



Forestory

Volume 4, Issue 1, Spring 2013

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Forest Fire and Firefighting History



We want to hear from you!

If you have articles, photographs or images, interesting facts, web links, personal reflections or events that would be suitable for this newsletter, please contact the editor.

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Request for Content

Do you have an interesting story to tell about some aspect of forest history in Ontario? Or are you prepared to write an article for the newsletter on some aspect of forest history? Do you know of interesting photographs, documents, web sites or other items that would be suitable for inclusion in the newsletter? If so, please contact the editor to discuss the possibility of publishing your information in the newsletter.

Please provide your comments to the editor on items or themes you would like to see in the newsletter.

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President's Message

For those members who were unable to attend our Annual General Meeting this past February 7 I will mention some of the highlights from my annual report at the meeting. All are aware of the successful exhibit on the history of forest inventory in Ontario for which, with the assistance of the Canadian Bushplane Heritage Centre in Sault Ste. Marie, the Society was able to contribute directly or indirectly many of the items. The opening of the display coincided with the annual general meeting of the Ontario Professional Foresters Association at which I was privileged to give the keynote speech. The success of the exhibit was due not only to the efforts of the staff of the Bushplane Centre, Mike Delfre and Todd Fleet, but also the major work by two of our members there, Greg Pawson and Rich Greenwood. We appreciate the help from staff at the Ministry of Natural Resources in the Forest Resources Inventory Section and the Ontario Forest Research Institute who provided current information and equipment.

The two continuing projects that are available on our website are the listing of collections and the literature catalogue. I would urge members who know of existing collections in local museums, libraries and other institutions to contact Professor Mark Kuhlberg at Laurentian University who is coordinating this project. Recently, I was personally involved in facilitating the placing of personal diaries, correspondence and photographs of Donald Angus Macdonald, Canada's third and last Dominion Forester in the archives of the University of New Brunswick (Macdonald graduated in forestry from UNB in 1914). This was a result of his son the Hon. Donald S. Macdonald, a member of our society, contacting me about having his father's collection and wanting to see it saved in an appropriate place.

Both members and non-members can contribute literature items to the on-line catalogue, and I know there are many books and publications, often locally produced, which may be known to our members and should be in our catalogue.

At your Directors' meeting in December, it was decided to establish prizes for essays on forest history by high school students. Initially two municipalities were approached, Simcoe County and York Region. Both agreed to participate and the contest will run in Simcoe County with submissions due on April 22; York Region will have the contest in the fall of this year. We look forward to the results of this initiative to provide encouragement to students to take an interest in the history of their forests.

In March I was asked by Ontario's Environment Commissioner, Gord Miller, to take part in a taped discussion about forestry in Ontario prior to 1990 with two other people, Robert J. Burgar, a member of this Society and former Assistant Deputy Minister in the Ministry of Natural Resources and Michael R. Innes who had been a forester with the Ministry of Natural Resources in both southern and northern Ontario before joining Abitibi-Price and then becoming Vice-President of Environment of Abitibi-Bowaters in Montréal before retiring. Our session with the Commissioner was one of several he is conducting in building a history of various aspects of activities on Ontario's environment over the years.

As I write this at the end of March, thoughts turn to impending Spring and tree planting which is one of the most positive actions in looking to the future. As I told Mr. Miller, the real purpose of looking at our forest history is to gain an understanding and appreciation of how we came to be where we are today and how our actions now inevitably set out the path to the future.

Wishing all a productive and enjoyable spring and summer.



Ken Armson RPF
Chair, Forest History Society of Ontario

Editor's Message

I usually wait until each issue of *Forestry* is completed before I write my remarks so I can reflect on what I have read and learned. And I am doing that as I sit at my desk now. I usually don't have writer's block, but for some reason today, the words are not flowing. And I have been wondering why. I think it is because, with the completion of this issue, there is going to be a big void in my life. My husband, Dave, passed away in April, and life has been a bit of a whirlwind since, including the publishing of *Forestry*. In a way, putting *Forestry* Issue #7 to bed means putting Dave to rest permanently. Educated as a forester, Dave practiced his forestry in the classroom, teaching hundreds of high school students about forests, forest industry and forest conservation. He was a member of naturalist clubs wherever we lived, and most recently, was Co-Chair of the Large Woodlands Conservation Cooperative here in Peterborough. When he wasn't taking summer courses or teaching summer school he often traveled with me when I did fieldwork. One time in British Columbia we got caught behind a locked gate late on a Friday. The lock was well secured – in an upside down heavy steel contraption. I was beside myself. And there was Dave, leaning against the gate. I let him know how I felt about that. He just said “I thinking about how we can get out of here”. His thinking worked because we were out of there within two hours. Dave was a special person. He was a big man, with a big head and a big heart. And we will miss him.

Once again, I must remark on how much I have learned putting this issue together, and the great people I have met pursuing stories. As I reflect on this issue, one of my memories of an earlier time is of climbing the Willisville fire tower, and other than the Dorset fire tower, the only fire tower I ever remember seeing. So it was a surprise to learn that Ontario had over 300 towers placed across the landscape. I wondered, as I undertook research in the Ministry of Natural Resources Library, why I was not aware of the huge fires that had beset Ontario in the 1800s and early 1900s. I also wondered, as I read John Bacher's article on the first plantation by Zavitz, why I hadn't learned about Zavitz's work during my forestry education at the University of Toronto. Perhaps it was because we only took one policy course, and that was in fourth year, given by Dean Sisam (focused on Scandinavian forest policy as I remember). As I recall, the days Dean Sisam showed up I didn't and vice versa. I thought in those days that forest policy was the most boring subject, and now, it is my favourite bedtime reading!

And four generations of Cleaveleys as Fire Rangers. That has to be a record. It shows how much fighting fire can get in your blood and how proud the people in Ontario's firefighting organization are of their work. And they should be. It has a proud history, started by recommendations put forth by Aubrey White, Assistant Commissioner of Crown Lands, in the 1880s. In following the story of Aubrey White, I discovered the interest in local history that is out there. Mr. Ken Veitch, of Bracebridge, has a wealth of information on local history, and much of it includes forest history. As Ken Armson has done in his remarks, I urge each and every member to pursue sources of local information on forest history and let us know about it. Even if you don't wish to write an article, let us know about interesting subject matter and we will pursue it from there.

I am also continually impressed with the volunteers out there who spend countless hours on various forest-related projects, like the Hope Mill volunteers who have resurrected the original mill. As I come to the close of my remarks, I am off to Hope Mill to see it in action, and to meet the group of dedicated volunteers involved in another way in our forest history. (It was a great experience by the way!)

Have a wonderful summer, and I will talk to you in the fall.

Sherry Hambly MScF

The Ecological History of Forest Fires in Ontario

By Dan Johnston

Fire ecology is the study of the role of fire in an ecosystem. An ecosystem's 'fire regime' is essentially the frequency at which fires burn, the types of fires that burn and the seasonality of the burns. Fire regimes change over time as a result of changing climatic conditions, changes in vegetation composition or changes in other disturbances.

Today, policy makers balance the need to protect the public from the negative effects of forest fires while promoting the understanding of the ecological role of fire and using its beneficial effects in resource management.

Fire is used as a tool in vegetation and ecosystem management in areas licensed for sustainable forestry and in parks and protected areas. Under a range of weather, fuel types and conditions, fire has a predictable range of immediate and long-term effects on fuel removal, vegetation and soils.

Fire ecology principles are applied in developing prescriptions for prescribed burning and prescribed fire to help meet ecosystem and resource management objectives. By safely and selectively returning fire to our forested landscapes, resource managers are helping to restore and maintain the ecological integrity of Ontario's forests.

Fire has been the dominant force of change in the forests of Ontario since the retreat of the glaciers, some ten thousand years ago. Many of Ontario's ecosystems have evolved with fire and depend on it for maintenance and renewal. Fire plays many roles in ecosystem maintenance and forest renewal: creating seedbeds, releasing nutrients, reducing competition and triggering seed release or vegetative reproduction.

On a large scale, fires burn at different times, frequencies and intensities, producing a diverse patchwork of vegetation of different ages and types, including trees, brush and grasses. Even within the boundaries of a single wildfire the ecological effects vary: green islands of residual unburned forest remain, mixed with totally burned and partially burned sections, creating a diverse local vegetation mosaic. The rich variety of habitats created by a fire supports many species of animals, insects and birds. The landscape mosaic of tree ages and species produced by fire is also better protected against other disturbances like disease and insect epidemics.

Scientists use pollen and charcoal records deposited in lakes and wetlands to reconstruct and study historical fire regimes. Those records indicate that over the past few thousand years the area that is the province of Ontario has seen significant changes in fire regimes and vegetation types.

Natural variations in climate have affected the occurrence and extent of fires across the province. Longer periods of warm and dry conditions like the medieval warm period (10th – 13th centuries) saw more fire than cooler and wetter periods like the little ice age (16th – 19th centuries). Within those periods, year-to-year variation still occurred, when more fires burned during individual warm and dry years compared to cool and wet years. Fire regimes were also affected by changes in vegetation from fire-prone to fire-resistant species and vice-versa as a result of climatic or other changes.

Fire ecologists and fire managers use fire records, tree ring analysis, fire scars and other indicators to measure and reconstruct modern fire histories. Characteristic fire regimes in the boreal forest (spruce-fir-aspen), for example, had large, high-intensity, stand-replacing fires that occurred every 20 to 100 years on average in any given area. Conversely, stands made up of mostly white and red pine were visited by high-intensity fires much less frequently (every 200 to 250 years) but naturally experienced smaller, low-intensity understory fires on a more regular basis (every 20 to 30 years). Grassland and savannah ecosystems in some parts of Ontario were maintained by fires returning, on average, every 3 and 10 years respectively.

Aboriginal peoples traditionally used fire for a variety of reasons and to varying extents across Ontario. For example, burning was done to create favorable habitat for edible plants or for hunting purposes. This use of fire affected the vegetation composition and frequency and types of fires, altering the fire regimes of the areas. Frequent burning prevented the encroachment of trees and shrubs in grasslands. In forests traditionally dominated by infrequent high-intensity crown fires, frequent burning resulted in vegetation types adapted to frequent low-intensity fires. Changes in disturbances, even human disturbances, can have a significant effect on forests, fires and fire regimes.

The arrival of European settlers once again led to a change in fire regimes throughout Ontario. Europeans had a seemingly paradoxical approach to fire, viewing it as unnatural and dangerous, while using it as a land-clearing tool, sometimes with disastrous results. A series of deadly and destructive fires in the early twentieth century highlighted the dangers of wildfires.

In response to the Matheson fire disaster, the Ontario government passed the Forest Fires Prevention Act in 1917, which marked the birth of the province's modern fire control system. The Ontario government began increasing efforts to prevent, detect and suppress wildfires throughout the province. Post-world war two developments in technology allowed resource managers to become increasingly effective at suppressing wildfires. An increase in the availability of aircraft (airplanes and helicopters) resulted in faster detection of wildfires and quicker deployment of resources. The introduction, development and proliferation of water bombing aircraft meant that the vast majority of wildfires could be found and extinguished at small sizes.

Over time, fire and resource managers began to notice that years of highly effective fire suppression was changing Ontario's forests. Decades of fire suppression had kept the vast majority of fires to a very small size, preventing many of the large stand-replacing fires that boreal forests require for renewal. Areas that normally saw fires every 80 years were now fire-free for 200 years or more. Resource and fire managers noticed that the legacy of effective fire suppression was older forests made up of old, decadent trees. Such forests are more susceptible to insect infestations and wind damage. Over the last century, fire suppression activities have resulted in large areas of even-aged, over-mature, blown-down, or pest-killed forests that normally would have burned periodically and been renewed. Policy makers identified that a shift in fire management was required to recognize the important ecological role of fire.

Climate change is expected to significantly alter the fire regimes of many of Ontario's ecosystems. In the near future, warmer and drier conditions will likely result in more fires as well as longer and more severe fire seasons. Over the long-term, significant changes in climate conditions and fire regimes may lead to a change in the species composition and age structure of Ontario's forests. Policy makers will need to continue to adapt to the changing environment, ensuring that a sound understanding of fire ecology is applied while managing forest fires to continue to protect the people and ecosystems of Ontario.

Further Reading

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Thomas, P.A. and R.S. McAlpine. *Fire in the Forest*. Cambridge UK: Cambridge University Press. 2010.

Fire in Parks – a History of Policy versus Practice from the 1980s into the 21st Century

By Dave Heaman

Introduction

Ontario's system of protected areas includes over 650 parks and conservation reserves with an area of 9.5 million hectares – a land mass equal to all of Ontario south of Algonquin Park. Protected areas contribute significantly to maintaining ecological health, protecting Ontario's natural heritage and conserving the biological and geological diversity of the province. Many also provide outdoor recreation opportunities; either intensively at campgrounds or tourism facilities, or extensively via backcountry camping and canoeing or hiking.

Fire is an important ecological process, fundamental to restoring and maintaining ecological integrity and sustainability throughout the province. Many ecosystems within Ontario's protected area network require disturbance by fire for renewal and ecological health. These fire-dependent ecosystems will disappear from Ontario's protected areas in the coming decades unless they are exposed to fire.

Fire and protected area managers must work jointly to balance the need to restore and maintain fire in protected areas with the need to protect public health and safety, and other values, from the potential adverse effects of fire. Fire management planning can help to achieve this balance by documenting, analyzing and communicating the desired fire management activities within a protected area.

The 1980s and 1990s Park Policy and Fire Management

In 1978 Ontario Provincial Parks released *Ontario Provincial Parks: Planning and Management Policies* that quickly became known as "The Blue Book" because of its blue vinyl cover. Within the blue book there are clear statements for all classes of parks and zones within the parks about fire. It states; "fire occurrence is recognized as a process integral to an evolving natural succession in certain cases or for perpetuation of existing vegetative conditions in other cases. Natural fire in Nature Reserve and Historical Zones normally will be allowed to burn undisturbed unless they threaten human life." For Wilderness Parks the direction went further to say that a fire management plan be prepared for each Wilderness Park.

Meanwhile the Fire Management Program was taking a different tack. In order to ensure the achievement of the fire management objectives of Ontario as stated in the Forest Fire Management Policy for Ontario, AF.03.01, March 8/89 the prevention of personal injury, value loss and social disruption resulting from a forest fire became paramount. This position was supported in all regional fire management strategies developed between 1985 and 1988 and reflected by a level of protection continuum from south to north in three zones: intensive, measured and extensive.

Despite the policy position of Ontario Parks for fire to be "allowed to burn undisturbed" the practice in the intensive zone, which covered most of the province where most of the parks were located, was to aggressively suppress all fires whether they were natural or not and whether they were in parks or not.

1980 and 1990s Evolving Fire Management

With the promotion of the fire management direction in the Ontario Park's Blue Book and the growing awareness that resource managers needed to acknowledge the ecological role of fire in their management practices, the MNR Fire Program recognized that many ecosystems within Ontario's parks and protected areas (and all across the province) required fire disturbance for natural renewal; and that parks and other protected areas containing examples of these fire-dependent ecosystems would not continue to represent the natural heritage they were designed to protect unless exposed to fire in the coming decades. At the time Ontario Parks and the fire management program had great success using prescribed burning to restore and maintain unique and threatened Tallgrass Prairie and Oak-Savannah ecosystems in southern Ontario.

In northwestern Ontario several interim fire response plans were created and by 1997 the Quetico Fire Management Plan was approved, and prescribed fire and managed fire for ecological benefit began to be practiced.

Quetico Fire Management Plan

Quetico Provincial Park (Quetico) started actively managing fire under the direction of the 1997 Quetico Provincial Park Fire Management Plan. Since the approval of the 1997 Fire Plan, new and revised provincial policy, and guidelines have been implemented. As a result, the 1997 plan required review and update to reflect these changes and incorporate any new management direction for Quetico. The Quetico Fire Management Plan now provides fire management direction for Quetico Park from 2009-2019.

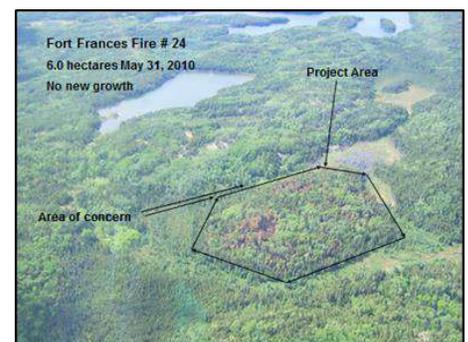


Figure 1. A managed fire in Quetico Provincial Park - managed in accordance with the Quetico Fire Management Plan.

The 21st century – Can Fire Have a Natural Role?

A New Era – 2004 Forest Fire Management Strategy For Ontario

In 2004 the newly released fire strategy for Ontario (OMNR 2004) recognized the important role fire plays in Ontario's parks and protected areas, and how the fire management program can support the Ontario Parks mandate of ecological integrity. This was a start of an important relationship between Ontario Parks Branch of MNR and Aviation, Forest Fire and Emergency Services (AFFES) Branch of the MNR.

The fire strategy stated:

“Detailed planning will be required to re-introduce fire to parks in Ontario. In addition, the application of fire in parks will require a firm understanding of science, monitoring and measurement of ecosystem status, planning for safe and effective fire use through prescribed burning and prescribed fire. The fire management program will continue to discuss these science, planning and fire management policies and programs in partnership with Ontario Parks.”

The fire strategy also created a Parks Fire Management Zone where the 10 largest parks in the province are listed and identified to have fire management plans developed. This was the first time that two Branches of the MNR joined together to create and approve a policy; the Fire Management Policy for Provincial Parks and Conservation Reserves (AFFES FM:2:12, PAM 7.02). This policy ensured that the two programs areas are jointly responsible for planning fire management in Ontario parks.

As part of the policy the Fire Program and Ontario Parks joined together to develop the Fire Management Planning Guidelines for Parks and Conservation Reserves (OMNR 2011).

The result is one fire management plan and eight fire response plans where fire is managed to achieve ecological objectives.

Current Fire Management and Fire Response Plans

In Northwestern Ontario Quetico Provincial Park has an approved fire management plan and there are 8 fire response plans which cover 22 protected areas and Crown land areas. These are:

- Lac Seul North (includes a park and crown land)
- Woodland Caribou Signature Site
- Islands and Peninsulas of Lake Nipigon
- Lac Seul Islands Conservation Reserve
- Islands of Lake Superior
- Wabikimi Provincial Park
- Lake of the Woods
- Eagle Lake Islands

What History Has Taught!

When it comes to managing forest fires it just does not happen without a coordinated effort, forethought and planning. The good intentions of one part of an organization may not be supported by another part of an organization. It is also important to understand when it comes to resources management there is always a need to balance all of the objectives. And when playing with fire that balance requires a commitment to cooperative planning.

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Along a Rickety Road: One Hundred Years of Railway Fire in Ontario's Forests.

By Mary R. Grunstra and David L. Martell

Since the establishment of Canada's first railroads in the 1830s, railway activity has been a significant source of forest fire across the country, posing threats to public safety, property, and natural resources, and placing strains on fire management resources. In this paper we explore temporal trends in railway fire activity in the province of Ontario between 1914 and 2011, focusing on the impact that technology, policy, and railway activity may have had on forest fire.

In the late nineteenth and early twentieth centuries, Canada experienced unprecedented growth in settlement, trade, travel, and communication with the establishment of numerous new railroads. After the completion of the Grand Trunk Railway in 1860, which ran from Montreal to Sarnia, eastern and western Canada were connected by the Canadian Pacific Railway in 1885. Vast and isolated expanses of Ontario's north next witnessed a proliferation of railroad construction. The Canadian Northern, completed in 1915, stretched from Québec City to Vancouver. The Algoma Central Railway, which ran from Sault Ste. Marie to Hearst, was completed in 1914. By 1909, the Temiskaming and Northern Ontario Railway linked southern Ontario to the province's northern Clay Belt, ending in Cochrane. For the first time in Ontario's history, previously isolated regions became accessible to an unparalleled extent, and towns and villages established themselves prolifically along the lines.¹

With the benefits of the locomotive came the threat of forest fire. The construction of railway track saw “the great pulpwood forests lying on the height of land and extending on both sides” of the railroad exposed to the destructive practices of construction camps, whose builders often showed “no interest in or care for public property,” burning slash on either side of the track with little regard for controlling or extinguishing fires (OMNR 1915).² Once the lines were constructed, steam-powered locomotives also proved infamously hazardous, chugging across expanses of Ontario's boreal forest where “old logs, stumps and other debris” along the rights-of-way “had been allowed to collect for years,” enabling the smallest escaped sparks to ignite quickly and grow to uncontrollable sizes.³ Along with sparks emitted in chimney exhaust, burning embers, collected in ash pans, were emptied hot onto the rails by passing trains.⁴ By 1910, Robert H. Campbell, publishing a bulletin for the Dominion Forestry Branch, stated that the railways were “well up in the list of the causes of forest fires. If they do not lead, they always follow close in the black array.”⁵

As the railway networks expanded, so did the number of forest fires. In his 1915 report on fire protection in Canada, Clyde Leavitt, Chief Fire Inspector for the Board of Railway Commissioners for Canada and Chief Forester of Canada's Commission of Conservation, cited the need for strict regulation of equipment and land management, enforcement of policy, and cooperation among railway workers and provincial and federal personnel.⁶ New legislation was soon passed to bridge the gap between federally regulated rail activity and provincially managed natural resource protection. Ontario subsequently experienced a significant decrease in railway fires each year, and rail and forest professionals espoused the progress made in reducing the flammable nature of Canadian railways.⁷ By 1928, Leavitt lauded improvements made in railway fire prevention, applauding the “triangular cooperation between the Board, the Government Forest Services, and the railways.” He continued that “though fires still occur, their number is much reduced, and most of them are extinguished in their incipiency, so that the railways have become a minor instead of a major element in the destruction of our forests,” also noting that railway fires were at a record low.⁸

¹ M.L. Bladen, “Construction of Railways in Canada Part II: From 1885 to 1931” *Contributions to Canadian Economics* 7 (1932), pp. 61-107; M. L. Bladen, “Construction of Railways in Canada to the Year 1885” *Contributions to Canadian Economics* 5 (1934), pp 43-60.

² Ontario Department of Lands, Forests and Mines, Report of the Minister of Lands, Forests and Mines of the Province of Ontario, (Toronto: King's Printer, 1915).

³ Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1915.

⁴ Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1908; Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1909.

⁵ Clyde Leavitt, “Railway Fire Protection in Canada,” *The Forestry Chronicle* 4, no. 4 (1928), pp. 10-19.

⁶ Clyde Leavitt, *Forest Protection in Canada: 1912-1914*, (Toronto: William Briggs, 1913-1915).

⁷ Leavitt, 1928; H.W. Beall, “Theme Address- Fire Highlights in the Development of Forest Fire Protection in Canada,” *The Forestry Chronicle* 31, no. 4 (1946), pp. 332-337.

⁸ Leavitt, 1928.

Three decades later in 1955, Herbert Beall, a Canadian pioneer of forest fire research who was instrumental in establishing national fire protection standards, likewise praised the progress made in railway fire prevention in his opening address to the Forest Fire Protection Annual Meeting for the Canadian Institute of Forestry. Beall emphasized Ontario's enormous decrease of railway fires, and like Leavitt, noted that cooperative efforts between federal and provincial agencies and the rail industry had been pivotal to realizing this reduction.⁹

More recently, and in stark contrast to the works of Beall and Leavitt, in its 2007 submission to the Railway Safety Act Review Advisory Panel the Canadian Interagency Forest Fire Centre (CIFFC) newly highlighted the threats posed by railway fires, emphasizing an urgent need for changes in policy and industry standards to mitigate the danger posed by railway fires.¹⁰ CIFFC claimed that the Railway Safety Act (RSA) of 1995 is insufficient in protecting forests from railway fires, due largely to its lack of provision of effective mechanisms for administering responsibility and ensuring enforcement and compliance with the law. CIFFC argued that communication between industry and fire managers is insufficient, that the railways are not reporting fires on the rights-of-way, and that they have relinquished responsibility to respond to and fight railway fires, relying instead on public agencies to do the job.¹¹

CIFFC's report raises new questions about the efficacy of Ontario's railway fire prevention strategies. Exploring temporal trends in railway fire throughout the past hundred years and contextualizing current railway fire activity may provide increased understanding of the improvements that have been, and still need to be made, in the prevention of railway fires.

Data:

Historical data on the number of railway fires¹², total number of forest fires and acres burned per year were obtained from the Report of the Minister of Lands, Forests and Mines of the Province of Ontario for the years 1914 to 1919, from the Report of the Minister of Lands and Forests of the Province of Ontario for the years 1920 to 1968, and from the Ontario Ministry of Natural Resources' (OMNR's) digital fire report archive for the years between 1969 and 1989. All data on railway fires, the total number of forest fires, area burned and human-caused fires for the years 1990 to 2011 were obtained from the National Forestry Database.¹³ For 1914 and 1915, only the total number of fires per year and the percent of fires classed as railway fires were provided in the Report of the Minister of Lands, Forests and Mines of the Province of Ontario, so the number of railway fires for those years was tabulated from those figures. In 1916, no precise percent or number of railway fires could be found in historical sources, although the Report of the Minister of Lands, Forests and Mines of the Province of Ontario states that railways caused just under 50% of the total number of fires that year. We therefore assumed that railway fires comprised 49% of the total number of forest fires in 1916, and the number of railway fires was tabulated using this figure. The numbers of human-caused fires that occurred between 1914 and 1990 were calculated by subtracting the number of lightning fires and number of fires attributed to unknown causes from the total number of fires per year. Railway fires as a percentage of human-caused fires was then calculated by dividing the number of railway fires per year by the total number of human-caused fires. The area burned by railway fires as a percentage of area burned by human-caused fires was calculated in the same manner.

National data on railway activity were used as a proxy for railway activity throughout Ontario because such data were not consistently available at the provincial level. Data on the number of steam and diesel locomotives and freight car kilometres, defined as the movement of a freight car over one kilometre of track, were obtained from Historical Statistics of Canada for the years 1907 to 1960¹⁴ from the Railway Transport series from 1919 to 1995¹⁵ and from Statistics Canada for the years 1986-2009.¹⁶

⁹ Beall, 1955.

¹⁰ Wildland Fires Resulting From Railway Operations- A Public Safety Threat, Railway Fire Prevention Task Team, Canadian Interagency Forest Fire Centre, July 24, 2007, Submission to the Advisory Panel, RSA Review (July 2007), <http://www.tc.gc.ca/media/documents/rfa-lsf/ciffc.pdf>.

¹¹ Canadian Interagency Forest Fire Centre, 2007.

¹² We use the term "railway fires" to refer to fires that the Ontario Ministry of Natural Resources and its predecessor, the Ontario Department of Lands and Forests, classified as railway fires.

¹³ National Forestry Database, tables 3.1, 3.2, 3.3, last modified June 14, 2012, http://nfdp.ccfm.org/fires/national_e.php

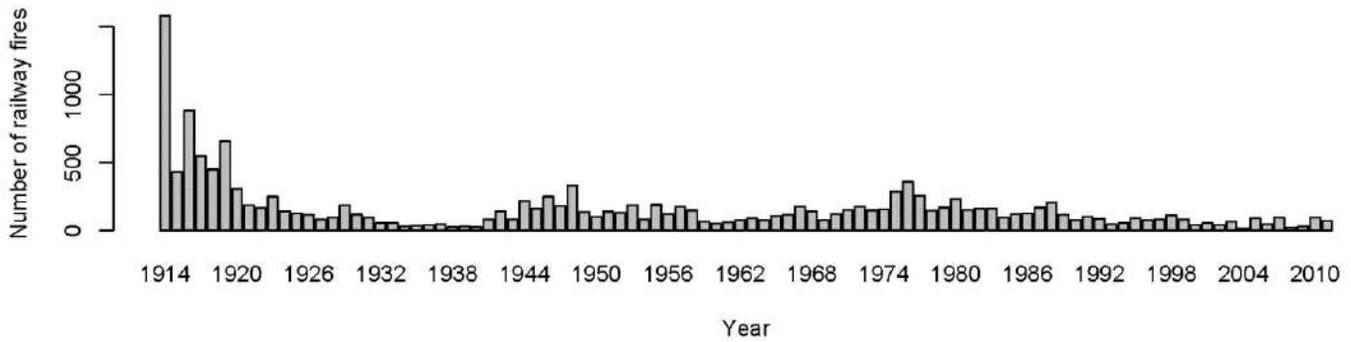
¹⁴ M.C. Urquhart and K.A.H. Buckley, Ed. Historical Statistics of Canada (Toronto: The Macmillan Company of Canada Ltd, 1965).

¹⁵ Statistics Canada, Railway Transport: Comparative Statistics, (Ottawa: 1919-1995).

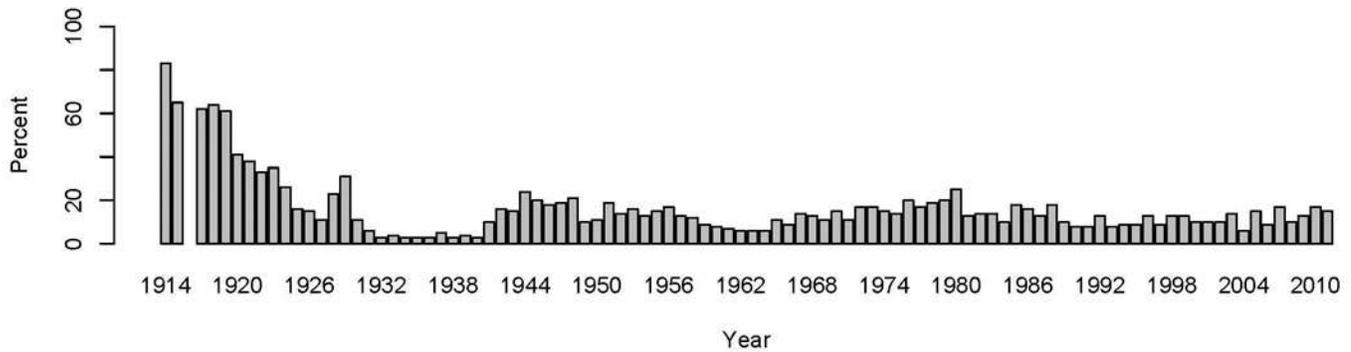
¹⁶ Statistics Canada, CANSIM tables 404-0015 and 404-0017, last modified March 27, 2013,

<http://www5.statcan.gc.ca/cansim/a33?lang=eng&spMode=tables&themeID=4011&stByVal=2&RT=TABLE>.

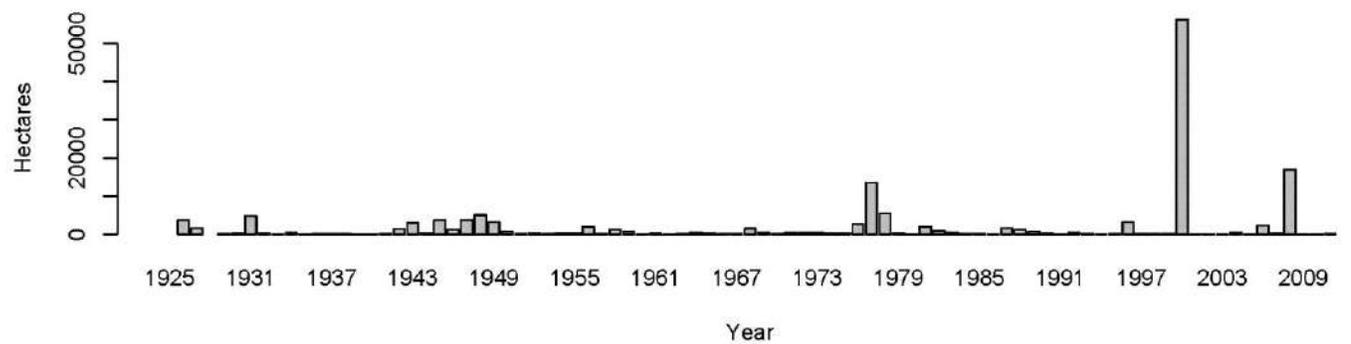
Number of railway fires in Ontario, 1914-2011



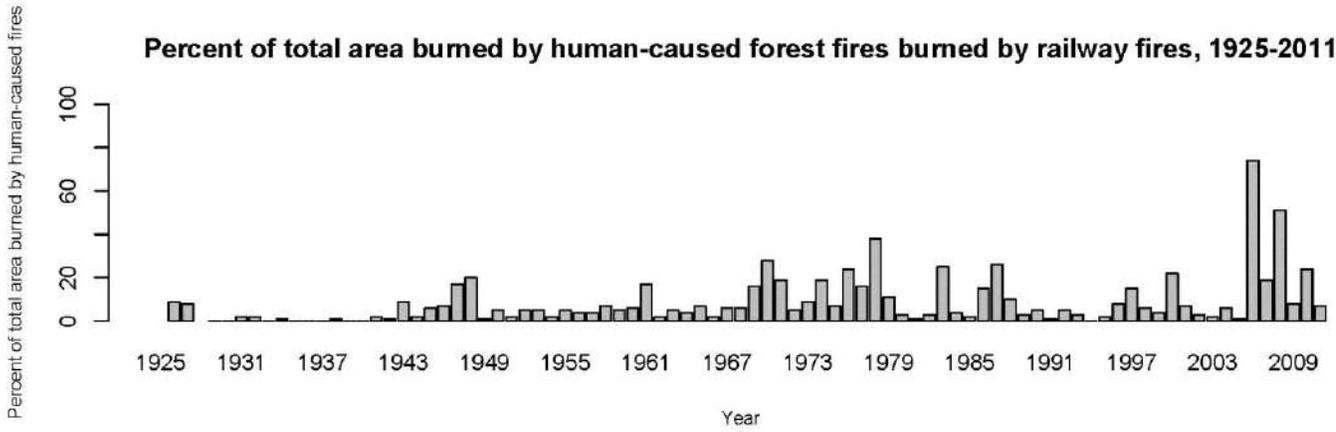
Percent of human-caused forest fires classed as railway fires in Ontario, 1914-2011



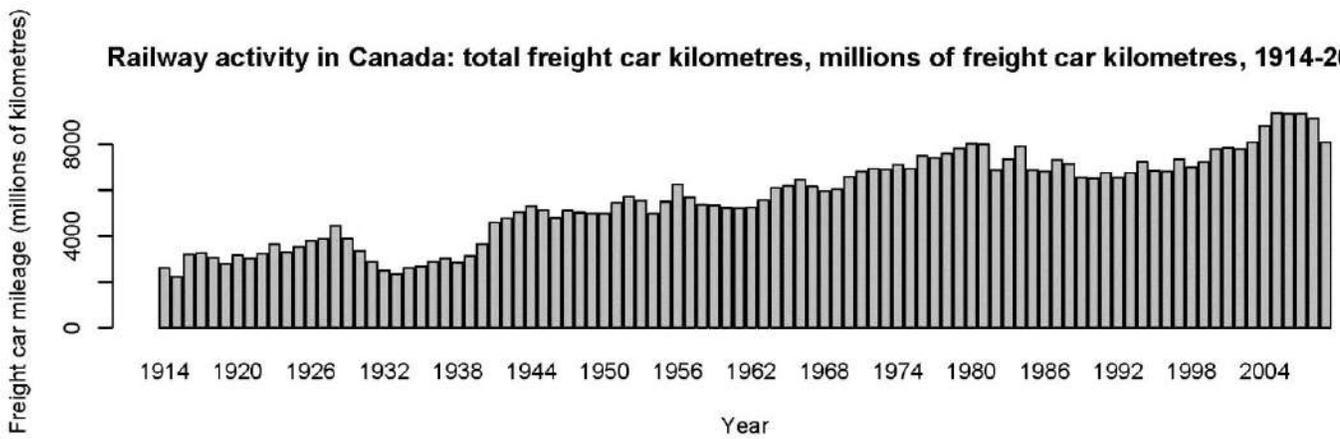
Area burned by railway fires in Ontario, 1925-2011



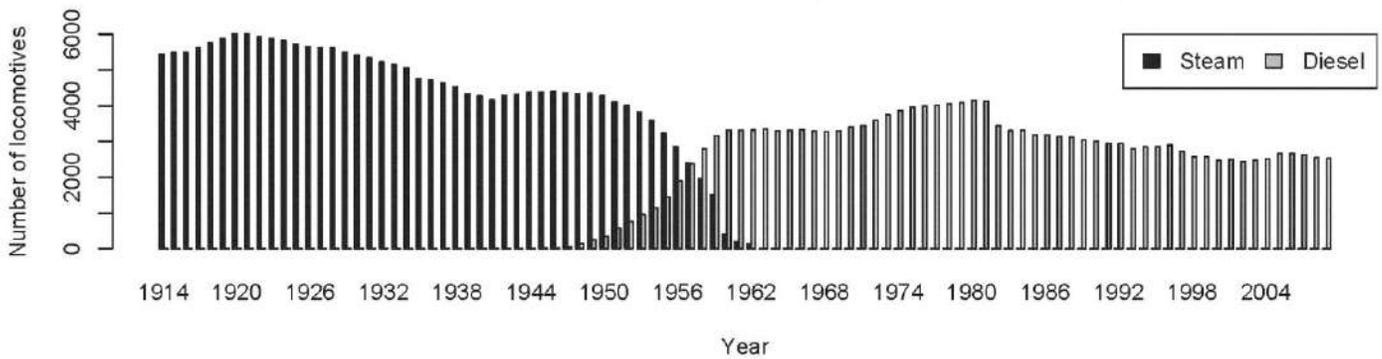
Percent of total area burned by human-caused forest fires burned by railway fires, 1925-2011



Railway activity in Canada: total freight car kilometres, millions of freight car kilometres, 1914-2009



Number of steam and diesel locomotives in operation across Canada, 1914-2009



Results & Discussion

Both the number and percent of human-caused forest fires attributed to railways in Ontario decreased dramatically throughout the early decades of the twentieth century, up until the late 1930s. Beginning in 1940, the number of railway fires per year appears to have developed a damped cyclic pattern that persisted for forty years, where after the number of railway fires again decreased from 1980 onwards. Mapping fires across time shows that railway fires have decreased significantly over the past hundred years, both in number and as a percentage of all human-caused fires. The increase in total freight car mileage, the parameter we used to represent railway activity, reveals that while the number of railway fires has generally decreased over the past century, railway activity has increased. This suggests that over the long-term, fire prevention practices have become increasingly effective, which is consistent with the early statements made by Beall and Leavitt.

The area burned by railway fires varies enormously from year to year, as does the area burned by all forest fires in Ontario. Over the past thirty years, the same period during which the number of railway fires appears to have been decreasing, railway fires have been responsible for burning more than 90,900 hectares of land, ranging in any given year between 0% and 74% of all area burned by human-caused fires. The average annual area burned by railway fires over this period is 2,840 hectares. Although the number of railway fires has decreased in the last thirty years, the total area and percent of area burned by railway fires illustrate that railway fires continue to burn large areas.

As a percentage of all human-caused fires, railway fires have remained relatively stable since the late 1970s, responsible for approximately 12.5% of all human-caused fires since 1980. While the number of railway fires has decreased dramatically since the early twentieth century, and to a lesser extent since the 1970s, the unchanging percent of human-caused fires started by railways over recent decades suggests that few new effective developments have been made to reduce railway fires since the early 1980s.

That technological developments have dramatically affected railway fire activity throughout the past century is an intuitive conclusion. The decreasing number of steam and diesel locomotives since 1920, the year during which several bankrupted rail companies were nationalized under the Canadian National Railways, indicates that as railway activity has increased over the past hundred years, so has technological efficiency. Advances in fire prevention technology are also evident in the early twentieth century. Prior to 1910, careless procedures proliferated, with hot embers from fireboxes emptied straight onto the tracks and live sparks regularly emitted through the blastpipes and chimneys of wood and coal burning locomotives.¹⁷ General Order No. 107 of The Railway Act (1913) saw the legal institution of fire prevention appliances on all active locomotives. Such appliances included small-gauge metal nettings that completely covered chimney apertures and sheet-iron coverings for ash pans. For the entirety of the fire season from April to October, ash pans were to be wetted by steam from the boiler. Nettings, dead plates, ash pans, dampers, and all other fire-preventing appliances had to conform to the standards of the Board of Railway Commissioners.¹⁸

The adoption of the diesel engine in 1943 also undoubtedly impacted railway fires. By 1948, 148 diesel trains were in service across Canada, and by the early 1960s, steam engines were no longer used.¹⁹ The change to diesel engines was accompanied by changes in fuel. Wood, charcoal, lignite, anthracite and bituminous coal were most commonly used in the early 1900s. The use of lignite coal was banned in 1907.²⁰ Next, rail companies ceased using charcoal in 1928. Throughout the 1940s and 1950s, the use of wood and anthracite coal was also abandoned and bituminous coal, higher in quality than lignite but lower in quality than anthracite, was the only solid fuel used until the steam train was replaced by diesel. Throughout the century, diesel, fuel, and crude oil were increasingly used to power trains.²¹

Although the use of liquid fuels deposited fewer fuel-related firebrands on railway rights-of-way than did those used by steam locomotives, diesel-powered trains were not blameless in starting fires. Across the Great Lakes, several fires in the 1950s were attributed to the ejection of smouldering carbon from engines.²² The same study suggested that diesel trains carrying passenger and fast-moving freight were less likely to cause fire than those transporting local freight or switching trains (Weir 1950).²³ In 1951, the province began testing the efficacy of spark arrestors on stove-pipes on diesel trains in an attempt to reduce the number of diesel-

¹⁷ Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1908; Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1909.

¹⁸ Leavitt, 1928.

¹⁹ Statistics Canada, Railway Transport, 1919-1995.

²⁰ Report of the Minister of Lands, Forests and Mines of the Province of Ontario, 1913.

²¹ Statistics Canada, Railway Transport, 1919-1995.

²² D.F. Weir, "Railroad Fire Control in Michigan," Fire Control Notes 15, no. 4 (1950), pp. 6-8.

²³ Weir, 1950.

powered railway fires.²⁴ According to CIFFC, railway fires today are most frequently caused by exhaust carbon emissions, braking and brake shoes, worn wheel bearings, and track maintenance.²⁵

Changes in policy and enforcement have also undoubtedly played a huge role in reducing railway fires over the century. While Ontario's An Act to Protect Forests from Fire (1878) laid out basic protective measures prior to the twentieth century, The Railway Act (1903) and Forest Fires Prevention Act (1917) implemented standards for fire prevention equipment on trains, slash disposal along rights-of-way, enforcement of policy through inspections and fines, and financial liability for fire ignition. Under these acts, regular patrol of rights-of-way using the rail velocipede and rail motor cars was established, with rangers that could patrol eighteen to twenty miles of track per day by 1918.²⁶ By 1923, 151 rail velocipedes travelled daily along vulnerable portions of railroad throughout the fire season.²⁷ Between 1925 and 1960, the province also maintained between forty to fifty railway motor cars for the same purpose²⁸, revealing substantial shifts in perspectives from the early 1900s.

Conclusions:

The long-term trends over the past hundred years reveal that the number of Ontario railway fires has decreased dramatically while rail activity has increased across Canada. These long-term reductions of railway fires are likely attributable to a variety of factors, including changing technology, policy, and rail activity. Over the past thirty to forty years, however, trends are more difficult to identify. Further research, including the development of statistical models that incorporate climate, policy, technology, and rail activity variables, may help shed light on some of the many factors that may have contributed to recent trends in railway fire activity.

Acknowledgements

This research was supported by the Natural Sciences and Engineering Research Council of Canada and the Ontario Ministry of Natural Resources.

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²⁴ Report of the Minister of Lands and Forests of the Province of Ontario, Ontario Department of Lands and Forests (Toronto, 1951).

²⁵ Canadian Interagency Forest Fire Centre, 2007.

²⁶ Report of the Minister of Lands, Forests, and Mines of the Province of Ontario, 1918.

²⁷ Report of the Minister of Lands and Forests of the Province of Ontario, 1923.

²⁸ Report of the Minister of Lands and Forests of the Province of Ontario, 1923 - 1960.

“The Biggest, Blackest Graveyard”

By Mike Commito

The Mississagi Fire of 1948

This upcoming summer marks the sixty-fifth anniversary of the most destructive forest fire in Ontario’s history: the Mississagi. However, due to the fact that the conflagration only claimed the life of one valiant fire-fighter, it has not received the type of coverage or historical attention that Ontario’s other killer blazes have. These fires include the Porcupine fire of 1911 that killed seventy-three people, destroyed an estimated \$3 million worth of property and burned approximately 500,000 acres.¹ Worse still was the Matheson fire of 1916 that killed 224 people, making it the deadliest fire ever in Canadian history.² The last “killer” forest fire struck Haileybury in 1922, rendering 6,366 people homeless, scorching 414,720 acres of woodlands and killing forty-three.³ While it is not the duty of a historian to necessarily weigh tragedies, my point is that even though the Mississagi fire did not produce a significant loss of life it deserves greater study because it was the largest fire Ontario had ever experienced and its aftermath led to a number of noteworthy changes to the province.

The massive area that the fire razed was centred within the Mississagi River Valley and the Chapleau district. Reports from both areas in the months preceding the fire indicated that they had been suffering from drought; there had been very little precipitation and water levels were low. With extremely low water levels in the lakes and streams in both sections and no recorded rainfall after early May, both areas had been rendered tinderboxes.⁴

The source of ignition came on 25 May 1948. Fires began and rapidly spread in both the Mississagi River Valley and the Chapleau areas. Beginning as two separate fires, they were quickly referred to simply as one entity once the two conflagrations joined later that summer: the Mississagi. Both blazes were the by-products of human error – a poacher’s negligence and a construction accident – but the government simply called it “the long black arm of human carelessness.”⁵

As the fire’s intensity increased (it had already consumed approximately 500,000 acres by mid-June) settlements near and far began feeling its devastating effects. Figures 1 and 2 show smoke from the fire.⁶ In White River, to the fire’s west in neighbouring Algoma district, it was reported that cottagers being evacuated had to use flashlights in broad daylight because of the thick plumes of smoke. At the fire’s apex, the United States Weather Bureau reported that it was the cause of a gigantic smoke cloud travelling south. According to the *North Bay Daily Nugget*, “the air over Washington [DC] appeared to be filled with haze ranging from light to dark gray and the early sun was ringed with a bright red halo.”⁷



Figure 1. This photograph shows a wall of thick smoke billowing above the few trees standing on a shoreline near Thessalon in 1948. Photo Credit: Thessalon Public Library.

The fire expanded at a rapid pace throughout the month of June, which led the Department of Lands and Forests (DLF) to experiment with artificial rainmaking. Thirty-eight years earlier in Wallace, Idaho, when the United States Forest Service battled one of the worst forest fires in American history, it had become so fraught with fear that it

¹ Michael Barnes, *Killer in the Bush: The Great Fires of Northeastern Ontario* (Erin, ON: The Boston Mills Press, 1987), 22.

² Stephen Pyne, *Awful Splendour: A Fire History of Canada* (Vancouver: University of British Columbia Press, 2007), 424.

³ Barnes, 63-67.

⁴ B.J. Stocks and J.D. Walker, “Climatic Conditions Before and During Four Significant Forest Fire Situations in Ontario,” (Sault Ste. Marie, ON: Great Lakes Forest Research Centre, 1973), 19-21.

⁵ Gord Campbell, “The Mississagi Forest Fire 1948,” (BScF Honours Essay, University of Toronto, 1974), 4.

⁶ Thessalon Public Library, Historical Account of the Mississagi Fire.

⁷ “Bush fire smoke rolls in U.S.,” *North Bay Daily Nugget*, 12 June 1948, 4.

had frantically tried to induce rain by aiming dynamite and cannon fire into the clouds for sixty straight hours.⁸ Of course no rain fell.

The days of directing cannon fire into the air had passed and the DLF believed it possessed a feasible means of creating precipitation. Beginning on 10 June 1948, “cloud seeding” experiments began that involved K.E. Pettit of the Dominion Meteorological Service flying to an altitude of 15,000 feet and releasing a payload of dry ice over the cloudbanks. While the DLF argued that the artificial rainmaking was yielding some moderate success, the actual success was that the Department was able to focus attention on its daring technological feats while diverting it away from the fact that the fire was still raging out of control. By the end of the campaign, the DLF had definitively ended any further experiments with artificial rainmaking. Incidentally, it would not see a successful integration of aircraft and water until the development of the contemporary water bomber some ten years later.⁹



Figure 2. This is the type of smoke-choked scene that pilots would have encountered when flying near the fire or even in distant locations as mentioned. This is an aerial photograph taken near Thessalon in 1948. Photo Credit: Thessalon Public Library.

Firefighters and DLF personnel on the ground were also acutely aware of how dire the situation was becoming. During an interview with *Maclean's* an anonymous firefighter stated that “If God ain’t too busy tonight, he’d better send us rain. A whole helluva lot of rain. Or there ain’t goin’ to be no Mississagi timber left. An [sic] no camps, no game, no fish. No nothin’ but the biggest, blackest graveyard you ever seen.”¹⁰



Figure 3. Firefighters valiantly battle the flames in the final month of the blaze, near Thessalon in August 1948. Photo Credit: Thessalon Public Library.

The tide finally began turning on the morning of 22 June, as rain showered the burning area, dousing it intermittently for the next ten days (Figure 3).¹¹ This development was crucial to snuffing out the fire, for both the Mississagi and Chapleau regions; this was the first recorded rainfall in over a month. The downpour in both areas proved to be the decisive factor in the suppression campaign as the fire’s intensity and expansion were significantly checked. Fire fighting efforts continued until 21 July, largely against sporadic smudge fires, until the DLF classified the situation as under control. By 1 August 1948, all fire fighting crews had been withdrawn and the Mississagi fire was extinguished.¹²

The destruction caused by the Mississagi fire was extensive. It claimed the life of one valiant firefighter and scorched an unprecedented amount of land: 747,520 acres.¹³ Of this total, fifty-four townships were affected and the DLF estimated that seventy-five per cent of the burn had occurred in mature forest types. Gord Campbell calculated that the fire destroyed 205,432,560 foot board measure (fbm) of coniferous timber – white, red, and jack pine. The

⁸ Timothy Egan, *The Big Burn: Teddy Roosevelt and the Fire that Saved America* (New York: Houghton Mifflin Harcourt, 2009), 145.

⁹ Richard A. Rajala, *Feds, Forests, and Fire: A Century of Canadian Forestry Innovation* (Ottawa: Canada Science and Technology Museum, 2005), 85-87.

¹⁰ Bruce McLeod, “Red Hell on the Mississagi” *Maclean's*, 15 August 1948, 39.

¹¹ Thessalon Public Library, Historical Account of the Mississagi Fire.

¹² Archives of Ontario, PAMPH 1964 #2, “Blind River Fire Report,” (Toronto: Queen’s Printer, 1964)

¹³ Pyne, 430.

damage to deciduous trees – white and yellow birch, poplar, and maple – was considerably less, amounting to 316,481 cords. Lastly, the fire also destroyed the equivalent of 3,134,020 railroad ties in jack pine logs and 407,423 posts of cedar.¹⁴ In addition to the loss of valuable timber, the out-of-pocket cost to the DLF of suppressing the fire was over \$500,000.¹⁵

Unlike previous forest fires in the province, this one led to unprecedented action from the DLF in the form of a massive salvage operation (Figure 4).¹⁶ To carry out the huge project, the government enlisted the services of



Figure 4. Department of Lands and Forests Surveyor Bill Hilborn make notes of the destruction on the ground to help prepare for salvage planning. Photo Credit: Photograph taken by K.M. Andresen in the Mississagi River Valley, July 1948; photograph provided by Gord Campbell (private collection).

some of the province's smaller and more inexperienced companies. While the operation had its share of hurdles and was occasionally marred by episodes of unprofessionalism, it would go on to produce some noteworthy achievements. In terms of its lumber production, the DLF, through its contractors, was able to salvage 300,000,000 fbm of fire-damaged timber. In addition, in order to access much of the salvageable timber, the contractors and the Crown needed to construct over 540 miles of all-weather and logging roads. They added to Ontario's rapidly expanding transportation network, and facilitated the penetration into a part of the province that had been previously inaccessible and remote. This was greatly beneficial to Ontario's timber industry in particular and to the province in general as it considerably increased the ease with which visitors could enjoy Ontario's natural offerings.¹⁷

Eleven years after the Mississagi, author Frank Rasky took out ad space in the *Toronto Telegram* to solicit information and stories about Ontario forest fires for a chapter in his prospective monograph, *Great Canadian Disasters*. When the book was released two years later, the chapter "Fire in the North" opted to focus on the three deadly conflagrations outlined in this introduction with no mention at all of Ontario's more recent and significant blaze.¹⁸

A fire of this magnitude deserves greater recognition than it has received.

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¹⁴ Campbell, 139.

¹⁵ Ministry of Natural Resources, Blind River Depot, Special Collection, "Mississagi Salvage: Financial Report," 19 October 1953.

¹⁶ Thessalon Public Library, Research File, Historical Account of the Mississagi Fire.

¹⁷ Archive of Ontario, RG 1-243, Department of Lands and Forests News Releases, Box 1, 25 May 1953, 5.

¹⁸ Frank Rasky, *Great Canadian Disasters* (Toronto: Longmans Green and Company, 1961) Chapter 9, "Fire in the North," 188-216.

The Great Fire of 1922 (The Haileybury Fire)

By Rob Galloway

Editor's Note: This article was first published in the Forestry Chronicle in 2012, VOL. 8 (6): 675-676. It is reprinted with permission.

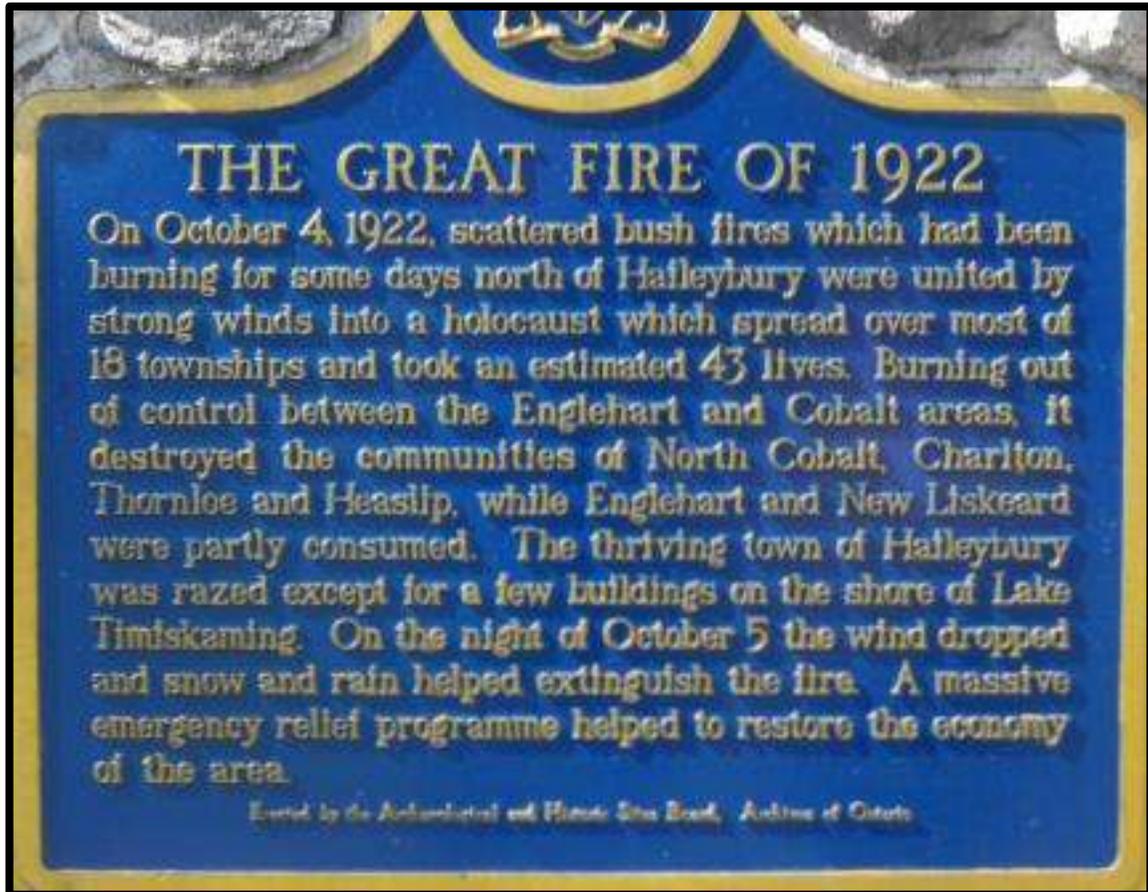


Photo Credit: Rob Galloway

Fire Report

Place: Haileybury, Ontario;

Size of burn: over 500,000 hectares;

Number of people affected: 43 people killed;

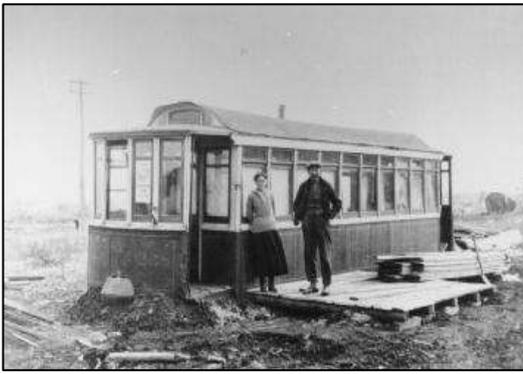
Property destroyed: around 8 million dollars' worth of damages (houses, businesses, churches and many farm animals were all destroyed);

Cause: never determined, although some believed it was arson.

The above historical fire report sums up one of Canada's 10 worst natural disasters. It was devastating to many communities. Eyewitness reports from Haileybury, Ontario and Notre-Dame-du-Nord, Quebec provide an idea of the impact the fire had on people that day. Could it happen today? Have we changed enough of our knowledge and improved practices.

“The summer of 1922 was unusually hot and dry in northern Ontario, so hot and dry that worried fire rangers asked the government for permission to stay on for the approaching “burning” season, when farmers were allowed to clear land with small brush fires. Bureaucrats, however, denied the request and on September 12th, all fire rangers left the area around Lake Temiskaming. With burning permits now unnecessary, settlers were quick to take advantage and farmers began to set the small fires needed to improve their land. On October 4th, gentle fall breezes unexpectedly turned into hurricane-force winds. The small fires, burning on ground dried out from summer heat, soon merged into an inferno. In Haileybury, citizens paid little attention to the smoke, at first no different than the smoke that drifted into town every year during burning season. When the flames approached the town, however, people panicked. In the thick, black smoke, families had difficulty finding each other. A clerk at the telegraph office wired to North Bay, “Haileybury is on Fire. Send help!” Most people headed to the lake, covering themselves with wool blankets, where they waited, shivering, for six hours. By midnight the fire had finally burnt itself out, leaving 90 % of Haileybury in cinders.”

Source
Haileybury Heritage Museum



Disused Toronto streetcars were shipped north to be turned into temporary shelters.

The fire was devastating to residents. Churches that had been built as the town established itself were destroyed as was much of the town. It was definitely time to start over and re-establish the town. It is not as commonly known but many villages on the Quebec side were also destroyed.

The following account from Notre Dame du Nord leaves a strong realistic feel to this day:

The Great Fire of 1922 – Notre-Dame-du-Nord:

“If there is an outstanding event in the collective memory of Notre-Dame-du-Nord citizens, it undoubtedly is the Great Fire of 1922.

The fire did a lot of damage in the area at the north of Lake Timiskaming. The city of Haileybury was almost entirely destroyed, as was the city of North-Cobalt. People had to get in the water and cover themselves with wet blankets in order to save themselves from the fire.”

“S’il est un événement marquant dans la mémoire collective des gens de Notre-Dame-du-Nord, c’est bien le Grand feu de 1922. Ce feu causa beaucoup de dégâts dans a partie nord du lac Témiscamingue. La ville de Haileybury a été presque complètement détruite, ainsi que North-Cobalt. Les gens devaient se jeter dans les eaux du lac Témiscamingue et se protéger avec une ouverture mouillée pour être épargnés par le feu.”

Notre-Dame-du-Nord and Notre-Dame-des-Quinze communities were very affected by this fire, which happened only a few years after the Spanish flu epidemic. Every year after October 4, the Ontario provincial government used to allow people to light bush fires, even when the risk of forest fire was high due to drought. In 1922, September had been very dry and, when open fires were allowed on October 4, many fires were lit in the north. When the light wind of the morning started to turn into gusts that afternoon, the small fires became a devastating fire quickly spreading towards Haileybury and Notre-Dame-du-Nord. A witness, Hilaire Damphousse, tells the details of the fire's passage in Notre-Dame-du-Nord and Notre-Dame-des-Quinze :

“Distress is at a peak around 3:30 - 4:00 PM; because of the smoke, it is dark as night. But the fire doesn't stop there. It keeps ravaging towards Belle-Vallée, Notre-Dame-du-Nord and Nédelec, leaps over Des-Quinze River to propagate in Notre-Dame-des-Quinze. Like in Haileybury, wind is blowing at 80 miles an hour”.

Here, as in Haileybury, the town is separated in half. The school burns, which had been used as a chapel since the destruction of the old Church in 1918. Today's church, as well as the presbytery, then under construction, is spared. The people whose house was not destroyed are helping as they can. Desolation is great. . . there are screams, moans, cries, it sad to see and hear! Around 6:00 PM, the wind turns to north-west; it saves the north part of the town, but burns the east side up to Desjardins Street. Meanwhile, because of the strong winds, the fire jumps over the river and keep ravaging in Notre-Dame-des-Quinze. The fire is everywhere (. . .) In the evening, around 11:00, the wind becomes very cold and, gathered around a fire (this one much kinder) to warm up, people appreciate from the bottom of their heart the blankets and food given to them. The Great Fire has left desolation everywhere. The morning after, eyes aching and red, the people look, desperate, the six inches of snow, darkened by the ashes, that fell overnight and that is covering the carcasses of the cattle and the remains of the houses. Desperate to the last point, no one can say a word without letting tears drop. It's back to square one."

Source

Hilaire DAMPHOUSSE, Le Grand Feu
de 1922, Manuscrit sans date
Livre du Centenaire: Notre-Dame-du-Nord
1896-1996

Haileybury Heritage Museum had a celebration of the 90th anniversary of the fire on September 29 and 30th. Seven survivors of the 1922 fire attended the celebration. "Bogart Leslie, age 102, played an active role in the celebration" said Allan Bellaire, museum curator. Having had many large fires near Kirkland Lake and Timmins in 2012 brought the memories back for many families of the great fires of Haileybury 1922 and the Porcupine Fire of 1911. It also makes us think how much damage might the fires of 2012 might have caused if we did not have the water bombers, helicopters, Fire Crews and an intensive Fire Management Program in Ontario. We still had a fire that consumed 50,000 hectares and lost property but no loss of life. We have learned much but still need to keep continuously learning and improving.

Photos not included in the Forestry Chronicle article:



This photo shows the tremendous destruction from the fire in the downtown area of Haileybury.



Snow fell the day after the fire went through Haileybury.

Photo Credits: All photos except the first one are credited to Haileybury Heritage Museum, Haileybury, Ontario.

The Life of Ontario's Fire Tower Watchmen

By Clayton Self



Maple Mountain Fire Tower

Photo Credit: Ottertooth of Temagami.

Each year in Ontario alone there has been an average of approximately 1,400 forest fires. Most of these have gone unheard of in the south. Back in the mid-1900s many of these were caused by either careless smokers or campers. According to an article in 'Forest Protection in Ontario: 1960,' "Perhaps the most serious single cause of forest fires is the careless smoker- usually unaware of how lethal his cigarette may be and so accustomed to throwing his butt on the city pavement: turned loose in forested areas, he becomes our number one menace." Of course, the single best way to stop a forest fire is never to let it start. Before our modern aerial fire detection system was organized in the late 1960s and early 1970s, most fires were reported to Ontario's Department of Lands and Forest (the Ministry of Natural Resources since 1972) by the public and by Ontario's first line of defense against forest fires – our fire tower watchmen.

The first fire tower lookouts across the province were wooden and were erected after the turn of the century in the WWI era. Most of these were about 35 ft. high. As the forest trees grew in height many of these were abandoned and 80 ft. light steel towers were put up in their place during the 1920s and 1930s. The towers over time were grouped into twenty-two individual Ontario Fire Districts such as the Tweed, Parry Sound, North Bay, and Sudbury Fire Districts. Towers were arranged over the years in specific spots to get the best view possible between each tower. The Department of Lands and Forests would sometimes place cameras on 100 ft. poles and take photos at a 360 degree radius to get a look at the area that could be seen then they could determine where best to erect a tower. Usually the best bet was to put the early warning tower on top of a naturally high elevation like a sloping hill.



Typical fire tower sign.
Photo Credit: Rob Eno.

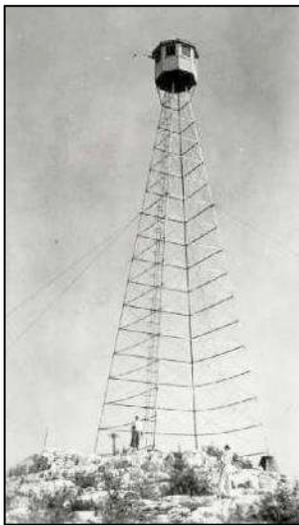


The view from the Garrow Lake fire tower.

Being a tower watchman was seasonal work starting May 1st and ending October 1st depending on weather conditions. They worked long daylight hours, especially in the summer months when there was a higher fire index. The Forest Fire Index System was, and still is, used in Canada as a measure of fire hazard. According to ex-Lands and Forests employee, Doug Mumford, "Most fires were located by using two towers giving the location of a fire on their map based on a 360 degree radius and we could pinpoint the degrees given to us by several towers to get the exact location of a fire." The tool they used to spot a smoke was called an alidade. It was mounted on a circular table with a map of the area and a degree ring to plot fire direction. The tower was plotted exactly in the center of this map. The observer reported the compass direction, distance and size of the fire to headquarters by 'bush phone lines' in the early years and by two-way radios in later years. If other towers reported the fire then a 'fix' could be plotted on the map at headquarters. At headquarters, there was a larger map of their assigned area, and every tower was marked by a point and these were encircled by a larger compass index.

Most tower watchmen were supplied with ham radios and bunkhouses where they lived all summer. The towers were often so far back in the bush that commuting wasn't an option. It goes without saying that being married or raising a family was not always a part of a tower watchman's life during their tower tenures. Recently, however, I had the chance to talk with the wife of an ex-tower watchman. According to Mrs. Gloria Weight,

whose husband ran the Lutterworth Fire Tower near Moore Falls, Haliburton, "As far as I know I was the only wife who got to spend the summer at a fire tower. I cooked on a little gas stove and met visitors to the tower. We raised our son there in the summer and he climbed the 85 ft. tower by the age of one. We only got to go into town for food and pay cheques once a month during a rainfall."



Willisville fire tower.

Towers were erected by Department workers and the tower watchmen. Some pieces were dropped in by plane in the winter and others were brought in and hauled up hills by horse in the spring. It would take about 2 weeks to assemble from the ground up, starting at the cement block base footings. The steel pieces weren't especially heavy and were bolted at each level. The top cabin (cupolas) were hoisted up piece-by-piece and bolted at the joints. This was not a job for the faint-hearted or those afraid of heights. The heavy steel type was certainly well engineered considering the fact that during high winds they would never shift. Earlier light steel models had a tendency to sway and shift in higher winds, and the odd one that wasn't bolted properly blew over, like the one at Lumsden Twp in 1941.

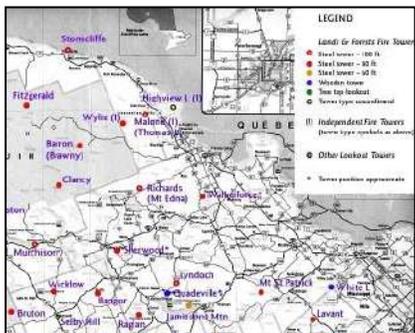
The actual job could become boring at times, so many tower watchmen, I am told, would play musical instruments – the most popular being the fiddle. During low fire indexes, some tower watchmen would play for other tower men in the area over their radios. One story has it that a certain fiddler was playing to all the towers across the province because he had pressed the wrong switch. (This was a theme used in an episode of the old CBC kids show, "The Forest Rangers", when junior ranger, Chub Stanley, plugged his guitar into a radio and all the other ranger and tower radios in the area could hear his deafening screeches without his even knowing it).

Tower watchmen were expected to keep logbooks of their daily activities, and they also had guest books available for any adventurous folks who decided to climb to the top for the views. These were handed in to the main Department offices in Toronto at the end of the season.

Men and women visitors could climb up the tower if they wished, even when the tower watchman was on duty. It wasn't an easy climb though. Going up was the easier part, but when one came to the opening of the cupola (the tower's top housing) things weren't so easy when one tried to manoeuvre through the bottom opening. For many, the hardest part was the fear of going back down. The tower watchman would have to use a long rope to tie around the person's waist to lower them back down to the ground. This was the theme used in one of the episodes of another 1960s TV show called 'Adventures in Rainbow Country'. In this particular episode Hannah (played by Susan Conway) got scared and was trapped in the old Willisville Fire Tower. Pete Gawa had to rescue her with the help of a rope.



Visitors climbing a fire tower.



Map showing locations of fire towers in the Pembroke area. Map Credit: Gary Long.

Around 1970 many towers and tower watchmen were decommissioned, although they weren't all abandoned. For a while, they used a combination of fixed detection (towers) and aerial detection (planes) to pinpoint fire locations. Another reason towers became obsolete was because conditions during a high fire hazard produced haze that tower men had trouble seeing through, especially if a fire was in its early stages.

Today it is sad to know that many of the old towers were dismantled, left without a trace – the illustrious past of these forest sentinels unknown by many young Ontarians (there were once about 70 towers located in Southern Ontario and 320 towers in total). Many of Ontario's towers were taken down before I was even born. Half of them do remain, however, but usually in very remote corners of Northern Ontario. There are only two left that are manned and fully operational in the Petawawa Research Forest east of Algonquin Park.

*I have become fascinated with the idea of the loneliness that each tower man must have faced each year. I am sure most people would say that they couldn't have handled such remoteness even if they received pay for it – not even for one summer. My sentiments would be similar except that I have a theory that might have lessened the sheer madness that must have entered the thoughts of each tower man at some point. The truth is that they really were not all that alone after all. I think it's intriguing to remember that there were 320 other tower men in Ontario doing the exact same thing and that in reality each tower was connected to the next closest one, and so on. I mean, you could actually see at least one other tower from each location, and the next guy could see one, and so on, and so on. This even continued out into the next province; not to mention the fact that there were 1000s of other men doing the exact same thing around the globe. To me this was the romance behind the idea of actually being a tower watchman.

Photo/Image Credits: Clayton Self

Resources

Clayton maintains a website about Ontario's fire towers that can be accessed here: <http://ontarioftl.bravehost.com/index.html>.

The Importance of Silvicultural Records

For Understanding Sustainable Forest Management

By James A. Baker and Ian D. Thompson

Importance of understanding disturbance history

During the 1980s there was great concern that forests were not being regenerated sustainably across Canada and in Ontario, and as a result of considerable public pressure, the Ontario government management practices of the day were formally reviewed. From 1988 to 1994, a Class Environmental Assessment of timber management practices in the province was conducted to determine if forest management was sustainable (Ont. Env. Assess. Bd 1994.) An outcome of this review, along with a separate public consultation process, was the passing of the Crown Forest Sustainability Act in 1994 by the Ontario Legislature (Ontario 1994) to make forest management more sustainable. One of the five principles of the Act is to conduct “forest practices, including clear-cutting and other harvest methods, [that] will emulate within the bounds of silvicultural requirements, natural disturbances and landscape patterns” (Ontario 1994). The implication of this principle is that guidance for managing wildlife habitat would require comparative studies of managed to natural fire-origin forest habitats to establish what, if any, differences there were for habitats based on disturbance origin. Forest succession can take numerous trajectories depending on initial conditions and type of disturbance and so it is extremely important, when assessing the sustainability of forest management, to understand stand origin: burned, clearcut logged with natural regeneration, partially harvested, clearcut logged and planted, aerially seeded, treated with herbicides, scarified, etc. For wildlife scientists, understanding how a stand develops after management allows predictions of how wildlife species may react to the different management methods, compared to natural origin forests.

A key objective of sustainable forest management is to have the forest that returns, after logging and regeneration, support the same biodiversity as the original forest did. This objective not only refers to the trees but also to the wildlife that inhabits the forest. Guidelines exist as to how to regenerate the forest, but whether or not the forest will have the same kinds of wildlife species and populations will remain a hypothesis until the forest is sufficiently old, say, 80 or more years, to support ‘old growth species’. Ideally, it would be better not to have to wait 80 years to find out if the management guidance was correct. One way around this problem is to observe wildlife use of managed forest habitats for which we know the successional history and, at 50 years post-harvest (an age class that exists now), have the same composition and structural characteristics as were recommended in the habitat guidelines.

Why and how biologists have studied habitat selection by wildlife in forests

Wildlife management requires an understanding of two major factors for any species: population dynamics and habitat selection. These factors are obviously interconnected because habitat quality and quantity dictate the capability for population growth and the population size achievable. Understanding habitats required by various species enables prediction of the effects of forest management on species over time for a forest management unit. So for example, if habitat is understood to limit the population of a species, like marten or caribou that prefer mature forests, recommendations can be made about how much and what kind of habitats are required to maintain their populations.

Studies of habitat selection were historically conducted by direct observations on individual animals and on the frequency of use of different types of habitats. These observations included actual physical sighting of animals on plots or transects of various habitat types, using signs such as tracks of species in different habitats, or trapping individuals in a sample of each habitat type. In the latter half of the last century, however, radio transmitters had become small enough to be carried by animals as small as mice and bats. By taking ‘fixes’ of the locations of

multiple animals carrying these transmitters, habitat selection could be established by plotting locations on forest maps. This technology has now improved to the point, where for larger species, a Global Positioning System is incorporated into the collars that transmit locations to satellites. The animal locations are then downloaded remotely to computers (e.g., Rodgers 2001). Obtaining animal locations is only the first aspect of habitat selection studies, however, and equally important is mapping these locations onto forest classification maps.

Quantifying the forest as wildlife habitat

Foresters and biologists tend to look at a forest somewhat differently and the attributes described on a forest resource inventory map (FRI) clearly reflect those differences because the FRI was designed for forestry not wildlife management (Zsilinsky 2012). The value of any tool depends on what it is to be used for and in the case of wildlife-habitat preferences, if the goal is to obtain general broad predictive relationships, then FRI is adequate for some wildlife species, such as moose for example. However, if one wishes to reduce error and make more accurate predictions, then studies of wildlife habitat selection require field sampling of habitats, which are tailored to the species of interest.

The FRI provides stand-level information on the mix and density of tree species, their heights and ages, and the richness of the site, because foresters are interested in wood volumes. Biologists, however, need other forest structural attributes to describe the habitats more fully, such as snag density, fallen logs volume, canopy layers, shrub species and cover, and ground covers. These latter attributes often help in predicting the suitability of a stand for animals. Habitat sampling is done through appropriate methods for each attribute (dead wood, snags, etc.) but the FRI still forms the basis for this sampling. So, the FRI remains the common language between foresters and biologists. Unfortunately, for wildlife scientists, the FRI is silent about stand origin and post-harvest treatments. The only source of this information, about how the stand was harvested and whether and not it was treated silviculturally or whether the stand originated after a wildfire, are paper or 'mylar' maps stored in filing cabinets at offices of Ontario Ministry of Natural Resources (OMNR) districts and forest companies. These records are not digital, and, unfortunately, acquiring the information is difficult because mapping has moved into the digital age and the old paper records are being forgotten.

Some problems that biologists have found when using FRI

Aside from not providing stand origin, the FRI has some other drawbacks that have to be understood. First, the FRI provides a general description of habitat composition but provides no information about disturbance history, or in other words about how the stand originated. Second, the FRI has some drawbacks with respect to accuracy. For example, a study by Thompson et al. (2007), as well as other studies from Quebec, found high error rates in stand species composition and even some errors in classification as deciduous or conifer. This is an important issue during the selection of study stands in the field owing to time wasted in verifying stand types, but also in making projections about future habitat supply. Finally, because FRI is based on a static photo interpretation, it may be out of date by a decade or more.

Marten and Second-growth Forests

Evidence from previous studies on marten (*Martes americana*), both in Ontario and from other parts of North America, suggest strongly that marten prefer mature and old growth forests. So, to sustain marten, managed forests would have to re-develop characteristics of old growth, such as large amounts of dead wood and large snags. During Ontario's Class Environmental Assessment of Timber Management, the future of marten in managed forests became an important consideration because of its old forest association. In the final requirements from the assessment, OMNR was required to develop specific guidelines for maintaining marten habitat in managed forests. Although management guidelines existed for moose, these were considered inadequate to provide suitable habitat for marten.

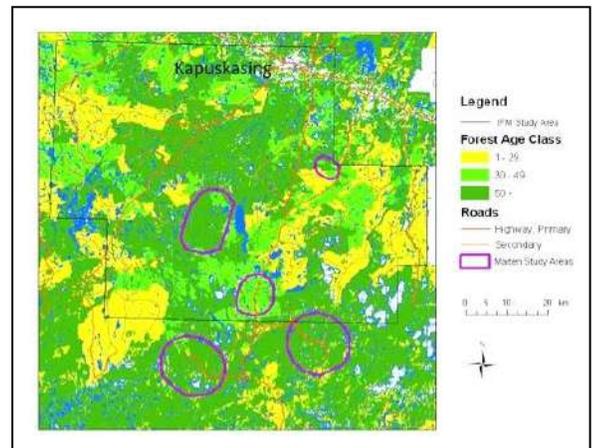


Digitized silvicultural maps.

To understand how marten might be using managed forests, relative to the history of forest management, it was necessary to turn the old paper records for our very large (5000 km²) study area, on the Gordon Cosens Forest near Kapuskasing, into digital maps. Fortunately, these historical records had not been lost and so we were able to differentiate stands derived from fire, horse logging, and clearcut logging followed by various post-harvest treatments including planting, herbicide use, and scarification. We were able to retrieve these records mostly from the Kapuskasing District OMNR office but also obtained some maps from the office at the Spruce Falls paper mill, now operated by Tembec Inc. Nevertheless, transforming the paper records to digital maps in a geographic information system took several months for our study area. We were also able to discern that the earliest 'planted stands', from the 1950 and 1960s, were

actually only planted to regenerate the haul trails and not the forest. This was far different from the planting standards in the 1980s or later that required about 1500 stems/hectare throughout. Once digital, these historical maps allowed us to look at broad habitat use patterns by marten, relative to stand origin and post-harvest treatments, by over-laying locations of the animals from radio telemetry directly onto these maps.

Marten at Kapuskasing were most abundant in old natural origin forests, but they also occurred at only a slightly lower density in areas that had been logged using horses 50 to 60 years ago. On the other hand, we found much lower use of machine-logged stands that were 45 to 50 years old. However, of the mechanically managed stands that were used, marten were most frequently found in stands that had been planted with spruce and then sprayed with herbicides to enhance conifer composition (Thompson et al. 2008). For the latter, mechanically logged forests, the evidence of increased use over non-improved stands suggested that post-harvest silviculture improves the probability of returning to good quality old-growth forests, suitable for marten.



Kapuskasing study area.

One important aspect from this study then, was to illustrate clearly the importance of knowing how a stand originated when assessing its importance to wildlife species, and hence the clear value of retaining the old historical silviculture records. Hence, for wildlife biologists, understanding biodiversity in the future forest starts with understanding its past. Unfortunately, we know from experience that many of these old silvicultural records have been lost with reorganization of OMNR district boundaries and the closing of old district offices over time.

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Forest Destruction and Restoration in the Huron Tract

By John Bacher

The Great London Flood of July 11, 1883, killed 17 people and left hundreds homeless. It was a major event that that shook public attitudes towards what had been seen simplistically as progress.¹⁹

The Huron Tract is an area of land in southwestern Ontario that was formally ceded through Treaty No. 29 on July 10, 1827, and colonized under the auspices of the Canada Company.²⁰ Since colonization, it has seen an astonishing rapid loss of forest cover and then subsequent restoration as a result of deforestation through events such as flooding.

The Great London Flood took place only 56 years after the Huron Tract was opened to Euro-Canadians. Many residents of the territory, such as native elders who saw the treaty arranged, would have lived to see the London tragedy that ensued from the radical transformation of the landscape after colonization.

The flooding was caused by the clearance of the forests in the headwaters of the Thames and the Grand Rivers in the Huron Tract. The flood was a major wake up call for Ontario residents on the devastating effects of deforestation. The dangers of deforestation were well expressed in the preliminary (1898)²¹ and final (1899)²² reports by the Royal Commission on Forestry Protection in Ontario. By this time, there were “one or two violent floods” on the Thames and the Grand ever year. The first took place in January to be followed by flood torrents “at the breaking of the ice in the spring.” The Commission warned that deforestation was still increasing, which would cause the floods to “increase in violence.” It warned that “a large expenditure of money” would be needed to protect citizens from “the destroying fury” of the Grand and Thames.

There was a lot of famous political debate among major figures in the Canada Company, with some of its leading figures (“Tiger” Dunlap and Colonel Anthony Van Edmond) taking different sides in the Rebellion of 1837. Despite this violent acrimony, there were, however, no serious disagreements about the effects of rapid deforestation among major political figures of the era until the 1870s. Then a highly educated and scientific group of farmers in the former Huron Tract who grew fruit began to question these assumptions. One of the key figures of these pioneering conservationist farmers was William Saunders. During the London Flood of 1883 he served as President of the Ontario Fruit Growers Association. He was a close friend of another London farmer William Weld, who founded the influential newspaper, *The Farmers Advocate*.²³

Saunders started fruit growing near London in 1869 and soon saw his efforts blasted away by strong winds that erupted from rapid forest clearance. A Stratford area peach grower, John McAmish, lamented how “fierce sweeping winds” were becoming greater every year, growing in intensity with the cutting of the forest. The Royal Commission on Forestry recorded the “blasting and drying wind” which was being given an “uninterrupted sweep across the country.”²⁴

One of the reasons Saunders founded the federal government’s network of experimental farms was for public education on the virtues of agro-forestry. All this work however, was in its infancy when the Great Flood of 1883 hit London. Although part of its deadliness was that it came in the middle of the night when people were sleeping, the other part was the increased severity of flooding caused by increased deforestation. As forest cover shrank in the 1850s mill dams along the Thames frequently collapsed, with the resulting destruction of bridges and buildings. A major incident was the sweeping away of Clark’s Bridge in 1857.²⁵

A London poet named James McIntyre captured best the trauma of the London disaster. He eloquently wrote: “At London, where the two branches join, it seem’d two furies did combine, For to spread far both death and woe, With their wild, raging overflow; E’en houses did on

¹⁹ “Flooding on the Thames River”, (Upper Thames Conservation Authority, http://www.thamesriver.on.ca/Water_Management/flood_history.htm , accessed June 20, 2013).

²⁰ “Huron Tract”, (Wikipedia, http://en.wikipedia.org/wiki/Huron_Tract , accessed June 20, 2013).

²¹ “Royal Commission on Forestry in Ontario, Preliminary Report”, Legislative Assembly of Ontario (Toronto: Warwick Bro’s. and Rutter), 1898.

²² “Report of the Royal Commission on Forestry Protection in Ontario”, Legislative Assembly of Ontario, (Toronto: L.K. Cameron), 1899.

²³ Elsie M. Pomeray, “William Saunders and His Five Sons”, (Toronto: Ryerson Press. 1956) 1-40.

²⁴ Royal Commission on Forestry in Ontario, Preliminary Report, loc. cit.

²⁵ “Flooding on the Thames River”, loc. cit.

waters float, As though each had been for the boat.”²⁶ This was no poetic license. Homes were lifted up off their foundations and floated until they would topple on their sides. The London Advertiser, a leading community newspaper, used prose as vivid as McIntyre’s poetry. It explained that London West had simply been “buried beneath the waves.” Homes that were not simply swept away were severely damaged. Water would leech into walls, destroying wood and plasterwork. The floodwaters were heavily contaminated being full of refuse swept along the Thames. The town’s source of drinking water became contaminated.²⁷

The Great London Flood hit shortly after the influential North American Forestry Conference of 1882 took place, which stressed the evils of deforestation in causing massive flooding.²⁸ One of the people who attended this event in was William Phipps, who was shortly thereafter appointed to the position of the Ontario Clerk of Forestry. As part of his forestry work, Phipps circulated a survey to county governments on forest cover.²⁹ Its responses show the relationship between deforestation and increased stream flashiness in the old Huron Tract. G. Fortune, of Turnberry in Huron County, wrote that, “I do not know of any difference here in the amount of rainfall, but the small creeks dry up a great deal sooner in the spring, than they did twenty-five years ago. Our rivers, too, get far lower in summer, where there was at that time, in some places plenty of water to drive a mill, they have now either to put in steam or allow their mills to idle during the summer. Another Huron County respondent was James McCool from Londesborough. He reported that, “In regards to creeks I may say that they have mostly all dried up away since the land has been cleared, even those which had been considered to be never failing.”³⁰

Farmers in the Thames and Grand watersheds also warned Phipps how even the few remaining forests were dying from their inability to regenerate because of grazing livestock. A.D. Ferrier of Fergus explained how, “Cattle will destroy every tree they can reach, and seem to delight in the work of destruction.” Phillip Kelley, of New Durham in Oxford County, reported that, “Mine is the only farm I know of in the neighbourhood where cattle are not allowed to graze – and the only one in which there are any young trees.”³¹

Although a paid public servant, after a distinguished career in journalism advocating forest conservation, Phipps remained a prophetic voice in the wilderness. He achieved little in the way of reforms despite the ammunition for the virtues of reforestation and conservation gathered from his respondents and published by the Ontario legislature through its Sessional Papers. By the time of his death in 1895 the only major successes he was able to wrest out of the provincial government were the establishment of Algonquin and Rondeau Provincial Parks. Likewise, Saunders attempted to push public reforestation through the Ontario Agricultural Commission of 1885 and got nowhere.³²

Where others in the old Huron Tract failed there was a remarkable team of father and son that eventually succeeded. These people were Samuel Monteith and his son Nelson. Samuel Monteith was from the middle management of the Canada Company – not one of its famous figures such as Dunlap and Van Edmond. In this capacity, he came to the area that eventually became Perth County in 1838, and sold Canada Company lots to farmers. He encouraged his five brothers to come to Canada from Ireland. One of them, Arthur, became a backbench member for Perth South in the federal government of Sir John A. MacDonald. Nelson planted the first tree on his father’s farm in Downie Township when he was only six years old. He persuaded his father to plant one tree for every one cut down and their family farm became a conservation showpiece.³³

When the Great London Flood of 1883 hit, Nelson Monteith was 21 years of age and a student at the Ontario Agricultural College, (OAC) in Guelph. This was a good place for the forest-loving student to be in order to develop solutions based on reforestation to prevent such disasters happening in the future. Monteith had been attracted to study at the college when critics of the OAC, which was advocating forest conservation under one of its remarkable founding Professors William Brown, attacked it. When Monteith was studying at OAC, Brown’s teaching assistant was Charles Zavitz. Zavitz, upon becoming an OAC Professor, organized the school’s Alumni, including Monteith’s lifelong friend and future Ontario Premier, E.C. Drury, into an Experimental Union. From this event a Forestry Committee emerged, which was led by Drury and Monteith. One of its most important achievements was, in 1903, to persuade the then Minister of Agriculture, John Dryden, to establish a provincial tree nursery at OAC to provide free trees to farmers. The nursery was set up by Edmund Zavitz in the summer of 1904 when he was midway in his graduate studies in forestry undertaken at Yale and the University of Michigan.³⁴

Apart from their love of forests, both Drury and Zavitz understood the importance of the Ontario legislature in determining public policy for them. This is why Drury, despite his long-standing Liberal party political ties, helped his friend Monteith, a Conservative, to be elected an

²⁶ Ibid.

²⁷ Ibid.

²⁸ “Annual Report of the Clerk of Forestry (1884)”, Ontario Sessional Papers No. 4, Legislative Assembly of Ontario (Toronto: Queen’s Printer), 1884.

²⁹ Richard S. Lambert and Paul Pross, “Renewing Nature’s Wealth”, Ontario Department of Lands and Forests (Toronto: Hunter Rose).

³⁰ Ibid.

³¹ Ibid.

³² Lambert and Pross, loc. cit.

³³ W. Stafford Johnston and Hugh M M. Johnston, “History of Perth County to 1867”, (Stratford: County of Perth, 1967), 18-22.

³⁴ Edmund Zavitz, “Recollections”, (Toronto: Department of Lands and Forests, 1964) 1-6.

MPP in the 1905 general election. Following the election, Monteith was appointed Minister of Agriculture, a post he held until his narrow defeat in the general election of 1908.³⁵

While Monteith was Minister of Agriculture he and Zavitz, now a Lecturer at OAC, were able to work brilliantly and effectively together. One of their first actions was Zavitz's first experimental test plots of reforestation through coniferous seedlings in sand wastes on the Oak Ridges Moraine and Perth County. This was followed by a program of 400,000 free seedlings to farmers annually under the co-operative planting program. In 1908 they worked together to have Zavitz's influential wasteland report published, which documented a strategy for the reforestation of degraded barrens in Ontario. They also secured the moving and expansion of the provincial reforestation station to St. Williams, which created an extensive demonstration forest.³⁶

While Monteith went down to defeat because of local ethnic and religious divisions in 1908, Zavitz was able to find other political sponsors in the legislature. First, there was the Norfolk South MPP, Arthur Pratt. But more importantly in 1919 E.C. Drury became Premier of Ontario, a position he held for three and a half years. Drury was able to secure the adoption of the Agreement Forest program, which persuaded more Ontario Counties to undertake reforestation.³⁷

Although Drury's initiatives were strengthened by subsequent conservative governments, no municipal forest initiatives took part in the Huron Tract area until the Second Great London Flood of 1937. Although Nelson Monteith remained part of a still active and influential political dynasty in Perth County no local government in southwestern Ontario, apart from Norfolk County, would have anything to do with the Agreement Forest program This changed with the second London flood.³⁸

In 1937, when the London flood hit, peculiar circumstances put Zavitz in a good position to launch a more effective action for forest



Thames River flood of 1937 showing damage in Stratford. Photo credit: Upper Thames Conservation Authority.

protection and expansion in Southern Ontario. Out of initial hostility from the newly elected government of Mitchell Hepburn, Zavitz was stripped of his influence over Crown lands in northern Ontario. This gave Zavitz the time to organize public opinion for two reforms. One

³⁵ Johnston and Johnston, loc. cit.

³⁶ Zavitz, loc. cit.

³⁷ Ken Armson, W. Ross Grinnel and Fred Robinson in "History of Reforestation in Ontario" in Robert W. Wager and Stephen Colombo eds., "Regenerating the Canadian Forest", (Markham: Fitzhenry and Whiteside, 2001), 3.

³⁸ Annual Reports, Department of Lands and Forests, 1921-1937, Ontario Sessional Papers, 1921-1937.

was the Conservation Authorities Act, which by tying reforestation directly to flooding problems was able to secure more municipal support than the earlier County Forest program. The other was the Trees Act, which, for the first time, restricted landowners' powers to cut trees on their own land. Both reforms were achieved in 1946 by new acts of the Ontario legislature.³⁹

Although Zavitz had been carefully marshalling support through the Boy Scouts movement, headed by his assistant, Arthur Herbert Richardson, and a visionary group of army veterans, Men of the Trees, his efforts had little impact until the Second London flood. This second big flood soon showed that greater deforestation had produced a flood of a greater magnitude, which easily burst the protective dikes that had been constructed in response to the 1883 disaster. While fatalities were much less, the economic impact of the 1937 flood was far more severe. Some 1,300 homes and businesses were damaged by the floodwaters. Other homes that escaped structural damage became filled with mud and ruined furniture. Gas pumps were dangerously submerged. Every community along the Thames and its tributaries north of Thamesville experienced significant flood damage. Most lives were lost from a train derailment in Beachville in Woodstock, which also led to the death of a doctor rushing to the aid of the victims who was killed when a bridge collapsed into the Thames.⁴⁰

What especially helped in shaping a positive response to the London disaster that would lead to the realization of Zavitz's planned reforms was the fact that a former OAC student of his, Watson Porter, was now managing the influential newspaper, the Farmer's Advocate, founded by Weld. Porter, as a result of his OAC studies under Zavitz, understood the relationship between forest cover and the problem of stream flashiness. In response to the London Flood of 1937 Porter wrote, "Something must be wrong when farmers are obliged to draw water in the summer and must be rescued from their upstairs windows in winter."⁴¹

Following the London Flood of 1937, Porter played a major role in securing the creation of the Middlesex County Forest, which began with a 97-hectare acquisition in 1938. Known as the Mosa Forest, this forest tract now covers 809 hectares, and is buffered by 121 hectares of land owned by the Lower Thames Conservation Authority. This area is a refuge for twenty-four species at risk, including the Acadian Flycatcher and the Hooded Warbler. Following the disaster, Monteith was able to persuade Perth County to acquire part of the Thames headwaters called the Gads Hill Swamp. This restored forest was later transferred to the ownership of the Upper Thames Conservation Authority.⁴²

Following the second great Thames flood of 1937, Monteith and Porter got involved with Zavitz in the creation of the Ontario Conservation and Reforestation Association. It became the key vehicle for the public campaigns that resulted in the Ontario's legislature's passage of the Trees and Conservation Authorities Acts in 1946.⁴³

Despite the Thames Flood of 1937 and the subsequent start of municipal forestry in southwestern Ontario, there remained opposition to the creation of a Thames River Conservation Authority after enabling legislation was passed by the province in 1946. The 1946 Act contained rather demanding provisions to create conservation authorities that had to be approved by the majority of municipalities in a watershed. This problem was the origin of why the Thames River still has two conservation authorities. Most municipalities on the Thames, and downstream of Thamesville, were not affected by the Thames Flood of 1937, and so opposed the creation of a conservation authority. This meant that it was impossible, given the terms of the 1946 legislation, to create a single authority for the entire Thames watershed. Support for the creation of the authority upstream was further increased by the London Flood of 1947, which necessitated the evacuation of much of the city after a dyke that was built in response to the 1937 flood was overtopped by the Thames. As a result of this political division, supporters of the Thames Authority, such as Monteith and Porter, decided to create a watershed for the Upper Thames alone. As a result, on September 17, 1947, the Upper Thames River Conservation Authority came into being as the sixth conservation authority in Ontario. In recognition of his role in spearheading its creation, Watson Porter was made the Honorary Chair of the Upper Thames Conservation Authority. Monteith became, at the age of 87, the chair of its land acquisitions committee. In this capacity, he was able in the last two years of life rescue the Ellice Swamp from schemes to farm it by burning off its peat layer. The Upper Thames Authority has been able to acquire and expand a number of forested areas. One was the purchase of 261 hectares in the Dorchester Swamp, which was followed by the acquisition of 548 hectares of the Golspie Swamp near Woodstock. Another significant forest acquisition was the Sifton Bog, an urban forest in London, in 1967. Since 1947, forest cover on the Upper Thames has doubled from 6.7 to 11.5 per cent. This is typical of the significant increase in forest cover throughout the Huron Tract through its blanketing by both forest protection by-laws and

³⁹ A.H. Richardson, "Conservation by the People", (Toronto: University of Toronto Press, 1947) 1-30.

⁴⁰ "Flooding on the Thames", loc. cit.

⁴¹ Richardson, loc. cit. 3, 4.

⁴² "Mosa Forest", (Lower Thames Conservation Authority, http://www.lowerthames-conservation.on.ca/Mosa_forest.htm accessed on June 20, 2013); "Gads Hill Swamp", (Upper Thames Conservation Authority, http://www.thamesriver.on.ca/wetlands_and_natural_areas/ellice_gadshill_swamps.htm, accessed on June 20, 2013)

⁴³ Richardson, loc. cit. 1-30.

conservation authorities. The best situation for a large stretch of this territory is Huron County, which has 16 per cent forest cover. These forests are much healthier than those of the past, since the problem of livestock grazing in them has been virtually eliminated.⁴⁴

It was not until 1962 that there was sufficient political support in downstream municipalities to create the Lower Thames Authority.

There was a split in the supporters of the conservation authority movement between those who stressed reforestation as a critical means to end flood threats and the supporters of the use of dams to deal with this challenge. In an address to the Ontario Conservation Conference held in London in 1944, Zavitz explained that the dying state of forests in southern Ontario masked their potential ability to check floods. He explained that this was caused by conditions of “impervious soil, with grass and weeds” instead of trees, being the dominant forest cover, a situation he attributed to the now largely vanished assault of livestock grazing.⁴⁵

Over time Zavitz’s convictions that expanding and protecting forests rather than building dams was the best way to deal with flooding dangers won by out. The prophetic nature of Zavitz’s analysis can be seen by understanding what followed the Upper Thames River Conservation Report of 1952. This report recommended the construction of three major dams, one of which the Fanshaw dam north of London that was already in its final stages of construction. Eventually, the Wildwood dam was built in 1962 and the Pittock dam in 1967. The reason that the five additional dams were not built was the passage, in 1976, of the Ontario Environmental Assessment Act⁴⁶. The Guelph Dam, built by the Grand River Conservation Authority in 1976, was the last dam anywhere in Ontario constructed for flood control purposes. It was completed just before the environmental assessment legislation came into effect. One of the critical reasons for the dramatic impact of this legislation on the cessation of dam construction by conservation authorities is a corner stone of environmental assessment the requirement to demonstrate that there is no alternative to the proposed undertaking. The key alternative to dam construction to prevent flooding is reforestation, an argument that was used successfully by critics of proposed dams in the late 1970s concerned with the harmful effects of dam construction on fish habitat and existing forests.⁴⁷

Despite pressures of urban sprawl and the newer profitability of cash-cropping, forest cover in the Huron Tract continues to increase slowly. The increase in forest cover is reflected in improved fish statistics. One of the ways this can be seen is in the comparison of the presence of fish in two quite different sub-watersheds (Black Creek⁴⁸ and North Mitchell Creek⁴⁹), which are under the jurisdiction of the Upper Thames Conservation Authority. One sub-watershed, Black Creek, has 15 per cent forest cover. Another, North Mitchell, has only five. The more forested Black Creek has 31 species of fish, while North Mitchell has only 16. Black Creek has a variety of game fish such as northern pike, smallmouth bass, rock bass and yellow perch, while North Mitchell has none. Almost all the watersheds in the Upper Thames have higher forest cover than North Mitchell Creek, which was the norm for the Huron Tract where conservation authorities began to be established after 1946. All these streams with higher forest cover support northern pike.

The soundness of the ideas of Zavitz and his friends and sponsors, Porter and Monteith, can be seen in the fact that the Avon Watershed Plan of 1952, now available on line, and completed near the end of his service with the Department of Lands and Forests, is being used as a basic guide by an activist environmental group, the Upper Avon Conservation Club. Using the strategy, the club has planted 6,000 native trees and shrubs on 25 farms on the Upper Avon watershed to improve stream health, provide bird habitat and reduce wind erosion.⁵⁰ That the Avon Watershed Plan of 1952, a strategy that following Zavitz’s thinking, did not recommend dams shows the surprising relevance of forest history for today in Ontario. These plans, which only succeed in reforesting a third of their targets, need to be dusted off. The memories of those who rescued and restored forests using these strategies need to be known. Nelson Monteith and Watson Porter should be revered household names in their communities.

⁴⁴ “Flooding on the Thames River”, loc. cit.; “Dorchester 2012 Watershed Report Card”, (Upper Thames Conservation Authority, http://www.thamesriver.on.ca/Watershed_Report_Cards/images_2012/RC_Dorchester.pdf, accessed on June 20, 2013).

⁴⁵ Edmund Zavitz, “Reforestation as a Means of Controlling Runoff” in “River Valley Development in Southern Ontario”, Papers and Proceedings of the Conference on River Valley Development in Southern Ontario Held in London, Ontario, October 13th and 14th 1944-1945.

⁴⁶ Ontario Environmental Assessment Act, Legislative Assembly of Ontario, http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e18_e.htm.

⁴⁷ Annual Reports of Upper Thames Conservation Authority, 1973-1980, Government Documents Collection, University of Guelph.

⁴⁸ Black creek 2012 Watershed Report Card”, (Upper Thames Conservation Authority, http://www.thamesriver.on.ca/Watershed_Report_Cards/images_2012/RC_Black.pdf accessed June 20, 2013).

⁴⁹ North Mitchell Dorchester 2012 Watershed Report Card”, (Upper Thames Conservation Authority, http://www.thamesriver.on.ca/Watershed_Report_Cards/images_2012/RC_NorthMitchell.pdf, accessed June 20, 2013).

⁵⁰ “Avon Valley Plan 1952”, (Upper Thames Conservation Authority, http://agrienvarchive.ca/download/avon_valley-1952.pdf); and personal interview with members of Upper Avon Conservation Club, 2012.

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Mini Bios of Nelson Monteith, William Phipps and Watson Porter

By John Bacher

Samuel "Nelson" Monteith

From childhood until his death in 1947, at age 87, Nelson Monteith displayed a remarkable care for trees and forests. He planted his first tree at the age of six, and when he died in 1949, it had reached the height of 23 m. He was the son of Samuel Monteith, a surveyor of land for the Canada Company, who persuaded his parents, three brothers and one sister to move from Ireland to settle in Perth County. One of these brothers, Arthur, became a provincial and federal member of parliament from 1867 to 1874. The Monteith farm still remains in the ownership of one of his descendants.

As a teenager Nelson Monteith's interest in attending the Ontario Agricultural College (OAC), was stimulated by an attack on the college at a political meeting. While studying there in 1883 the "Great Thames River Flood" took place, and its lessons about the need for more forest cover were amplified by one of his professors, a forester from Scotland, William Brown. At OAC he developed a life-long friendship with another conservationist and fellow student, E.C. Drury, who was the son of the Minister of Agriculture, Charles Drury. Monteith and Drury, through the OAC Alumni Association and the Experimental Union (organized by the expert plant breeder, Charles Zavitz), they played a critical role in convincing the Minister of Agriculture, Charles Dryden, to begin reforestation in Ontario.

In 1905 Nelson Monteith was re-elected as Member of Parliament for Perth South (he had earlier served from 1899 to 1901) and became Minister of Agriculture. In this capacity, he was able to supervise the work of Edmund Zavitz, including the publication of his study of the wastelands of southern Ontario, and the move of the provincial tree nursery from the OAC Guelph campus to St. Williams. He allowed a hilly eroded part of his farm to become a test plot for Zavitz's planting of coniferous seedlings, which became the basis for the afforestation of much of southern Ontario.

Defeated in the 1908 general election in a close race, Monteith did not become active in conservation again until the 1937 Thames River Flood, which had a considerable impact on the southern part of Perth County. He became involved in the Ontario Conservation and Reforestation Association (OCRA), and was honoured, along with his old friend Drury, at its founding banquet in Barrie. He played a major role in the first Perth County forest and subsequently its transfer to the Upper Thames Conservation Authority. With Edmund Zavitz, he toured Huron County to encourage the start of its county forest system. During the last three years of his life, Nelson Monteith chaired the land acquisitions committee of the Upper Thames Conservation Authority, where he played a key role in securing the purchase of what became its largest forest, the Ellice Swamp.

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William Phipps

William Phipps had a major impact on the conservation of forests in Ontario. During his lifetime from 1833 to his death in 1884 he witnessed the destruction of ninety per cent of the forest cover of southwestern Ontario. He viewed this destruction as bringing harmful changes in soil and climate for agriculture.

As one of the pioneer farmers of Grey County, Phipps witnessed serious problems to its watersheds from summer desiccation and spring flash flooding as a consequence of gradual deforestation. He grew apples in his mixed farm, and became one of the early members of the Ontario Fruit Growers Association (OFGA) founded in 1859. In addition to farming, he took up journalism, and was able to write for papers connected to both the Liberal and Conservative parties. A participant in the North American Forestry Congresses in Cincinnati and, later, Montreal in 1882, he was appointed Clerk of Forestry in Ontario in 1883, a position he held until his death in 1894. Largely through his involvement with the OFGA, Phipps was able to have a network of around 200 respondents whose descriptions of the harmful consequences of deforestation on watersheds and microclimate for farming were published in his Clerk of Forestry reports in the Ontario Sessional Papers. Through his position as Clerk of Forestry, Phipps was able to have Arbor Day designated with celebrations marked by tree planting, and these become a common feature in Ontario schools.

Phipps' most important achievement was to build support within the provincial government for the establishment of Algonquin Park, which he conceived as a forest reservation achieved by preventing the sale of Crown lands for agriculture. His most important action to achieve this goal was to tour the entire Canadian Shield region south of Lake Nipissing, using boats adapted for logging and roads to access lumber camps. His observations were published in the Ontario Sessional Papers. His vivid descriptions of the destructive fires of the period became critical in changing the attitudes of the Chief Clerk of the Lands Sales Section of the Crown Land Department, Alexander Kirkwood, who had until then been an advocate of farming in the Canadian Shield. With Kirkwood, Phipps played an important part in numerous advisory committees that eventually secured the creation of Algonquin Provincial Park in 1893.

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Watson Porter

A journalist and farmer in Middlesex County near London, Ontario Watson Porter played a crucial role in awakening public opinion on the consequences of deforestation in southern Ontario. He played a critical role in securing the passage of two important reforms, the Conservation Authorities Act and the Trees Act, both passed in 1946. Afterwards he continued to be an advocate for conservation as editor of the farm publication, "The Farmer's Advocate", until his death in 1955.

Porter attended the Ontario Agricultural College (OAC), where he was greatly influenced by the conservationist teachings of Edmund Zavitz, graduating in 1911. He became editor of the *Farmer's Advocate* in 1931. He was the first editor who was not associated with the Weld family, which owned the publication founded by William Weld. Although sharing the Weld family's support for reforestation, Porter did little to promote the cause until the impact of the Thames River Flood of 1937. Then he became a founder of the Ontario Conservation and Reforestation Association (OCRA). He then used the *Farmer's Advocate* effectively to cover OCRA's consciousness-awakening Field Days. These days involved tours of reforestation projects, remnant forests and degraded areas. These days continued until 1954, when it was believed that the work of conservation authorities and reforestation was sufficiently secure that they could be disbanded. He attempted to organize a single Thames River conservation authority but failed because of the opposition of downstream residents who were less vulnerable to flooding. When the Upper Thames Conservation Authority was created, he was named its honorary chairman. The authority also named an enclosed picnic pavilion at the Fanshawe Conservation Area in his honour.

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A Re-Discovered Forest in Perth County

An Early Experimental Achievement in Afforestation

By John Bacher and Terry Schwan

Along the Avon Trail in Downie Township near Stratford, Ontario, is a thriving hillside forest that demonstrates the success of an important experiment carried out in the spring of 1905. It is the first of two experimental plantings using conifers conducted by the recently appointment Lecturer in Forestry at the Ontario Agricultural College (OAC), Edmund Zavitz. The other test planting is situated north of Bowmanville on a former blow sand area of the Oak Ridges Moraine on Lot 7, Concession 3, Clarke Township.⁵¹

Until Edmund Zavitz undertook his two pilot plantings in the spring of 1905, there had been no attempts in Ontario to use coniferous plantings in afforestation on degraded sites suffering from erosion. A 175-acre planting of this sort to stabilize blow sands had been undertaken in Oka, Quebec (the forest of the 1990 Oka standoff), beginning in 1886. While this planting became publicized in Quebec in 1920 by both the Quebec government and newspapers, in 1905 this pioneering planting of coniferous trees on rows using French methods was still unknown in Ontario. The plantings of native trees done in small afforestation plots by conservation-minded farmers, such as members of the Ontario Fruit Growers Association, tended to be of nut and maple species, and were made to achieve farm management goals such as creating windbreaks. They were not used to restore lands ruined by soil erosion.⁵² There was little to resemble anywhere else in the world the peculiar conditions of Ontario's wastelands largely situated on moraines.

While studying for his bachelor's degree at OAC Zavitz developed a close friendship with a future Premier of Ontario, E.C. Drury. He and Drury, in 1903, played a critical role in persuading the then Minister of Agriculture, John Dryden, to create the first Ontario tree nursery at OAC. Zavitz began his work on the model test plots in 1904 after the tree nursery was established on the Guelph OAC campus. He grew the seedlings in the summer of 1904 that were to be planted the next spring. At this time, he was midway in his post-graduate forestry education, which was begun at Yale and concluded following his summer stint at the University of Michigan. The forestry training that Zavitz received undoubtedly exposed him to the fact that the Europeans used hardy conifer species in its afforestation efforts, which provided the model for the plantings at Oka. While at Yale, his studies in this regards may have been more bookish; in Michigan he would have engaged in this sort of restoration on its wastelands known as the pine barrens. These extensive regions, however, resembled more the Canadian Shield, being fire dependent and growing jack pine, than the formerly arable lands of such wastelands as the Oak Ridges Moraine. The matter of getting the seedlings planted successfully shows a very practical reason for this change of university studies. The Dean of Forestry at the University of Michigan, Filbert Roth, was, at the same time, the state's Chief Forester. In his role as Chief Forester of Michigan, Roth, while Zavitz studied at Ann Arbor, was engaged in the planting of 50,000 trees on State Forest lands. This experience would have provided wonderful training for Zavitz's future role as a rescuer of Ontario's landscape.⁵³

It was decided to establish one of the test plots on land owned by Nelson Monteith and the other on property owned by the Squair's in Bowmanville. The great advantage of Monteith's farm as a test plot was the difference between its hilly nature and the flatness of the Squair property. Zavitz and Monteith were well aware of the logical reasons behind having a test plot on hilly land, but chose to keep the location secret for political reasons. It could have caused a political controversy focused on the Minister being favoured. Politicians can be wrongly maligned for highest purposes, as was the case with another important patron of Zavitz's, E.C. Drury.⁵⁴

Monteith was Minister of Agriculture in James Whitney's Conservative government from 1905 to 1908, the years when Zavitz was just beginning his work. "Like his forefathers, Nelson took an interest in reforestation, and planted trees on the hilly and rough ground on his farms. It became a family policy to plant a tree every time one was felled. Trees, believed the Monteiths, could slow the evaporation of waterways with their shade, and reduce erosion and run-off from the farm's natural springs with their root systems. Those were among the many environmental convictions that accompanied Nelson to Queen's Park, and he was able to

⁵¹ Edmund J. Zavitz, "Recollections", (Toronto: Department of Lands and Forests, 1964), p. 2.

⁵² Michel F. Girard, "The Oka Crisis from an Environmental Perspective, 1870-1990", in Chad Gaffield and Pam Gaffield, "Consuming Canada: Readings in Environmental History", (Toronto: Copp Clark, 1996), p. 305.

⁵³ David Dempsey, "Ruin and Recovery: Michigan's Rise as a Conservation Leader", (Ann Arbor: University of Michigan Press, 2002), p. 8.

⁵⁴ Wikipedia entry on E.C. Drury. He was wrongly charged with extravagance in purchasing at \$100 government expense a new coal grate. In fact, the shiny appearance of the coal grate in the Premier's office was a testament to Drury's frugality, rather than waste. Its shiny appearance belied the fact that the grate had been carefully reused and polished. The "coal-gate" controversy was an irritant for Drury in the 1923 election since his frugality was not proven until after the votes were cast. http://en.wikipedia.org/wiki/E.C._Drury (accessed on June 20, 2013).

introduce a wide range of reforestation programs and policies. Among those was the distribution of seedlings to rural households through the schools; each student was given a seedling to plant at home.”⁵⁵

Zavitz was delighted to tell the 1906 meeting of the OAC Experimental Union that the two test plots of seedlings of white pine and Norway spruce had been a success. (At the Squair property, acorns were gathered by Zavitz’s maternal relations and mixed in but this does not appear to have been done on the Monteith lands). On the basis of this success, Zavitz encouraged the attendees to take part in what he termed the government’s “Co-operative Program” in afforestation, where trees would be supplied for free, but farmers would have to plant them. The farmers in this meeting were all OAC alumni, who participated in experimental plantings in co-operation with the college. Support from the Experimental Union, especially from its most politically well-connected members, Drury and Monteith, had been critical in persuading then Minister of Agriculture, John Dryden, to establish the OAC nursery in 1904. Zavitz told the Experimental Union that the sites where afforestation was most urgently needed were so barren that there was little need to worry about weeds, since the hardy OAC-grown nursery conifers were about the only plants that would survive in such circumstances. However, Zavitz warned the audience, if weeds should arise, to remove them by hand since cultivation with horse-drawn cultivators could cause erosion on vulnerable sites.⁵⁶

Although not revealing its exact location, Zavitz informed the Experimental Union that the second site afforested with seedlings in the spring of 1905 was in Perth County, on a hill. He indicated that there were major differences between the two test areas and that the Perth County site was on a “hillside that was too steep to put horses in so no furrows were run.” Zavitz carefully detailed how “The planting holes were about five feet apart each way. In making these holes, a piece of turf was cut out from the side of the hill with a grub hoe or adze and the sod loosened and freed [of] stones with a pick and grub hoe. . . . After the soil was loosened the plant was put in with a strong stroke as in the sand-land planting, although some care had to be exercised to cover the roots.” Zavitz warned the Experimental Union members that if hills on their properties were of a sufficiently gentle slope to allow cultivation with furrows created by horse-drawn machinery, it was important that such furrows “should always be run parallel along the hillside rather than up and down in which case washing down the furrow might occur.”⁵⁷

A century later, Terry Schwan, District Forester for Guelph District of the Ontario Ministry of Natural Resources, describes finding the original test plot plantations on the Monteith property. *“It took a little detective work. I located the “Memories of Downie” Township history book. It was easy to find Nelson Monteith and his farm location. There was a two-page description of the farm history from settlement to 2002. Using mapping resources, and knowing lot and concession, I identified the farm on digital photography. A week later, I was working in Huron County and on my way home to Guelph, I drove down Perth Road 113 in Perth County. It is just south of Harmony, a pretty drive with many hills and trees including numerous large Norway spruce along roadside and separating farm properties. I suspected they were planted in that first decade of the 20th century. Knowing where to look, I could see a plantation in the distance some 1,500 metres back from the road. A few days later I was driving by again and decided to stop in at #3267. There I met the owner, Alex McKay, grandson of Monteith. He listened to my story about Nelson Monteith, Edmund Zavitz, and the early plantation. Of course he knew about this plantation, but was unaware of its importance historically. We hopped on his tractor, drove back along the treed lane through some hilly farmland to an area on the bank of the Trout Creek. We entered the forest along the Avon Walking Trail, and climbing the hill, there it was; a well-stocked forest of white and red pine, Norway spruce and a few black walnut along the slope and hilltop, an area of less than a hectare. The plantations have self-thinned, and there may have been some small tree removals over the years. On the east side is upland hardwood forest, and native species, particularly, sugar maple, are filling in slowly. The plantation extends onto the next property to the north for a small area as well. Trees were tall and healthy, except those under heavy inter-tree competition. To the unknowing eye it looked like many other older plantations. But knowing it was the second major planting by Zavitz made it particularly special.”*

⁵⁵ Dean Robinson, *Memories of Downie*. Volume 1. Downie Township History Book Committee. 2002

⁵⁶ Zavitz, loc. cit. pp. 3, 4.

⁵⁷ Zavitz, Edmund, “Report on Forestry for Ontario for 1906”, part of “Report of the Experimental Union”, 1906, “Ontario Sessional Papers”, pp. 39-42.



Photos: #1 - Aerial photo showing the two test plantations; #2 - a sign at the Monteith farm; #3 - Alex McKay, current owner of the Monteith farm and grandson of Nelson Monteith standing in the 1905 plantation on the Monteith farm. Photo credits: Terry

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The American Chestnut in Ontario

Attempting to Smite the Blight to Save a Giant

By Laura Mousseau

When Mel Tormé and Bob Wells penned the lyrics “Chestnuts roasting on an open fire,” they probably didn’t know that a fungus was wreaking havoc on American chestnut trees across eastern North America. It was 1944 and the chestnut blight had been making its way through healthy trees for over four decades.



Fruit of the American chestnut tree. Photo credit: Canadian Chestnut Council.

The first recorded cases of chestnut blight occurred at the Bronx Zoo in 1904. The blight was later traced back to its North American origin on Long Island, arriving as early as 1893 via infected Chinese chestnut trees imported from Asia. Before we understood the consequences of introducing exotic species, it was common to bring foreign plants and animals across oceans. These imports were sometimes brought by pioneers trying to attain a little familiarity on foreign soil, as is the case with the highly invasive garlic mustard plant brought over by European settlers. In other situations, introductions were made in an entrepreneurial spirit: the gypsy moth was brought to North America in an attempt to create a silk farm but some of the moths escaped, becoming a pest of native hardwood trees. And exotic introductions sometimes happen innocently, as with the chestnut blight – an unknown hitchhiker on deliberately imported chestnut trees.

So here we are today, our American chestnut (*Castanea dentata*) trees – at one time one of the most important forest trees in North America – largely devastated by a blight that, more than a century after its introduction, continues to win the battle. Lost are the traditional culinary and medicinal uses of American chestnuts long extolled by our indigenous peoples and early pioneers. Chestnuts were also an important food source for birds and small mammals.

And all of this says nothing of the value that the wood itself yielded, its trunks growing straight and tall. The wood of the American chestnut was used extensively for fencing, interior woodwork and furniture. All in all, a true giving tree. It’s no surprise, then, that great efforts are being made to find a solution to the blight and return the majestic American chestnut to its former glory.

The first efforts to control the blight were initiated in 1913 by two United States Department of Agriculture plant pathologists. The blight appeared to be radiating from isolated centres and it was thought that cutting and burning perimeters around these outbreaks would effectively control the blight’s spread. Unfortunately, the blight was moving faster than control efforts could be carried out, and it entered Ontario at Niagara in the early 1920s. Since then, groups across North America – from the American Chestnut Foundation to the Ontario Soil and Crop Improvement Association – have been trying to smite the blight.

In 1986, the World Wildlife Fund (WWF) assessed the status of the American chestnut in Ontario and declared it a threatened species. American chestnut populations in Ontario were estimated to comprise less than one percent of the original 1.5 to 2 million trees present here. The tree was declared a provincial (Ontario) and national species at risk and, in 2004, its status was raised from threatened to endangered. Without successful recovery efforts, the American chestnut will disappear from Canada altogether.

Thankfully, the American chestnut has a dedicated recovery team working to save it. Co-chaired by Dr. John Ambrose and Dr. Greg Boland, this team makes recommendations to halt or reverse the decline of American chestnut in Canada. As Dr. Boland states, “The overall goal of the recovery plan is to get American chestnut back to self-sustaining populations.”

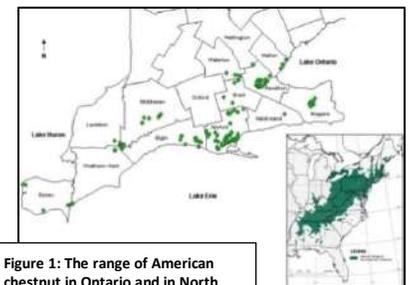


Figure 1: The range of American chestnut in Ontario and in North America (inset map).

American chestnut populations were most recently assessed in 1999-2000 by Dr. Boland, a plant pathologist, and Dr. Brian Husband, a plant biologist, both from the University of Guelph. The assessment was carried out as an independent research project to meet an objective outlined in the recovery strategy. Across southwestern Ontario, 682 trees on public lands were documented (see Figure 1)⁵⁸. A quarter of them showed visible signs of chestnut blight, and while they are still able to shoot up new sprouts, the sprouts never reach reproductive maturity, meaning they don’t produce chestnuts. Yet some trees fare better than others, and Ontario seems to hold a small glimmer of hope for American chestnut, with more healthy trees documented here than anywhere else in the tree’s native range, which covers the Carolinian zone of eastern North America.

⁵⁸ Map credit for Ontario locations of American chestnut: Ontario Ministry of Natural Resources Recovery Strategy for American Chestnut; Map credit for inset map showing North American range of American chestnut: United States Geological Service.

Championing this hope is the Canadian Chestnut Council (CCC), an independent organization formed in 1988. The largely volunteer-run charitable organization helps coordinate initiatives and information exchange on American chestnut recovery efforts in Canada. Disease-resistant breeding is being led by the CCC here in Ontario, crossing healthy trees identified by the most recent assessment, as well as others on private lands, with each other in the hopes of creating more resistant individuals. But when the healthy trees are few and far between, pollination is not so simple.

“With isolated trees, the Canadian Chestnut Council will go out and pollinate from one tree to another,” Dr. Ambrose tells me. The chestnuts are then harvested and grown at the CCC’s nurseries.



The American chestnut tree has been portrayed on a Canadian stamp.

A second breeding effort to save the American chestnut involves the hybridization of American chestnut with Asian species that have natural resistance. This involves an initial cross with Chinese chestnut followed by several successive back-crosses with native American chestnut. Dr. Boland allays my concerns when I ask how much that will change our native tree. “By the end of the whole process, which can take up to seven generations, [the resulting tree] will be more than 97 percent American chestnut, and less than three percent Chinese chestnut,” he says. “We screen them at each stage, trying to find those that are resistant.”

Meanwhile some natural resistance comes from a condition referred to as hypovirulence: a virus infects the blight, reducing its impact. In the case of American chestnut, the virus allows an infected tree to recover from the blight time and again. Cankers heal over as the tree continues to grow, but so far, trees aren’t recovering well enough to allow reproduction, or at least not here in North America.

“We looked at [hypovirulence] hard back in the late eighties and nineties and did some critical experiments, mostly in my lab, and at the end of it I came to the conclusion that it wasn’t working the way we were doing it,” explains Dr. Boland. “It’s still in the recovery plan. It’s worked very well in Europe and I’ve seen it there. I don’t want to give up on something that works that well in another place, but I do think there’s something more to it that we need to understand in order to get it to work here in North America.”

With the help of dedicated volunteers, CCC continues to grow resistant and hybrid American chestnut seedlings at nurseries, inoculating carefully chosen trees to test for blight resistance. Funding from the Ontario Ministry of Natural Resources’ Species at Risk Stewardship Fund has helped to fund this and other CCC activities aimed at helping to save the American chestnut tree.

But it’s not just the CCC that is breeding American chestnut trees in hopes of saving the species. Individuals like Ernie Grimo are impassioned as well.

“I first heard about [American chestnut] when I was in grade eight,” Ernie recalls. “Somebody had found one in Fonthill and it ended up in the newspaper. I took [the clipping] in for current events to my grade eight classroom. I didn’t know there was such a thing as American chestnut until I read that article.”

The discovery of the American chestnut tree, and its demise, was the first thing that got Ernie going with nuts. He now runs a whole business dedicated to growing nut trees in Niagara-on-the-Lake, and the CCC endorses Grimo Nut Nursery on its website as a source for purchasing American chestnut seedlings.

When I ask Dr Boland about the future of the American chestnut here in Canada, his words leave me with hope: “I’m probably more optimistic now than I was ten years ago,” he admits. “I’m quite encouraged with what I’m seeing at the [Canadian] Chestnut Council breeding nurseries. I don’t think we’ll ever get to the point where American chestnut will be back to the prevalence that it once had, but I do think that we should be able to keep it as part of the flora of southern Ontario.”

If you’ve never stood beneath one, its arms reaching high and wide, you are missing an amazing experience. To stand under an American chestnut is to feel protected and awed; its mightiness truly overwhelms. One day I’d like to show my future grandkids this mighty forest dweller and maybe collect some chestnuts to roast and eat together as I tell them the story of how we saved the American chestnut.

For more information, check out:

American Chestnut Foundation: www.acf.org

Canadian Chestnut Council: www.canadianchestnutcouncil.org

Forest History Organization: <http://www.foresthistory.org/>

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http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@species/documents/document/stdprod_075550.pdf

United States Geological Service Range Maps: <http://esp.cr.usgs.gov/data/little/castdent.pdf>

Virginia Tech: <http://www.vt.edu/>

Author’s note: Parts of this article originally appeared in the Winter 2010/2011 issue of *Edible Toronto*, and are reprinted here by kind permission.

Aubrey White (1845 – 1915)

A Founder of Forest Firefighting Strategy in Ontario

By Ken C. Veitch

The 125th anniversary of Fire Ranger service to Ontario in 2010 provided an opportunity to look back into history to research and present this story on Aubrey White, a founder of forest fire fighting strategy in Ontario. The research and article were done by Ken C. Veitch, a Bracebridge, Ontario, resident with a long-standing interest in early pioneers of the District of Muskoka, including Aubrey White. The article is posted on the Ontario Ministry of Natural Resources website and is reprinted here with permission from Mr. Veitch.

One of the earliest pioneer settlers in the Upper Canada community of North Falls (later to become Bracebridge Ontario), in 1860 was a man by the name of Alexander Bailey. He decided to settle in “North Falls” because he possessed an entrepreneurial and adventuresome spirit and recognized the great economic opportunity available in the numerous waterfalls and huge stands of trees in Bracebridge and Muskoka. He developed a number of enterprises including a hotel, sawmill, grist mill and, of special note for the purpose of this article, a general store, no doubt one that provided only the very basic of necessities to meet the needs of the settlers of the day.

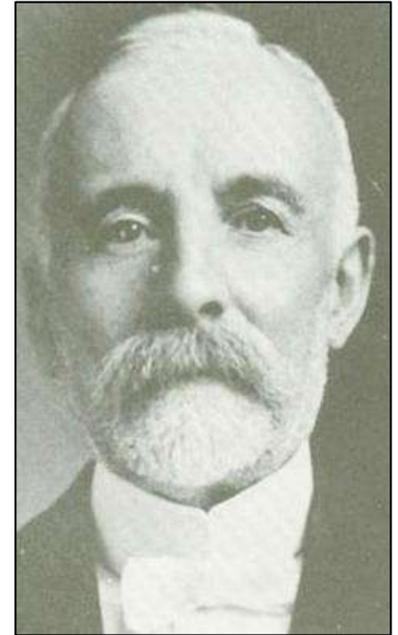
With his numerous operations, he obviously needed staff and the person he chose to be assistant in his general store was a lad by the name of Aubrey White. He had no idea that he was starting the young man on an incredibly successful career in business and public service.

Aubrey White was born in Ireland on March 19, 1845 and at the young age of 17 immigrated to Canada. Like Bailey, he must have had a very determined and adventuresome spirit to take on the challenge of a new country where he knew he would be facing an uncertain future containing many difficult and unknown obstacles. He arrived in “North Falls” in 1862. Why he chose “North Falls” is not known; perhaps he sensed the great opportunities the north offered in its various attributes—dense forests, rivers, waterfalls and wildlife that was the inspiration for many of the pioneers who came to settle in Muskoka.

White was not destined to stay very long in the position of “assistant” in Bailey’s general store. His character and ability was obvious, and he was spotted by A.P. Cockburn who was in the process of creating a fleet of large steamships for his new venture, the Muskoka Navigation Company, which for many years would provide transportation services for passengers, freight and pleasure cruises on Lakes Muskoka, Rosseau and Joseph. Aubrey White was one of Cockburn’s first employees in 1866 and rose quickly to the position of Captain, piloting the huge vessels on their voyages in the uncharted waters of these large Muskoka waterways. He would have been just 21 years old.

From there he joined the A. P. Dodge Company of New York, USA when they commenced operations in Muskoka harvesting the huge stands of white pine for distribution to world markets. It was in 1878 however, that he assumed a position that would lead him into a long, interesting and influential lifelong career. He succeeded George Lount as Crown Land Agent for Muskoka. It was a perfect fit for White. He knew the water and wilderness of Muskoka well, the people and the problems new settlers would face as they struggled to carve a homestead out of dense bush on their Free Grant Land Act properties. He received applications for land acquisition, directed each settler to the location of their property and approved final patents for deeds once the settlers proved they had fulfilled the conditions set out in the purchase agreement under the Act. During these years, long before the introduction of the federal income tax system, it was a municipal responsibility to levy a tax on their residents based on their income. In the 1879 assessment roll he was shown to have the enormous salary of \$200.00 per year.

Aside from his work, he was very socially active during his years in Bracebridge. He served as an officer for the Mechanics Institute (the predecessor of the public library system), Superintendent of Algonquin Park, Warden of St. Thomas Church, assisted in the production of the important promotional and historical book “Guide Book & Atlas of Muskoka and Parry Sound Districts 1879”, a member of the Agricultural Society and in 1879 became a member of the Masonic Lodge where, several years later, was elected to the lofty position of Grand Master for all of Ontario. Robert J Boyer in his book “A Good Town Grew Here” quotes W. E. Hamilton as noting that Aubrey White



Aubrey White, Deputy Minister of Lands, Forests and Mines.

was “gifted with a phenomenal memory and could tell the names of all the sitting members of all the parliaments, great and small, of Canada, their antecedents and their constituencies, together with the dates of the various by-elections since Confederation.”

He married Emily Agnes Bridgland and after her death in 1880 married her sister Mary Bridgland, daughters of a prominent Bracebridge family. Aubrey Street in Bracebridge is named in his honour.

Aubrey White was Crown Land Agent for Muskoka until 1882. His success in that position must have impressed his superiors because he was asked to transfer to a more prominent assignment in Queens Park. It is unclear what his duties were immediately following the move but clearly they were of significant importance because within five years he was appointed Assistant Commissioner of Crown Lands and Deputy Minister of Lands, Forests and Mines; a position he held until 1915.

White is distinguished by a number of achievements during his term as Deputy Minister in that Ministry. His succinct definition of the jurisdiction of authority over road allowances along navigable waters, in a letter dated October 15th 1896 to Monck Township in Muskoka, is a good example of his clear view on such matters when he said “...although the freehold of all roads is in Her Majesty, yet the jurisdiction is in the Municipal Council and it is conceived that the Municipality has the same powers as to preventing trespasses upon the particular road reservations...”. Another example of his authority and respect is shown when he dealt with the serious conflict between the Navigation Company and the logging industry regarding the use of the Muskoka River for moving logs cut far upstream down to the mills concentrated in other areas along the shore Muskoka Lake.

Since the beginning the Muskoka River had served as a transportation route, especially important in pioneer days for getting people upstream to work in the logging camps and for floating the resulting cut logs down to the mills. To say the river was taken for granted would be an understatement. As Muskoka developed and the Muskoka Navigation Company added more and more steamships to Muskoka Lake and the Muskoka River upstream to the growing village of Bracebridge, conflicts ensued. The logging companies were of the determined opinion that they had absolute domination over the use of the river. Not so, said Mr. Cockburn; he knew ‘the times they are a changin’ long before the popular song made that prophecy, no doubt because he saw how the logging companies were rapidly decimating the great Muskoka forests.

The river was increasingly used by his large boats and with logs clogging the route, colliding with and even smashing holes in the hulls of his expensive crafts, the river was in fact prevented from being a navigable water way. In 1913 the local Member of Provincial Parliament, former Mayor and Bracebridge resident Sam Armstrong, met with H.J. Foy Attorney General of Ontario to discuss the matter of logs blocking the river for navigation and Deputy Minister White was dispatched to resolve the problem.

Into this lengthy dispute waded Aubrey White. He knew the river, he knew the lakes, he knew the log run, he knew the people and he knew the boats; he had done it all. He met with representatives of the logging industry, the Bracebridge Council and Board of Trade and, in spite of industry representatives declaring it impossible, ruled that all logs in the river had to be tied together and towed downstream from Bracebridge to the mills safely. To accommodate those involved, the logging companies were given until the end of July that year to remove their logs in this manner and leave that part of the river clear thereafter.

Aubrey Whites greatest achievement though came from another direction. His experience in Bracebridge had taught him the importance of the massive stands of forest that blanketed Ontario and the numerous economic opportunities it provided. But they were of no value if a wildfire swept through them and left in its wake blackened stubs and a decimated landscape. Forest fires were an enemy in the rapidly developing Province. Aubrey White set about developing a firefighting plan for Crown forests for all of Ontario where he recommended appointing fire rangers and building fire towers. In 1885 the Honourable T. B. Pardee approved his plan and 37 fire rangers were placed on duty. White’s advantage in setting up the system was that he was a skilled navigator, no doubt learned scaling the wilderness of Muskoka and driving big steamboats on Muskoka Lake, so he was at ease venturing into unsurveyed and unknown territory in association with this work.

Aubrey White was Deputy Minister until his death on July 14th 1915. He never severed his ties with Muskoka and it was at his cottage on Chief Island on Lake Muskoka, after enjoying a day of rowing, swimming, and fishing that he passed away. He is buried in the St. Thomas Cemetery in Bracebridge.

On the fiftieth anniversary of his death, the Ontario Ministry erected a cairn in his honour at High Falls Park in Bracebridge. Over 100 people from the Provincial Government and across Muskoka attended the unveiling ceremony on July 14th 1965. Deputy Minister of Lands and Forests, Frank A. MacDougall, spoke at the ceremony, noting that since Confederation Ontario has had 17 Prime Ministers and 42 Ministers of Lands and Forests but only 6 Deputy Ministers; citing that Aubrey White served the longest in that office and was one of the most distinguished. He mentioned in particular his abilities as an aviator, which enabled him to travel extensively over the Province to carry out his important work. White’s interest and participation in early aviation again confirms the dedicated spirit of adventure of this great leader.

All in the Family ... No Not the Sitcom

By Dave Cleaveley



Albert Cleaveley
Chief Forest Ranger 1956
Minaki, Ontario

In 1922, a young man, Albert Cleaveley, fresh back from WWI, set foot on the shores of Minaki Lake. He was one of the first Chief Rangers to be hired as a permanent staff employee of the Department of Lands and Forest. Having permanent staff employees to deal with forest fires was itself a big step forward for fire management in Ontario, and for the next 40 years Albert devoted his career to the protection of Ontario's forests.



John Cleaveley
Deputy Chief Ranger 1969
Nakina, Ontario

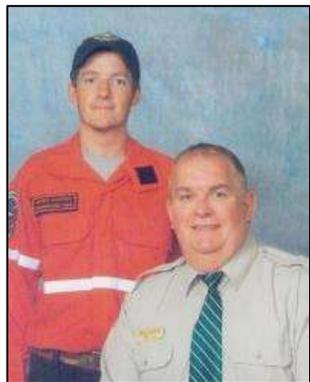
In 1946, Albert hired his son, John, as a firefighter in Minaki. John's career spanned the next four decades, and he soon became one of the most well respected fire authorities in Ontario. His career took him to places such as Ignace, Nakina, Geraldton and Fort Frances, where he retired as the District Manager.

Dave Cleaveley
Response and Operations Manager
Dryden, Ontario

In 1975, a third generation of the Cleaveley family joined the Ministry of Natural Resources as a fire crewman in Geraldton. I have had the privilege of working for one of the best employers and programmes for the past 36 years, in places such as Geraldton, Thunder Bay, Atikokan, North Bay and now, Dryden. Also, because our firefighting resources are so well known, I have been fortunate to have worked in many other provinces and states with our crews and incident management teams.

Andrew Cleaveley
Crew Boss 2010
Dryden/Geraldton, Ontario

Finally, in 2009, Andrew Cleaveley, my son, continued a long family tradition, joining the crew system in Geraldton, where he is currently a crew boss on a four-person fire crew.



A Century of Changes ...

In the early years of my Grandfather, fire rangers patrolled vast areas by canoe, putting out small fires and mapping larger ones. During the 1920's, fire towers began to pop up across the landscape, and throughout the summer, tower men scanned the horizon and reported back to the district forester, via a web of fragile copper wires that were strung on bush poles across the North.

These towers were eventually replaced by aerial detection. The provincial air service was formed in 1924, but it wasn't until many years later that the air service began to make a huge difference in the detection and suppression of wildfires in Ontario.

In the 1950's the Department of Lands and Forests operated a fleet of Otters and Beavers. In those days the first aerial water bombing took place by dropping paper bags filled with water, out of the cargo hatch of the aircraft. Today the Ontario Ministry of Natural Resources operates a modern fleet of nine CL 415 water bombers, six Twin Otters, five Turbo Beavers and seven brand new EC 130 helicopters.

The backbone of our organization, though, is the fire crew system. In the early years, my father often talked of the days when totally untrained fire fighters were conscripted into service. Locals were rounded up, loaded on to a truck, and sent to the fire. By contrast, today's fire fighter is a highly skilled and trained individual. They spend 40 hours learning the basic fundamentals of firefighting and then spend endless hours training as a unit to become a highly effective Ontario Fire Ranger Crew. These crews are supplied with the best modern day equipment available and are supported by highly trained individuals, at both the headquarters and the Region, who monitor the burning conditions and activity on a continuous basis.

With combined years of service, of over 120 years, I am very proud of our family's commitment to the protection of the forest and to the safety of the citizens of Ontario. I often wonder if my grandfather, Albert, could have ever imagined in 1922, when he first started in Minaki, how the forest service would develop into today's modern Aviation, Forest Fire and Emergency Services program.

As I get closer to my own retirement date, I cannot imagine where the fire program will be in 50 years from now and wonder if our long-standing family tradition will continue.

Gilbert F. “Gib” Carleton (1915 - 2012)

By Neil Carleton



Gib’s father died in a logging came, during the Spanish Flu epidemic of 1918, so his early days were spent helping his widowed mother raise a family of five children in Dunchurch, Ontario. Before his 16th birthday and after finishing high school, Gib went to work in the logging camps of northern Ontario, cutting pulpwood with a crosscut saw, hauling logs with horses and surviving blizzards. In the winter of 1935, he was working at a logging camp near Iroquois Falls where daily readings were made at the official weather station. Although his hair was frozen to the bunkhouse wall that morning when he woke up, Gib survived the coldest day ever recorded in Ontario. The thermometer dipped down to a frosty -58 C, or -72 F. The air, Gib recalled, had a blue tinge to it, and it was much too cold for the men or horses to be outside.

Gib was selected by the Spruce Falls Power and Paper Company in 1937 to be a timber cruiser on a special assignment to explore the timber stands between Lux and Pagwa River. With all their food and supplies on their backs, he and his team of four men hiked on snowshoes 100 kms by compass through deep snow throughout December and into the new year. He always remarked on the awesome silence of the forest in winter.

Gib married Ivy LaBrash of Maple Island and went on to work in the mines in Sudbury, an explosive plant in Nobel, and the nuclear plant at Chalk River. He was a member of the original Wright House gang that was assembled in 1952 to start the new DuPont plant near Prescott. When he retired from DuPont in 1977, Gib and Ivy devoted their outdoor interests to forest stewardship at their McDonald’s Corners farm. Prompted by his family, Gib’s account of his timber cruising experience was recorded on cassette tape. The 20-page transcript is available by email from his son Neil at ve3nce@rac.ca.

The Vickers Vedette Water Boat Airplane

The Vickers Vedette, a water boat aircraft, was the first aircraft built in Canada to Canadian design specifications. It was built for forestry purposes – aerial photography, forest inventory and forest fire detection. Originally built for the RCAF, the Ontario Provincial Air Service eventually purchased Vedettes. The Vedette has been commemorated in both Canadian stamp and coin productions. It was in service from the mid-1920s until the early 1940s.



Information Sources:

Legion Magazine (The Forest Watchers, Air Force, Part 35: (<http://legionmagazine.com/en/index.php/2009/10/the-forest-watchers-air-force-part-35/>).

The Canadian Heritage Bushplane Centre: (<http://www.bushplane.com/bushplanes/bushplanes-vedette/>).

The Canadian Aeronautical Preservation Association (http://www.capa-acca.com/cof/52/fifty_two_vickers_vedette.htm).

The Archives / Museums Corner

Domtar-Eddy-Booth Collection in Good Hands

By Michael Rosen

One of the most significant forestry collections in Canada has been recently donated to the federal Museum of Science and Technology. The Ottawa/Gatineau Domtar collection of 20,000 forestry files, plans, maps, photographs and artifacts includes materials from the pioneers of the wood industry in Canada, John Rudolphus Booth and Ezra Butler Eddy. Both men arrived from the United States at about the same time and had a very significant impact on the evolution of the forest industry in Canada.

J.R. Booth, the original “timber baron”, amassed timber limits of some 18,000 km², three railway lines and a huge array of sawmills and processing facilities. E.B. Eddy arrived in Wrightville (now Gatineau) in 1854 to produce his famous “Eddy matches” originally made out of discarded white pine “buttings”. Eddy became the consummate “innovator” using pine and hardwood to produce matches, spindles, washboards, and pulp and paper. Garfield Weston bought both firms in the 1940s, and Domtar became the final owner, in 1998. The mill was shut down in 2007.



Visit to the Domtar collection, March 2013:
from left to right - Franz Klingender, Curator,
Mike Rosen, David McGee, Archivist.

The collection includes 600 boxes of documents, 250 maps, 2,500 photos and piles of product samples — matches, washboards, swatch sheets of paper, wooden buckets and other items manufactured here. Eddy in particular seemed to have been fastidious about archiving documents, photos and products including toilet-paper rolls individually wrapped with World War II patriotic slogans and three-inch, 1800s era matches dipped in phosphorus. A series of beautiful black-and-white Eddy photographs show scenes of the mills, and other infrastructure — the timber slides and papermaking machines. They cover the time before and after the Great Fire of 1900, which destroyed almost everything Booth and Eddy owned.

The matches carry a deadly history of their own. The women who worked in the Eddy match factory (“Les Alumettières”) inhaled the phosphorus vapour until it destroyed the bones in their heads, a condition nicknamed “Phossy (for phosphorus) Jaw.” It was often fatal. These handmade matches, called Eddystone Torches, are part of the collection.

The collection is being catalogued, and will be open to those wanting to do research. It compliments other artifacts within the warehouses of the Museum including a vast assortment of chain saws and other logging gear. Those interested in seeing the collection should contact David McGee, the museum’s Archivist.

The Domtar collection was secured at the company’s request largely because of the impending sale of the Domtar lands. The lands, located at the historic Chaudière Falls on the Ottawa River (where Booth St. in Ottawa meets rue Eddy in Gatineau) include many historic buildings and infrastructure (including J.R. Booth’s original office and Canada’s original timber slides). It appears that the lands will not be maintained in public ownership in the company’s quest to find the best price for the site. For historians it does beg the question that if these lands, which saw the beginnings of Canada as a forest nation cannot be protected in public ownership, are we doomed to continue to allow our history to be forgotten and to forsake the dream of creating a much overdue Canadian Museum of Forestry?

Hope Mill, on the Indian River, East of Peterborough

By Robert Rehder, Written on Behalf of the Hope Mill Volunteers

The 1819 survey of Otonabee Township by Richard Birdsall included potential mill sites. When William and Jane (Stewart) Lang arrived in Otonabee Township from Renfrewshire Scotland in 1832, William purchased 200 acres on the Indian River at one of these mill sites. By 1835 he had constructed a dam to power a carding and fulling mill. The original mill measured 41 feet by 44 feet, with heavily mortared limestone walls some 19 inches thick. In the nearby village of Lang (formerly Allandale), Thomas Short had already built a sawmill (circa 1825), and later an impressive gristmill (circa 1846), using the same limestone construction. With access to a grist, saw, carding and fulling mill the local pioneer community flourished.



Hope Mill on the Indian River, Otonabee Township, east of Peterborough.

By 1848, William and Jane and their seven children moved across the road to the more spacious limestone house befitting a 'Squire', as William was called in later years. William was very active in local politics and served many years as Reeve of Otonabee Township. In 1860, he was Warden of Peterborough County and had the honour of welcoming the Prince of Wales, the future King Edward VII, when the eighteen-year old Prince made a brief visit to Peterborough. When the name for Allandale had to be changed in 1872 to avoid postal duplication, the village was renamed Lang, in honour of William Lang.

In 1858, the business was expanded to include a shingle mill. In 1873, Squire Lang retired and leased the mill, dam, house and 200-acre farm to his son-in-law, Richard Hope, for \$400 a year. In 1883, a small grist operation was added to grind feed for livestock. The Short sawmill in Lang burned in 1873. In 1876 Richard Hope added a saw house to the south side of the Hope mill building for a large circular saw to cut logs. In 1892, two new water-driven turbines were added for power. The main building housed a wood lathe, a sticker, a power fed rip saw, a bandsaw, a planer and equipment used to sharpen all types of saw blades. A forge was located in one corner. For the first few years, the second floor provided living space for the miller's family. From about 1874 to 1892 Richard offered both carding and fulling services as well as log cutting.



This photo shows a log on the movable carriage being cut by the 48" saw.

The basic principles of sawmill technology have changed very little over the years. At the Hope Mill site water from the Indian River flowed through the penstock and turned the two Leffel turbines that could deliver a combined power of 65 horsepower (hp). The generated power was directed, through a series of wooden-toothed and iron gears, belts and pulleys, to the 55-inch diameter circular saw. Downstairs the same turbines also powered an eight-foot lathe (installed c. 1890), and in later years, a self-feeding six-gang rip saw, three-sided planer, and jointer. As recently as 1924, a team of four workers cut over 210,000 board feet (fbm) in a thirteen-week sawing season, from March 25 to June 16. Despite William's early, gloomy predictions about the future of lumbering in the region, a lot of wood was cut at the mill, providing an important local service.

By 1892 the woollen business was discontinued, but the sawmilling services continued until 1966, when the Hope family sold the property to the Otonabee Region Conservation Authority (ORCA). With volunteer help and government funding, the site was converted into a demonstration sawmill for educational purposes. The second floor was converted into a museum to display antique wood working tools. ORCA used the mill to build picnic tables and other equipment for their various conservation and camping properties.

In the early 1990s, after government funding was cut, ORCA could no longer afford to operate the facility or make repairs, so the site was closed. Vandals and raccoons took over the premises. The antique tool collection was moved to the Peterborough Centennial Museum and Archives for safekeeping.

In 1999, the Otonabee Conservation Foundation (OCF) established a program to restore the mill to a structurally sound educational and heritage centre. After vandals had set fire to the building and burned a section of the roof, insurance covered part of the restoration costs. The OCF restoration team raised funds to repair the remainder of the roof. Auctions, dances and raffles provided additional operating funds. Help was solicited from various businesses, and professional organizations were asked for funding assistance.

Restoration began once the new roof was in place. A civil engineer inspected the building and gave the project a list of repairs needed to make the building structurally safe. The tailrace water, after passing through the turbines, flowed under the wooden floor and back to the river. This caused excessive rotting of wooden floor support members and the floor in the machine shop had collapsed. We tore out the

floor in the affected area. The bedrock is limestone and about 4 feet below floor level. We dug out the remaining overburden and muck to expose the bedrock. Then reinforcing steel for a concrete pier was driven into 12-inch deep holes drilled into the bedrock. We poured a concrete pier the length of the building to contain the water and to provide new supports for the floor.

We put stop logs in place in the penstock to drain the water out and this gave us access to the turbines. We then dismantled and removed both turbines out through the penstock. A crane with a 70-foot boom reached over a corner of the building and lifted the turbine parts, some weighing more than a ton, out of the penstock and onto a waiting truck. A local manufacturing company had agreed to rebuild both turbines and repair one of the large crown gear castings that had a quadrant of the rim broken out and missing.

The ceiling of the second-floor rooms was removed to clean out raccoon debris. Vandals had kicked in plaster walls, and other walls had to be removed to provide access to remove raccoon droppings. We used professional help to disinfect the area. Raccoons had chewed more than half way through some of the wall studs. Many of the cross bracing members on the ceiling joists were completely chewed through and had to be replaced.

We installed new drywall in the second floor museum rooms and applied stucco and paint to the new walls. The ceiling is now shellacked knotty pine. Two vertical columns, 11"x12", were rotten; new columns were positioned next to these to take the load. This required jacking the roof structure temporarily to get them in place. While doing so, we reached over one of the horizontal beams and found we could lift rotten wood for a third of its length. The beam was 24 feet long and 11"x12" in section. We removed it and replaced it with eight 2"x12" joists nailed together.

The 48" circular saw and its carriage are located on a mezzanine level, about 8 feet above grade. This saw room floor was supported on concrete footings with timber columns. The grade was muck and years of rotten saw dust. The area was wet and smelly due to slow leakage from the dam. The footings had not been dug deeply enough and were tipping, so we jacked the floor, removed the old footings and pored new 18" diameter footings anchored with steel rods into the bedrock. The wood columns were shortened enough to remove any rot. We scooped out any muck, down to bedrock, and it became obvious that there was water seepage from the dam and it would have to be drained. We filled the area up to the original grade with crushed stone and covered it with a 4" thick reinforced concrete floor. At the downstream side of the building, we dug a French drain to carry the seepage water back to the river.



One of the refurbished turbines being put in place by a crane.

The rebuilt turbines were returned to us and installed in 2004, again using the crane. The turbines retained their original 1892 lignum vitae wood bearings. The crown gears now had new wooden teeth. The 25 hp and 40 hp units could be used together to power the log saw with the option of having the power to the machine shop either on or off.

The restoration took considerable time, averaging over 2000 volunteer hours/year over a seven-year period. This does not include the time that volunteers spent making parts such as big wooden pulleys in their home workshops. On June 28, 2005, we cut our first log. Hope Mill was officially reopened as a heritage demonstration site on Sunday, June 03, 2006.

Today, our logs are brought in by truck once the roads are able to handle the weight. The logs are dropped at the edge of the millpond and quickly rolled into the water that protects them somewhat from insects. The saw team begins the milling process by guiding the logs in the millpond with a long pike-pole over to the jack-ladder where the logs are chained and winched by waterpower up into the mill. The cant man then uses a cant hook to roll a log

onto the saw carriage where it is secured with dogs. When John Miller Hope was running the mill (1931-1966) the saw blade was 55 inches, which meant that he could handle larger logs. The present-day system can cut logs up to twenty-five feet long and 24 inches in diameter. The present saw blade is 48 inches in diameter with 48 replaceable, insert teeth. When the sawyer engages the waterpower, the saw-blade rotates at 500 rpm and the carriage is drawn along its rails by a rack and pinion gear, bringing the log into contact with the saw. The cut pieces of lumber are removed for stacking and the waste wood is rolled along to the cut-off saw and is cut into firewood lengths.

Since 2006, Hope Mill Restoration Volunteers have been successfully sawing lumber using the original, water-powered turbines, with a combined 75 hp. A hundred years ago, fresh cut lumber was air-dried outdoors. Depending on the type of wood, the drying process ranged from 6 months to two years. Wood must be dried before it can be machined into finished lumber. After the restoration, space to air-dry and store the lumber became an issue. One of the volunteers found a reference to solar-powered kilns on the Internet. We were on our way! We decided that we would use some of the Hope Mill lumber to build the kiln. Now operational, it has reduced the drying time to 2-3 weeks for most of the softwood-sawn lumber.



Photo of a large gear on the 40-hp turbine that produces power for the saw.

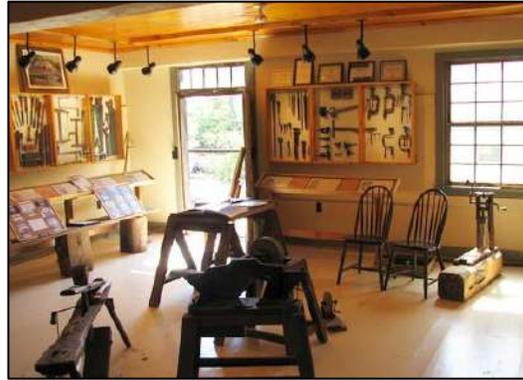
The saw is operated to demonstrate pioneer lumbering techniques for our visitors. We cut mostly softwoods (pine and cedar) and that wood is available for purchase. Occasionally, we have some hardwood, such as maple and basswood. We also do custom sawing and cutting to exact customer specifications.

In 2011 the mill, in partnership with Trent Valley Archives demonstrated the sawing of very old white pine trees. The trees had been blown down in Chemong Park in Bridgenorth. "Upon counting the rings of one white pine, I discovered the age of the tree to be 187 years old," explains Bob Rehder, Coordinator of the Hope Mill Restoration Volunteers. "The same log measured 28 inches in diameter – that was a majestic white pine!"

Today, a portion of William and Jane's living quarters contains the impressive collection of 19th century woodworking tools donated by Joseph Sharpe. The collection has been remounted and interpretative panels now explain the many, intricate tasks that can be completed with these tools. There is also a workshop on this floor for the demonstration of pioneer woodworking tools.



A volunteer helping a student make a wooden spoon.



This photo shows the museum part of the site, which houses the antique collection of woodworking tools.

The mill is operated by a dedicated group of volunteers. There is no admission but donations are accepted. Guided tours of the mill and log-sawing and finishing demonstrations provide a source of information on historical sawmilling, use of an antique water powered planer, jointer, table saw and lathe, as well as antique woodworking tools, and new technology like the solar-powered kiln. The site offers a glimpse into family life of the 1800s, and children have the opportunity to learn how to make trivets, finish cutting boards and carve wooden spoons. The local community college has their students visit for their museum and history lab programs.

The Volunteers

Beginning in 2001, a dedicated team of Hope Mill volunteers worked every Tuesday from early spring until the fall to repair the building and equipment. During each summer of the restoration phase 2001 to 2006, some twenty volunteers contributed over 2,000 hours of skilled labour to the project. With most of the restoration work now complete, the team of volunteers now puts even more hours into the operation, maintenance and demonstration of the mill.



Awards

The mill and the restoration project have received many heritage awards.

Resource Material

Hope Mill has its own website that provides more information on the mill site, its location, restoration efforts, photos, access and events: hopemill.ca.

More information on the history of the mill can be found here: <http://www.waybacktimes.com/rayhopemill90.html>.

Photo credits: Hope Mill website.

Personal Recollections

My First Season of Fire Ranging – 1912

By T.B. Skidmore

Editor's Note: This article originally appeared in *The Working Forest Newspaper* on July 19, 2012, and is reprinted with permission.

Ontario Fire Ranging of Yesterday

It was in February 1912 that the writer received word from the then Deputy Minister of Lands and Forests of Ontario, Mr. Aubry White, that he had been appointed a Fire Ranger in the Cochrane District, and to proceed immediately on May 1st 1912, and report for duty to Chief Fire Ranger John Bassailon at Cochrane. Chief Ranger Bassailon was a native of Warren, Blessard Valley, in the Sudbury District. The newly appointed Fire Ranger T.B. Skidmore arrived at Cochrane on May 6th, accompanied by the man who was to be his partner for the Fire season, Egert H. Reeves. That morning we proceeded to Fire Ranging Headquarters, which were located upstairs over a large building on 4th Avenue at Cochrane.

Fire Chief Bassailon appeared to be a nice chap, gave us our instructions, a pep talk, asking us to always be on the alert for suppression of Fire in the Forests. He gave us our equipment for which we signed a receipt. This equipment consisted of a daily diary, 1 tent, blankets (3 pairs for each of us), dishes consisted of cups, plates and cutlery for two of us, 1 fry pan and two vegetable pots, no mattress or springs in these days.

Mr. Bassailon promised us a double velocipede in the near future to patrol our beat. Our wages were to be \$1.75 per day, 7 days a week. Our chief then allocated our territory that we had to patrol, which was located on the National Transcontinental Railway right-of-way west of Hearst, Ontario, particularly that right-of-way located 23 miles west of Hearst, commencing at Kapanagamie River and extending 20 miles west. Two other fire rangers were located west of us. We now carried our equipment to the freight shed of the contractors, who had the contract to build the railroad. They were Messrs. O'Brien, McDougall and O'Gorman. The superintendent and roadmaster was Mr. Peter Houston. My partner and I boarded the mixed train at Cochrane at 8 a.m. on May 8th 1912, and started to our destination, Kapanagamie River. Arriving at Kapanagamie River at 6:30 p.m. our train could go no further, as the wooded structure over the river had been washed away and 4 bents in the wood structure had gone out and down the river. We camped on the east side of the river for two or three days, while the bridge was being repaired. It was cold sleeping in our tent, and our water pail froze quick inside the tent after our fire went out.



Thomas Bunting Skidmore, age 20.

After the bridge was repaired, we proceeded by hand car to our camping ground, which was 10 miles further west. Approximately in the middle of our beat or patrol, we set up permanent camp for the next nearly 6 months. We now started our patrol on foot of course. My partner E.H. Reeves taking the west patrol, I taking the east patrol, approximately 10 miles each, and on occasion we went together. We were not permitted to have firearms by order of the Chief Fire Ranger.

Patrolling was the major part of our work and also keeping a daily diary of our travels and whom we met. I may mention we met not one white female after we left Hearst until we returned 5½ months later.

I should mention we set our camp close to a large creek, which ran in a northerly direction, being fed from a small lake 1½ miles to the south of us. We soon learned that this same creek abounded with an everlasting supply of speckled brook trout. We fished this creek quite often and we may have on one or two occasions exceeded our daily lawful catch.

On the morning of the 24th of May 1912, it was frosty and clear, and an unexpected visitor came to our camp quite early in the morning.

Mr. Smith Ballantyne, who was then postmaster at Hearst, came up from Hearst pumping a speeder the 24 miles west from Hearst to fish. Mr. Ballantyne stayed with us overnight and took back with him a very nice catch of the speckled trout.

The Contractors O'Brien, McDougall and O'Gorman started to haul ballast from gravel pit #3 to distribute this ballast on the roadbed of the National Transcontinental Railway. They commenced work the latter part of May. Their commencing this work was welcomed by my partner and me as we rode the ballast trains over and back on our patrol sometimes two or three times daily. These ballast trains distributed gravel and filled the timber trestles, which were made very substantially of the best of timber. This was all scaled by a Government scaler, Mr. James Sunstrum. Nothing of great interest took place on our patrol; occasionally we saw some wild life, two or three moose, partridge. We were still hooking out quite a lot of speckled trout from our favourite fishing hole. Near where we were camped we had one fire. On the first week in July, along the

right-of-way of the railroad, 7 acres were burned over with little loss to green timber. This fire was caused by a defective screen of spark arrester in the contractors' locomotives. We made an inspection of the spark arresters on all locomotives. We received very good co-operation from the contractors in this respect.

June and July we had a fair amount of rain, raining days as well as fair days. We recorded this in our diary daily. In the last week of July working on our patrol was the contractors' lift gang, lifting the track and packing ties. This gang was always composed of 100 men or more. The foreman and men co-operated with us to keep fire at a minimum. During the period of time up to September the 26th, we kept our daily routine patrol. When weather was favourable, our Chief Ranger called us – three times during that summer. Once, on the second visit, he left us a 2-man velocipede to patrol our beat, which was very acceptable to us, and was a big help in getting us where we wanted and when we wanted to go.

On September 26th we received instructions from our Chief at Cochrane to proceed to Cochrane and arrive there on October 1st as our work was finished, and to bring in all our equipment.

In accordance with these instructions we broke camp on September 28th, early in the morning, we loaded all our equipment on our two-man velocipede and started our trek via the railroad 183 miles to Cochrane. We made 90 miles the first day and were getting a little tired pulling our speeder. We came upon a new station being built by the Contractors; in fact, there were a few station buildings along the railroad line under construction or finished. We were very pleased with our last night's lodging as these stations were substantial buildings, warm and well finished and all painted, but as yet were not named.

Early on the morning of the 29th we loaded up our hand speeder and started on our last trek of approximately 90 miles. We arrived at Cochrane 5:30 pm our arms a wee bit tired. We unloaded our equipment and carried same, also our speeder, to Fire Ranging Headquarters, where we met Chief Bassailon who said he would check our equipment. The following morning of September 30th, we stayed our last night in Cochrane at the Anderson house, checked in our equipment with Chief Bassailon. We then went over to pay our account for groceries and provisions supplied, and sent up to us by Revillion Freres of Cochrane. I believe the manager was Mr. Tom Scott. Our total expense paid to Revillion Freres for 5½ months provisions, amounted to less than \$50.00 each, which amount was the largest part of our living expense.

We were well pleased with our first 6 months in Northern Ontario and satisfied with the financial revenue part of it. We boarded the train and began our homeward trek back home to Humber Bay. We noticed that the station called Porquis on the O.N.R was then called Falls of the Iroquois.

Thomas Bunting Skidmore was born in 1893 in Lancashire England. At the age of 11 he arrived in Toronto Canada with his father, following the death of his mother. He was the youngest of a family of four brothers and a sister.

The family settled in Humber Bay. The new home in the new country signaled the end of Thomas' formal education. He often declared that he had not progressed beyond grade 3.

At the age of 18 he applied for the post of Fire Ranger, in 1912 and was given the direction as described in his journal. These notes were dictated to his secretary in 1950's, in his office at his cement block plant and window and door factory in Cochrane. His notes served him well in the future as a speechwriter and magistrate in later years.

It is from the 1912 experience that Thomas established his love and faith in the North of Ontario. In his later journals he refers to the North as 'the land of milk and honey'. He sponsored a number of Dutch citizens to Cochrane in the '50s also, but they quickly relocated to Toronto.

Thomas did not immediately move to Cochrane after 1912. He resettled in Humber Bay, and Gravenhurst, and married Eva Arding also from Humber Bay. His Fire Ranger partner from 1912, Egert Reeves, and he, met Eva and her sister Winnifred at a Humber Bay church garden party. Egerton married Winnifred and thus continued the life-long friendship of the two brothers-in-law.

Egerton bought an apple and peach farm west of Toronto, at the corner of Burnhamthorpe and Dixie, with his Fire Ranger investment. The farm was later purchased as the location of Square One, the first of the huge shopping malls in Mississauga. Egert and Winnifred would drive the 12 hours to Cochrane every fall, laden with fruit from their harvest to stay a week with Tom and Eva, until Tom's death in 1960.

Thomas moved to Cochrane to build a sawmill on the Abitibi River soon after his marriage to Eva. Eva was not pleased and never forgave him for the new location of their home on the tracks east of Cochrane. Eva passed away in 1997, just before her 100th birthday, still upset that she left the lovely Humber Bay.

Tom's father George Henry moved from Toronto to set up a farm on the Abitibi River also, in the 1920s until he died in 1927. Tom Skidmore invested in T.B. Skidmore Forest Products, still operating in 2012 by the family, east of the Abitibi River. In addition to the window and door factory that burned in the '50's he became a magistrate (copy of the Kings declaration 1927 hanging in his grandsons' homes), storekeeper and postmaster.

Tom located the new home, store and chicken farm on the route of the government plan for the TransCanada highway, from Winnipeg to Quebec City, through Cochrane, and Senneterre Quebec. When the Ontario government changed the TransCanada route to track south to Toronto through North Bay the gradual loss of commerce in the Cochrane/Abitibi River region left Tom nearly broken with disappointment.

Black Dan and Dynamite!

By Ken Plourde

I first worked in the pulpwood industry as a student in northwestern Ontario in 1957, at St Lawrence Corp. (later Domtar), which was originally Brompton Paper. At that time, the companies in the Port Arthur area (now Thunder Bay) were still moving logs by river transportation to lakes and thence across Lake Superior to mills. Others picked up the logs in Lake Superior and transported them by ship to mills like Red Rock, Port Arthur and Thorold. The industry was still cutting pulp by hand, mostly into 4-foot bolts for ease of handling, and for ease of river driving the logs. The 4-foot bolts obviously got hung up less in the rapids, and this length made clearing logjams easier. The downside to 4-foot bolts was the greater amount of handling, and the loads were less stable when hauling pulp on trucks.

Most of eastern Canada used river driving to transport logs to the mill, and many shanty songs and romantic lumberjack tales from the Ottawa Valley area were about these river drives. Indeed, Charlie Chamberlain, of Don Messer & His Islanders, worked and sang in river drive camps in those days. Books have been written about the tough lumberjacks going into town and stirring things up, including the story telling.

One such lumberjack tale involved a logging camp, near Auden, Ontario, east of Lake Nipigon. The camp was owned by Don Clark. Don was a contractor for Great Lakes Lumber and Shipping, and their pulp was hauled to the Sturgeon River for the river drive in the spring. During the winter, the logs were hauled to the riverbank, and piled along the river to be pushed in with a bulldozer at high water. Dan Stasiuk, better known as "Black Dan" because of his dark complexion, was the bulldozer operator who "watered" the logs annually.

In those days, men were not allowed to work alone in the bush without someone with or near them, in case of an accident. Thus, Black Dan had a helper, called a "swamper", named "Frenchman Lavoie", and during the course of their work, Black Dan ran over and killed Frenchman Lavoie. This unfortunate accident rested heavily on Black Dan. Sometime later, while Dan was working alone with his bulldozer, he himself was somehow run over by his own machine, and killed. The lumberjack version of the story was that Frenchman Lavoie returned and ran over Black Dan to get his revenge.

In the 1960s, when I worked at Domtar, in Beardmore, they had a depot, office and warehouse to support their operations along the river system from Jellico, Beardmore, Lake Helen, and Nipigon. I was helping out with the river drive when the logs jammed in the rapids on the Sturgeon River. We got out our dynamite, and took the two or three cases to the rapids. We only required a part of a case to free the jam, and since the river drive was almost over, we decided to set off the dynamite rather than store it until next year. There was an old abandoned camp along the river, consisting of three or four buildings, made from lumber and logs, so we decided to set off the dynamite in the camp yard. We set the fuses and piled the boxes together, and looked around for cover. I went behind an old log building about 50 or 60 feet away, then had second thoughts, and moved a bit further away, behind some trees. When we set off the charge, it blew all the buildings away completely, and into small splinters of wood. There was nothing left of the wall that I had first taken refuge behind!

There have been considerable safety changes related to the handling of dynamite over the years. Storage of dynamite storage is much more stringent, requiring locks, metal buildings and chain-link fences etc. The use of dynamite in forestry is now almost exclusively confined to road construction in mountainous terrain (e.g., British Columbia).

Hornepayne to White River – Surveying for Highway #631

Very First Centre Line Survey, 1962; The First 40 Miles

By K. John Hazlitt, Instrument Man to the Project



The north 10 kms of Highway #631.
Photo credit: Google maps.

Prologue

When I graduated from Dorset Ranger School with knowledge of surveying and forestry under my belt, along with being deemed expert at aerial photo interpretation, my first job was with Department of Highways, Engineering Surveys, London, Ontario.

I joined Party Chief Wright as his chainman /rod man. This was a January start so I knew the asphalt would be very cold. I enquired of my grandfather, Hugh Hill, as to the best footwear for the work and he recommended laced felt boots with felt sole along with two pair of felt insoles in each high buckle galosh. He was absolutely on the mark. I had warm dry feet all winter.

Part of the work was recording “detail” with the field notes starting always at the bottom of the page as we went along the centre line of a highway. I rodded the original 403 and remember well heading west, going down the bank of the Grand, across the river and through the cherry orchards.

Sometime in May, I was on a job near Wallaceburg, when Supervisors Frank Luscombe and Bill Smyth stopped and spoke to me. Frank said that I was to join a Survey Party with Merv McLean as Party Chief. It would be in Northern Ontario starting at the end of June and running into October. Frank also indicated that my expertise in aerial photo interpretation would be well used.

Merv spoke with me and welcomed me aboard. I took to packing my large canvas packsack of cloths, including rain gear, rubber boots, (affectionately called “steamers”) and cold weather gear. We left London in late June in Merv’s car. The rest of the party, Joe Rule, Instrument man, Leo Kent, Bob Crow, Paul Fazio, summer student, and myself, John Hazlitt.

Merv had much northern experience, as he was Party Chief on the Savant Lake project a few years prior. I had some experience with Department of Lands and Forests.

The Trip North

Our first stop was at the Ontario Department of Highway headquarters at Keele Street and 401, Toronto, where Merv picked up the large package of 1955 aerial photos, complete with the proposed centre line marked in pencil. Merv handed me the package, and suggested that I guard these with my life. So away we went, winding our way north on Hwy 11, eventually turning south to Hornepayne. Without asking, I now knew the job as there was NO road between Hornepayne and White River.

We were ensconced in “Taylor’s” Hotel with Mrs Taylor, Hotelier. The next day things started to happen. Merv took me for a drive to a short gravel road at the edge of Town that was to be our starting point, and indicated to me that I was now the instrument man for the project. WOW!!!

Joe would be camp clerk and expediter. Merv would hire the needed cutters and axemen. He already had his Cook, Emile, and Bull Cook, Paul, who had been on the Savant Lake job with Merv, on their way to Hornepayne by train.

The equipment, tents, sleeping bags, tent stoves (blued tin oval with top loading and circular draft control at bottom), cook stove, cooking pots, pans and dishes and survey instruments had been shipped ahead. Leo and I were charged with retrieving all the instruments and ancillary survey equipment and then we set to checking each transit/theodolite (4) and each dumpy level (4) for accuracy. We also set the transit compass declination for the area. We did this on the road that was to be our starting point. I secured one transit and tripod and plumb bob as my own along with an axe and files. Leo did the same with one of the dumpy levels, tripod and graduated rod. This transit stayed with me for the whole of the project. Bob and Paul were charged with documenting camp tents, tent stoves, sleeping bags, and all necessary equipment for the main camps. A Findlay Oval cook stove was also ready for our cook.

On the fourth day, Bob, who would be my stadia man, and I set out with transit and a few aerial photos in my kit to make our start. We went into the bush at the north end of this short gravel road and cut our way, a short distance to a large spruce tree. With short spikes to mark the point, this spruce tree became 0+00. The field notes now had their start, and away we went.

Within the day we were into the bush again with Orville, the cutter. He carried a McCullough chain saw with lots of extra parts, along with fuel and oil, and Mark the axe man, always with spare axe and files. Our line was cut and cleared about 6 feet wide. Distance from turning point to turning point was calculated by stadia and as I moved with my transit, of course back sites had to be set and checked. Each setting of the transit dictated that I measure to a known spot of three trees with short spikes in each tree, document the species and diameter, and measurements at each turning point. This was so I could relocate my transit site and the turning point left in place for the next crew. I tried to keep the back site and fore site at the same distance apart for accuracy.



Typical poplar-birch stand. These stands took much longer to traverse due to the greater amount of underbrush.

My small advance party (5) decided to pack in a fly camp and eliminate the daily walk, as each day was longer from the Town. We packed in a large red coloured tent on Monday with enough provisions for the week. Orville was in charge of fly camp location and always picked a spot close to the line and near fresh water. As he knew the area, we had permafrost to keep our perishables. The virgin forest floor was deep with lichen and moss. We made our table and bench out of logs and cooked on an open fire and Coleman gas stove. Breakfast was always French toast and strawberry jam with bacon and boiled coffee. After clean up, we packed a bit of lunch including canned fruit and off we went to return late afternoon to cook dinner, clean up and bed down for the night. Clear air and incredibly quiet. On Saturday we would hike back into Hornepayne, do the shower bit at Taylor's Hotel, and Sunday, provision for a hike back in Monday morning. We kept moving the fly camp along the line until the main camp was up and running and then we moved to work out of the Main Camp 1 on West Larkin Lake.



Note the typical black spruce forest in the background – very slow line cutting through this type of forest.

Our provisions for our Fly Camp included eggs, bread, butter, bacon, coffee, tea, sugar, powdered milk (our mix was always double the powder, made a more substantial milk) canned fruit, soups stews, pork and beans, peanut butter, steak and onions for one evening meal, potatoes, apples and oranges. Salt and pepper, flour and baking powder for bannock. We carried equal amounts of weight in our backpacks on the way into the fly camp and the "garbage" came back out on Saturday.

When we came to water, we built rudimentary bridges of sorts, and at the Shekak River, Orville dropped a large black spruce tree across to act as our bridge.

In the early stages, Joe, who had years of British Army experience prior to moving to Ontario, was busy getting ready to move massive amounts of gear to the first main camp by White River Air Service, Beaver float plane.

The first planeload to the camp area was one cutter, Armand, and two helpers, to clear a site and build the dock for the floatplane to unload the supplies. Of course, they had to go in to the West Larkin Lake water, as the plane could not get too close to the trees. Within the day, the log dock was built with available material, and Joe, who had moved all the camp supplies to the Hornepayne government dock, started the shuttle and added two more men to the Larkin Lake site to unload.

By this time the cutter and axemen had swamped out a large area of low growth and provided a clean forest floor, left the large trees and were ready to set the tents with cookie getting two, one for his stove, provisions and living quarters and the other right next for our dining experience. The Finlay Oval Stove, a large cast iron one that I know taxed the capacity of the floatplane to lift off

was moved during the early stages so Emile could work has magic in the tent kitchen. The setting of the main camp took a bit of time. Including running the aerial wire for the two-way radio. Finally all was up and running. A latrine was dug with strict attention paid to the strength of the “Johnson Bars”.



Three views of jack pine stands through which the crew traversed.

My fly camp party moved to the main camp and we started the line again going north to meet where we had left off. Of interest, before we left the line we cut at right angles about 100 feet each way so as to make our reconnect easier. Being out even one degree can throw you well off.

Leo was in charge of sounding the bridge sites and did so with a helper using 3/4 inch galvanized pipe in 6-foot length, and pipe wrenches to push down, adding sections as needed until firm footing was established. Leo had a prepared grid for his soundings. Leo and Joe, with a dumpy level and rod man did all the line profile work and drafted the plans accordingly

In the main camp, we had very large prospector style tents with fly. The beds were canvas cots set up on logs to make in and out easier.

As before when our walk became too long my advance party packed in the fly camp again and did as before. We eventually met our line. After an angle was turned and we passed the point of intersection a bit, we went back and calculated the spiral to curve to spiral and cut this through the bush.

At times the predetermined line did not suit the terrain so I would request that Merv come out to my site and we hand compassed a slightly different route, and away we went again with the added field notes.

Biting insects were a bit of a problem but you put up with them. Pant legs were tied tight to boots, long sleeve shirts and “Rosie” behind my hard hat protecting my neck. “Rosie” was red thin linen about 18 inches square that was used for everything from personal hygiene to ripping into strips for marking ribbon.

Main camp meals were just fantastic, and included a variety of pies and muffins. You were there to eat, not to talk, and after breakfast, you went to your tent, got your kit ready and then went to the dining tent, made your lunch and along with a can of fruit went off to the line.

The Terrain

The terrain through which we surveyed had little elevation change. The rivers were small - the Shekak River at our point of crossing was a limpid, deep pool. The landscape was approximately 70 % upland, 30 % lowland, with the upland terrain being bedrock overlain with fairly deep sandy and gravelly soils. At bridge sites, the soil was 8 to 10 feet deep. Black spruce and alder grew in the swampy, lowland areas. Typically, spruce grew 200 to 300 feet back from

river crossings. On rocky outcrops with deeper sandy soils, thirty per cent of the stands were pure, even-aged jack pine and 40-50 % birch and poplar. The jack pine stands averaged 80 to 90 acres in size, and were up to 1 to 1.5 miles across. Moss and lichens were deep in the jack pine stands. In some places, the moss provided insulation to permafrost, and in other areas, the moss was hanging from the trees. Tree diameters ranged from 6 to 10 inches in diameter. The trees that were cut for the line were pushed to one side and left.

We preferred surveying through the jack pine as sight lines were longer, and it was easier to cut and traverse through. The poplar and birch stands had a lot of undergrowth and took much longer to traverse.

We saw very little wildlife but did have a bear in our camp once, heard wolves at night and saw evidence of moose. Loons were plentiful, as were fish. We built a raft at West Larkin Lake and fished for pickerel.

The End of the Survey

In late August, Joe was already scouting ahead for a location for camp number two (Beaton Lake) and made a floatplane trip with one of the cutters to build a dock once the site had been established. This was an old burn and little to clear and a very short dock required. At the end of August our summer student was flown back from Larkin Lake camp to Hornepayne Government dock to catch the train and end up at Windsor to attend university. Merv added a few more staff from White River

Early September, Joe started to move the first main camp. Packing and movement was well orchestrated with the cook's tent, stove and provisions moved first. Other tents and equipment followed and before we knew it we had camp # 2.

I bunked in with Merv, and Joe and had a drafting table built so that I could bring the plans up to date. In September, we now had more rain days and, yes, some snow that did not last long. The tents had wood stoves. The Bull Cook, Paul, was responsible for heat. He would start very early in the morning with kindling and dry wood with a patch of kerosene soaked burlap in the vent, light the match and in no time did our tent warmed to the occasion. Our tents were kept warm all day and at night, Paul would fill the stove with green wood and by midnight the heat was intense.

We worked out of this camp until late Sept when Merv called a halt to the operations and started to fly out the men to Hornepayne or White River. Two of the men stayed and we started to pack up. Fold our tents as it were.



Our summer ended with snow in September.

Merv had scouted ahead for a suitable lake for a main camp and with cutter Orville they cleared out a place to cache all the gear and equipment for the next year continuing survey of the line by a different survey party. We took turns riding the floatplane to help unload. At last, we all boarded the floatplane for the trip to the Hornepayne dock.

Back to Town

We again were in Taylor's Hotel, time to shave and shower.

When you are in the bush for an extended length of time, you learn to pick up your feet as you hike along the forest floor, stepping over logs and other forest debris. When you now walk on hard surface, you automatically pick up your feet over the cracks on the cement sidewalk. It took me a week to get back into the swing of things.

Epilogue

I carried with me on the project a 35 mm camera and 15 rolls of Kodachrome 25 film. As each roll was exposed, it was put in the aluminum canister and package and addressed to my home in Benmiller, Ontario. The package was put in the Friday mail pouch and given to the pilot to take to White River to be posted. When I arrived home I took the slides, put them in cassettes and found they were a complete document of the project and in incredible condition. Over the years, the cassettes, along with many others, were always stored in a dark closet.

Three years ago, I was speaking with my very good friend, Doug Culbert OLS., of Goderich, and he indicated that he was Chair of the OLS Archive Committee, and commented that the survey camp I was with in 1962 was, in his opinion, the last, ever, of this magnitude for the Province of Ontario, Department of Highways. Technology had changed. Doug asked if he could have a couple of images of the camp for the OLS Archives, so I made a DVD, with the help of Jeremy Allan, Audio Specialist with the Huron County Museum. The DVD contains 75 images with voiceover of the trip north and the survey camps, a copy of which I sent to the OLS Archives.

The road was completed in 1973, and cost \$7.5 million. It opened the area to the forest and mining industries. The road provided opportunities for local companies, including the Olav Haavaldsrud Timber Company of Hornepayne, still in operation today.

Books / Articles / Web Sites or Other Resources

Book Review

By Mike Commito

For this edition of *Forestory I* I have decided to provide a list of books for those interested in a broad-ranging view of forest-fire related references, rather than a review of one particular book.

- Barnes, Michael. *Killer in the Bush: The Greatest Fires of Northeastern Ontario*. Erin, ON: The Boston Mill Press, 1987.
- Egan, Timothy. *The Big Burn: Teddy Roosevelt and the Fire that Saved America*. New York: Houghton Mifflin Harcourt, 2009.
- Hambleton, Jack. *Fire in the Valley*. Toronto: Longmans, Green and Company, 1960.
- MacKay, Donald. *The Lumberjacks*. Toronto: McGraw-Hill Ryerson, 1978.
- Pyne, Stephen J. *Fire in America: A Cultural History of Wildland and Rural Fire*. Seattle: University of Washington Press, 1982.
- . *Burning Bush: A Fire History of Australia*. New York: Henry Holt & Company, 1991.
- . *World Fire: The Culture of Fire on Earth*. Seattle: University of Washington Press, 1995.
- . *America's Fires: Management on Wildlands and Forests*. Durham, NC: Forest History Society, 1997.
- . *Vestal Fire: An Environmental History, Told through Fire, of Europe and Europe's Encounter with the World*. Seattle: University of Washington Press, 1997.
- . *Year of the Fires: The Story of the Great Fires of 1910*. New York: Penguin Books, 2001.
- . *Smoke Chasing*. Tucson: University of Arizona Press, 2003.
- . *Tending Fire: Coping with America's Wildland Fires*. Washington, D.C.: Island Press, 2004.
- . *The Still Burning Bush*. Melbourne: Scribe Short Books, 2006.
- . *Awful Splendour: A Fire History of Canada*. Vancouver: UBC Press, 2007.
- Pyne, Stephen J., Patricia L. Andrews and Richard D. Laven. *Introduction to Wildland Fire: Fire Management in the United States*. Second Edition. New York: John Wiley & Sons, 1996.
- Rajala, Richard A. *Feds, Forests, and Fire: A Century of Canadian Forestry Innovation*. Ottawa: Canada Science and Technology Museum, 2005.
- Tucker, Albert. *Steam into Wilderness: Ontario Northland Railway, 1902-1962*. Toronto: Fitzhenry & Whiteside, 1978.
- Wood, J. David. *Making Ontario: Agricultural Colonization and Landscape Re-Creation before the Railway*. Montreal and Kingston: McGill-Queen's University Press, 2000.

Additional Forest Fire History Sources

By Sherry Hambly

Ontario Ministry of Natural Resources (OMNR)

Ontario's fire program has posted a number of items on its external website that provide further information on fire science, fire management and response, technology and weather. The OMNR external fire website homepage is located here:

<http://www.mnr.gov.on.ca/en/Business/AFFM/index.html>

There is also an interesting publication produced by the Department of Lands and Forests when Kelsey Roberts was Minister and Frank MacDougall was Deputy Minister. It describes how fires were fought back in the day. One of the most interesting aspects of this publication is the picture on page three showing a Fire Ranger holding a fawn. It must have been used by Edwin McCormick as a model for his famous (and one of my favourite) firefighting paintings titled "The Fire Fighter". The publication is titled:

Ontario Department of Lands and Forests. ND. *Our Forests are Burning*. Forest Protection Branch.



Canadian Bushplane Heritage Centre (CBHC)

The CBHC website and centre contain a lot of information on wildfires, fighting forest fires, aerial detection and response, airplane and pilot histories, as well as a history of the Provincial Air Service. Visit this site at:

<http://www.bushplane.com/index.php>

Natural Resources Canada (NRCAN)

Both the Great Lakes Forest Research Centre and the Petawawa National Forest Institute (closed since 1996), along with other Canadian Forest Research Centres, have had and continue to have strong research programs focussed on a variety of aspects of forest fire ecology and history, as well as forest fire fighting tools. A good place to start is with their publications database:

<http://cfs.nrcan.gc.ca/publications>

Facts about each centre are posted here:
<http://cfs.nrcan.gc.ca/centres>

University of Toronto

The University of Toronto has had a strong presence in the forest fire research field and has produced publications on fire history (one of which appears in this issue of Forestry). The home page of the University of Toronto Fire Management Systems Laboratory is located here:
<http://www.firelab.utoronto.ca/publications/mfc.html>

Publications on Fire History – Ontario Ministry of Natural Resources Library

Editor's Note: While conducting research in fire history at the OMNR library, I came across two unpublished manuscripts on the history of forest fires in Ontario, probably produced to support the writing of *Renewing Nature's Wealth*. There is no date on either publication. They provide a wealth of information on the history of fires and the development to the fire control and air service programs in the government. The publications are titled:

Ontario Department of Lands and Forests. ND. *100 Year History*. Forest Protection Branch. Unpublished.

1. Forest Fire Protection Before 1878 – 15 p.
2. Forest Fire Protection After 1878 – 77 p.
3. The Air Service – 26 p.

Leslie, A.P. N.D. *Large Forest Fires in Ontario*. Forest Protection Branch. Unpublished.

I extracted information from the Leslie manuscript on large Ontario fires before 1950 and placed it in a table (see below).

Large Fires in Ontario to 1950 (from Leslie – see Above)

YEAR	LOCATION	SIZE
1845	West of Lake Superior to Rainy Lake	Vast fires extending over 640,000 acres (1000 mi ²)
1851	Bonnechere/ Big pine country	
1855	Temagami to Lake Temiskaming to Montreal River to Michipicoten	1280000 acres (2000 mi ²)
1860	Burnt River, Glamorgan, Snowdown Twps to upper branches of the Trent Waters	
1864	Thessalon River to Collins Inlet then north to meet a fire at Wahnapiatae River that started on the West Arm of Lake Nipissing	
1868	Bissetts Creek area; from the Ottawa River to Lake Traverse on the Petawawa River	
1871	Main fire from French River to Lake Nipissing to Mississagi River; Other Very large fires along the shore of Lake Superior;	1280000 acres (2000 mi ²); 6 lives lost along CPR survey line
1877	Parry Sound area	Extensive areas
1891	CPR Rail line from Pogamasing Station to near Woman River	60 miles along the railway
1896)	South shores of Biscotasing and Ramsay Lakes; Headwaters of the Spanish and Mississaga Rivers north to the height of land	70 miles each way
1894	Northern Minnesota into Rainy River	6 lives lost; several townships near Rainy River
1901	Large fires extending from Kabinagami to Little Abitibi Lake, to Lake Kesagami and Grand Lake Victoria	
1910	Beaudette – Rainy River	42 lives lost
1911	Porcupine and Cobalt	73 lives lost; 553000 acres (864 mi ²); \$3 million property damage
1916	Matheson	224 lives lost; 640000 acres (1000 mi ²); \$2 million property damage
1922	Haileybury	43 lives lost; 1280000 acres (2000 mi ²); \$6 million property damage
1930	Garden Lake Fire, Port Arthur District	179000 (280 mi ²)
1938	Fort Frances District	20 lives lost; 46000 acres (72 mi ²)
1941	Gogama District	394,000 acres (615 mi ²)
1948	Mississagi – Chapleau	1 life lost; 645,000 acres (1000 mi ²)

“Renewing Nature’s Wealth”

(Lambert, Richard S. and Paul Pross. Toronto: The Ontario Department of Lands and Forests. 1967). The book cover describes this book as “the exciting story of Ontario’s natural resources, and John Robarts, in his Foreword to the book as ‘much more than a history of one of the Departments of the Government of the Province of Ontario: it is a vital component of the history of Ontario’, reaching back nearly 200 years to the days of the first surveyor General of Upper Canada in 1794. The book describes the impact made by a civilized people upon the primitive forest that originally covered the land, and the development of its natural resources under public administration from an early state of confusion and waste down to the modern era of conservation and scientific management.” We will provide a précis of one chapter of this book in each edition of the journal.

Part II: Consolidation and Conservation, 1842-1900 - Chapter 7 (The Department Takes Shape): The coming of responsible government and the union of the two Canadas in 1941 led to a larger department in charge of natural resources for both Upper and Lower Canada. The union presented administrative challenges due to floating capitals among Kingston, Montreal, Toronto and Quebec. The department was the largest in the government, and continued to be plagued by administrative scandals. From 1841 to 1867, the department had sixteen commissioners, each with their own personality and scope of interest.

Responsible government meant parliamentary oversight, which led to the first annual report of the department – a 1400 page document that reported on all aspects of the department. Its primary author, Commissioner Cauchon, seems to have had an ulterior motive in creating such a long report. He was particularly interested in opening the area between the Ottawa Valley and Georgian Bay and further north even. Cauchon was also intent on improving the administration and policy perspectives (consideration of the public good rather than just revenue) of the department through his report, but left two years later after much resistance from a variety of sources. Fisheries management is an example where policy was not constrained by revenue generation. Cauchon was responsible for getting the Fisheries Act of 1857 passed; the first piece of conservation legislation in Upper Canada.

The Civil Services Act, passed in 1857, allowed for the separation of politics and administration and eventually led to the creation of Deputy Ministers for each department. For Crown Lands, an Assistant Commissioner was appointed. But it wasn’t until after confederation in 1867 and the creation of an Ontario Crown Lands Department that better administration started to take shape in the organization. Even though administration improved, scandal continued to plague the department. The rapid disposal by auction of a very large tract of timber berths on the north shore of Lake Huron was roundly criticized. The ensuing furious protests were the first time the principle of conservation was used in protest of the timber disposal methods. The Commissioner of the day eventually resigned office.

The ensuing Commissioner, Timothy Blair Pardee, who was in office for 16 years, was eulogized in the *Globe and Mail* as “one of the ablest, shrewdest and most far-seeing public men who ever sat in the Legislature”. He was ably assisted by Thomas Johnson who worked with him for 14 years. These were years of administrative stability in the department, but politically, issues did arise. The Ontario-Manitoba border dispute plagued the department for 18 years; the Ontario Rivers and Streams Bill of 1881 to protect the right of public interest in waterways was overturned three times by the federal government. It was eventually upheld by the Privy Council in 1883.

A prolonged depression in the timber trade in the second half of the 19th century led Ontario to reconsider ways of managing public resources. New ideas about natural resources management were beginning to foment. The late 1800s marked a watershed between the old and new ways of managing natural resources.

Events and News

Events – Past

Dolf Wynia Receives Zavitz Award

The Zavitz Award, given out by the Ontario Professional Foresters' Association (OPFA), recognizes significant contributions to Forest Conservation. The award is named for E.J. "Edmund" Zavitz, Ontario's first Provincial Forester. Known as "The Man Who Saved Ontario with Trees and Determination" Dr. Zavitz is the subject of a new biographical book, he has a forest named for him in Norfolk County and a plaque in his memory has been erected at the Guelph Arboretum.

The award was bestowed on Dolf Wynia in the summer of 2012. The OPFA dedication included these words:

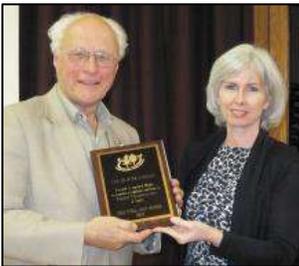
"Dolf Wynia is not a current Member of the OPFA, but has continued to be a force advancing forest-related matters as a volunteer administrator. Many of us had the pleasure of seeing Dolf as a leader last summer, shortly after a heart operation, where he led in the dedication of the Zavitz Forest, the rededication of the White Forest and the first presentation of this, the OPFA's Zavitz Award. This all took place all as part of the Simcoe Forest Festival, which largely took place at the site of the old nursery that Dolf and others have worked tirelessly to recognize."

Upon receiving this award, Dolf reminisced about his forestry career ... and his connection to E. J. Zavitz:

"On the day that I was hired by the Ontario Department of Lands and Forests in 1957, the provincial private land forester, John Jackson, introduced me to two outstanding career foresters whom I still vividly remember. One was a pleasant elderly gentleman who took a short time out from his darkroom, where he was "organizing" his pictures. The other one was a gruff "all business" gentleman, surrounded by paperwork and telephones, both of them wishing me good luck. The first one was Dr. Edmund Zavitz, the other one was Frank MacDougall. The difference between them was amazing to me, seeing that one was the Deputy Minister and the other had been."

It was not until I read a draft of John Bacher's biography of Dr. Zavitz that I realized that I had met the man who had created my job many years earlier, when he set up the organization that was to administer professional forestry in Ontario. Dr. Bacher has done an enormous amount of research at a wide variety of sources for anyone who cares to learn about the history of forest protection and land conservation in Ontario: The key players, both good and bad; the organisations and their leadership; the turning points and the reversals."

Dolf further expanded on his career in forestry in an email to Ken Armson:



Dolf Wynia receiving the
Zavitz award from Susan Jarvis
RPF representing the OPFA

"My career started as a charter member of the O.P.F.A. and with the Department of Lands and Forests in 1957 as Zone Forester in Hespeler, managing municipal forests and advising private landowners, including planning for the planting of as many as a million trees a year. Then management forester in Powassan where we often planted even more trees per year. In my couple of years in North Bay I was assigned the development and operation of their "tubed seedling" nursery; a rather doubtful enterprise. In 1967 I became superintendent of the nursery in Thunder Bay, which we expanded from about 5 million trees per year to about 25 million bare root seedlings per year plus about 30 million contracted containerized seedlings. In 1983 I moved to St. Williams and became much more involved with local conservationists, including the conservation authority, naturalists and woodlot owners, culminating in Norfolk becoming the "Forest Capital of Canada" for a couple of years. All in all a very satisfying career, considerably inspired by the fellowship in our profession and the leadership of many of the colleagues I met through the Canadian Institute of Forestry."

Forest History Society of Ontario Annual General Meeting



The Annual General Meeting of the Forest History Society of Ontario was held on February 7, 2013, at the Nottawasaga Inn, in Alliston. About 30 participants attended. The guest speaker was Jamie McRae, current CEO of McRae Lumber in Whitney, Ontario. The McRae Lumber Company has a long history of pro-active forest management and extraction in the Ottawa Valley.

The Forest Products Association of Canada Celebrates its 100th Anniversary



The FPA has a slide show commemorating its 100th anniversary on its website. <http://www.fpac.ca/index.php/en/fpac-100-years>

In addition, it has a facebook page where photos and memories can be posted. https://www.facebook.com/FPAC.APFC/photos_stream

Ontario Professional Foresters' Association Annual General Meeting, Ottawa, April 10-12, 2013



John Goodman, member, volunteers at the table display of the Forest History Society of Ontario.



Mike Rosen, Director of the Forest History Society of Ontario, led a tour of forest history in Ottawa. Sites visited included J.R. Booth House, Metcalfe St., Ottawa (1909), Bytown Museum to see the logging exhibit/Hannum Table (1874) showing the E.B. Eddy complex, J.R. Booth's office, Victoria Island and Chaudière Falls, Remnants of the "Government Slide" (1829) and the "Bronson Slide" (1832), and the Thompson-Perkins Mill (1842).

50th Anniversary of the Urban Forestry Council of Ontario (OUFC)

There was a tree planting ceremony at the University of Toronto on April xx, 2013, to commemorate the five decades of the growth, development and success of the Urban Forestry Council of Ontario.



Speakers waiting: L to R - Adam Vaughan, Toronto City Councillor, Mike Rosen, Phillip van Wassanaer, former President OUFC, Andy Kenney, former President OUFC, Sandy Smith, former Acting Dean, Faculty of Forestry, University of Toronto.



Michael Rosen of Tree Canada, speaking; Jack Radecki, Executive Director of the Ontario Urban Forestry Council, waiting to speak.

FHSO and the Ramara Historical Society at “Lumberjacks” Event in Brechin



At the invitation of the Ramara Historical Society, Sherry Hambly represented the FHSO at a shared space at the Brechin “Lumberjacks” competition on June 8, 2012. The Ramara Historical Society members had various displays including old woodworking tools, solid pine lumber and wood samples from 46 trees. Sherry learned about the Black River canal*; a 2000-tree walnut plantation established in the late 1960s; and, as well, enjoyed the lumberjack competition.

*Henry W. Sage, an American lumberman, formed the Rama Timber Transport Company in 1868 in order to build a canal from the Black River to Lake St. John (which flowed into Lake Simcoe) to allow the logs of Muskoka and Victoria to reach the mills of Lake Simcoe.

CBC TV's “The Forest Rangers” Celebrates 50th Anniversary

Modeled after Ontario Lands and Forests Chief Ranger and Junior Ranger positions, the iconic Canadian TV show the “Forest Rangers” celebrated its 50th anniversary in Kleinburg on June 15, 2013. The show's stars, Gordon Pinsent as Sgt. Scott, and all nine Junior Rangers were in attendance.

<https://www.facebook.com/events/335856239847891/>

Rebirth of a Forest – Part Three, Spring, 2013

By John Hazlitt

The “Rebirth” of the forest from the August 2011 Tornado blow down on the north edge of the Goderich Maitland Cemetery continues to progress. The site came through the winter in great shape. Tree loss was minimal with little rodent damage. There is an active red fox den not far away, and with no place to hide, the rabbit population has been kept in check.

The entrance to the site is marked with a presentation of large cedar pieces with the tall broken stem depicting the stark reality of the August 2011 tornado damage (Photo #1). The device was put together by John Hazlitt and the operator of the tracked skid steer of Merner Contracting Ltd. Spring is heralded by the appearance of coltsfoot (Photo #2). Wild turkeys have been observed along with a great variety of birds starting to enjoy the new growth opportunities for nesting.

A birdhouse-building workshop was held on an April Sunday afternoon at the Goderich Parks service building. Martin Quinn and John Hazlitt were the catalysts for the event that saw 56 young people with their parents and grandparents participating in the building of birdhouses using only real wood (no composites). Each participant had their own design and we cut the material accordingly – an incredible event with some 40 hammers, none of which hit the nails in unison. Many of the birdhouses are now on sign posts at the Rebirth site. Presently, two are occupied (Photo #3).

The last grove to be dedicated is for Wellington County, and it is planted with some 300 trees of many varieties donated by Wellington County Green Legacy (Photo #4).

Plant identification by Goderich Parks Staff took place on the Goderich Horticultural Grove Bog Site, in early MAY, with Jen Sinclair discovering and photographing the rare daphne plant (Photo #5). A nesting mallard was also discovered (Photo #6).

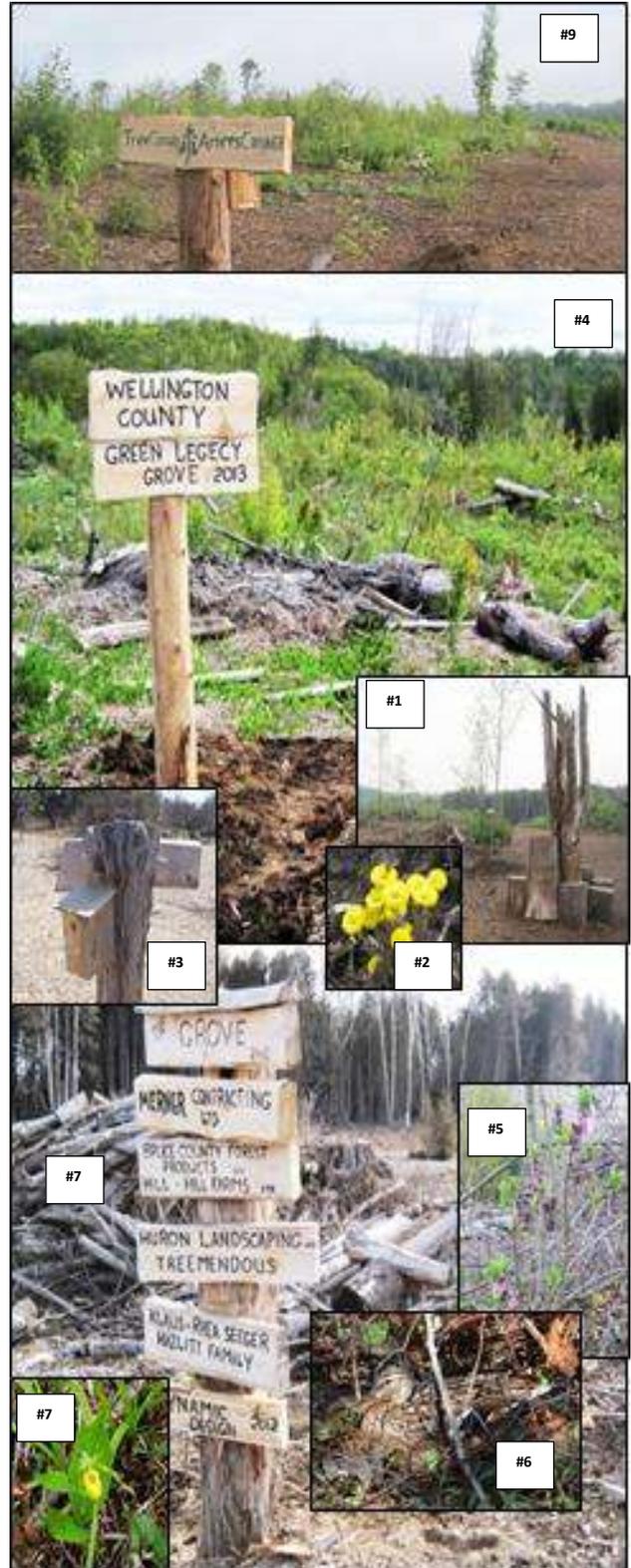
THE “Grove” is a mixture of natural regeneration plus a number of planted Carolinian species. The names on the sign indicate those contributors who have donated trees, time, or money (Photo #7).

On June 1, 2013, The Grove was visited by a few people including Ed Borczon RPF of Tree Canada. On our walk around, we discovered a yellow lady slipper (Photo #8). Ed was one of the very first to visit the blow down site in March of 2012. Photo #9 shows the Tree Canada sign.

We are in the process of GPSing the pathways so a map of the site will be generated. This fall, in late September there will be another planting of diverse native species donated by a financial institution.

The end result of all planting, as well as natural regeneration, will be 24 acres of many different species totalling 1000’s of trees – a true community effort indeed to regenerate an urban forest.

All photos are by K. John Hazlitt except the one of the daphne plant that is credited to Jen Sinclair.



Events – Upcoming

Growing Trees Since 1947

Display at Ron Morel Memorial Museum in Kapuskasing on the Spruce Falls' Moonbeam Forest Nursery By Julie Latimer

This article was originally published in the Kapuskasing Times Online on May, 15, 2013:

<http://www.kapuskasingtimes.com/2013/05/15/growing-trees-since-1947> .

It is reprinted with permission.

To: Mr. G. G. Cosens
Pulpwood Supply Company
Longlac, Ontario

Dear Gord,

The accompanying map shows two possible nursery sites south of Remi Lake. The most desirable site consists of lots 6 and 7, Concession VII, Fauquier Township, where approximately 150 acres of cleared sandy soil occurs. The area is 18 miles by gravel road from Kapuskasing, being 3 miles north of Highway 11 and the C.N. Railway and approximately 4 miles from Moonbeam. All other possibilities between here and Hearst have been investigated and found to be much less desirable.

Yours very truly,

Ed Bonner

This short letter talks about the future site of a tree nursery that encapsulates more than 15 years' worth of research, studies and work conducted by foresters employed by the Spruce Falls Power and Paper Company to ensure the sustainability of the forest from which this community earned its living.



Left to Right: Louise Gauthier, Gaétanne Robert, Lucie Credger and Jeannette Léonard weeding

Featuring excellent photographs and articles from issues of The Spruce Log magazine, the main exhibit at the Ron Morel Memorial Museum this summer is about the Spruce Falls' Moonbeam Forest Nursery.

The photographs were rescued by the late Walter Baczynski when the old Woodlands building (across the street from the museum) was demolished in the early 1990s. It breaks my heart to say this, but apparently, these photos were going to be thrown away! Walter's son, Alec, lent me the collection and that's when the idea for this exhibit was planted and began to germinate (pardon the pun).

Going through the photos that date from the late 1940s to the late 1950s, I was able to put together the story of the forest nursery, from the laying out of the 48-foot long seedbeds, the planting and care of the seedlings, the transplanting of two-year-old seedlings and the tree planters' back-breaking work of planting four-year-old seedlings in cut-over areas.

The accompanying photo is absolutely one of my favourites because the female workers look so glamorous. The photo may be more of a publicity-type shot, but other photos show female workers dressed fairly well for planting and uprooting seedlings.

Foresters like Ed Bonner, Fred Flatt, Vic Sleep and Garnet Bell all make appearances in the exhibit, as do other foresters.

Spruce Falls was one of the first paper companies in Ontario to set up its own tree nursery in 1947. It is to their credit that they established a tree nursery to ensure the continued growth of trees and forests, which they needed to be successful. The materials presented in this exhibit are evidence of that care.

The Ron Morel Memorial Museum opens officially on Monday, June 3, 2013, and I hope you all take the time to come to the museum to learn about the Spruce Falls' Moonbeam Forest Nursery.



Kapuskasing

**Lumberjack Heritage
Festival des bûcherons**

July 25-28, 2013

<http://www.kapuskasing.ca/Lumberjack/default.aspx>

About the Authors

- Clayton Self:** Gained a keen interest in exploring the backcountry after spending summers at his family's cottage.
- Dan Johnston:** Acting Fire Science and Planning Specialist, Planning and Information (Dryden), Aviation, Forest Fire and Emergency Services, Ontario Ministry of Natural Resources.
- Dave Cleaveley:** Response and Operations Manager, Northwest Region, Aviation, Forest Fire and Emergency Services, Ontario Ministry of Natural Resources.
- Dave Heaman:** Fire Science and Planning Specialist, Planning and Information (Sault Ste Marie), Aviation, Forest Fire and Emergency Services, Ontario Ministry of Natural Resources.
- David Martell:** Professor in the Faculty of Forestry at the University of Toronto, specializing in the application of operational research and management science to forest fire knowledge and management.
- Ian D. Thompson:** Research Scientist, Great Lakes Forestry Centre, Canadian Forest Service.
- James A. Baker:** Retired Wildlife Research Coordinator and Policy Advisor, Ontario Ministry of Natural Resources.
- John Bacher:** Historian and environmentalist from St. Catharines, Ontario; author of *Two Billion Trees and Counting: The Legacy of Edmund Zavitz*.
- John Hazlitt:** Grew up in the Village of Benmiller where Sharpe's Creek and the Valley of the Lower Maitland River became his playground and later his workplace.
- Julie Latmer:** Curator, Ron Morel Memorial Museum, Kapuskasing, Ontario.
- Ken C. Veitch:** Retired Municipal Clerk-Administrator for the Town of Bracebridge; provides historical research services, and writes on the history of Bracebridge and surrounding areas.
- Ken Plourde:** A forester who practiced Forestry in Canada for over 50 years, from Labrador to British Columbia, and is now dedicating his time to preserving the remarkable story of this great industry.
- Laura Mousseau:** Spent her youth hunting for bog monsters with her family on annual camping trips and, as a result, loves to write and share stories about nature. Laura obtained her degree in wildlife biology at Guelph University.
- Mary Grunstra:** Graduated from the University of Toronto with a bachelor's degree in History, Botany, and Zoology and a Master of Forest Conservation; now completing the Master of Spatial Analysis program at Ryerson University, and working as a research assistant at the Fire Management Systems Laboratory in the Faculty of Forestry, University of Toronto.
- Michael Rosen:** Executive Director, Tree Canada and Director, Forest History Society of Ontario.
- Mike Commito:** PhD student in Environmental History at McMaster University.
- Neil Carleton:** Gib Carleton's son; lives in Almonte and writes a monthly column called "Shady Characters" about local trees of renown in Almonte's online newspaper The Millstone News.
- Rob Galloway:** Retired Director, Ontario Ministry of Natural Resources, Director, Forest History Society of Ontario and Consultant.
- Robert Rehder:** Retired Engineer from General Electric and long-time volunteer and Project Lead for the restoration of Hope Mill.
- T.B. Skidmore:** Grew up in southern Ontario and after spending a summer as a Fire Ranger in Cochrane District, Ontario, moved there with his wife and stayed until his passing at age 67.
- Terry Schwan:** Guelph District Forester, Ontario Ministry of Natural Resources.

Next Issue

For the fall, 2013, issue of the journal we plan to focus on articles related to the history of the **Ontario Ranger School**. We are also interested in articles of all subjects related to the forest history of Ontario. Regardless of the topic, if you have a personal story to tell, or a historical article to write or know of key documents or photos or other artifacts that would be of interest to include, please contact the editor (the editor's email is at the front of this journal).

If you have an idea for a theme or a topic for future journal issues, or if you can write an article for the journal, then send an email to the editor.

Sylva Recap

The Ontario Department of Lands and Forests published for many years a journal called "*Sylva*". The purpose of this journal was to highlight changes in policy, individuals and the comings and goings of staff. *Sylva* contains nuggets of forest history that will be selected for each edition of the journal. Several articles on forest resources inventory were published in *Sylva*. The one below provides a general overview of the program to 1954.

Fire Protection Today and Yesterday (Sylva Vol. 1(1) (1946):4-6)

By T.E. MacKey

We should be proud of the forest-fire protection we have created in Ontario; but that does not mean that we are satisfied ... not by a long sight. We greatly need better prevention, detection and communication that we have at present. However, before I express my views on these vital matters, let us look at the historical development of our protection system since its beginning.

Acquiring a forest-fire protection system for Ontario has meant a long struggle and much endeavour over more than half a century. Following vast conflagrations in the latter half of the nineteenth century, the first Ontario fire-protection legislation was passed in 1878. The bill, entitled, An Act to Preserve the Forests from Destruction from Fire, provided for the creation of fire districts in which, during the summer months, use of fire was restricted. Officials of this Department were responsible for the enforcement of the Act, but it was not until 1886 that the first system of fire ranging was instituted.

From 1886 to 1916, fire rangers spent most of their time patrolling by canoe and on foot. Travel was slow and difficult, and means of communication virtually non-existent. It was then believed that forest fires could not be combatted on a large, organized scale. And that defeatist attitude continued until the catastrophic fire of 1916 that burned out the area between Cochrane and New Liskeard and through which more than 250 people lost their lives. The resultant public clamour for better protection forced a new basis for legislation in 1917 that established the Forest Fires Prevention Act.

Only after passage of the 1917 Act was a really effective system of fire control considered and seven years later, in 1924, after yet another disastrous year, it began to go into effect. Power-driven, portable pumps, tools, trucks, motor boats, and other necessary equipment was purchased. There followed a program of building. A system of steel towers for detection purposes was constructed, and connecting telephone lines were strung for rapid communication. Cabins, storehouses, and other structures to shelter men and equipment were erected.

For purposes of administration, the province was divided into a number of districts, each in charge of a District Forester. These districts were, in turn, subdivided into Chief Ranger Divisions. In the summer season, 800 to 1,000 trained fire rangers were employed. An air service was also organized in 1924, primarily to supplement the tower detection system, but later to serve equally as a rapid means of transport.

Through the prosperous 1920's the protection system expanded rapidly, until the great depression halted progress before the scheduled program had been completed. Depression was closely followed by war, bringing acute shortages of labour and material, and generally, progress has been greatly retarded.

However, despite world conflict, Department progress did not altogether cease. Following reorganization of the Department in 1941, new projects were considered, which concerned fire protection as well as other matters: Orders were sent out to each of the thirteen forest districts – orders to formulate definite and detailed plans for future fire protection. Only a cursory examination of these plans, submitted

by experts, is needed to see that we cannot safely be satisfied with our present fire-protection system. We need more men, and better trained men. We need a staff of rangers permanently employed throughout the six-month period, from April to September, inclusive. This, of course, means higher wages, larger payrolls, ranger schools. It means a heightened constructive program to compensate for delays caused by the war years.

Adequate protection of the forests of Ontario is vital to the welfare of her citizens. But this protection of our greatest natural resource cannot be completely realized without a re-organization of the Department's equipment and personnel on an increased scale. We have now a lookout system of towers and planes, but neither the number of towers or planes is adequate, especially in the less developed northern and northwestern districts. Construction of towers has been seriously handicapped by war conditions in that neither steel nor labour could be obtained for that purpose. But with the return of peacetime conditions, the completion of the lookout tower system should be resumed until even the most remote area are covered and presently existing gaps are filled.



At present, our main system of communication is telephone, and there are now some 4,500 miles of telephone in use for forest-fire protection in Ontario plus 160 radio sets. But reports from those best in a position to know indicate that this assures only 65 per cent coverage – by no means good enough. There is also a great need for the development of more modern radio equipment and its adaptation to forest communication. Above all, existing ground wires must be converted to metallic circuits, and sub-standard wire and station installations should be replaced and standardized as rapidly as possible. New lines must be planned and added to the existing system rapidly in order to properly cover the needs of the fire-protection service.

Little is required in the field of fire-fighting equipment. Except for necessary replacement and additions of new and improved items from time to time, the situation is very well provided for. I should like to be able to say the same about the Department ranger, district and regional headquarters – if I could. But the Department buildings in the field are, to put it mildly, inadequate. This circumstance should be remedied as soon as conditions allow. Following a survey, it is suggested that these Departmental structures be classified as to urgency and a definite plan of action adopted. And the buildings should be erected with permanency, based on present and future requirements, in mind.

In the field of transportation, a considerable extension of the present road system, especially of secondary roads, is necessary. Clearance of trails and streams and dam building are prime prerequisites for improved land and water transport. We also need more planes – for those “eyes of the air” are vital to proper protection of our forest resources.

Looming above the need for material improvement in protection and increase in personnel, however, is the demand for an increased awareness of their forest heritage on the part of the public. One of the important reasons why the fire protection problem remains unconquered is public ignorance and public carelessness.

The greatest barrier to forest fire prevention is public apathy. We can defeat this apathy by two steps: (1) by giving the people fire prevention facts; (2) by presenting those facts in a pictorial and verbal fashion that will make them see, read or hear those facts in a manner that will be remembered.

There appears to be a need for increased effort directed toward fire-prevention education, a place where some money can well be spent on novel and planned educational programs. We have done a certain amount along these lines, but not nearly enough; and what we have done has mostly lacked “colour”. A continual sequence of interesting and instructive pieces dealing with the forest and fires should be kept constantly before the public. Efforts should be concentrated particularly with the approach of the hazardous period, and every trick known to publicity should be utilized. The aim must be to put into the mind of the forest traveler or vacationer a feeling of personal responsibility.

Successful education for fire prevention is a project to be considered the major item contributing to a possible future state of affairs where we will not have to say, as was said fifty years ago: “You just have to let the fire burn itself out!”. For in 85 % of the cases, the fire need never have started.

Forest History Society of Ontario

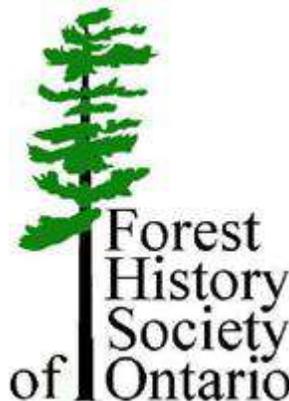
Membership Form

Thank You For Your Support!

The mission of the Society is:

“To further the knowledge, understanding and preservation of Ontario’s forest history” and to accomplish this with the following objectives:

1. To preserve forest and forest conservation history;
2. To encourage and further the development and recognition of forest history;
3. To support research and studies of forest history;
4. To support the archival preservation of records and materials relating to forest history, and
5. To promote the better understanding of forest history through public education.



The Society has two ongoing projects, both available on our website:

www.ontarioforesthistor.ca

The first is a catalogue of publications dealing with all aspects of Ontario’s forest history. Members can submit contributions on our website.

The second is the identification and listing of collections and materials relating to Ontario’s forest history. The Society works with established archives such as the Archives of Ontario and several university archives to facilitate the preservation of significant collections.

The Society publishes a newsletter, **Forestory**, twice a year – Spring and Fall - containing informative articles on Ontario forest history.

(The FHSO has a privacy policy. Your information will not be shared or sold.)

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