serves as an enthusiastic volunteer with the Friends of the Farm hosta team, enjoyed a long and productive career as a distinguished research scientist. At the time of his retirement in 2015, he was a Senior Research Scientist at the Biologics and Genetic Therapies Directorate of Health Canada (HC). He worked in the analytical chemistry field there for 29 years and continues to provide guidance and advice to HC as a Scientist Emeritus.

Dr. Girard received a B. Sc. Hons (Chemistry) in 1977 from the Université du Québec à Chicoutimi, and two degrees from Carleton University, a M. Sc. (Chemistry) in 1981, and a Ph.D (Chemistry) in 1985. During his career he published over 60 research articles, gave more than 150 presentations at national and international fora, and wrote five review articles and book chapters. He participated in many international collaborative studies with major foreign regulatory authorities such as the World Health Organization, (WHO) the United States Food and Drug Administration (USFDA), the European Pharmacopeia (EP), and the China National Institutes for Food and Drug Control (NIFDC). From 1999 until 2015 he was the Canadian representative and an active participant to the Group of Experts No. 6 of the EP, the body responsible for the preparation of pharmacopeal monographs for biological substances. Michel was the first non-European to be project leader for the establishment of an EP chemical reference standard. In 2014 he received the CE Pharm Award, for making sustained and significant contributions to the practical application of capillary electrophoresis (CE).

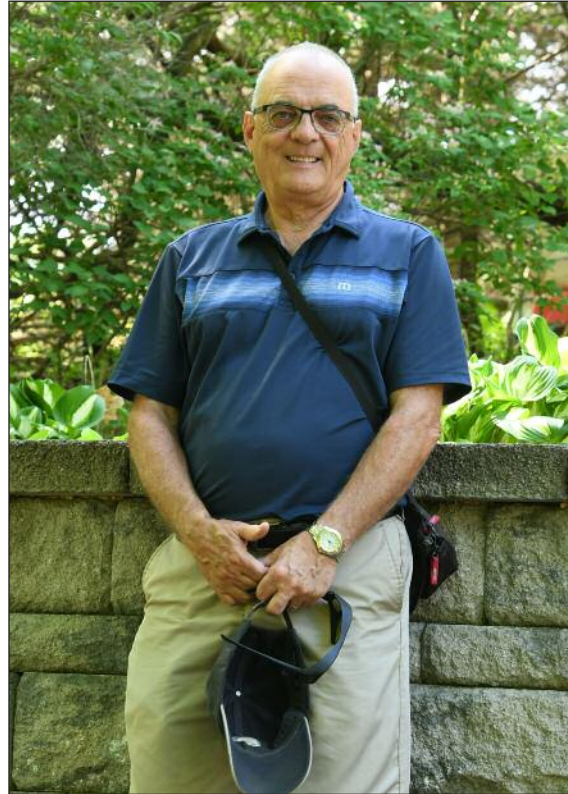
## Strong evidence required

Before being approved for use in humans, pharmaceuticals are subject to intensive qualitative and quantitative analysis. Health Canada's evaluations of the studies provided by manufacturers require very precise identification of the properties of the molecules in drugs and vaccines, and it is imperative to use the most up-to-date science. The process of bringing a new drug or vaccine into the marketplace can take anywhere from five to fifteen years. Extreme regard for safety must be exercised, especially when it comes to vaccines. And these days, we are all very interested in vaccines.

Michel Girard's research activities focused on the use of sophisticated high-resolution separation techniques, primarily in biotechnology. His work concentrated on High Performance Liquid Chromatography (HPLC) and capillary electrophoresis, processes that have, respectively, enhanced chemists' ability to distinguish differences in the molecules that make up vaccines and helped improve the analysis of protein pharmaceuticals. Dr. Girard's work led to unique, new separation modes, separation techniques, and detection systems being applied to the study of the complex molecules in vaccines and other pharmaceuticals.

## From rural life to the chemistry lab

The second of five children born to a dairy farming family in a small rural community in Quebec's Lac St-Jean region. Michel's



R. Hinchcliff

Michel Girard at the Hosta Garden

connection to the farm world is deep-rooted. His parents, grandparents on both sides, and most of his ancestors who came from France in the 1640s were farmers.

He credits the constant and strong support from his family for his success in pursuing higher education. Michel attended a mix of public and private schools, discovering the joy of science by participating in a Grade 9 Science Fair. His project involved the identification and inventory of trees lining the streets of the small city of Dolbeau, where his family had relocated. Interestingly, his first assignment as a volunteer with the Friends of the Farm similarly involved updating an inventory of trees, but this time in the Arboretum.

Michel enrolled in the chemistry programme at the Université du Québec at Chicoutimi (UQAC) where he worked with the late Professor François-Xavier Garneau, a mentor and friend for many years. Michel helped establish a new research area for natural product studies in that part of Québec, accomplishing the isolation and structural identification of triterpene glycosides from sea cucumbers found along the coasts of the St-Lawrence River. This enabled the development of a product, Frondoside A, which is one of the few marine natural products currently available from major chemical suppliers. It has a wide range of biological activities, particularly as an anti-cancer agent.



## The Research of Dr. Michel Girard ... *(continued from Page 8)*

### Graduate studies and the jump into research

After receiving his M.Sc. and Ph.D. degrees in chemistry from Carleton University, Michel conducted post-doctoral studies at the National Research Council. In 1986, he became a junior research scientist in the Natural Products Section of the Bureau of Drug Research of Health and Welfare Canada. His initial research focused on the development of high-resolution physico-chemical analytical methods and techniques to identify purported active components in natural products sold in Canada. In just a few years his research activities led to the publication of significant numbers of scientific articles in the field.

Michel then initiated a new research programme in the rapidly evolving field of DNA-derived biotechnology products (biotherapeutics) and biologicals, again with an emphasis on physico-chemical separation techniques and methods. This provided drug evaluators with leading-edge information on the purity, stability and ultimately, the safety of these new, highly complex drugs.

Michel's continuing assessment of new analytical techniques led him to realize the potential of the newly commercialized technique of capillary electrophoresis (CE). Some of the highlights of his research in this area include development of a CE method to enhance analysis of erythropoietin (EPO), an important protein that regulates the formation of red-blood cells in the human body, and also, unfortunately, used as a performance-enhancing drug by some athletes, as well as an HPLC method for the detection of product-related impurities in somatotropin, a hormone used to treat human growth failure. He also established

several HPLC methods related to influenza vaccines and for the detection of impurities in recombinant interferon alpha-2 products.

### The best-laid research plans ...

One of the most challenging aspects of conducting research within a regulatory body such as HC is dealing with emergency situations. When drug contamination or other health threats occur, regular research ceases. Some of the crises that Michel responded to include:

- the 1990 detection of an impurity in the candidate standard for somatotropin. Michel decided to analyse the product using an in-house method he had developed. An impurity was discovered, and the pharmaceutical company involved made considerable modifications to the manufacturing process;
- the 2008 detection of a contaminant found in the blood-thinning drug heparin, which had resulted in over 100 deaths in the US. Responding to a USFDA recommendation to use capillary electrophoresis in order to detect the toxic contaminant, Michel's lab set up the methodology, analyzed over 150 heparin products commercialized in Canada and found one contaminated product. Within 48 hours of the Minister of Health being informed of this, the product was removed from the shelves; and,
- the development of methodologies and front-line techniques to help address the 2009 H1N1 influenza pandemic in Canada. Critical data from a specific, suspected vaccine lot was shared with foreign regulatory

authorities who were then able to confidently release this lot in their own jurisdictions. Similarly, results on variable hemagglutinin levels in reference reagents were critical in enabling the timely release of hundreds of thousands of doses of influenza vaccines by HC.

Michel Girard considers that he was lucky to have been active in the analytical chemistry world during interesting times and he strongly supports the continuing, regulatory research being carried out at Health Canada. Without it, it could be very difficult to obtain unbiased information regarding the quality and, ultimately, the safety of drugs that are submitted for approval in Canada.

And had he continued as a research scientist at Health Canada, he would have been very busy in his lab doing even more vitally interesting work - helping find a vaccine for COVID-19. During his research years at Health Canada, he witnessed tremendous advancements in the area of vaccines, from both analytical and manufacturing points of view. Thirty years ago, it could take anywhere from 10 to 20 years to develop a suitable vaccine. This timeline has now been shortened, and it is sometimes possible to do this work in one to five years. Given this, he is quite optimistic that research efforts currently being conducted in many Canadian labs and all around the world, will enable us to effectively mitigate the COVID-19 crisis that we are living through.

*Joan Butcher, a volunteer on the perennial and newsletter teams, worked in various departments of the federal government, including Health Canada, as a communications director.*



The Friends of the Central Experimental Farm is a volunteer organization committed to the maintenance and protection of the Ornamental Gardens and the Arboretum of the Central Experimental Farm in Ottawa, Ontario, Canada.

The Friends of the Central Experimental Farm publish the Newsletter (ISSN 1702 2762) four times a year (Winter, Spring, Summer, Fall). All members receive the newsletter and it is sent by regular mail or e-mail.

Editor: Richard Hinchcliff. Assistant Editor: Joan Butcher. Design & Printing: Nancy Poirier Printing. Contributors: Susan Kehoe, Blaine Marchand, Diane McClymont Peace, Linda McLaren. Translator: Lise Anne James.

Building 72, Central Experimental Farm, Ottawa, ON K1A 0C6      Friends of the Farm      Telephone: 613-230-3276  
E-mail: info@friendsofthefarm.ca

[www.friendsofthefarm.ca](http://www.friendsofthefarm.ca)

Charitable Number 118913565RR0001

# Impact of Climate Change on Hosta Plants

## Evidence

By Diane McClymont Peace

There has been little research done to date on how climate change will specifically affect hostas. However, there has been documentation of its effects on other plants including weeds and crops, and it is thought that the effects will be similar.

Weather refers to short-term (minutes-to-weeks) atmospheric variations. Measurements of weather include the strength of the sun's ultraviolet (UV) radiation, cloudiness, humidity, precipitation, temperature, visibility, pressure, and wind. Climate, on the other hand, is the long-term (30-plus years) pattern of weather conditions in a particular place. Yearly weather records are averaged in order to describe the climate.

Climate change effects that we are currently seeing include: generally warmer temperatures, shorter and milder winters, longer and hotter summers, more frequent and/or more intense severe weather events such as hurricanes, thunderstorms, wildfires, floods, and droughts.

Hostas, as well as other plants, are affected by these climate factors. Fluctuations in temperature can cause early-spring or fall frosts which can damage leaves. Increased rainfall can lead to flooding and rot, hotter temperatures can cause leaf scorch, greater winds can dry out leaves, and more violent storms can lead to torn leaves and hail damage.

Some suggested strategies to lessen the effects are the following:



'Royal Standard' at the Hosta Garden, August 2015.

Linda McLaren

- Cover leaves when there are threats of frost or severe storms;
- Don't plant hostas in depressions that can flood, and raise existing ones that are in lower areas;
- Water hostas when there have been strong winds or drought;
- Replace plants that are sensitive to strong sunlight with more sun-tolerant or thicker-leaved varieties. Suggested sun-tolerant cultivars include 'Happy Dayz', 'Paul's Glory', 'Royal Standard', and 'Sun and Substance', although note that any leaf can burn if exposed to intense sunlight; and
- Document weather events and any changes you see in your plants throughout this growing season and future ones.

## Caring for Hostas

By Linda McLaren

Hostas can take a certain lack of moisture and usually do not need regular watering. Normal rainfall should suffice. However, one of the effects of climate change is more intense, longer-lasting droughts. To help your hostas survive this challenge, the use of mulch is suggested. It will allow your plants to retain more soil moisture.

Traditional advice is that heavy clay is not good for hostas. We have noticed that some of our hostas planted six years ago in this soil type have developed and grown very well. They haven't suffered as much from drought as those in well-drained soil. So, if you have clay in your garden soil, you may find plants

like hostas can sustain quite serious lack of rain. It is very hard to dig in such soil, but once you plant and mulch them, your hostas may thrive despite dry conditions.

Slugs, the main pest affecting hostas, munch through tender leaves. In the Hosta Garden, we used to do drenches. We mixed one part ammonia with ten parts water and applied this mixture two to three times, every two weeks in the early growing season—a time- and water-consuming task. Despite stopping this practice in 2013, no slugs have reappeared. The repeated treatments may have done the trick, but rough mulch also works, as the slug's soft skin cannot stand it. As well, there are many varieties of hosta with rough

textured leaves, and these do not appeal at all to slugs. The lesson may be to use rough mulch if you have tender-leaved hostas, and also get some textured-leaved types, to add variety to the garden as well as repel slugs.

Finally, dappled shade is ideal for hostas. If you have no shady areas in your garden, you may find it will help your own well-being as well as your plant's health to get some. Some of the newer varieties of hosta are marketed as being adapted to full sun, but do not believe this. They may fade and get brown spots - actually sunburn - on the edges of leaves if exposed to strong afternoon sun.

# Selecting and Caring for Shrubs

By Diane McClymont Peace



Eastern Redbud (*Cercis canadensis*). [All photos were taken at the Farm.]

The native **Eastern Redbud** (*Cercis canadensis*) has multi-season interest. Rosy-pink to purple flowers appear in the spring before the leaves. The heart-shaped leaves open to red-purple, then turn green in summer and yellow in fall. The Redbud grows in full sun to light shade, up to 10 m tall with graceful ascending branches. There is

There are examples in the Shelterbelt.

The **Star Magnolia** (*Magnolia stellata*) starts the season with large, double white fragrant flowers that open before the leaves. The leaves turn an interesting bronze in the fall. It is a slow grower but can reach 4-6 m in height. It prefers peaty, organic soils in full sun to partial shade and should be protected from strong winds. There is a young specimen in the lower east part of the Arboretum (see photo).

Although the **Japanese Maple** (*Acer palmatum*) is often grown as a tree in more southern areas, there are hardy shrubs suitable for this area. Their highlight is the delicate red leaves that become more brilliant in the fall and add a striking contrast to any garden. They can grow 1-6 m and require shelter from south and west exposures, so are best planted on the east side of a structure. Protect new growth in the spring when there is danger of frost. There are several examples, young and mature, in the Ornamental Gardens (see photo).

Another native, the **Witchhazel** (*Hamamelis virginiana*) has dark-green, coarse leaves that turn yellow in the fall. Fragrant, yellow flowers appear in October to December. It grows to 5 m and is a good shrub for natural areas and mass plantings. It prefers moist soil and is pollution-tolerant. There is a mature specimen north of Building 72 (see photo)

*Continued on Page 12*

**S**hrubs, which are multi-stemmed woody plants, add beauty, colour, form, and scents to your garden.

Because there is such a huge selection of plants available from garden centres, it can be hard to decide what to choose for a specific location or condition. Luckily, at the Central Experimental Farm's Ornamental Gardens, Arboretum, and Shelter Belt, we have many examples of shrubs, both young and mature, all of which are hardy for the Ottawa area. It's easy and enjoyable to visit them and decide which ones you could include in your garden. (*Until the COVID-19 crisis is over, though, please observe appropriate etiquette.*)

Some of my favourites, larger to smaller, are the following:

a lovely specimen just east of Building 72 (see photo).

The native **Pagoda Dogwood** (*Cornus alternifolia*) is another shrub that has appeal throughout the seasons. The white spring flowers accent the horizontal branching which gives it a tiered outline. The dark blue berries and purple-red fall foliage are very eye-catching. It grows up to 7 m tall and can be either a tree or shrub. Plant in moist, well-drained acidic soil in cool, shaded areas.

The native **Serviceberry** (*Amelanchier canadensis*) can be either a tree or shrub and grows to 6 m. It also has multi-season interest, producing white spring flowers, followed by edible berries, and yellow-orange fall colour. It prefers moist, well-drained acid soil.



Star Magnolia (*Magnolia stellata*)



Japanese Maple (*Acer palmatum*)

## Selecting and Caring for Shrubs ... (continued from Page 11)

There are many hardy cedar shrubs and one of my favourite ones is the 'Yellow Ribbon' (*Thuja occidentalis* 'Yellow Ribbon'). The outer foliage is golden-yellow which stands out against the green inner foliage. It grows to 3 m and does best in full sun. There is a nice specimen at the south end of the Ornamental Garden (see photo).

There are many varieties of **Hydrangeas** (*Hydrangea* spp.) and they are always lovely additions to your garden. The flowers, most of which are white, open in mid-summer and continue through to the fall when they turn pink, and then bronze. They can last through the winter if not pruned. The shrubs range in height from 1-3 m and can grow in full sun to semi-shade. There are numerous mature specimens in the Arboretum (see photo).

**Lilac** (*Syringa*) specimens abound in the Ornamental Gardens, both heritage and newer cultivars. One of my favourites is 'Tiny Dancer' (*Syringa vulgaris* 'Eldancer'). It only grows to 1.5 m (in full sun to partial shade) but has spectacular, fragrant spring flowers. Its violet-purple buds open to large clusters of lavender florets. It is said to be more cold-hardy, heat- and pollution-tolerant, and disease-resistant than other varieties and it is not supposed to sucker.

The evergreen **Rhododendrons** (*Rhododendron* spp. and hybrids) have large, scaly leaves and are notable for their large, bell-shaped flowers that bloom in spring and range from white to lavender to pink to red. They reach 1-2 m and prefer

well-drained, acid soil with low salt. They require shelter from south and west exposures, so are best planted on the east side of structures. There are numerous specimens in the Arboretum.

Once a shrub has been selected, it is important to provide proper care. After it is planted, you should water it once a day for two weeks, and then once a week if there is not adequate rainfall. Keep this up until the ground freezes so the shrub has adequate moisture going into the winter. Adding bone meal during planting will help with root development. Place mulch around the shrub, but not too close to the centre branches. Any broken, diseased, or crossed branches should be pruned at this time.

In the fall, shrubs can be fertilized from mid-September to mid-October with half the recommended yearly amount. Don't fertilize if the soil is dry. Fallen leaves

should be raked and saved for other uses. Sensitive shrubs can be wrapped with burlap or insulated cloth, or covered with cones.

In early spring, before leaf-out, branches can be trimmed. Once the ground has thawed, shrubs can receive the second half of their fertilizer. Prune any damaged or diseased branches as they occur. Check for insect infestation and manage this as it occurs.

In the summer, water when dry; a slow trickle for 2-3 hours is best. Prune shrubs after flowering and remove any damaged, diseased, or crossed branches. Check for insect infestation and disease, and manage these as they occur.

There are so many types of shrub worthy of your consideration. Visiting the Central Experimental Farm will surely give you a taste for some of them.

(Again, please observe appropriate etiquette during the COVID-19 crisis.)

*Diane McClymont Peace is a master gardener with the Ottawa-Carleton Master Gardeners and works part-time at a local garden nursery. She also tries to maintain a two-acre rural property with perennial beds, rock garden, pond, vegetable garden, fruit trees, and forest area.*



Witchhazel (*Hamamelis virginiana*).  
[All photos were taken at the Farm.]

Photos by Diane McClymont Peace



'Yellow Ribbon' Cedar (*Thuja occidentalis* 'Yellow Ribbon')



Hydrangeas (*Hydrangea* spp.)