



Friends of the Central Experimental Farm

Winter 2015 Newsletter

Volume 27 No. 1

Out of the Ashes

By Robert Glendinning



R. Hinchcliff

New trees on Ash Lane

Many people comment that Ash Lane will need a name change in a little while, because the emerald ash borer has made its home there. By next spring, all the Ash trees will have been removed with the exception of a few trees that have been treated with Treeazin. For this reason, Jean-Pascal Gratton, Supervisor, Arboretum and Ornamental Gardens and Crispin Wood, former Lead Hand, Arboretum came up with a plan for the new Ash Lane, creating a short list of trees that would be planted in blocks. You will lose the uniformity of a single planting, but gain the diversity that is needed.

You might be surprised to find out that one of the choices was Elm (*Ulmus*), a tree with its own history of trouble. Two disease resistant cultivars were selected, 'Morton' and 'Brandon'. There has been a lot of work to bring back the Elm through selection and the crossing of different species; resistance though is not immunity.

Hackberry (*Celtis occidentalis*), a relative of the Elm, is also on the list. It is native to North America and has popped up in contemporary urban planting. There are some great examples of mature specimens in the Arboretum near the South Lookout. Its ridged/warty bark and slightly pendulous outline are its virtues.

Maples are common in our woods (and the Norway Maple is common and troublesome in our landscape). Our beautiful native Sugar Maple would not perform well in the open situation that Ash Lane offers. A selection of Silver Maple (*Acer saccharinum* 'Silver Queen') and Red Maple (*Acer rubrum* 'Autumn Flame') are the choices that were made. 'Silver Queen' has a tighter and more upright habit than the species tree and 'Autumn Flame' offers superior fall colour. A cross between the Red and Silver Maples, called Freeman's Maple (*Acer x freemanii*), is the third maple that is being planted on Ash Lane. The cultivar, 'Autumn Blaze' was selected for its superior autumn colour. These maples will ensure Ash Lane is gorgeous in the fall.

Another two native selections for Ash Lane will be the Bur Oak (*Quercus macrocarpa*) and Red Oak (*Quercus rubra*). Both have a reputation for being tolerant of exposed and urban conditions. The Bur Oak grows slowly, but a mature specimen is worth the wait. The Red Oak has a faster growth rate, but still has that beautiful open form at maturity.

Honey Locust (*Gleditsia triacanthos*) is another tree that should be familiar to many people. It creates a light shade and almost has a tropical silhouette. An extra hardy cultivar, 'Northern Acclaim' has been selected. This cultivar lacks thorns and should be seedless, solving two drawbacks of this species.

One of Jean-Pascal's favourite trees is the Ginkgo (*Ginkgo biloba*) and I am not surprised that it made it on the list. This tree was growing 150 - 200 million years ago. Its form, structure, and leaf are very distinctive. It makes a great urban tree and should do well on Ash Lane. It is a dioecious tree, meaning that there are separate male and female trees. The females produce a fruit, which when ripe smells like vomit - however the fruit manages to redeem itself because the nut inside is considered a delicacy. These trees are the way to go for urban planting.

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President's message - Note du président

Canada's Farm

Everyone will have heard about the federal land transfer of 60 acres of the Central Experimental Farm to provide space for a new hospital facility. Of course, the Friends are supporters of the Ottawa Hospital and proposed new facilities. We also support the Farm's research excellence and historical status.

The Friends of the Farm is a non-profit charitable organization set up to help Agriculture and Agri-Food Canada preserve and enhance public areas of the Farm for the benefit of all Canadians, and to promote the Farm's historical significance and heritage values. As such, we cannot advocate a position with regard to political decisions; however, we are bound by our mission to support the Farm.

Most of us don't know or understand the research that goes on at the Farm. Science can be complex and daunting to comprehend. In a nutshell, the research work at the Farm is focused on improving the way we grow food. It's as simple and as important as that.

The Central Experimental Farm is:

- A research hub that carries out vital long-term work on agriculture and soils, and links together a network of experimental farms across the country,
- A historical treasure that tells us where we've been and what it means to be Canadians,
- An educational tool that helps us understand plants, food and trees,
- A greenspace with beautiful public areas

for a fast-growing community that needs to reconnect with nature, and

- A landscape that helps to define the National Capital Region.

It is important to note that research is the main purpose of the Farm, and it is for all Canadians across the country; for example, the cereal grain work is especially important to Western producers. The perception that this is just an Ottawa park, or only a cornfield as stated in some media reports, is wrong. The Farm brings Canadian science, nature and history together in one location.

The Friends are proud to be associated with such a revered institution.

Eric Jones



La Ferme du Canada

Vous êtes déjà au courant du transfert, par le gouvernement fédéral, d'un terrain de 60 acres de la Ferme expérimentale centrale à l'hôpital d'Ottawa pour y aménager son nouveau centre hospitalier. Naturellement, les Amis de la Ferme appuient l'hôpital de leur ville et les projets de développement proposés. Ils accordent également leur soutien à l'excellence de la recherche entreprise sur la Ferme et le statut historique dont elle jouit.

Les Amis de la Ferme, un organisme à but lucratif, a été établi dans le but d'aider Agriculture et Agroalimentaire Canada dans la préservation et l'amélioration des secteurs publics de la Ferme à l'intention de tous les Canadiens et Canadiennes, et en vue de faire valoir son importance historique et ses valeurs patrimoniales. À ce titre, les Amis ne

peuvent pas adopter une position en regard de décisions de nature politique. Par contre, en vertu de leur mission, les Amis sont tenus d'appuyer la Ferme.

La Ferme expérimentale centrale est :

- un centre de recherche où s'accomplit un travail essentiel à long terme en matière d'agriculture et d'étude des sols, et qui rassemble en un réseau de communication toutes les fermes expérimentales du pays;
- un trésor historique qui est l'indicateur de nos origines et de notre identité comme Canadiens;
- un outil éducatif qui nous aide à comprendre la nature des plantes, des aliments et des arbres;
- un espace vert avec de beaux endroits publics qu'une collectivité croissante juge important;

- un paysage qui aide à définir la région de la capitale nationale.

Il importe de noter que la recherche est la raison première de la Ferme, et cela pour le plus grand bien de tous les Canadiens partout au pays. À titre d'exemple, les producteurs de l'Ouest attachent une importance particulière au travail de recherche qui est mené sur les céréales. La perception voulant que la Ferme ne soit qu'un parc au sein d'Ottawa ou un simple champ de maïs comme le rapportent certains médias est fautive. La Ferme regroupe la science, la nature et l'histoire en un seul endroit.

Les Amis sont fiers d'être liés à une institution aussi vénérable.

Eric Jones

Out of the Ashes

(continued from Page 1)



The final tree that has been planted on Ash Lane is the Amur Cork (*Phellodendron amurense*). You may not be familiar with it. We have a gorgeous mature specimen near the magnolia collection in the Arboretum that is worth a look; the bark alone is beautiful. This tree hails from the Amur Region of Russia, which in many ways mirrors our weather extremes. It is gaining popularity as a street tree, but the experts seem somewhat divided on its performance. Although Ash Lane is surrounded by city it is not what I would call an urban space. Like the Ginkgo it also has female trees with fruit. The fruit is black, can stain and the seeds germinate a little too well. To solve this problem a male cultivar called 'His Majesty' was chosen.

I think the result will be a bit of a showcase. Similar to the way the old hedge collection was intended to show the public what kind of a hedge each plant makes, we will have a place to see how each of the above does as a street tree, and to compare and contrast. In the future, landscape architects, arborists, horticulturists and the public will be able to come and determine which tree or trees work for them.

Robert Glendinning is a groundskeeper/propagator with Agriculture and Agri-Food Canada.

Green on Gray

By Phil Jenkins

When the sun rouses this crowded town
It wakes up towers, streets of grey
The frozen frowns of the commuters
Crawling the grey highways

But too it feeds the green oasis
In the city's hurried heart
Fields and gardens where the knowing grows
The farm that stands apart

Green on gray hay
Green on grey hay hay
Green on grey hay hay hay
Green on grey stay

It's a green idea, planted before the concrete came
Then and now outstanding in the field.
Blue bells, wedding bells a symphony of smells
Families of bugs and blooms and trees

Fields full of houses don't wave in the breeze
Towers can't feel the seasons come and go
The Farm still stands apart, winds of change blow through,
Crops grow up strong to take their bow

Green on gray hay ...

Phil Jenkins, Ottawa writer and singer/songwriter, was guest speaker at the Friends' AGM. During his talk on Canada's rural history, he sang this song, which he wrote for the Farm.

Monarch Butterfly Gardening

Something new this year will be a January gardening lecture – perfect for inspiration in the midst of winter. The lecture will be given by the Monarch Teacher Network of Canada (MTN), Ottawa Chapter, a dedicated group of retired educators who train teachers at annual workshops to use the monarch butterfly and its life cycle in the classroom.

At the lecture you will learn everything you need to know to turn your new or existing garden into a monarch butterfly oasis. This includes choosing a garden site and making a plan, then planting suitable nectar and host plants to ensure the monarch butterfly continues to thrive. MTN will briefly discuss the monarch's amazing migration to Mexico, reasons for its recent decline, current improved status and why planting a monarch garden can help this species at risk to survive.

The Monarch Butterfly Gardening lecture is offered on Thursday January 15 from 7 to 9 pm at Building 72 just east of the Prince of Wales roundabout. Admission for Friends' members is \$12 and non-members \$15. To register call 613-230-3276 or email info@friendsofthefarm.ca.



Friends of the Farm Annual General Meeting, 2014

President Eric Jones welcomed everyone to the Friends of the Farm Annual General Meeting in September 2014 at the K. W. Neatby Building. He noted the success of 2014 events such as the bus tour to Montreal, the Rare and Unusual Plant Sale, and the Used Book Sale. Alternate venues are being looked at for events such as the Victorian Tea, which had to be cancelled because of rain.

Eric highlighted the success of our volunteers in carrying out their work in the Ornamental Gardens, Arboretum and Shelterbelt. He also mentioned the successful launch during the year of *Farm Notes*, our monthly electronic newsletter, and the planned fall membership and donation campaign that would include gifts.

Challenges, he said, include what to do about the lower part of the Hosta Garden and the invasive dog-strangling vine, especially in the Arboretum.

Financials

Nathan Leung from the firm Collins Barrow, Chartered Accountants, presented the financial statements for 2013. As of December 31, he said total assets in the balance sheet for the Friends of the Farm were \$137,107. A surplus of \$4,880 was outstanding in the statement of operations at year-end.

Revised Articles of Transition and By-laws

New articles of continuation (transition) and by-laws for the Friends of the Farm, prepared by Judy Dodds, were approved. These were necessary following changes to federal legislation governing charitable organizations.



Louise Moore, 25-year volunteer, with Donna Pape, director of volunteers

Minutes on website

In response to an amendment to our by-laws, minutes of meetings of the Board and Executive Committee are being posted to our website at www.friendsofthefarm.ca/board.htm.

Long-serving volunteers recognized

Friends of the Farm volunteers who had reached significant milestones were presented with certificates of appreciation for their long and valuable service.

Louise Moore, our very first 25-year volunteer, was honoured for her many contributions to the Friends (see her profile in our Fall 2014 newsletter).

Sally Hill was thanked for her 20 years of service.

Gisela Chapman, Polly McColl, Joan Speirs have been Friends volunteers for 15 years.

Inez Causley, Edythe Falconer,



Sally Hill, 20-year volunteer

Photos by Kate Harrigan

Bev Krogan-Donnelly, Carol MacLeod, Nicki Quintero have served for 10 years.

Gwen Addison, David Addison, Indu Arora, Aruna Ghatalia, Cathy MacGregor, Martin MacLeod, Betty Jean O'Riordan, Pat Peterson, Mary Ann Smythe, Airi Trant have each contributed five years of service.

Board of Directors, 2014-15

Eric Jones - president, Judy Dodds - vice president and secretary, Marsha Gutierrez - treasurer, Yvonne Ackerman - membership, Caroline Dabrus - gardens (elected in November), Kate Harrigan - fundraising, Richard Hinchcliff - communications, Jeannine Lewis - at large, Donna Pape - volunteers.

Eric thanked Bert Titcomb for his dedicated service on the Board. Bert was a director for six years, serving as director of fundraising.

Three Gardens in Three Days



We're offering a delightful three-day, three-garden trip on June 23 to 25. First stop is at Canandaigua, N.Y. to visit nine formal gardens at the Victorian Sonnenberg Estate. On the second day we will motor on to the Royal Botanical Gardens in Burlington, Ontario, and on the third day we will visit the gardens of Parkwood Estate National Historic Site and Heritage Garden in Oshawa.

First come, first served on the bus! Cost is \$450 per person for double occupancy; for single occupancy, add \$145. Bus transportation, entrance fees to the three gardens, two nights' accommodation, two full breakfasts, lunch at the RBG, and the services of a Friends' tour guide are all

included in the price. Passports are needed and travel insurance is recommended because of the U.S. visit. For more information and to register, visit www.friendsofthefarm.ca/events.htm call 613-230-3276 or email info@friendsofthefarm.ca.

Thanks for the Book Donations

About 120 donors brought in more than 400 boxes and bags of books during the October 25 book drop-off day. Jeannine Lewis, Friends of the Farm book sale coordinator, thanks all the donors, as well as the volunteers who worked so hard that day. The storage rooms at Building 72 are overflowing, and volunteers will be busy sorting and alphabetizing the books winter and spring, in preparation for the sale June 20 and 21, 2015.

Bert Titcomb: Love of Trains and the Farm

By Barbara Woodward

There are many ways a person comes to volunteer with the Friends of the Farm, but they often don't involve trains. However, Bert Titcomb initially became involved with the Friends because he has an extensive background in railways and in the mid 2000s trains were an important issue for the Friends. This in turn led to his volunteer experience with the Friends.

Bert's fascination with trains was sparked by his grandfather, who worked for CPR. Even though his grandfather died when Bert was only six, his fascination with railways has remained strong. In addition to trains Bert has enjoyed a long and happy association with the outdoors. He enjoys being out in the fresh air and open spaces, both of which, Bert notes, the Farm provides in abundance. No doubt this life-long affinity influenced his decision to join the Friends.

Travel and the outdoors

Born in Quebec's Eastern Townships, Bert completed his primary and secondary education in Montreal. He graduated from McGill University with a degree in mechanical engineering in the mid-1950s. On his travels in Europe, Bert landed a full-time job with the Swiss Locomotive Works in Winterthur. During his four years there Bert met and married his first wife, and their first son was born there. Being able to explore the Alps added to his love of open spaces and skiing in the Alps improved his skiing tremendously!

Eventually, Bert's professional career spanned 40 years, and included both private industry and federal public service. His work in industry in Ontario, Alberta and Saskatchewan was balanced by ready access to the numerous national and provincial parks, and the family backpacked, hiked and skied whenever possible. In 1977, Bert returned to Montreal where he met Doug Cousins on a tennis court, and they became friends. Doug's wife Valerie was later to become president of the Friends of the Farm. Bert moved to Ottawa in 1985 to join the public service and stayed on after retirement.

Tennis and trains

Since his retirement in 1996, Bert has been the national office manager for Transport 2000 Canada, now Transport Action Canada. He also edited their newsletter for ten years. Every spring, he participates at rail fairs, and is an avid member of the Bytown Railway Society. On several occasions, Bert operated the Society's small steam locomotive at the Science and Technology Museum, thus fulfilling a youthful ambition to be a locomotive engineer.

Bert knew about the Farm long before he joined the Friends. On his move to Ottawa he joined the D.A.R.A. Tennis Club located on the Farm and remains a member to this day. His tennis activities enabled him to become familiar with the Farm and some of its buildings as well as through several club fellow members who worked at the Farm. His bike trips also brought him to or near the Farm on many occasions, and one of his art classes introduced him to the ornamental gardens via a painting field trip to the Farm.



Andrew Little

In 2006, Bert's love of trains and his association with Valerie Cousins came into play. Val knew about Bert's transportation and rail background, and asked him to come to a meeting being held to discuss OC Transpo's plans to build a second tunnel under Dow's Lake. Bert attended as a consultant to help the Friends assess the implications for the Farm.

Working with the Friends

A year later, Val asked Bert if he would like to be on the Friends' Board of Directors, possibly to work on the Newsletter. Bert agreed, but soon got involved with fundraising. He developed the annual Invitation to a Non-Dinner. This non-event, extolled by Bert as "a wonderful time [that], of course, saved" all the expenses associated with a formal dinner, ran for four consecutive years.

After serving for two sessions (six years) on the Board, Bert stepped down and has since helped out at special events such as the Friends' annual book sale, and occasionally contributed articles to the Friend's Newsletter (e.g. "Streetcars on the Farm," Fall 2011). He speaks strongly on the value of urban green spaces, extolling the Farm as a "large expansive green space inside the city."

Bert is married and has three sons, five grandchildren and one great grandson.

Success Stories From the Farm's Fields

"The CEF with its cropping fields and plots has played an essential part in many research and development successes for Canada ... (it) is a critical part of our national network of research facilities."

Dr. Marc Fortin, former Assistant Deputy Minister (Research),
Agriculture and Agri-Food Canada, 2011

Many of us pass by and enjoy seeing the plots of crops in the fields and don't know what they are used for. Here are a few of the success stories from more than 125 years of research in the fields of the Central Experimental Farm:

- Introduction, around 1900, of brome grass as feed for livestock. This type of grass produced more forage per acre, supporting more cattle per acre
- 'Marquis' wheat, which ripened earlier and produced high-quality flour, was introduced in 1910. This was a huge success for Canadian agriculture and spurred development of the Prairie provinces. It represented 90 percent of the wheat grown on the Prairies in the early 20th century
- Canada's first frozen foods were produced at the Farm in 1932, using fruit grown in the Farm's orchards
- A new breed of winter wheat called 'Frederick' was introduced in 1973 that not only increased yields by 1-2 bushels an acre but also was of higher quality. It accounted for more than 90 percent of the wheat acreage in eastern Canada
- The *Fusarium* head blight epidemic of 1981 drastically reduced the yield and quality of the wheat, barley, and corn crops in eastern Canada. The first winter



R. Hinchcliff

wheat variety that was resistant to *Fusarium* was bred at the Farm

- In recent years, 28 new milling oat varieties have been developed including about 50 lines of much-improved

completely hull-less oats, such as the variety named 'AC Gehl'. This was the world's first truly hull-less oat, which has found many uses in new products and new markets, including the production of pure oats for celiacs, the source of ingredients for anti-itch and personal care skin products. It is also used as a replacement for rice in, for example, 'Naked Oats' ('AVENA NUDA: Rice of the Prairies') and precooked meals by Campbell Canada

- The Farm's research has discovered the anti-inflammatory compounds in oats, called avenanthramides; learned their structures and therapeutic properties; and developed patented methods to produce oats with extremely high levels of avenanthramides for use in the manufacture of food, drugs and cosmetics
- Since 1986, 260 corn varieties bred at the Farm have been released to industry, most of them with improved resistance to infection, disease and insect pests
- The Farm's researchers have developed internationally recognized rapid screening techniques for corn diseases such as northern corn leaf blight, rust, eyespot, smut, *Fusarium* stalk rot, and anthracnose stalk rot
- New soybean varieties were developed at the Farm for short growing seasons, and with their high protein content and



Friends of the Farm

Science in action in the Farm fields shortly after the Civic Hospital (at rear) was built in 1924

pest resistance, have significantly expanded soybean acreage in eastern Ontario, Quebec and Manitoba

- Research at the Farm on the use of nitrogen fertilizer has contributed to steadily increasing corn yields with reduced fertilizer consumption
- Scientists at the Farm have countless patents and licenses. The latter generate royalties to AAFC and enhance business opportunities for the licensee.
- When breeders at the Farm register a new crop variety, it is made available to seed companies through a competitive process. Those companies sell the seed to farmers, generating royalties to AAFC. Farmers grow the crop for their own livelihood while helping to feed the world. Everybody wins.

Future success stories?

In the preface to his history of the first 100 years of agriculture research in Canada, Tom Anstey wrote: "Eventually another book will chronicle the second century; can we begin to imagine what its pages may say?"

Current research programs at the Farm offer a glimpse into where future success stories might come from. There are three main areas of research:

- Assessment of long-term environmental effect of agricultural practices. For example, scientists are seeking environmentally sustainable ways to manage land for field crop production in eastern Canada. They are evaluating the impact of agriculture on levels of carbon in the soil and greenhouse gas emissions,

as well as assessing techniques to enhance net returns to producers (e.g., conversion to no-till farming)

- Crop genetic enhancement and genomics. One example is the research to improve the genetic makeup of corn for the short-season areas of Canada
- Biodiversity of vascular plants, fungi and bacteria, and invertebrates. Here, for example, researchers are developing novel pest management strategies that exploit natural enemies and that can be integrated into current agricultural practices. They are studying the interaction between plants and the bacteria or fungi that infect them, the effects of agricultural practices on crop diseases, and cereal seed fungi and treatments.

Scenes from 2014



Friends' volunteers were sorry to say farewell to Crispin Wood, former lead arborist at AAFC. He is shown here with Eric Jones and the GPS device donated by the Friends. A GPS volunteer team is assisting with tree location and identification



Rare and Unusual Plant Sale



Millie Harrington, Indu Arora and Sue Killam at the Craft and Bake Sale



Macoun Memorial Garden volunteer team



Used Book Sale



Kate Harrigan, Deborah Cosman, Margaret Birnie, mayor Jim Watson, Jennifer Ford at the Spring Craft and Bake Sale



Donor family at Shelterbelt ceremony

The Art of Urban Snowshoeing

By Raymond Roy

As an artist I've discovered that urban snowshoeing in Ottawa can be both an extremely creative and environmentally friendly activity. There is no need for expensive gear or even a car to get you to the best snowshoeing locations. And all that I require to create my snow drawings while snowshoeing is a nice large virgin patch of snow canvas with a high enough elevation for people to view and for me to photograph the finished work of art.

I regularly skate, walk or take the bus to the Arboretum of the Central Canadian Experimental Farm, which is a national historic and cultural heritage site covering 26 hectares within Ottawa. It has hundreds of tree species that were imported from around the world and Canada from 1889 and that represent some of the largest and oldest in the country. This diverse landscape with its beautiful trees is for me both a sanctuary and creative research centre where I often snowshoe and take photographs.

Skating the 7.8 kilometers on the Rideau Canal Skateway, also the world's largest skating rink, from my studio situated downtown is my favourite way of getting to these great snowshoeing sites within the Arboretum and on the unplowed portions of the canal. The Skateway is a nice

scenic route running through the city and has numerous rest areas, with fire pits to warm you up, selling hot chocolate and tasty world-famous BeaverTail pastries.

At the end of the Skateway at Hartwell Locks I strap on my 40 year old ash and rawhide Huron snowshoes and either create snow drawings or continue on to explore and photograph the Fletcher Wildlife Gardens or a beautiful small creek that ambles through the lower part of the Arboretum. I usually do this immediately after a fresh snowfall, when conditions are ideal for making drawings and before other snowshoe and skiing enthusiasts leave their markings in the snow.

Creating the snowshoe drawing requires careful planning to ensure that people can properly view the finished work and that I can adequately photograph it afterwards. And ideally I need a site that faces west so that the sunlight creates deep shadows in the trails or the drawings don't have enough contrast to be seen properly disappearing into the snow. Something I've learned after spending hours snowshoeing a design that couldn't be seen properly! The best locations have been on the snow-covered ice of the Rideau Canal and on the Rideau River in front of the Rideau Canoe Club where I am also a member and avid kayaker.

It takes between one and three days to complete a drawing depending on its size and complexity. While creating the design I must



Photos by Raymond Roy





me! It felt a bit like an impromptu performance art piece!

This creative process is not only a beautiful way of exploring my urban world but also an environmentally friendly and sustainable means for creating and sharing the wonderful art of snowshoeing. I encourage you to explore your city on snowshoes and if so inspired leave your own creative statement in the snow.

remove my snowshoes at the end of each element then turn around and put them back on again to continue and maintain the crisp clean lines. A natural rhythmic movement plus the long ends of my beavertail snowshoes help me to maintain stability and distance while creating the curved lines. I also periodically retrace my steps to the beginning and then walk to the high ground to view what I've done; working out the steps needed for elongating the elements in the distance so they appear naturally spaced.

The central motifs I use are spirals and curves that refer to the fluid dynamics of water and wind. Ideal when you consider that I am creating the pattern on a layer of granulated and frozen water. I am also very interested in the transitory, ephemeral and impermanent nature of the work, which over time, wind and snow will obscure and eventually erase. The act of viewing me during the process and seeing the final photo documents are the only real surviving aspects. I received a lot of positive comments from people watching and who also took cell phone photographs to share on social media. A few airplanes flew over and one even tipped its wing to

Raymond Roy is an Ottawa multimedia artist whose book of photographs taken in the Arboretum is available at www.blurb.com/books/808030. For more information on his various projects, google Raymond Roy - RAYGUN. (This article was first printed in Snowshoe Magazine)



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. Membership in the Friends of the Farm costs \$25 per year for an individual and \$45 per year for a family, \$20 Seniors/Students. Membership fees support the many projects of the Friends of the Farm. The Newsletter (ISSN 1702-2762) is published four times a year (Winter, Spring, Summer, Fall) by Friends of the Central Experimental Farm. All members receive the newsletter and it is sent either by regular mail or e-mail. Editor: Richard Hinchcliff. Assistant Editor: Barbara Woodward. Design & Printing: Nancy Poirier Printing. Contributors: Edythe Falconer, Robert Glendinning, Phil Jenkins, Raymond Roy. Translator: Lise Anne James.

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Observing the Weather at the Farm for 125 Years

By Richard Hinchcliff

Twice a day, technicians at the Central Experimental Farm's weather station take manual readings of rainfall and temperature, as they have done for 125 years. It is the longest uninterrupted data series from any weather station in Canada.

William T. Ellis took the first temperature and rainfall readings on November 1, 1889. The location of the weather station has changed twice since then. It began near the main campus buildings; now it is in a field off Cow Lane between Morningside and Ash Lanes. (It is not at Dow's Lake, as one local weatherperson likes to say.)

There have been three long serving weathermen. After Ellis retired in 1926, Frederick W. Baker took over and was in charge until 1964. The current manager, Dirk Anderson, has been there for 30 years. There have been other weather observers, but none for as long.

15 recording devices

The fenced enclosure at the weather station contains 15 recording devices, from tipping bucket (rain) and Neipher (snow) gauges to anemometers (wind) and thermometers. Also at the station is a "dug-out," officially known as Building 117, where the information from the various devices is processed. The station, says Dirk, follows international standards.

As well as temperature and rainfall, the station collects data on new snowfall and its water equivalent, the depth of accumulated snow, sunshine, soil temperature to three metres deep, humidity, air pressure, minimum temperature at ground level and wind.

Wind measurements are taken at 10 metres high, which is standard. It is also measured at two metres, which is unique



R. F. Hinchcliff

Dirk Anderson at the temperature gauge

to agricultural research weather stations, Dirk says, because that is roughly the height of corn.

The weather station, one of about 40 across Canada that are classified as "Reference Climate Stations," is maintained and operated by Agriculture and Agri-Food Canada under an agreement with Environment Canada. Access to the data is given to research scientists at the Farm, some of whom, says Dirk, obtain additional information from their own mini weather stations at experimental plots.

Importance of the data – and a concern

The data are important in compiling various climate maps, such as those for plant hardiness zones (see Edythe Falconer's article on Page 12), average frost-free periods and Crop Heat Units. Such maps help farmers (and gardeners)

select the most suitable hybrids and varieties for their area.

While the data are important for current weather reporting and forecasting, they are critical for climate prediction models, says Dirk. Trends in the data might indicate that an area could grow a crop in the future that is not currently viable. But with well over half the weather stations across the country closed, Dirk is concerned about the availability of adequate data.

Temperature and rainfall are the only series recorded manually nowadays. When automated recordings were introduced, the intention was to eliminate the manual approach, but Dirk successfully argued for its retention. "It provides a valuable long, homogeneous data series," he says. "And there are always technicians at the greenhouses at the weekend, who are more than happy to get outside and make the observations."

NEW MEMBER REGISTRATION FORM

NAME: _____
 ADDRESS: _____
 CITY: _____ POSTAL CODE: _____
 PROVINCE: _____
 TELEPHONE #: _____
 FAX #: _____
 E-MAIL: _____

INTEREST IN VOLUNTEER OPPORTUNITIES

YES ☐

NO ☐

TYPE OF MEMBERSHIP

FAMILY \$45/year
 ADULT \$25/year
 SENIOR/STUDENT \$20/year
 BASIC CORPORATE \$250/year
 NON PROFIT ORGANIZATION \$25/year
 INDIVIDUAL LIFE \$200
 SENIOR COUPLE LIFE \$250
 DONATION \$ _____

TOTAL \$ _____

Please make cheque or money order payable to: "Friends of the Farm." A receipt for income tax purposes will be issued for all donations of \$10 or more.

We are located at Building 72 in the Arboretum. You can visit us or mail this part of the form with your payment to:

FRIENDS OF THE CENTRAL EXPERIMENTAL FARM
Building 72, Central Experimental Farm
Ottawa, ON K1A 0C6

Telephone: 613-230-3276

Fax: 613-230-1238

Email: info@friendsofthefarm.ca

Website: www.friendsofthefarm.ca

Plant Hardiness Zones in Canada (continued from Page 12)

herbs – maps that can be continuously edited as new information comes in. Eventually they intend to develop climate profiles for each plant species, mapping the range of each species under current and projected future climate conditions (home page – <http://planthardiness.gc.ca>).

What is PlantWatch? – It is a volunteer monitoring program that seeks to identify ecological changes that affect our environment and that invites broad participation via “citizen scientists” to record flowering times and report to researchers by email. Their information is then added to Web maps showing bloom dates across Canada. If you would like to participate in this program check out their site –

<https://www.naturewatch.ca/english/planthardiness/intro.html>

Key challenge: climate change

It's time to deal with what is likely the key challenge of our times – climate change. The issue is complex and stakeholders are far apart on agreeing how it will affect us in both the short and the long run. Ninety-seven percent of the world's climatologists now agree that climate change is happening and that from the Industrial Revolution on, humans are in part responsible for escalating climate change and climate warming (<http://climate.nasa.gov/scientific>).

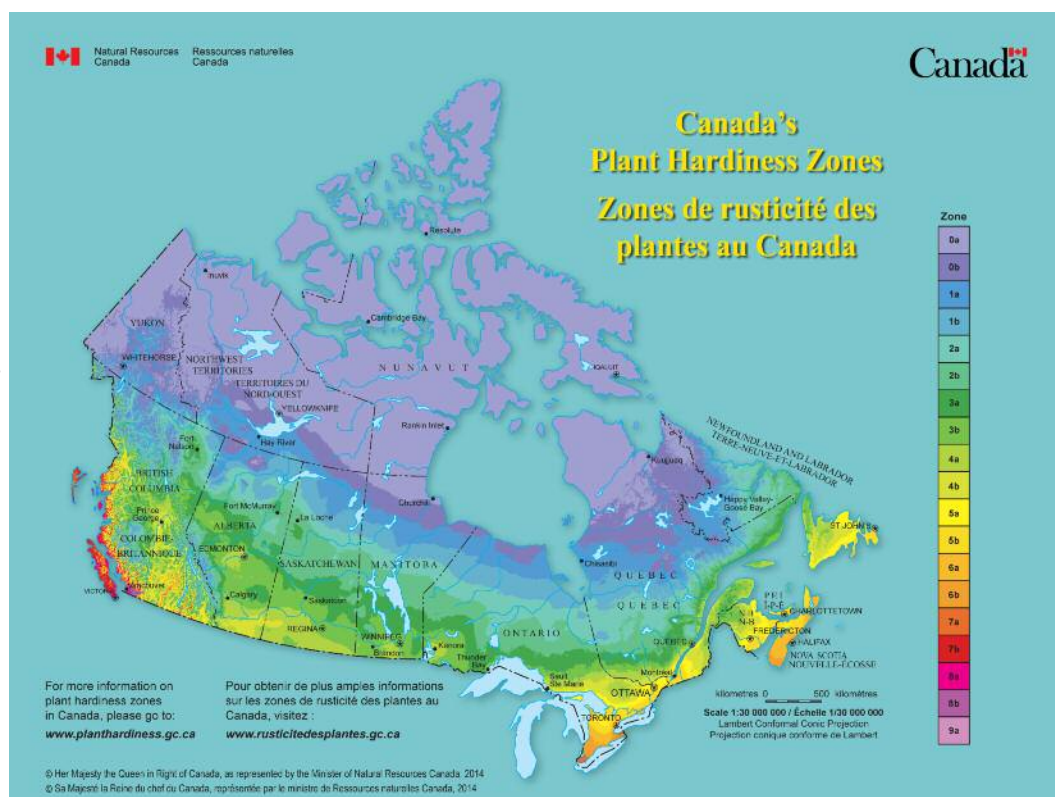
Here's Wikipedia again. “Climate Change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change may refer to a change in average

weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events). Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have also been identified as significant causes of recent climate change, often referred to as ‘global warming’.”

In *What a Plant Knows*, Daniel Chamovitz reveals that plants do have the capacity to adapt through genetic modification to environmental stresses and can pass stress resistance on to future generations of plants!!! But how fast can they accomplish this? We don't know and we don't know if we can do the same. So what about People Hardiness Zones?

Out of our comfort zones

For most of our gardening years plant hardiness zones have provided us with stable information upon which to base plant choices. Now we may need to work with moving targets. How fast will they move? As noted above, Natural Resources Canada will develop precise maps that can readily adapt to changes as they occur. Groups like PlantWatch will assist in the task of tracking changes on a plant-specific basis. Our ability to adapt to climate change and catastrophic climate events is being and will continue to be tested to the full. The plants we rely on for our very existence will need to adapt with us and us with them. *Edythe Falconer, master gardener of Ottawa-Carleton, is the Friends of the Farm rose team's advisor.*



Canadian plant hardiness zones, 1981-2010

References:

- Daniel Chamovitz – *What a plant knows: a field guide to the senses*. New York: Scientific American/Farrar, Straus and Giroux, 2012
- Trevor Cole – *Gardening with Trees and Shrubs in Ontario, Quebec and the northeastern U.S.* Vancouver, B.C.: Whitecap Books, c1996
- Naomi Klein – *This changes everything: capitalism vs the climate*. Toronto: Knopf Canada, 2014
- Ronald Wright - *A short history of progress*. CBC Massey Lectures. Toronto: Anansi, c2004
- U.N Climate Change Conference Oct 11, 2014 – “Zero Emissions of greenhouse gases by 2050” <http://climate.nasa.gov/scientific-consensus/>

Plant Hardiness Zones in Canada: Moving Out of Our Comfort Zones

By Edythe Falconer

Wikipedia describes plant hardiness zones as “subcategories of vertical zonation, and geographically defined areas in which specific categories of plant life are capable of growing.”

When we plan our gardens we need to know what will thrive in our particular area. Although zone numbers are only averages, they still provide us with valuable guidance. However, zone averages cannot account for a number of climate variables – some of which will be discussed below.

And from Agriculture and Agri-Food Canada: “The Plant Hardiness Zones map outlines the different zones in Canada where various types of trees, shrubs and flowers will most likely survive. It is based on the average climatic conditions of each area. The first such map for North America, released by the United States Department of Agriculture in 1960, was based only on minimum winter temperatures. In 1967, Agriculture Canada scientists created a plant hardiness map using Canadian plant survival data and a wider range of climatic variables, including minimum winter temperatures, length of the frost-free period, summer rainfall, maximum temperatures, snow cover, January rainfall and maximum wind speed” (<http://sis.agr.gc.ca/cansis/nsdb/climate/hardiness/index.html>).

Zone variations, variables and maps

When careful gardeners compare current plant hardiness zones of the United States to those of Canada, it is evident that they differ and not necessarily in a consistent fashion. They differ because they measure a different set of factors. When we shop for plants and carefully check the labels for zone numbers are we looking at U.S. labels or Canadian? Knowing the difference can save a lot of money, time and disappointment. An average rule of thumb is that if it's Zone 5 U.S. then it's Zone 4 Canada. However, as already mentioned, this is an “average” difference. Some references obligingly indicate both ratings – such as the no longer published book by Trevor Cole – *Gardening With Trees and Shrubs*. Watch



R. Hinchliff

Central Experimental Farm weather station (see Page 10)

for it at used book sales. It's a treasure!

Plant hardiness zones and climate change are inextricably linked nowadays but let's not tackle this link just yet. We'll work up to it. On the lighter side of this existential challenge we may just be able to grow some of those frost-tender varieties in Zone 5a – or not at all! Wait a minute – that's not so light! Although many of us regularly enjoy testing zone limits (cheating on zones so-to-speak) the lines as we know them may alter – possibly to our great inconvenience and more quickly than we can imagine. A zone-busting triumph would be to pick bananas in a Zone 5a backyard – say by 2030?

Back to variables. Within a particular zone these intertwining factors profoundly influence what we can successfully grow. We humans regularly manipulate many of them – and while variables interact with each other they also interact with us.

Summer Temperature – We know that summers have been – on average – getting hotter. This will have an influence on what we grow and on the length of the growing season. There are many ways to mitigate heat effects – mulching being but one example. Eventually we may make more use of shade cloth during prolonged hot spells in order to protect our more vulnerable plants and crops.

Winter Temperatures – Our winters can still be pretty brutal and we regularly argue about the significance of fluctuation in that severity. The amount of snow cover affects winter hardiness or a failure thereof. The same goes with regard to the application of mulch. Established root systems fare well compared to newly planted root systems. Plants on their own roots have an edge on those that don't. Plants enjoying well-structured and regularly replenished soil are similarly privileged. Plant covers – both functional and ornamental – are becoming more and more prevalent.

Moisture Retention and Release

– Healthy, well-built soil provides considerable frost protection in the winter and moisture retention in the summer. In the fall we should not let our plants “go to bed” dry. Trees and shrubs need to be watered during prolonged dry spells that can happen even in spring. Mulches help to control moisture retention and they also moderate temperatures both hot and cold.

Natural Resources Canada – You would think that plant hardiness maps that take into consideration so many variables would be very difficult to create. Yet that is one of the goals of NRC. They plan to go beyond single hardiness zone maps to develop a range of maps for individual species of trees, shrubs and perennial