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Historical Roots of Canadian Aboriginal and Non-Aboriginal Maple Practices

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by

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Abstract

This research is concerned with developing a historical baseline of Canadian Aboriginal and non-Aboriginal maple practices and the contribution of these activities to the well-being (WB) of communities up to approximately 1950. This research measures WB using two unique frameworks developed for Aboriginal and non-Aboriginal communities associated with maple products and practices. In order to describe WB in historical contexts the research used archival data obtained primarily from Library and Archives Canada (LAC) and Early Canadiana Online (ECO). Results from the research showed that in Aboriginal communities, dynamics related to emotional, physical and mental WB were referenced the most often among results. In non-Aboriginal communities economic and social dynamics of WB were identified as important influences of WB. Dynamics related to resilience were also found in the non-Aboriginal results. Furthermore, the research identified dynamics related to governance as important pieces of the historical contexts of maple products within Aboriginal and non-Aboriginal communities. The role of early government rules and regulations associated with maple products and the impacts of the *Indian Act* on Aboriginal maple producers are further explored and discussed. This research concludes by outlining the areas where more research remains to be completed.

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Acronyms

Aboriginal Affairs and Northern Development Canada (AANDC)
Archives Association of Ontario (AAO)
Canadian Index of Well-Being (CIW)
Canadian Community Well-Being Index (CWB)
Early Canadiana Online (ECO)
Gross Domestic Product (GDP)
Human Development Index (HDI)
Indian Human Development Index (IHDI)
Indian and Northern Affairs Canada (INAC)
Indigenous Knowledge (IK)
International Institute for Sustainable Development (IISD)
Library and Archives Canada (LAC)
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
Ontario Maple Syrup Producers Association (OMPSA)
Sustainable Development (SD)
Social Sciences and Humanities Research Council (SSHRC)
United Nations Development Programme (UNDP)
Well-Being (WB)
World Health Organization (WHO)

Introduction and Research Objectives

The sugar maple tree (*Acer Saccharum*) is a species of maple native to northeastern North America ranging as far south as Georgia all the way to northern Nova Scotia and as far westward as the Great Lakes (Figure 1). Sugar maples produce sap every spring that invigorates the tree out of the depths of winter. This resource can be tapped for human consumption and boiled down to create a variety of maple products including maple syrup and maple sugar.

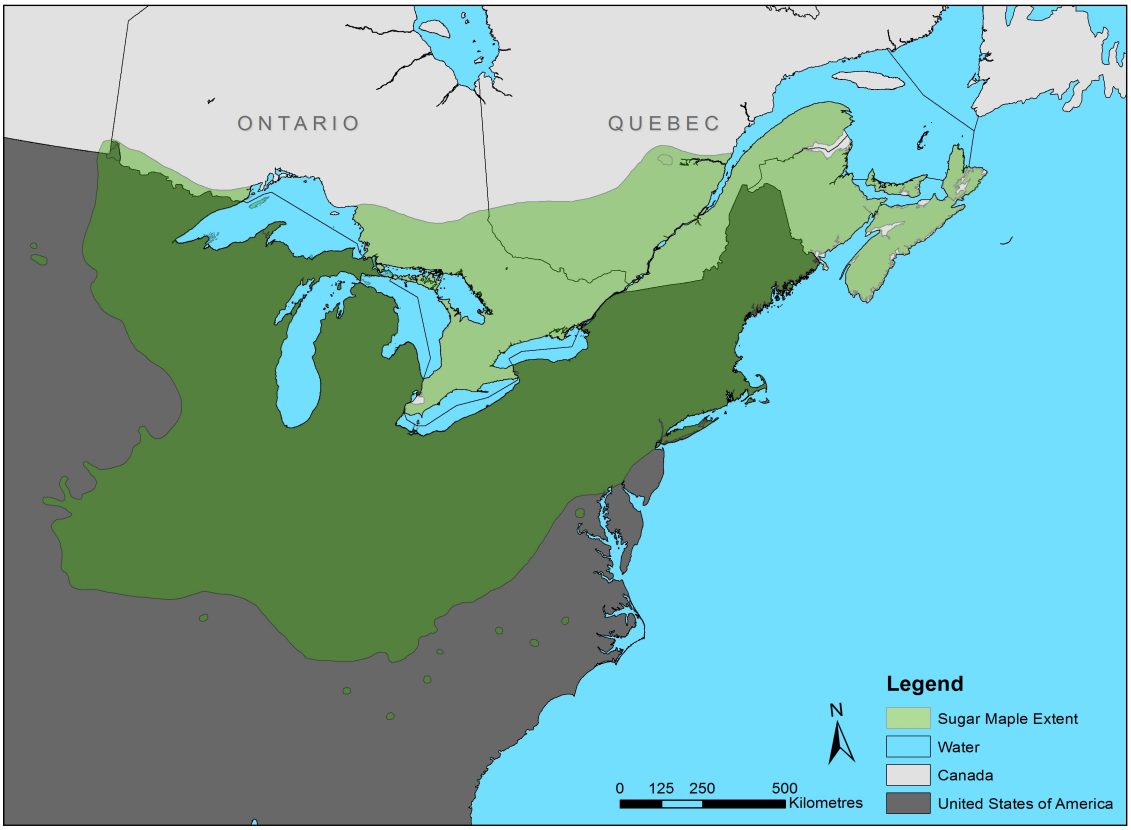


Figure 1 : The range of the North American sugar maple.

This research paper is in partial fulfillment of the degree Master of Environmental Studies at Wilfrid Laurier University under the supervision of Dr. Brenda Murphy. This research is part of two larger projects funded by the Social

Sciences Humanities Research Council of Canada (SSHRC) and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Specific goals of these larger research projects include: identifying opportunity for innovation and capacity building in Ontario's maple syrup agri-food value chain and understanding the potential impacts of climate change on future maple production.

The primary purpose of this research is to explore the historical value, practices, roles and relationships associated with maple products in Canadian Aboriginal and non-Aboriginal communities. More specifically, this research will also assess how maple products impact the well-being (WB) of Aboriginal and non-Aboriginal Canadian maple-producing communities in a historical context.

The objectives of this research are:

I. To undertake archival research that will outline the historical value of maple products in Aboriginal and non-Aboriginal Canadian communities as it relates to WB.
II. To conduct a review of relevant archival research related to maple products in Ontario and Quebec.
III. To analyze and integrate the results in order to develop an understanding of historical maple practices up to 1950.

The research paper is divided into five major sections: (1) a literature review; (2) methods; (3) results; (4) discussion; and (5) conclusions.

Literature Review

The literature review is organized into eight sections. These are: maple syrup, understanding and measuring WB, governance, non-Aboriginal WB evaluation

framework, Aboriginal terminology, Aboriginal concepts of WB, Aboriginal WB evaluation framework and archival research. The maple syrup section is further subdivided into the historical context of maple production and the current context of maple production. The historical review of maple production is meant to be a baseline literature review and does not incorporate material obtained from archival searches. These are identified in the results section. The current context provides an overview of current paradigms related to maple products that help frame the results from the historic time period. The WB section of the literature review is also subdivided into two sections: WB and indicators.

Maple Syrup

Historical Context

The first practices of refining maple sap into syrup or sugar are often credited to the Aboriginal peoples of North America. There remains debate, as some authors claim that the practice was conceived after European arrival. Charlevoix (1744) contends that though North American Aboriginal peoples made use of the sap from the maple tree they lacked the technology required to refine the sap and learned from the colonists how to make sugar. However, overwhelmingly, early literature cited by Schuette and Idhe (1946), Spencer (1913) and Pendergast (1982) on maple production credit Aboriginal populations as the first to refine the sap to create nutritional and tasty sugar and syrup. “Early settlers from the Old Land learned from the Indians the art of sugar making and indeed followed for many years their crude methods of manufacture” (Spencer, 1913, p.9).

Although maple syrup was an important part of a subsistence economy for both Aboriginal and settler communities, early commercial maple production occurred primarily in the United States in the colonial communities. It was not until the mid-19th century that Canada began to usurp America as the leading producer and supplier of maple products (Farrell, 2013). Spencer (1913), Butterfield (1958) as well as other early sources outlined in Schuette and Idhe (1946) note that maple sugar was the desired commodity from maple sap during early days of production rather than maple syrup, as is now the case. In fact, in the late 18th and early 19th there was a strong push by many prominent American colonists to expand maple sugar production in an effort to distance themselves from the reliance of importing cane sugar from the West India islands (Butterfield, 1958).

Preliminary searches suggested that there could be interesting archival records related to the early maple industry in Canada. Sources such as Schuette and Idhe (1946) provided a bibliography of early records on maple sugar and the maple industry in North America and a wealth of potentially accessible primary resources. The Spencer (1913) article, written for the Department of Agriculture as an overview of the maple sugar industry in Canada also provided valuable sources and a wealth of knowledge on the early state of the industry in Canada. Appendix 1 outlines some early primary sources that were outlined as potentially useful references and that were searched for in Library and Archives Canada (LAC) and Early Canadiana Online (ECO) databases.

Current Context

Maple products were first recorded as an economic good in the 18th century in the form of maple sugar. Maple sugar retailed around 11 cents a pound and could provide $16-$24 a year in the early 1800's making it a profitable venture, especially when coupled with the fact that sugaring occurred in a time of the year (late winter/early spring) when farm activities were limited (Whitney and Umpeyer, 2004). Farmers often used the income generated from maple products as a supplement to other farm activities (Whitney and Umpeyer, 2004). Currently the primary commodity derived from maple sap is the sweet and sticky maple syrup. In 2012, maple syrup retailed at roughly $20 per litre in Ontario and could fetch a producer upwards of $20,000 per annum (Hemlock Group Inc., 2013).

Maple production can vary dramatically from year to year (Table 1). Climatic conditions can have an impact on the length of the production season as well as the quality of the syrup, resulting in variability of production from year to year (Skinner et al., 2010). The province of Quebec accounts for a significant portion of Canadian production with over 90% of total Canadian production in 2012 and 2013 (Darrach, 2012; Statistics Canada, 2013). Ontario and New Brunswick also produce a sizeable amount of Canadian maple syrup. The gross value of Canadian maple syrup produced in 2013 was approximately $400,000,000 and Canada produced over ten million gallons (37,854,117 litres) (Statistics Canada, 2013; Table 1; Table 2). This marks an increase of approximately three million gallons (11,356,235 litres) and $100 million dollars in revenue from 2012 to 2013 (Statistics Canada, 2013; Table 1;

Table 2). 2013 is on par with 2009 as one of the most profitable seasons on record. Increased value in syrup has meant that recent years have been more profitable than past years.

Table 1: Maple production from 2009-2013 expressed in 000's of gallons.

	Maple products expressed as syrup, total (000's gallons)				
	2009	**2010**	**2011**	**2012**	**2013**
Ontario	417	288	488	225	449
New Brunswick	386	309	341	348	484
Nova Scotia	19	28	31	25	37
Quebec	8256	6649	7690	7257	9083
Canada	9078	7274	8551	7855	10053

(Statistics Canada, 2013)

Table 2: Value of maple products from 2009-2013 expressed in 000's of Canadian dollars.

	Gross value of maple products (000's dollars)				
	2009	**2010**	**2011**	**2012**	**2013**
Ontario	25644	19225	32559	14544	30845
New Brunswick	22230	18620	21728	20399	28892
Nova Scotia	1040	1534	1667	1400	2225
Quebec	346293	251682	283000	268200	346100
Canada	395207	291061	338954	304543	408061

(Statistics Canada, 2013)

As well as being an important source of income, maple production has developed a rich cultural history. In a set of unstructured interviews conducted in 1989 and 1990 among maple producers in Quebec and Vermont, Hinrichs (1998) explored the relationship between culture and maple production. Hinrichs (1998) stressed that economic activity is embedded within cultural systems. According to this research, maple production provides a broader goal of livelihood, even if the economic returns are limited (Hinrichs, 1998). Livelihood in this sense refers not only to economic livelihood but also an overall sense of WB.

Hinrichs (1998) found that identity, family and culture were ingrained in maple production. Producers emphasized the economic contribution of maple production but also the cultural rewards of production itself. In that light, maple production has important ties to economy, community and culture. The spring revives life from the depths of winter and maple production gives the perfect excuse for people to get outside and enjoy the change in seasons. In Aboriginal contexts many peoples hold the view that maple is the beginning of the yearly cycle and an important time of the year marked by rejuvenation and regrowth.

Maple production also means a time of year when the family comes together and spends time with one another in Aboriginal and non-Aboriginal communities. Many non-Aboriginal communities have strong ties with maple including Elmira, Ontario. Elmira holds the largest single day maple syrup festival in the world that attracts thousands of people to the small town every year (Elmira, 2014). This event is an important part of Elmira's society, culture and economy.

Maple production and syrup not only provides an important source of income for many Canadian households but it is also an important part of society and culture in many Aboriginal and non-Aboriginal communities. The concept of WB has evolved since its introduction to encompass more than solely economic WB, measured in Gross Domestic Product (GDP), but also social and environmental factors associated with WB (Murphy and Gunson, 2014). In keeping with this, maple

production is an important factor relating to WB in many Canadian communities, as it provides an important source of income but also invaluable social benefits.

Understanding and Measuring Well-Being

Well-Being

The concepts of healthy communities and WB began as early as the 1800's in places such as Belgium, France, England and the USA (Gahin, 2001; Murphy, 2010). It is always a difficult task to define WB as it can often be subjective in nature. The philosopher Aristotle was one of the first to explore teleology, that is, a branch of learning concerned with understanding purposiveness. Aristotle posited that the telos (purpose or goal) of human existence is happiness. He speculated on how one realizes happiness but refrained from a set formula on how one achieves humanity's telos. To this day there is still no universally accepted definition of WB, but WB discourse, as it relates to measurement, action and policy has increased dramatically in recent years (Abdallah, 2008). For the purposes of this research WB is defined according to the World Health Organization's (WHO) definition of health and quality of life:

> A state of complete physical, mental, and social well-being not merely the absence of disease… individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social

> relationships, personal beliefs and their relationship to salient features of their environment.
> (World Health Organization, 1997, p.1; World Health Organization Group, 1998, p. 1570)

This definition encompasses six broad categories related to WB (1) physical health, (2) psychological state, (3) independence, (4) social relationships, (5) emotional relationships, and (6) spiritual relationships (Camfield, 2008). These dynamics were considered in developing the Aboriginal and non-Aboriginal WB frameworks. In addition to the definition above, this research connects WB to concepts related to sustainable development (SD) and resilience. Concepts of SD and resilience are only applied to the non-Aboriginal framework because they do not necessarily translate to Aboriginal contexts.

Our Common Future, more commonly known as the Brundtland Report, defines SD as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.45). The concept of sustainability and SD has further evolved over time and has been influenced by a variety of disciplines (Giovannoni, 2014). Most current definitions of SD follow the Brundtland definition but also incorporate dimensions related to the environment, society and the economy (Bossel, 1999; Giovannoni, 2014; Mitlin, 1992; Neumayer, 2004). These are often referred to as the three pillars of SD and represent a holistic approach to development.

The final piece that this research connects to in understanding WB in non-Aboriginal contexts is the idea of resilience. The term resilience has recently become a widely used term in a variety of fields and scholarly literature (Walker and Salt, 2012). In relation to the concept of WB, resilience can be used as a gauge of a community or system's capacity to adapt to change and stress. For example, when facing change, a resilient community may have more capacity to develop and/or retain social cohesion and strong social structures resulting in higher levels of WB. Broadly, there are two ways in which a system can be resilient to change: adaptation or transformation (Walker and Salt, 2012). Transformation refers to the ability of a system to be able to move from one steady state to another state of equilibrium, while adaptation refers to the ability of a system to cope with, manage or adjust to changing conditions (Folke, 2010; Smit and Wandel, 2006; Walker and Salt, 2012).

These principles of SD, resilience and the WHO definition of WB influence the domains and indicators that this research uses to understand WB in non-Aboriginal maple producing communities. This approach aims to represent a comprehensive WB analysis framework and baseline to understand non-Aboriginal WB as it relates to this research. The research connects the Aboriginal framework to the WHO definition of WB and literature related to understanding Aboriginal perspectives of WB. These perspectives are explored in more detail in the Aboriginal concepts of WB section.

Indicators

Traditionally, WB has been measured using economic indicators such as household income and gross domestic product (GDP) (Canadian Index of Wellbeing [CIW], 2012; Gahin, 2001; Murphy, 2010). More recent measures of WB include economic indicators but also stress the importance of social and environmental factors associated with WB (Besleme, 1999; Camfield, 2008; CIW, 2012; Coneicao, n.d.; Dolan, 2007; Dumont, 2005; Gahin, 2001; Murphy, 2010; Murphy and Gunson, 2014; O'Sullivan, 2011).

More and more studies interested in measuring WB are incorporating indicators as part of their methodology. In order to effectively measure WB a lot of time and deliberation must go into choosing appropriate indicators. Besleme (1999) outlines seven major criteria to follow when selecting WB indicators:

1. Validity: Does the indicator measure a factor or issue that is directly related to WB?
2. Availability and Timelessness: Is the indicator data readily available? Can it be accessed year after year?
3. Stability and Reliability: Does the indicator provide a reliable and stable source of measurement?
4. Understandability: Can the general audience interpret the indicator?
5. Responsiveness: Does the indicator respond to change?
6. Policy Relevance: Is the indicator relevant to policy?
7. Representativeness: Does the indicator represent the values or mores of the particular community being analyzed?

In order to effectively capture these seven criteria, indicators are often developed through participatory methods and community engagement (Besleme, 1999; CIW, 2012; Murphy and Gunson, 2014; O'Sullivan, 2011; White et al., 2007). Participatory decision processes often begin with brainstorming; followed by enlisting public participation, testing the product, hearing recommendations, revision, and finally implementation. Participatory processes strive to engage people and have every voice heard (Chevalier and Buckles, 2013). This bottom up approach has become a popular methodology amongst researchers and policy makers across many disciplines.

For this research indicators for Aboriginal and non-Aboriginal frameworks were not developed using participatory processes. Instead, indicators for this research were developed in what can be referred to as a theory-based approach. A theory-based approach can be understood as reviewing related literature and selecting valid, relevant measures in order to develop a set of domains and indicators. Considering that this research is concerned with a historical time period, a theory-based approach, incorporating insights from WB, SD, resilience, Aboriginal concepts of WB and maple-related literature is deemed to be more appropriate than a participatory process. Future research, focused on the current time period may expand on this approach to create a set of participatory WB indicators designed explicitly for maple producers.

Governance

WB is rooted in the social structure, overall quality of life and development of the particular communities where people reside. Thus, governance and policy structures influence WB of individuals. As part of this research concepts related to governance are also included in order to more fully understand the contexts of WB at particular time periods.

It is difficult to define governance but the definition provided by the United Nations Development Programme (UNDP) is as follows: "the exercise of economic, political and administrative authority to manage a country's affairs at all levels" (United Nation Economic and Social Council, 2006, p.3). However, governance goes well beyond official government policy and law (Stoker, 1998).

Governance also incorporates formal and informal rules, policies and norms (Murphy et al., 2012). For example, formal policy could include legislation or regulations developed by governments at national, provincial and municipal levels. Informal policies are more general in nature and could incorporate things such cultural norms. Thus, Bevir's (2013) definition of governance can be viewed as potentially more suitable: "all processes of governing, whether undertaken by a government, market or network, whether over a family, tribe, formal or informal organization or territory and whether through laws, norms, power or language" (p.1).

Governance structures are variable over time, across culture and can have both positive and negative impacts on WB. Governance can influence the overall WB of a community at any given time and alter how indicators may be regarded. Governance is not limited to non-Aboriginal communities and can also impact Aboriginal communities. Legislation, government structure, treaties, land claims, economic incentives or social policies can all influence the WB of individuals at a given time and can either promote or detract from overall WB (Boyer, 2014; White et al., 2007; Stoker, 1998).

Good governance is often viewed as transparent and encompasses dimensions related to culture, society, economy and environment. Though economy is important, policies increasing wealth or high wealth nations do not necessarily translate to a place with overall WB (White et al., 2007). Social and environmental dimensions are often just as important as economic factors and can have a high level of influence on overall WB (Besleme, 1999; Camfield, 2008; CIW, 2012; Coneicao, n.d.; Dolan, 2007; Dumont, 2005; Gahin, 2001; Murphy, 2010; Murphy and Gunson, 2014; O'Sullivan, 2011). Thus, good governance structures must incorporate not only economic influences but also social and environmental concerns.

In regards to maple products in Canada, today, goods that are exported or sold beyond provincial borders are governed by Agriculture and Agri-Food Canada and are subject to health and safety regulations from the Food and Drugs Act as well as the Canadian Food Inspection Agency (Murphy et al., 2012). In addition, each

province has its own set of rules and regulations that roughly mirror the federal structures. These formal regulations require producers to comply with a suite of rules related to grading, labeling, packaging and sugar composition (Murphy et al., 2012). Further informal policies such as quality control or obtaining accreditation such as the Ontario Maple Seal of Quality is voluntary but can lead to a higher quality product and garner more income for the producer. Beyond these formal regulations and informal voluntary programs, being part of an association such as the Ontario Maple Syrup Producers Association (OMPSA)[1] allows for producers to build relationships, networks, share knowledge, labour and may also help improve WB of producers involved (Murphy et al., 2012; Morin, 2014). As this illustrates, governance can play a major role in promoting or detracting WB. Thus, governance structures are considered as part of the larger WB framework applied by this research. It is beyond the scope of this research to describe and assess all pertinent aspects of governance in the historic time period. Instead, this research is primarily focused on historical governance related to maple products and the role of colonization on Aboriginal peoples.

The role of colonization was developed following a model provided by Frideres (2012). Frideres' (2012) model outlines seven stages of colonization. These are: (1) forced-voluntary entry; (2) destruction of social and cultural structures; (3) external political control; (4) Aboriginal economic dependence; (5) provision of low-quality social services; (6) social interactions between Aboriginal and non-Aboriginal

[1] http://www.ontariomaple.com/

peoples; (7) racism and establishment of a colour-line (Frideres, 2012). Of most relevance to this research are stages 1 and 2. These two stages and their impacts on Aboriginal maple practices are explored further in the governance results section and the discussion.

Non-Aboriginal Well-Being Framework

In developing the domains and indicators for non-Aboriginal communities this research uses what can be referred to as a theory-based approach. The WHO definition of WB, concepts relating to SD, resilience and documents such as the Canadian community well-being index (CWB) and the Canadian Index of Well-Being (CIW) provide the basis for the development of these domains and indicators.

The CWB provides a valuable resource that measures WB in Canadian communities. The index developed indicators on the basis of four domains: (1) income, (2) education, (3) housing conditions, and (4) labour force activity (O'Sullivan, 2011). This approach depends solely on easily available statistical data and focuses primarily on the social and economic domains of WB.

The CIW is often viewed as a more comprehensive index that uses a composite of eight domains to measure wellbeing: (1) community vitality; (2) democratic engagement; (3) education; (4) environment; (5) healthy populations; (6) leisure and culture; (7) living standards; and (8) time use (CIW, 2012). This latter framework more fully captures the three key domains outlined by the SD literature.

In addition to these documents, a report from the International Institute for Sustainable Development (IISD), entitled *Understanding the Contribution of the Environment to Human Well-Being: A Review of Literature*, was also consulted to further understand the dynamics related to SD, the environment, and resilience, as it relates to WB (Bizikova, 2011). This document stresses the role of environmental services impacting human WB, especially in rural and Aboriginal communities (e.g. flood attenuation) (Bizikova, 2011). It also notes the cultural services, provisioning services and regulating services related to resilience that can influence overall WB (Bizikova, 2011).

After reviewing these documents, among others, four baseline domains for measuring WB in non-Aboriginal Canadian maple communities were selected. These domains are aligned with the literature reviewed above and included: Culture/Social, Environment, Economic and Resilience. Governance is also incorporated as part of this framework and acts as an over arching concept that may influence the domains and indicators at particular times.

Developing indicators was a more difficult task as many of the indicators used in related literature measure things such as educational attainment, which does not directly influence the WB provided by maple products and would be hard to measure for the historic time period. Therefore, this research drew from WB indicators that could be re-organized or re-imagined to reflect WB in the context of maple.

Table 3 illustrates the baseline domains and indicators that were used to describe the WB of Canadian non-Aboriginal maple producing communities. These indicators of WB helped to understand how maple has influenced the WB of Canadian communities over time. Whether it is the economic gains from producing syrup, the cultural benefits from the maple harvest, or the environmental services provided by the maple tree, maple production can have a distinct impact on the WB of communities. These domains and indicators were used as an initial organizing framework for the collected archival data and were updated as the research process evolved.

Table 3: Baseline domains and indicators for evaluating WB in non-Aboriginal Canadian maple producing communities.

	Culture/Social	**Environment**	**Economic**	**Resilience**
Indicators	Social Cohesion	Connection	Value	Adaptation
	Identity	Ecology	Labour	Transformation
	Family	Climate	Technology	
	Governance			

Aboriginal Well-Being Framework

Writing about Aboriginal peoples can often be a challenging but rewarding process. When writing about Aboriginal peoples it is important to be sensitive to their viewpoints and refrain from making generalizations or using improper terminology (Mihesuah, 2005). As this research is concerned with a historic time period some terminology used in historical texts contain stereotypical and potentially offensive terminology.

When writing about Aboriginal peoples there are a number of appropriate terms that can be used to describe the original peoples of North America and their descendants (Indian and Northern Affairs Canada, 2002). These include: Aboriginal People (s), First People (s) and Native People (s) (Indian and Northern Affairs Canada, 2002).

These terms apply broadly to all Canadian Aboriginal peoples namely First Nations, Inuit and Métis (Indian and Northern Affairs Canada, 2002). This research is primarily concerned with First Nations since Métis were not a legally recognized Aboriginal group in Canada until 1982, and this is outside the historical scope of this research. Inuit peoples are also not included since these populations do not reside in territories that contain sugar maple trees. First Nation, Inuit and Métis are used throughout the research, as appropriate, but, for the most part, this research uses the term Aboriginal as the principal terminology for describing Canada's Aboriginal peoples.

Each Canadian Aboriginal community holds different perspectives related to the concept of WB. These perspectives are informed by their unique worldview, belief systems and social construction (Smith, 1999; Watson, 2008; White et al., 2007). WB from an Aboriginal perspective can be dramatically different compared to other Canadian communities. It is important to acknowledge these alternative ways of being so that the research can be representative of different mores or values. As this research deals with Aboriginal peoples it is especially important to consider these alternative views so that the overall research is representative of Aboriginal values

as well as non-Aboriginal values. In order to frame the research and represent Aboriginal concepts and values this research uses a Medicine Wheel model to evaluate Aboriginal WB.

Historically, the Medicine Wheel is believed to date back more than 5,000 years (Yearington, 2008). The term "Medicine Wheel" originated from a collection of large stones in a circular formation situated atop Medicine Mountain in the state of Wyoming, U.S.A, formerly known as the Bighorn Medicine Wheel. (Liebmann, 2002; Yearington, 2008). The Medicine Wheel or "sacred hoop" represented the cycles of life, interconnectedness of all things, and the harmony of the whole (Yearington, 2008). The "solar temple" along the Bow River in Alberta, Canada represents another sacred hoop and is referenced as one of the first Medicine Wheels in the world (Yearington, 2008). The site is made up of a 26 square-kilometre circular collage of stones that mark the phases of the moon with an inner stone circle that is aligned with the four directions of the compass (Yearington, 2008). These early stone Medicine Wheels were a very important part of Aboriginal life as they mapped out the times of the year that were important for cultural, spiritual or migratory events and helped to maintain harmony. These represent two of many Medicine Wheel sites identified across North America.

In a more current context, the Medicine Wheel can be used as an evaluation framework to understand WB, a bridge between Aboriginal and non-Aboriginal interests or a method to contextualize results from alternative worldviews. As an

evaluation tool the Medicine Wheel provides a circular frame of thought that breaks away from many linear evaluation models that may be more appropriate in non-Aboriginal circumstances. The Medicine Wheel is associated with wholeness, regeneration and represents healing, humanity, inclusion diversity and unity (Liebmann, 2002; Atlantic Council for International Cooperation, n.d; Yearington, 2008). Broadly, the Medicine Wheel can be split into four dimensions: (1) spiritual, (2) mental, (3) emotional and (4) physical (Atlantic Council for International Cooperation, n.d). These dimensions all have different focuses but work with one another to create a holistic evaluation framework.

This research uses an adaptation of the Medicine Wheel framework in order to evaluate WB in Canadian Aboriginal communities that were engaged in maple practices. This evaluation framework aims to emphasize Aboriginal perspectives and highlight understudied dynamics of Aboriginal WB.

WB is a difficult concept to measure in any community. It becomes even more of a challenge when dealing with Aboriginal communities. Each Aboriginal community has distinct belief systems that influence WB and these are not necessarily universal across all Aboriginal communities. Another challenge in measuring Aboriginal WB is that research focused on developing Aboriginal specific indicators is limited. Though Aboriginal WB can be measured using indices such as the CWB index or the Human Development Index (HDI), they are not specifically designed to measure WB in an Aboriginal context (Wingert, 2007).

The registered Indian Human Development Index (IHDI) is an adaptation of the CWB index that was created in order to better measure WB in Aboriginal contexts (Wingert, 2007). Though it is an improvement compared to many other indices that aim to measure Aboriginal WB, the IHDI still does not encompass specific subjective indicators that are important to Aboriginal communities. For example, it does not incorporate the role of ceremony, which is an important aspect of Aboriginal health (Fonda, 2009). This detracts from the overall effectiveness of the index to measure Aboriginal WB (Wingert, 2007). This lack of specificity and subjective measures reflects the fact that Canadian Aboriginal populations are often understudied and underrepresented in academic literature related to WB. Further, the representativeness and reliability of this index could be questioned due to the fact it is heavily reliant on objective indicators that require data from the now voluntary Canadian census (Wingert, 2007).

The lack of existing research related to WB indicators in Aboriginal communities posed a further challenge to this research as indicators are developed using a theory-based approach. This research reviewed documents such as the *First Nations Holistic Lifelong Learning Model* (Canadian Council on Learning, 2014), *Aboriginal Well-Being: Canada's Continuing Challenge* (White et al, 2007) and other literature, including Boyer, (2014), Dumont (2005), Fonda (2009) and White et al. (2011), related to health and Aboriginal communities. There also exists lifelong learning models for Canadian Métis peoples and Canadian Inuit peoples but these

were not consulted, as this research is primarily focused on WB among First Nations peoples.

The *Lifelong Learning Model* (Canadian Council on Learning, 2014) provided insight into what is important to First Nation communities and helped to extrapolate indicators of WB that could be applied to Aboriginal communities. Examples of relevant indicators include concepts such as tradition, nation, economy and the natural world. Further, Fonda (2009) stressed spirituality, ceremony, relationship with the land and language as important concepts to Aboriginal communities. Dumont (2005) noted the concept of wholeness in Aboriginal tradition. The total health of a person is what is important to Aboriginal peoples and must reflect harmony in body, mind, spirit and heart (Dumont, 2005). In addition Dumont (2005) outlined what he believes are the ingredients of a healthy Aboriginal community. They are: physical WB, mental WB, emotional WB, way of life, harmony, culture and the environment (Dumont, 2005). Though WB is an elusive concept and is different for every individual these sources and measures helped in developing the Aboriginal WB indicators used in this research. Figure 2 presents a baseline framework for the medicine wheel of WB for Aboriginal communities. This framework was later updated to more appropriately reflect the archival results.

Figure 2: Baseline Medicine Wheel of WB for Aboriginal Canadian maple producing communities.

Archival Research

Archival research presents a unique form of research. Archives represent a physical collection of wide-ranging historical materials that can be used to help understand a topic, including the history of an area, peoples, subject or nation. Archives are similar to a library but differ in both the types of materials they hold, and the way materials are accessed (Schmidt, 2011). Materials can include audio, visual and textual documents. These are each useful for different purposes and each

can help to showcase particular dynamics of the topic being studies. Though audio and visual documents were consulted where possible this research focused primarily on textual documents. This is primarily because textual documents account for the majority of archival material available and are also more easily disseminated in a research paper. Future research should include consulting other types of materials including audio recordings, such as Aboriginal oral histories, or visual recordings, such as early works of art.

All archival material is publicly accessible but the manner in which one can access material can be a more difficult task than accessing material from the local library. One of the main reasons for this is because archives aim to preserve the integrity of their materials due to the irreplaceable and unique nature of archival materials. Often researchers will have to submit a request to view material and may have to take precautions when handling the material, such as using protective gloves. It is important to understand the policy how to access materials from the archive and prioritize requests accordingly (Hill, 1993).

There also can be restrictions on the types of material readily accessible. Documents that are still under copyright can pose a dilemma for researchers as using the document may be a violation of copyright law (Schimdt, 2011). Another limitation researchers could face when working in archives is unprocessed or in-transit collections. If the archive collection agency has received but not yet processed materials or are moving materials to a different holding location the

researcher does not have access to the needed materials (Ramsey, 2010). This can be a frustrating aspect to archival work because those documents could contain pertinent information for the research.

Archival research can provide a rich variety of resources and the experience can often be extremely rewarding. It was found by this research that contemporary archival research presents a variety of challenges, which are explored further in the limitations section. However, archives have a vast array of incredible materials across a wide-range of topics and disciplines. These repositories extend the more common methods of conducting research, which can lead to a journey into the unknown that can culminate in relevant and worthwhile results (Hill, 1993).

Methods

This section gives an overview of the research methodology that was used to assess the historical value of maple products and relationship to WB in both Aboriginal and non-Aboriginal communities. The aim of this section is to provide an understanding of how research was conducted at every stage of the process. It is broken down into three major subsections: preliminary preparation, data accumulation and analysis. Appendix 2 provides detailed logs that outline every step that was undertaken in gathering archival materials as well as processing and managing the accumulated archival data.

Preliminary Preparation

Preliminary preparation is an important step when conducting research and of particular importance when conducting archival research. For this research preliminary preparation included: creating a research outline, undertaking a preliminary literature review, defining search targets, creating a WB evaluation framework and developing a research proposal.

The first step in this research was creating a research outline and understanding what the research was most concerned with exploring. As this research is part of larger projects funded by OMAFRA and SSHRC, the basic research structure had been previously developed as part of an earlier research proposal. This original research structure focused primarily on exploring the history of maple products among Aboriginal and settler comminutes and the role of anthropogenic climate change on maple communities over the historic time period.

As the research process continued research objectives changed, focusing instead on the history of maple production in Canadian communities and its contribution to WB. Once the preliminary research outline was complete the next phase involved undertaking a literature view and understanding the search targets.

In the context of archival research, understanding what the research is specifically looking for is extremely important before entering the archives as one will most likely begin with an orientation interview with the in house archivist (Hill,

1993). During an orientation interview the archivist expects the researcher to already have some parameters set in regards to what they are looking for in order to expedite the interview process and provide tangible suggestions (Hill, 1993).

Following an initial review of potentially available materials by my co-supervisor (Dr. Chrétien), the first orientation session for this research occurred in December 2013 with an archivist at LAC. Though this meeting was very early in the research process it provided a basic understanding of what types of material may be available and some strategies on how to navigate the archives. At this time the primary research focus related to the history of maple products and the impacts of climate change. The project research advisors, Dr. Brenda Murphy and Dr. Annette Chrétien, led a follow up orientation in June 2014 focused on the updated research objectives related to the history of maple products and WB.

In preparation for the June orientation a preliminary literature review was conducted. This literature review encompassed a variety of sources related to maple products, WB, archival research methodology and qualitative research approaches. The literature review was undertaken in conjunction with a directed reading course supervised by Dr. Brenda Murphy during the Winter 2014 semester at Wilfrid Laurier University. This literature review helped to further solidify research methodology, research objectives and relevant research themes. The results from the literature review also helped in developing search terms relevant to the research.

Traditional archival research often involves creating what is known as a master bibliography and biography list (Hill, 1993). The master bibliography provides a list of relevant periodical indexes, abstracts or other authoritative documents while the master biography list is somewhat of a "who's who" in the study area (Hill, 1993). These two master lists, are often enough for most traditional archival research, however are not comprehensive enough for this research as it relates to a much broader subject than most archival research. In order to properly assess archival sources, as it relates to maple products, five major master lists were created based on reviewed literature: (1) general search terms; (2) geographic search terms; (3) publisher search terms; (4) Aboriginal specific search terms; (5) author/relevant individuals search list.

The publisher search terms are similar to the master bibliography list and the author search list is similar to the master biography list. The general search terms provide a list of generic search terms related to maple products in both English and French, geographic search terms provide relevant geographic locations related to maple products and Aboriginal specific search terms gives search terms in traditional Aboriginal languages and also Aboriginal specific terminology. These master lists expanded as the research process unfolded and helped to structure the search process. Appendix 3 provides examples of search terms for each master list.

The next phase of preliminary preparation was related to developing a baseline evaluation framework for measuring WB in Aboriginal and non-Aboriginal communities. This framework was developed using what can be described as a theory-based approach. The framework used existing literature including the WHO definition of WB, concepts relating to SD, resilience and documents such as the *First Nations Holistic Lifelong Learning Model* and the CIW.

Two unique frameworks were created in order to measure WB in Aboriginal and non-Aboriginal maple communities. These baseline frameworks can be consulted in more detail above. It was determined more appropriate to use two distinct frameworks, rather than a blended framework, to evaluate WB as perspectives among individuals of Aboriginal and non-Aboriginal origins are distinct and definitions of WB can often differ. As the research process continued these frameworks were updated and provided the basis for disseminating results and stimulating discussion.

The final preliminary step of this research was to have a working research proposal before entering the archives. The first draft of the proposal was submitted on May 7, 2014. The proposal went through six iterations of submission and edits before the final version was accepted on July 25, 2014. The research proposal provided an outline for the final research paper and contained things such as research objectives, a literature review, methodology and baseline WB evaluation frameworks for Aboriginal and non-Aboriginal communities.

Data Accumulation

The way in which data is accumulated for this research is similar to the methodology outlined by Hill (1993). However, this research methodology has unique properties as it relates to a broader subject than most traditional archival research. This section is divided into collections consulted, the search strategy and the organizational system used.

Collections Consulted

Collections consulted included both online and resources consulted in person. Online collections include:

1. Early Canadiana Online (ECO)
2. Canadian Museum of Civilization
3. Archeion

Archival collections include:

1. Library and Archives Canada (LAC)
2. Sudbury Library and Archives

The key collection used in this research was LAC. Over 100 relevant documents from LAC were consulted and documented. LAC preserves the history and heritage of Canada using publications, archival records, sound and audio-visual materials, photographs, artworks and electronic documents (Government of Canada, 2013a). The Sudbury Library and Archives also provided valuable resources related to maple productions and cultural practices in the setting of the near North. This collection was not consulted in person by the primary researcher but research

advisors Dr. Brenda Murphy and Dr. Annette Chrétien were able to collect material from Sudbury Library and Archives that is incorporated into this research paper.

Online resources included ECO, the Canadian Museum of Civilization online archive and Archeion. Of these online sources, ECO provided the most fruitful results. The ECO database was searched principally using general and author search terms, which provided over 50 relevant resources related to maple products in the 19th century. These were primarily textual documents including government publications and periodicals.

The Canadian Museum of Civilization online archive and Archeion were searched using general search terms but provided limited pertinent results. The Canadian Museum of Civilization had some textual documents, most of which were also found using ECO, but results were primarily in the form of photographs. The same was the case for the Archeion online database. The Archeion online database was especially frustrating to navigate because the Archives Association of Ontario (AAO), who runs Archeion, is currently updating its records and initial searches provided only limited results. Because of the lack of pertinent primary search results and challenges hampering the research capacity of these resources they were not consulted in a more in depth manner.

Additional collections such as the Wellington County Archives and the Lanark County Archives were not consulted due to constraints including time, funding and

required travel. Future research should include consulting collections such as the Wellington County Archives. Further, once the AAO has completed updating their records, Archeion could provide a wealth of resources related to maple products, as it is able to draw from resources from a variety of archives across all of Ontario. LAC also presented a variety of difficulties associated with accessing materials that are explored in further detail in the limitations section. However, these difficulties were deemed minor compared to the overall transitional state of Archeion. Also, the wealth of still accessible material at LAC led this research to focus primarily on resources obtained from LAC, as well as ECO.

Early Canadiana Online

ECO is a digital archive collection that contains over 80,000 rare books, magazines and government publications from the 1600's until the 1940's (Canadiana, 2014a). The collection is catalogued into ten categories including Aboriginal studies, early Canadian periodicals, genealogy and Jesuit relations (Canadiana, 2014a). The database was launched in 1999 and remains one of Canada's largest digital repositories of historical primary sources.

Library and Archives Canada

LAC's collection has been assembled over the past 140 years and contains over 20 million books, 241 linear kilometres of government and private textual records, approximately 4.5 million megabytes of electronic information including Canadian theses, periodicals and books, more than 550,000 hours of audio and video recording, over 425,000 works of art, textual archives for groups and individuals

that have shaped Canada's culture, society, economics or political development, and a wide-ranging scope of news reports from across the country that include Aboriginal magazines and student newspapers (Government of Canada, 2013b).

LAC's primary location is located at 395 Wellington Street in the capital city of Ottawa, ON, Canada. This is the main physical location where the public can access the collection in person and request material. The preservation centre is a complementary building located across the Ottawa River in nearby Gatineau, QC. Opened in 1997, the preservation centre provides a safe environment for long-term storage of archival materials (Government of Canada, 2013c).

Search Strategy

The primary search strategy was to conduct searches based on each of the master lists and record relevant material as available. Searches were structured so that terms from each master list were searched independently. This strategy was then expanded to combine search terms from each master list to search for specific contexts. For example terms from the general master list were combined with terms from the geographic master list to refine search results. Also, material was searched based on specific time periods in order to further refine search results.

The archival research window for this research was approximately three months from June 2014 until August 2014. The geography master list was one of key lists used in searching for archival material at LAC. Particular areas from Northern, Southern and Eastern Ontario, as well as Western Quebec were chosen to

focus these searches. These regions were identified as areas that were likely to yield a large amount of archival results based on initial searches and a broader knowledge of the geography related to the maple industry. Though other master lists were consulted, such as the general and publisher master list, searches at LAC focused primarily on geographic searches. ECO searches were primarily concerned with the general master list and the author master list. Future research should include continuing to search for materials based on the master lists, focusing on Aboriginal specific search terms and general search terms.

Organizational System

When searching for relevant resources it is important to have a strong organizational system and systematic methodology for recording resources. It is also important to record searches that produce limited results. This is important so that anything relevant or useful found could be easily accessed at a later date and unfruitful research strategies are not repeated in future work. Systematically referencing and recording resources also helps influence how, what and where to search.

The search log for this research is organized based on four criteria: (1) search date, (2) search database, (3) search term, and (4) number of search results. Every search conducted at LAC was documented in this log. As well, searches using ECO were documented in this log. Searches using other databases such as Archeion were also recorded but since they are not incorporated in this research these logs are not

documented as part of this research. A complete version of this search log can be consulted in Appendix 4.

Relevant resources were documented, where possible, by downloading, photocopying, scanning or using the Hovercam[2]. These resources were then logged digitally and organized in an Excel database based on spatiotemporal chronology, theme and publication data.

A spatiotemporal chronology creates a chronology or matrix of socio-historical events relating to the research interests. Though a chronology can never encompass every detail it reflects the researcher's experience, assumptions, conviction and decision about what events merit inclusion or exclusion (Hill, 1993). Classifying relevant resources based on theme also helps to broadly develop where resources fall in the larger project scope. Classification by theme helps to keep track of what was important about a resource so that its relevance does not get lost or forgotten. Finally organizing data using publication data including date, author, title and publisher helps in citing material, as it provides readily available bibliographical data.

Analysis

Analysis for this research was primarily done using the qualitative data software NVivo. NVivo is a powerful piece of software developed by QSR International that was designed for qualitative researchers to record, code and

[2] http://www.thehovercam.com/

analyze data. NVivo has the capability to record many different types of data including visual images, text, audio or video files. This versatility makes it a powerful program for analyzing data. Data obtained from the archives were recorded in NVivo and coded to more efficiently analyze archival results.

Materials were coded based on Aboriginal or non-Aboriginal communities and five major criteria: (1) geographic location, (2) time period, (3) date, (4) WB theme, and (5) source. These broad criteria encompass a variety of important information that can be useful in analyzing data. Further sub coding categories, such as historical references were also integrated. This coding provided the basis for developing results and discussion. In total there were 186 sources added and coded using NVivo.

The WB evaluation domains and indicators for Aboriginal and non-Aboriginal communities evolved over the research process as material was found or not found. For example, there were limited results related to the labour indicator under the economic domain. Therefore, it was deemed that the labour indicator could be combined with the value indicator as a broader indicator relating to economic WB. Thus, for this research the only indicator of economic WB relates to value.

Further, it was deemed that technology could be regarded as an indicator of adaptation because technological innovations have underpinned the continued success of the maple syrup industry (Morin, 2014). Thus, results that related to

technology were presented under the resilience domain rather than the economic domain. Indicators under the social/cultural domain remained the same. The climate indicator under the environment domain was omitted from the updated WB framework, as there were not enough results to provide pertinent analysis. Finally, the ecology indicator was updated to ecological services as it was considered that this was a more appropriate label. An updated table of WB domains and indicators for non-Aboriginal WB can be referred to in Table 4. For definitions associated with these indicators consult Appendix 5.

Table 4: Updated domains and indicators for evaluating WB in non-Aboriginal Canadian maple producing communities.

	Culture/Social	**Environment**	**Economic**	**Resilience**
Indicators	Social Cohesion	Connection	Value	Adaptation
	Identity	Ecological Services		Transformation
	Family			
	Governance			

In the context of Aboriginal WB, indicators were also restructured to reflect the archival research results. Emotional indicators were updated to focus on family and community. The mental indicator related to learning was updated to indicate Indigenous Knowledge (IK), as it was deemed to be a more appropriate terminology. Technology remained as an indicator for the mental domain. The spiritual domain was updated to only reflect ceremonial indicators. Physical indicators were updated to include material related to healing as well as the economy. Environmental indicators of the physical domain were eliminated, however some of the data was incorporated into the mental domain under the IK indicator. This updated

framework is reflected in Figure 3. Definitions of Aboriginal WB indicators can be consulted in Appendix 5.

Figure 3: Updated Medicine Wheel of WB for Aboriginal Canadian maple producing communities.

These WB results rooted in the overall governance structure of each time period, are also summarized in the results section. The governance structure is broken down into three major time periods: (1) pre 1867, (2) 1867-1910, and (3)

1910-1950. The focus of these governance sections primarily evolved around maple products and the impacts of colonization. Frideres' (2012) colonization framework helped to provide an understanding of governance issues focused on colonization, while the results from archival searches helped to focus the governance dynamics surrounding maple products over these three time periods.

Further, the results section's primary purpose is to provide a description of collected archival data. In addition to the focus on governance, results are structured around the WB evaluation framework outlined above in the contexts of Aboriginal and non-Aboriginal WB domains and indicators. As mentioned previously there were 186 sources added and coded to NVivo. Not every piece of material found through the archival research is highlighted; instead, particular references were chosen to focus the dialogue, which is representative of the major topics from the data. These are, for the most part, presented by WB theme and in chronological order based on date of publication. Table 5 and Table 6 provide summary tables of the sources found for WB domains in Aboriginal and non-Aboriginal frameworks.

The discussion section further interprets the archival results of this research and explores relationships between various Aboriginal and non-Aboriginal WB themes. This section allows for a discussion of important emergent themes and various results. The themes explored in the discussion section are primarily related to governance structures and how they have impacted Aboriginal and non-

Aboriginal communities. The final sections of the research paper outline limitations of the research, potential areas of future research and conclusions from this research.

Table 5: Summary table of Aboriginal archival results.

Domain	Sources	References
Emotional	32	72
Physical	24	37
Spiritual	11	23
Mental	26	56

Table 6: Summary table of non-Aboriginal archival results.

Domain	Sources	References
Culture/Social	47	99
Environment	23	69
Economic	72	172
Resilience	13	30

Results

The results provide a description of accumulated material from LAC and ECO. The results are broken down into two main sections. The first deals with the governance impacts of colonization and maple products in Canada over three distinct time periods: (1) pre 1867, (2) 1867-1910, and (3) 1910-1950. The second section is concerned with presenting archival results based on Aboriginal and non-Aboriginal WB themes outlined above.

Governance

The governance section of the results is primarily focused around Frideres (2012) seven stages of colonization and results related to governance of maple products. Of most relevance to this research are stages 1 and 2 related to forced-voluntary entry and the destruction of the colonized social and cultural structures and practices (Frideres, 2012). Governance related to maple products is described based on the accumulated archival data.

Pre 1867: Aboriginal Peoples and Colonialism

Though it is widely accepted that the history of North America far predates colonization the majority of written historical accounts have been written by English speaking Euro-Canadians and often begin with European arrival (Frideres, 2012). Early relations with the French were somewhat peaceful and relatively amicable, as their policy related to assimilation rather than annihilation (Frideres, 2012). The French did not intend to settle in North America, or New France, with any stable population and thus were not particularly concerned with acquiring land but rather were focused on mercantile relations with Aboriginal peoples (Frideres, 2012). The British were not as interested in establishing trading partnerships with Aboriginal North Americans but rather were interested in land occupied by Aboriginal peoples for the purposes of expanding their settlements and economic activities (Indian and Northern Affairs Canada, 2006).

The *Royal Proclamation of 1763* represented the end of French control in North America as New France was ceded to the British crown through the *Treaty of Paris*,

also in 1763 (Frideres, 2012; Indian and Northern Affairs Canada, 2006). This signified one of the first formal manifestations of geographical occupancy and the baseline policy by which the British based their relations with Aboriginal peoples (Frideres, 2012). The *Indian Protection Act* of 1850 outlined that Aboriginal populations were to be exempted from taxation and that it was unlawful for any non-Aboriginal person to settle, reside upon or occupy lands belonging to any band within Upper Canada (Miller, 1975). Further, the Robinson treaties during the 1850's, negotiated with inhabitants of the northern Great Lakes region, promised annuities, creation of reserves and continued rights to hunt and fish on unoccupied land for Aboriginal peoples (Aboriginal Affairs and Northern Development Canada, 2013). The 1859 *Civilization and Enfranchisement Act* consolidated these types of agreements and legislations associated with Aboriginal peoples, providing the basis for the treaty system, exploited by colonialists in the 19th and 20th centuries (Miller, 1975). These policies not only divested Aboriginal peoples of their lands, but also limited Aboriginal access to land including access to maple trees. Future government policy continued to inhibit Aboriginal customs, take away and further limit access to land.

Specific governance related to maple products during this time period was for the most part non-existent other than that it was produced, sold and traded among settlers and Aboriginal alike. An early source from 1817 delineating the regulations for the markets of Montreal noted that maple sugar "shall be sold or exposed to sale in ranges, upon the open space on the North East side of the old market" (Authority,

1817, p.62). These types of regulations were, for the most part, the extent of governance related to maple products of the time.

1867-1910: Socialization, Suppression and Adulteration

The British North America Act of 1867 marked the creation of the Canadian state and Canadian federal government. This act created a federal dominion of the United Kingdom and appointed constitutional responsibility to the Canadian government for all domestic matters including responsibility and authority over Aboriginal peoples and their land (Frideres, 2012).

Post-Confederation Canada had the exciting and difficult task of developing the social structure and associated policy that would forever shape the nation. In the 18th and 19th century government involvement surrounding social politics and policy were limited. Pre-confederation social policy, and responsibility for social welfare, was assigned primarily to the church or members of the community (Rice and Prince, 2013). The 19th century presented a distinct shift from this laissez-faire and individualistic social mentality toward the more contemporary ideals of a welfare state and concern for the greater WB of society (Rice and Prince, 2013). By 1893, 32.4 per cent of the Ontario budget was devoted toward social welfare and social policy (Rice and Prince, 2013).

For as much progress as Canada was making in regards to the social welfare of its colonial citizens it was doing decisively less for Canada's original inhabitants. Stage 2 of Frideres (2012) colonization model, related to the destruction of social

and cultural structure and practice, took hold after the publication of the *Indian Act* of 1876 that aimed to effectively disenfranchise, alienate and assimilate Aboriginal peoples into Canadian culture (Boyer, 2014; Frideres, 2012; Hill, 1987; Rice and Prince, 2013; Riley, 2000). Of most relevance to maple practices were regulations related to religious and ceremonial freedom, or lack thereof. "Religious suppression was part of the Indian Act: many ceremonies were banned, and people who conducted them could be jailed" (Riley, 2000, p.14). "Aboriginal healing practices were labeled 'witchcraft and idolatry.' They were ridiculed, denounced, prohibited, suppressed, and invalidated" (Boyer, 2014, p.107).

During this time governance related to maple products continued to be limited and a major issue of the day was the adulteration and the sale of impure sugar and syrup (Grimm, 1911; Lefevbre, 1916; MacFarlane, 1905; 1906; McGill, 1907; 1908; 1910). MacFarlane (1905) was charged with the duty to investigate and sample maple products in order to determine if they were indeed genuine products. He found that in his first collection of products in 1905 only 24 per cent were genuine in nature, meaning roughly 76 percent of maple products were adulterated or impure based on his sample (MacFarlane, 1905). Again in 1906 MacFarlane (1906) found that 65 out of 111, or 59 percent of samples were adulterated. Grimm (1911) noted:

> There is little encouragement to the farmer to go to the trouble of producing a pure, genuine and clean maple syrup or sugar, which has come into competition with a fake article, manufactured at much less

> cost, and greatly inferior in Quality, which is allowed to be sold practically under the same name… the mixture was sold in attractive and packages and sold as 'pure maple syrup' or 'pure maple sugar' (Grimm, 1911, p.4).

He continued to say that the "USA food and drug act is an effective piece of legislation and is vigorously and rigorously enforced" and that Canada should follow their lead (Grimm, 1911, p.11).

1910-1950: War, Co-Operatives, Regulations and Residential Schools

By 1914 war, far away from Canadian soil, had begun to take shape. Canada as a sovereign state was not required to enter the war but almost immediately deployed troops to aid the United Kingdom and their allies. World War I was followed by a time of economic prosperity, which ended abruptly in 1929 with the collapse of the American stock market. Before the American stock market crash many steps were made to increase the legitimization of the maple industry and also improve enforcement related to adulterated products (Grimm, 1911). This time also marked the first maple co-operatives in Quebec, an important step for maple producers (Spencer, 1920).

1913 marked the creation of one of the first co-operatives of sugar makers from Waterloo, Quebec known as "L'Association des Producteurs de Sucre et de Sirop D'érable" (Dupont, 2004; Spencer, 1920). There was an annual fee accompanied with being part of the co-operative of $1 (Spencer, 1920). Its mandates and objectives were to:

- Disallow sale of compound syrups in the place of maple syrups by deceitful names and devices
- To induce Government assistance in educating producers on best practice
- To solicit Government assistance in organizing yearly exhibitions
- To help members get a market for their products

A similar organization known as "Les Producteurs de Sucre D'érable de Quebec," also known as "Le Co-Operatif" was formed in Levis, Quebec in 1925 (MacDonald, 1953; Dupont, 2004). It began with 102 members and grew to approximately 2000 members by 1931 (Dupont, 2004). The Co-Operatif marketed products such as "Citadelle" and "Camp de Plessiville Maple Syrup" on behalf of its members and was one of the largest maple co-operatives in Canada (MacDonald, 1953; Dupont, 2004).

A common element of these co-operatives were that they would pool their purchases, selling over production to the pool and buying from the pool any deficiencies, at agreed pool prices (MacDonald, 1953). In 1949 and 1950 the Co-Operatif handled approximately 6,151,000 and 8,654,000 pounds of maple products respectively (MacDonald, 1953). Of this, they exported 5,841,000 and 7,551,000 pounds of products respectively, the majority to the United States (MacDonald, 1953). This type of co-operative organization has a long-standing tradition among maple syrup producers and continues to this day.[3] In current contexts, Ontario has these same types of institutions, however archival results from this research did not

[3] http://www.citadelle-camp.coop/maple-syrup/index.aspx

find evidence of these types of co-operatives and organizations in Ontario over the historic time period.

In relation to adulteration and governance during the early 20th century John. H Grimm, among others, advocated the Canadian government to recognize the legitimacy, demand and enforcement of the maple industry within Canada (Smith, 1996). Lefebvre (1916) noted that by 1916 the government in Ottawa had made steps forward in relation to governance of maple products and adulteration but warned that it was reliant on proper enforcement:

> Le Gouvernement d'Ottawa vient, il est vrai, d'apporter une loi. Mais ce n'est pas tout, il faut maintenant qu'il la mette en vigueur dans toute son étendue, car sans cela nous retomberons dans la marasme de années passées.[4]
> (Lefebvre, 1916, p.27)

By 1920 the Canadian government released a document entitled *The Maple Products Act and Trade* (Government of Canada, 1926). It prohibited the manufacture and sale of syrup and sugar which imitated or resembled maple syrup or maple sugar (Government of Canada, 1926). Manufacturers were advised that if caught with any fake or impure products sold on Canadian markets they would be summoned to court and convicted accordingly (Government of Canada, 1926). This

[4] The Government of Ottawa has just implemented a law, it is true. But that is not all, now they must vigorously enforce these laws in all their power, because without this we would return to the depressing conditions of years past.

act was expanded in 1931, again in 1945 and has also been updated subsequently. The 1945 act outlined that:

> No person shall manufacture for sale, sell, offer, expose or have in possession for sale any product which is a colourable imitation of a maple product unless such product or the container thereof be legibly marked with the manufacturer's name and address, the ingredients of such a product and the words 'artificially maple flavoured.'
> (Department of Agriculture, 1946, p.2)

In addition the act allowed any inspector to (a) enter at will and inspect any or all buildings, (b) examine books and records, (c) seize material, take samples and send it to the Department of Agriculture for analysis (Department of Agriculture, 1931; 1946).

> Any person who obstructs an inspector in the performance of his duties shall be guilty of an offense… penalty of conviction will be a fine of not exceeding $300 and costs, or to imprisonment for a term not exceeding 3 months
> (Department of Agriculture, 1931, p.5).

Accompanying these rules were regulations that required producers to label all products with a proper description of the package contents and the name and address of the manufacturer (Department of Agriculture, 1931; 1945). Finally, in 1945 it was established that any manufacturer or packer of maple syrup exporting outside of the province must obtain a license at a cost of $20 payable to the Receiver

General of Canada, which could be renewed annually (Department of Agriculture, 1946).

A 1949 document for the specification of maple syrup adds that delivery of maple syrup was required to be packaged in 16 ounce or 32 gallon (470ml; 3.78 litres) bottles (Canadian Government Specifications Board, 1949). Each container had to be labelled "maple syrup" together with the name and address of the manufacturer, as well as the weight and the grade of syrup (Canadian Government Specifications Board, 1949). The grade of maple syrup was required to be "Canada Fancy," "Canada Light," or "Canada Medium," as determined by the producer (Canadian Government Specifications Board, 1949). These rules and regulations provided a comprehensive backbone to govern maple production in Canada and similar rules and regulations remain to this day.

Figure 4: Ontario Maple Syrup Producers Association (OMPSA) seal of quality.
(Ontario Maple Syrup Producers Association, 1997)

In regards to the health and WB of Aboriginal peoples in Canada good governance continued to be of limited importance to the Canadian government

during the first half of the 20th century. A major piece of that related to the impacts of residential schools.

Residential schools, in conjunction with the *Indian Act*, aimed to further assimilate Aboriginal populations by forcibly removing children from their homes and teaching them how to farm and become "productive" members of society (Boyer, 2014). Under the *Indian Act,* section 114-123 related to schooling, noted that a "Truant" (an officer such as a Royal Canadian Mounted Police) was legally entitled to enter any home where he or she believed there were Aboriginal children not attending school (Union of B.C Indian Chiefs, 1975). The Truant officer could then forcibly remove the child from their home using "as much force as the circumstances require" (Union of B.C. Indian Chiefs, 1975, p.85).

These schools have a painful legacy within Canadian society, damaging Aboriginal culture, destroying transmission of Aboriginal language and ceremony, cultivating psychological issues, fostering disease, abuse and malnutrition (Boyer, 2014). In doing so maple practices were also likely impacted as residential schools prevented many familial aspects of the maple harvest.

Residential schools created a lot of harm among Aboriginal communities and families. In relation to maple practices residential schools took children away from their families and communities limiting transmission of IK, impacting social life and destroying familial maple practices. This is further explored in the discussion. The

Truth and Reconciliation Commission of Canada, established in 2008, was created in an effort to address these legacies related to residential schooling (Truth and Reconciliation Commission of Canada, 2014). However, the impacts of residential schools continue to be felt among Aboriginal communities across Canada.

Aboriginal Well-Being

Emotional Indicators: Community and Family

Emotional indicators for this research are concerned with the role of community and family on Aboriginal WB. Hinrichs (1998) outlined that community and family are important aspects of maple production. Further, Dumont (2005) outlined that the role of community and family were important pieces to Aboriginal health. These emotional indicators were referenced 72 times by 32 sources. This reflects the majority of references and archival sources among Aboriginal indicators. Some of the results related to emotional WB overlap into other domains such as the spiritual or physical domain. Nonetheless, this section provides a description of selected results related to indicators of emotional WB.

Community

Some of the earliest results gathered from LAC and ECO reference the importance of maple practices as part of Aboriginal communities and culture (Chamberlain, 1888; Densmore, [1928] 1987; Henry, 1809). The importance of maple products among Aboriginal peoples were not limited to a single band but included a variety of bands and cultures including: Ojibwe, Iroquois, Anishinaabe, Mississauga and Mohawk. Many sources cited the sugar groves on Manitoulin Island

and that the Ojibwe who lived there were in the habit of making maple sugar yearly (Fortin, 1865). Chamberlain (1888) remarked that the Mississaugas of the Bay of Quinte were also in the habit of making sugar yearly. The 1876 *Report of the Deputy Superintendent General of Indian Affairs*, released by the government of Canada, remarked that the Aboriginals of Caughnawaga, QC, would make maple sugar ever year (Government of Canada, 1876). Further, the 1900 report cited that maple practices were an important occupation among the Aboriginal peoples living at Whitefish River, ON (Government of Canada, 1900).

Greene (1975) noted that in the spring the Mohawk would give thanks to the creator for bringing maple sugar. Morgan (1851), Snow (1994) and George-Kanentioo (2000) also mentioned the important role maple had among the Iroquois, especially the role of the maple ceremony. Additionally, Higgins (1982) cited that the spring reunion was a culturally significant time of the year for feasting, visiting, dancing and families.

Family

Maple practices among Aboriginal communities are also very much a family affair. Among the band of Chemong Lake every family had its own sugarbush (Chamberlain, 1888). Ritzenhaler ([1970] 1983) noted that the family move to the sugarbush signified the beginning of spring. Further to the familial migration to the sugarbush, in the spring, the act of sugaring also involved every member of the family (Chamberlain, 1888; Henry, 1809). An account written by Alexander Henry (1809) between 1760 and 1770 described the sugaring process among an

Aboriginal community near Sault Ste Marie. Henry (1809), a fur trader, merchant and militia officer, described women collecting the sap from maple trees, boiling it and completing the sugaring process while men were busy cutting wood and tending the fires. Chamberlain (1888) echoed these descriptions but noted that it was children that gathered sap while the women prepared the sugar. Oberholtzer (2012) also remarked that it was the women who would make the containers used for collecting the maple sap and that the shared labour between man and woman "ensures their survival through the winter and their ability to maintain contact with their community" (p. 56).

These dynamics were important to influencing emotional WB of Aboriginal peoples. As the role of family and shared labour are integral components of the maple harvest and Aboriginal life in general, the role of residential schools would surely impact overall WB. How residential schools directly impacted maple practices among Aboriginal peoples is a question that could be further research. The overall dynamics are further explored in the discussion.

Physical Indicators: Health, Healing and Economy

Physical health is an important component to overall WB. This includes being in good shape and free from sickness. Additionally, economy has traditionally been viewed as an important indicator of WB in non-Aboriginal. The same can be true among Aboriginal communities. In regards to archival references related to health, healing and economy, the archival results of this research found that 20 sources

referenced economy and 8 sources referenced health or healing. These results are presented as follows.

Health and Healing

Densmore ([1928] 1987) suggested that the two most important vegetable foods among Aboriginal bands were wild rice and maple sugar. Henry (1809) also noted that sugar making was the principle food used by many Aboriginal bands in April. Maple sugar provided the first break in the winter of diet of meat and fish and marked the beginning of spring (Higgins, 1982).

From archival results Dupont (2004) and Keating (1824) cited the medicinal properties of the maple tree used by Aboriginal peoples. Keating (1824) references that the Potawatami peoples of the Western Great Lakes and upper Mississippi River used maple sap or sugar as a remedy for croup, a respiratory condition**.** Dupont (2004) noted that Aboriginal peoples would drink sap, syrup or sugar as a remedy for heart and stomach problems. Further, the sap provided nourishment and was thought to have healing properties that helped rejuvenate the body after the long winter (Dupont, 2004). Ritzenhaler ([1970] 1983) also noted that Aboriginal children could often be coaxed into taking their medicine if there was a promise of maple sugar. Kohl ([1860] 1985) noted that: “generally they (Aboriginals) prefer their maple sugar to the west Indian cane sugar, and say that it tastes more fragrant – more of the forest” (p.324).

Other archival material related to the medicinal properties of the maple tree did not focus on Aboriginal dynamics but rather focused on the use of maple products in western medicinal practices. Though it is not the focus of this research it is important to note that early sources from Badgley (1844) and Brite (1827) also cited medicinal properties of maple products used in western medicine, undoubtedly adopted from Aboriginal practices.

Economy

Results also illustrated that maple products have been used as a source of economy among Aboriginal communities throughout the historic time period. Manitoulin Island was cited by many sources as a leading producer of maple sugar during the 19th century (Cadieux and Toupin, 2007; Fortin, 1865; Manufacture of Maple Sryup, 1847, March; Maple Sugar, 1848, November; Sugar Making, 1849, March). The March 1847 *British American Cultivator* noted that "no finer groves of Maple can be found on the continent of North America" than on the island of Manitoulin (Manufacture of Maple Syrup, 1847, March, p.66).

The February 1845 edition of the *British American Cultivator* also noted that many "Indians on the islands of Lake Huron have recently turned their attention to the manufacture of sugar" (Work for the Month, 1845, February, p.33). Cadieux and Toupin (2007) recorded that in 1846, 80,000 pounds of sugar was produced on Manitoulin Island "a record number." The November 1848 issue of the *Farm and Mechanic* comments that even during an unfavourable season the "Manitoulin Aborigines" still exported over one hundred tons of sugar (200,000 pounds) (Maple

Sugar, 1848, November). In the March 1849 issue of the *Farm and Mechanic* an article cited that the Manitoulin Island produced approximately 100,000 pounds of sugar, the majority of which was exchanged with Michigan merchants for wooden and cotton goods (Sugar Making, 1849, March). These numbers of production differ quite a bit from year to year and could be attributed to the credibility of the sources. The Cadieux and Toupin (2007) text is a composite of early missionary and Jesuit letters from Manitoulin between 1853 and 1870 while the Farmer and Mechanic is a periodical and may not have been able to obtain the most accurate of statistics. However, it could also be attributed to the fact that maple harvesting can vary dramatically from year to year.

One of the first government statistical reports that cited the level of production on Manitoulin Island was an 1865 sessional report written for the eighth Parliament of the province of Canada by Pierre Fortin. Fortin (1865) cited that Manitoulin Island produced over half a million pounds of maple sugar yearly. The first Canadian census of 1871 is more in keeping with the previously outlined accounts. The 1871 census reported that the Manitoulin Island produced 156,160 pounds of maple sugar during the 1871 season (Government of Canada, 1875). Regardless of the exact amount there is no doubt that the Manitoulin Island was a major producer of maple sugar in the 19th century. Based on the results, evidence suggests that it is likely that Aboriginal peoples conducted the majority of maple production on Manitoulin Island. The demographics of the time also support this, as in 1871 78%

of the total population on the island was Aboriginal (1,562/2,011) (Government of Canada, 1878).

Many bands sold maple sugar and this was often the primary commodity sold or traded with settlers during the 19th century (Chamberlain, 1888, Dupont, 2004). One of the earliest sources highlighting this type of trading relationship between Aboriginal and settlers in maple contexts was a text written by Strickland (1826). The author, Catherine Parr Strickland, was a renowned author and naturalist during the 19th century. Her piece entitled *The Young Emigrants* speaks to the early life of a recent immigrant family making its home in the newly colonized Canadian territory. In the text Strickland recounts the memory of engaging Aboriginal peoples to make sugar as "they (Aboriginals) far excel the settlers in the art of refining it" (Strickland, 1826, p.144).

Other sources cited that good money could be obtained from maple practices. In fact the February edition of the 1845 *British American Cultivator* stated "production of Maple is capable of yielding as large a return as other branches of farming" (Work for the Month, 1845, February, p.34). However, in the Aboriginal context, based on results, it was found to be rare that they obtained fair value:

> If respectable mercantile houses would hold out sufficient inducement, we have not the least doubt that the Native Indians would engage in the sugar business extensively
> (Manufacture of Maple Syrup, 1847, March, p.66)

> In the spring, a large part of the village went to the sugarbush to prepare maple sugar and syrup. In 1846, a record number: 80,000 pounds. A good occasion and a tidy sum - if the native could avoid being duped by the whites of Collingwood.
> (Cadieux and Toupin, 2007, p.9)

> We made lots of maple sugar cakes and maple syrup. We would sell a little syrup and leave the rest at the camp. One day we saw a lot of black smoke in the sky. We went to the sugar camps. Someone has stolen the syrup and burned the camps. We think it was some of the miners from the gold mine. It used to be back there. That was before 1926.
> (Higgins, 1982, p.101)

The fact that Aboriginal peoples appear to have had difficulty receiving fair compensation for their maple products could be indicative of the post-confederation Canadian governance structure that led to the marginalization of Aboriginal peoples. Governance structures of the time may also be revealing of the limited results garnered by this research related to Aboriginal production in the late 18th and throughout the 19th century. Aboriginal peoples and maple practices were often cited in the results before confederation, however there was limited evidence of Aboriginal maple practices post-confederation. These dynamics are further explored in the discussion and highlighted as an area of future research.

Spiritual Indicator: Ceremony

The only indicator related to the spiritual domain of Aboriginal WB is the role of ceremony. Ceremony was referenced 23 times in 11 sources. This represents the fewest results among Aboriginal domains, however the role of ceremony was often cited as an important aspect of Aboriginal maple practice. The results are presented as follows.

Ceremony

Barbeau (1946) cited that the maple harvest was an annual event among many Aboriginal bands. Greene (1975) cited that the Mohawk gave thanks to the creator in spring for the maple harvest, the middle of summer at the height of the growing season and again in the late summer for the summer harvest (Greene, 1975). Strickland (1826) cited that maple production among Aboriginal peoples was accompanied with a party, dancing and singing. Smith (1996) noted that the end of the maple season was usually marked by the sound of thunder and the maple ceremony is held immediately after. Also, at the end of the season men would give thanks to the maple tree and bind their wounds (Strickland, 1826).

Morgan (1851) remarked on the antiquity of the maple festival and maple dance in the Iroquois religious calendar. He stated that in Iroquois culture "six regular festivals, or thanksgivings, were observed by the Iroquois. The first in the order of time, was the Maple festival" (Morgan, 1851, p.183). George-Kanentioo (2000) also noted that the rising sap of the maple tree is the first sign of spring and the maple

ceremony marks an important occasion in the Iroquois calendar, the rejuvenation of the Earth by the Creator. The festival lasted one day and "the primary idea of this ceremonial was to return thanks to the maple itself; but at the same time they rendered their thanks to the Great Spirit for the gift of maple" (Morgan, 1851, p.187).

Snow (1994) echoed these sentiments stating that the dripping maple sap prompted the maple ceremony, which "gave sincere thanks for the bounty of the forest in a season where game was scarce and winter stores were nearly gone" (p.23). George-Kanentioo (2000), in his text *Iroquois Culture and Commentary,* cited that the Iroquois believe the maple tree to be representative of all plants and is considered to be the most sacred of all plants. To conclude the maple ceremony the Iroquois would address the "Great Spirit" by burning tobacco and dancing (Morgan, 1851).

Mental Indicators: Indigenous Knowledge and Technology

Mental indicators of WB were structured around dynamics related to IK and technology. IK relates to traditional knowledge and knowledge transmission, while technology indicators refer to methods or adaptation to methods used by Aboriginal maple producers. Indicators related to IK and technologies were referenced 65 times from 26 unique sources. 9 sources referenced traditional Aboriginal technologies, while 26 sources referenced IK. Samples of these results are presented below.

Indigenous Knowledge

For sugar maples to produce sap they require sunny days and frosty nights (MacDonald, 1953). Aboriginal peoples would know exactly where to go and when best to tap the maple trees (Smith, 1996). This was important because often, the best sugar was made on the first run of sap (Densmore, [1928] 1987). Rain was said to produce a change in the taste of sap and a thunderstorm marked the end of the season (Densmore, [1928] 1987; Smith, 1996). This type of knowledge would be passed from generation to generation.

The results referenced many sources that describe origin stories on how Aboriginal peoples first came across maple syrup (Dupont, 2004; Eagelson and Hasner, 2006; Ritzenhaler, [1970] 1983; Smith, 1996). These stories are often unique and vary across Aboriginal bands. The following is an example of an Iroquois origin story adapted from Eagelson and Hasner (2006).

It is said that early in March Woksis, the great hunter, was making camp and swung his axe into a maple tree before he went to sleep. He awoke the next morning, removed the axe from the tree and left on a three-day hunt. While Woksis was gone the tree cried from the wound left by the axe and its tears fell into a container left at the base of the tree. In anticipation of Woksis returning his wife prepared a stew using the contents of the container left at the base of the weeping maple tree thinking it was water. Woksis returned to camp famished after a long hunt and devoured the stew his wife had prepared. The sweet stew was so delicious that every spring afterward, under the light of the maple moon, Woksis the Iroquois

gathered the tear drops of the maple tree to enjoy the delicious bounty (Eagleson and Hasner, 2006).

Oberholtzer (2012) speaks to the importance of IK and knowledge transmission among Aboriginal peoples. He cited the concept of kinship, the continual connection of one generation with another and the means for transferring cultural knowledge as important pieces of Aboriginal life (Oberhotlzer, 2012). These traditional practices would be taught from one generation to the next and represent a "knot in one string" (Oberholtzer, 2012). Governance paradigms related to the *Indian Act* and residential schools undoubtedly impacted this type of knowledge transfer, in turn impacting maple practices among Aboriginal peoples and communities. These dynamics are further explored in the discussion.

Technology

Beaulne (1983), MacDonald (1953), Keating (1824) and Thevet (1558) all cited that traditional Aboriginal techniques for harvesting maple sap involved tapping trees with an axe or tomahawk, placing a birch bark vessel at the base of the tree collecting the dripping sap, boiling the sap using an earthen kettle and reducing the sap into a syrup or sugar. Jack (1910) remarked "the sap was boiled down in clay vessels, by repeatedly dropping stones into it that had been heated red hot in a brushwood fire" (p11). Further he added that sugar could be obtained by "freezing it in shallow vessels of bark, throwing out the ice until sufficient water was removed to allow it to syrup and then to crystalize" (Jack, 1910, p11).

Regardless of the techniques adopted by Aboriginal peoples Neilsen (1793) and Kohl ([1860] 1985) cited that maple sap was often refined into one of three products: (1) grain sugar, (2) cake sugar, or (3) gum sugar. It is unknown exactly how the Aboriginal peoples of Canada came to know how to refine maple sap or the origins of maple products but many origin theories and legends exist including: by accident, through a dream or by observing natural phenomena in the environment (Keating, 1824; Pendergast, 1983).

No matter the origins of maple products, the Aboriginal peoples of Canada became early masters at refining sap to sugar (Thevet, 1558). When Europeans first came to Canada Aboriginal populations shared their land and woodland skills with the newcomers. This included maple-sugaring techniques (Barbeau, 1946; MacDonald, 1953; Mackenzie, 2004; Smith, 1996; Thevet, 1558). Thevet (1558) cited that Aboriginal peoples of Canada handled large quantities of sap, refined it and explained their techniques to the early explorers of Canada. The settlers learned these methods from Aboriginals and followed roughly these methods for nearly two hundred years (Barbeau, 1946; MacDonald, 1953). Charlevoix (1744), contended these findings, but overwhelmingly early authors suggested that Aboriginal peoples refined maple sap into syrup or sugar long before the arrival of Europeans (Barbeau, 1946; Keating, 1824; Pendergast, 1983; Thevet, 1558).

What is certain is that the arrival of European settlers marked an evolution in the techniques of refining maple sap employed by Aboriginal peoples. The tomahawk was eventually replaced by the bit brace, wooden spouts by spiles and

birch bark receptacles by metal buckets (Dupont, 1975; Mongrain-Dontigny, 2003; Molle, 2013). Other things such as the shoulder yoke, thought to be learned from the French, or the use of horses also marked an evolution in technology incorporated into maple production (Densmore, [1928] 1987). These technological advances had an immediate impact on traditional Aboriginal methods of production and increased the quality and efficiency of sugaring tremendously. Eventually technologies such as the evaporator and reverse osmosis techniques were incorporated into many Aboriginal maple practices. However, many continued to gather and refine maple sap using more traditional methods (Hill, 1987; Hubbard and Lawrence, 1874). Technological advances are explored in further detail in the non-Aboriginal results section.

Figure 5: Traditional technologies used in a modern setting.

(Author's photograph)

Non-Aboriginal Well-Being

Social and Cultural Indicators: Social Cohesion, Identity and Family

A major component of maple practice is the role of the community, identity and family (Hinrichs, 1998). Accordingly, as part of this research indicators related to social cohesion, identity and family were incorporated into the non-Aboriginal WB framework to measure social and cultural WB. In total there were 47 sources and 99 references related to social and cultural indicators of WB. More specifically there were 15 sources that had references coded under family, 35 sources that were coded under identity and 30 sources with reference to social cohesion. Descriptions of these results are presented below.

Social Cohesion

From the results of this research it was clear that the maple season promotes social cohesion. "After the long confinement of the winter, the neighborhood would get together for an important social diversion, known as a 'taffy pull'" (Martin, 1979, p.40). About the middle of March producers would begin preparations for the sugar season. They would tap trees, collect sap and boil it down to syrup or sugar. This final phase is often known as "sugaring off" and similar to Aboriginal customs would be accompanied with a party or festival of some sort (Coté, 1997; Croft, 1984; Croteau, 1997; Dupont, 1975; Lanman, 1850; Mackenzie, 2004; MacMillan, 1982; Martin, 1979; Price, 1929). "There was no time that could compare with sugaring off" (MacMillan, 1982, p.356). It was very social and jovial time where it was customary to invite neighbors and friends to the sugar camp and share in a feast

(Price, 1929). Lanman (1850) noted "the Dutch of whom we are speaking… have a very sensible mode of winding up their sugar-making labors by giving what they term a 'sugar-bee,' or party." (p.18) "Sugaring-off is the most pleasant process of this romantic spring industry… it was a jolly, informal occasion, more productive of fun and real pleasure than any social event the city may have to offer" (Price, 1929, p.90-91).

Figure 6: Children enjoying delicious maple taffy.

(National Film Board, 1950)

Examples of other, more organized, early social events associated with maple products included exhibits at Agricultural fairs or maple sugar contests (Maple

sugar at the late Provincial far, 1865, December; Spencer, 1920). Spencer (1920) described a maple product contest held in Montreal in 1913 that judged maple sugar and maple syrup. They awarded prizes based on flavour, colour and body for maple syrup and prizes based on flavour and colour for maple sugar (Spencer, 1920). These prizes totaled $500, a hefty sum at the time (Spencer, 1920). The contest was run again in 1919 and this time was presided over by John H. Grimm, the creator of Grimm manufacturing, one of the first companies to build maple syrup evaporators (Spencer, 1920). This contest, also held in Montreal, had prizes totaling $1000 based on the same categories (Spencer, 1920).

These types of events have continued to this day and can be found in many municipalities across Ontario and Quebec. However, other than the events previously outlined archival results related to festivals in the historical period of this research were non-existent. The first cited festival was hosted in Plessiville, QC, the self-described maple capital of the world, during the 1950's (Coté, 1997; Croteau, 1997; Dupont, 2004). In Ontario, one of the largest current maple festivals in the world can be found in Elmira. It was first held in 1965 and uses all the money raised at the festival for community development projects (Mackenzie, 2004). These festivals are a source of pride and identity among the residents of Elmira, ON and Plessiville, QC.

Figure 7: Elmira, ON home of the maple syrup festival.

(Mackenzie, 2004)

Identity

As part of the research framework identity was also identified as an indicator of social WB. The maple tree, leaf and its associated products were shown, based on the research results, to have a long-standing tradition as part of Canadian identity. An account of the British Dominions written by Bouchette (1831) describes:

> Maple sugar will nevertheless ever continue a favorite luxury if not a necessary, with the Canadian peasant, who has not unaptly been considered as having for it the same sort of natural predilection that an Englishman has for his beer, a Scotsman for his scones, and a Mexican for his pulque.
> (Bouchette, 1831, p.372)

This piece of identity was found particularly in Quebec where, among many, the maple was considered a symbol of the French nation in Canada (Beaulne, 1983;

Croteau, 1997; Dupont, 2004). Dupont (2004) noted that this sense of pride and identity was most present during the 19th century and first half of the 20th century, though it has not completely disappeared in current contexts. In 1910 the government of Quebec proclaimed July 1 to be "jour de sucre d'erable[5]" (Dupont, 2004). Cyrille Vaillancourt the minister of "l'acericulture" at the Ministry of Agriculture of Quebec during the mid 20th century preached respect of the maple as a Quebec emblem (Dupont, 2004). Croteau (1997) furthers this sentiment and references maple products as a symbol of Quebecois originality and hospitality and states "en fait, on ne saurait imaginer le Quebec sans lui (maple products)"[6] (p.7).

The maple tree, leaf and associated products, as well as being a symbol of French pride, was also referenced as a symbol of Canadian identity. The maple leaf was first used as a national emblem in 1868 when it appeared on armorial insignia of Ontario and Quebec but was viewed as a national badge long before this (Finlayson, 1930; Jack, 1919). Jack (1919) noted that in 1834 the maple leaf was presented "as the special emblem of Canadian Nationality, at a public dinner presided over by the Hon. Jacques Viger, then mayor of Montreal, which was held in Mr. John McDonnell's garden, in St. Antoine street, on the 24th June, 1834, and fresh leaves of the maple, taken from the trees, were worn by every guest" (p.7).

Results also referenced that during the First World War soldiers in Europe received shipments of maple sugar as a gift for Christmas (Dupont, 2004). This also

[5] Maple sugar day
[6] In fact we could not image Quebec without it (maple products)

occurred in the Second World War, except this time syrup was shipped to the troops rather than sugar (Smith, 1996). In 1923 the government of Canada developed a brochure that presented maple sugar and syrup production as a national industry (Dupont, 2004). Finally in 1965, under the direction of Lester B. Pearson, the maple leaf was officially declared the national symbol of Canada and flies on the Canadian flag.

Family

The final indicator used by this research to measure social WB is linked to the role of family in maple production. Maple production, as mentioned by Grimm (1911) among others, can often be used as a source of income among farmers and practitioners but it can also be used for their own familial consumption. Of the three social indicators used by this research family was referenced the least with only 15 sources referencing family.

Results noted that many traditional maple practices employed family members to help in production (The Library of Entertaining Knowledge, 1867; MacDonald, 1953; Dupont, 1975; Macfie, 1983; Smith, 1996). The entire family, including children, was employed to help in the maple production during the spring (The Library of Entertaining Knowledge, 1867). Further MacDonald (1953) remarked that maple production is often an operation carried out by family. In other cases large operations may not rely only on family but also outside assistance (MacDonald, 1953). Macfie (1983) noted that along with paid employees he helped his brother at his maple farm of over 2000 taps every year. He did it not only to help

in a family business but also because he relished in the event stating: “making syrup…a nice blend of pleasure and practicality” (p.88). As well as being a familial activity Macfie (1983) characterized a connection to the natural environment.

Figure 8: Child working in the sugarbush.

(National Film Board, 1950).

Environmental Indicators: Connection and Ecological services

The second dimension of WB that this research uses relates to environmental WB. In order to measure environmental WB two indicators were chosen: environmental connection and environmental ecological services. From the results a

connection to the environment was referenced 21 times and ecological services were referenced 45 times. However, the majority of sources related to ecological services did not reference the historic time period. The results relating to these indicators of environmental WB are presented below.

Connection

The first indicator that relates to environmental WB has to do with a connection to the natural environment. One of the earliest historical results obtained from this research relating to an environmental connection was found in an 1850 edition of the *Agricultural Journal*. It cited that maple trees should be preserved for their natural beauty and that sugar making should be made regular business rather than be harvested for their timber (Agricultural report for April, 1850, May). Jack (1910) remarked "Canada displays in mid-October the gorgeous colouring of the maple forest that is an enchanted realm, with a beauty all its own" (p5). Powers (1902) also noted "no trees during these early autumn days are more gorgeously attired than our native maples" (p.346). Spencer (1913) remarked that "the conservation of the maple groves will appeal to every one interested in the forest and the farm" (p.13). In a more current setting Croteau (1997) cited that all Quebecois have a particular affection to the sugar maple and honour the tree every year.

In addition to these results there were a number of poems found within the research that indicated an environmental connection to the maple tree (Knight, 1816; Dumont, 2009; Jack, 1910; Woolverton, 1895, September; Strickland, 1831). An example comes from Jack (1910) p. 8, *The Flowering Maple Tree*, quoted:

The Flowering Maple Tree

Ere dandelions dot the grass
When maple buds are blowing
To scarlet tassels as we pass
And fresh young leaves are growing,
With soft spring air by breezes fanned –
Wafted o'er land and sea,
We say "God bless our native land
And the flowering maple tree."

In summer where the branches meet
In woodlands' shaded bowers,
Its healing whispers ever greet
And breathe of peaceful hours,
And when the autumn waves its wand
And gorgeous tints we see,
Once more we bless our native land
And the flowering maple tree.

Ah! Bare it stands in wintry blast
Serene and unafraid
Through storms wind beat 'neath skies o'ercast
The tree is not dismayed
Type of the sturdy Northern land,
Such loyal hearts they be,
Who love so well their native land
And the flowering maple tree.

(Jack, 1910, p.8)

Ecological Services

The second indicator related to environmental WB has to do with ecological services. Bizikova (2011) cites that an important relationship between the environment and WB are the ecological services that are provided. In total there were 11 sources and 45 references to ecological services but, as mentioned, the bulk of results did not deal with historical views of maple ecology. A potential reason for this is due to the fact that the concept of ecosystem or ecological services are relatively new and people at the time were not aware of these services or did not find them to be important. This imposition of a 21st century concept may not be reflective of the historical time period and thus results related to this indicator were limited. This is explored further in the limitations.

An article in the *Canadian Horticulturalist* published in August 1880 remarked that there were advantages of tree growth and shelter on climate, rainfall and also the protection of growing crops (Forestry, 1880, August). The *Ottawa Naturalist*, published October/November 1898 similarly noted that the sugar maple tree provides strong shade protection (Macoun, 1898). Further, many results cited the sap that could be obtained from the maple tree and refined into sugar or syrup. Undoubtedly this is one of the greatest ecological services that the sugar maple tree does provide, however no historical results obtained through this research cited ecological services often attributed to maple trees such as providing flood attentuation and improving water quality.

Economic Indicators: Value

The third dimension of WB outlined by this research relates to economic WB. This research uses only one indicator to characterizes economic WB: value. Value is primarily related to the economic returns but is also related to labour and any other associated economic benefits. This indicator was the most widely referenced among results with 172 references in 72 unique sources. The results of this research relating to this domain are outlined as follows.

Value

Grimm (1911) cited an early settlers guide from 1894 stating:

> Maple sugar-making, an important Industry, has for some years past been making rapid advances… we may add that the maple sugar crop, which is everywhere collected at a season when the settler cannot actively engage in other work, provides for the hardy Canadian settler and farmer a new source of revenue not to be disposed.
> (Grimm, 1911, p.3)

Further Grant (1899) and Bouchette (1831) noted that:

> Immense quantities of maple sugar are yearly produced by the sugar bushes…The maple, in both provinces is a source of essential profit to the farmer, from the copious supplies of sugar he derives from it, by the most simple process, and with the least possible labour and expense
> (Grant, 1899, p.32; Bouchette, 1831, p.117).

In 1851 the dominion of Canada produced 9,737,416 pounds of maple sugar, 6,067,542 pounds coming from Lower Canada now known as Quebec (Board of

Registration and Statistics, 1854). This number jumped considerably by 1861 with production totaling 16,295,752 pounds (Bureau of Agriculture and Statistics, 1864). Based on the 1865 price of maple sugar obtained from Fortin (1865) this totaled approximately $1,303,660 in revenue for Canadian farmers, not including associated operating costs. It appears that the majority of this was sold domestically, as an 1865 sessional reports only 7,161 pounds of maple sugar were exported (Fortin, 1865).

With respect to maple syrup, based on a 1900 sessional paper maple syrup was estimated to retail at approximately 80 cents per gallon (Paterson and McDougald, 1900). This is in keeping with data from Smith (1996) referencing the price of maple syrup in 1897 to be between 60 and 70 cents per gallon. In order to provide context, a gallon of maple syrup weighs 10 pounds (Statistics Canada, 2011). Therefore, based on Paterson and McDougald (1900), maple syrup in the late 19th and early 20th century garnered approximately 6-8 cents per pound, equivalent to maple sugar. However, maple syrup production required less energy to produce, thus operating costs were lower (Dupont, 1975).

In addition to the income generated from maple sugar production the practice also creates work for many. Lefebvre (1916) remarked that in 1910 there were approximately 55,000 Canadian producers. By 1941 this number declined to approximately 25,000 producers and has continued to decrease, even as profit and total production has increased (Dupont, 2004). Archival results did not present any

reasons as to why the number of total number of maple producers in Canada declined but it could be attributed to the overall decline of farmers in Canada over the last half century (Statistics Canada, 2014).

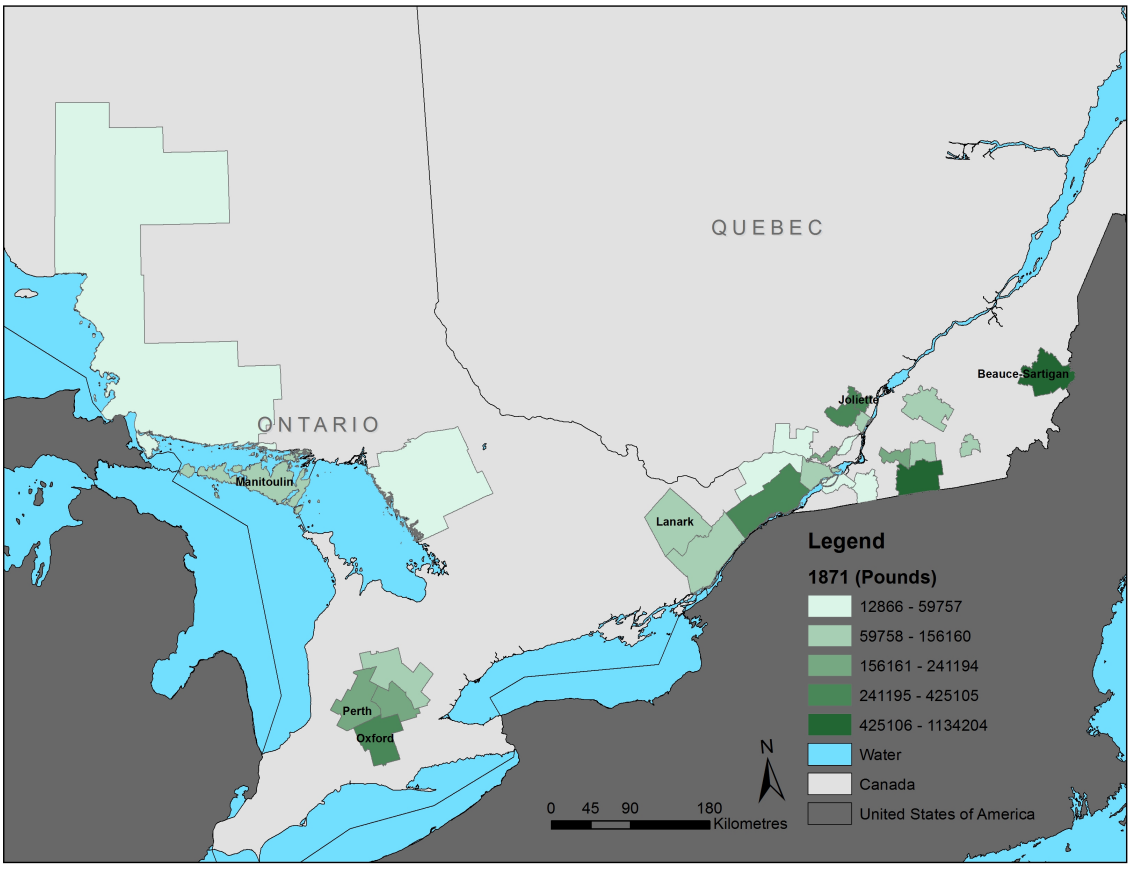


Figure 9: 1871 thematic map of maple sugar production based on census divisions in Ontario and Quebec.

(Government of Canada, 1875)

In 1871 the leading producers were located in the communities of Brome-Missisquoi, Beauce-Sartigan and Oxford County (Figure 9). Other major producing communities included Joliette, Perth, Rouville and Manitoulin (Figure 9). In terms of total production, the 1871 census reported that Canada produced 17,276,054 pounds of sugar (Government of Canada, 1875). This level of production continued to grow steadily for thirty years until 1901 when production of maple sugar began

to decline (Table 7). By 1951 production of maple sugar had declined even more dramatically with total Canadian production of 1,649,000 pounds, roughly 1,500,000 of which came from Quebec. By this time Ontario had primarily stopped producing sugar and focused primarily on producing syrup (Figure 12).

Table 7: Total production of maple sugar in Ontario, Quebec and Canada from 1851 to 1951.

	Sugar (000's Pounds)										
	1851	**1861**	**1871**	**1881**	**1891**	**1901**	**1911**	**1921**	**1931**	**1941**	**1951**
Ontario	3667	6971	6247	4170	5666	3895	251	63	594	43	44
Quebec	6068	9325	10497	15689	18875	13524	9993	9379	4726	2244	1500
Canada	9735	16296	17276	20556	25088	17747	10488	9605	5523	2390	1649

(Board of Registration and Statistics, 1854; Bureau of Agriculture and Statistics, 1864; Government of Canada, 1875; 1883; 1897; 1904; 1914; 1925, Statistics Canada, 2013)

Resilience Indicators: Adaptation and Transformation

The final domain associated with this research's WB evaluation in non-Aboriginal Canadian maple producing communities relates to the concept of resilience. To measure resilience two indicators were chosen: adaptation and transformation. There were 73 references to sources that related to adaptation but only 17 references related to transformation. This is attributed to the fact that any reference to technology was recorded as an adaptation indicator. It is important to note that resilience is a recent academic term developed to understand the capacity to undertake and thrive through change. Thus, this data for this theme was obtained through an evaluation of the changes and impacts observed in the maple industry over time. The results from this research related to adaptation and transformation are summarized below.

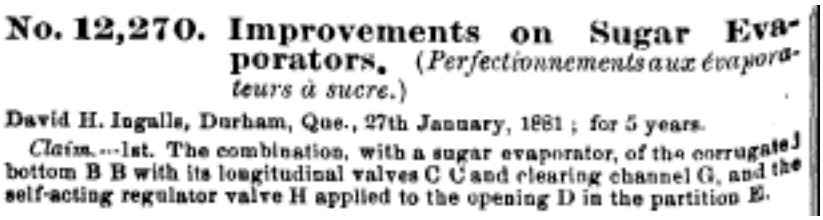
Adaptation

The majority of the archival research results from this research related to adaptation focused on social adaptation. The primary social adaptation that was cited was the shift from traditional maple technologies toward more advanced technological practices.

Improvements in the methods and technologies of maple production have allowed producers to improve their product efficiency and make more money. Not all producers made the shift from more "primitive" methods of production as Grant (1899) noted: "the French-Canadians cling to the most primitive methods in this (maple sugar production), as in everything else, the result, if an economic loss, being at least a picturesque gain" (p.32). However, the arrival of settlers marked the first evolution in technology from birch bark receptacles to metal buckets and earthen vessels to iron pots, which yielded a distinct advantage over previous methods, and were adopted by many (Dupont, 1975; Hubbard and Lawrence, 1874; Mongrain-Dontigny, 2003; Molle, 2013).

One of the greatest shifts in technology came during the late 19th century with the development of evaporators (Spencer, 1920). David G. Ingallls of Dunham, Quebec is credited with one of the first patents for the "lightning" evaporator in 1881 (Improvements on Sugar Evaporators, 1881, March; Smith, 1996). An evaporator gives the advantage over traditional boiling in that it features a larger boiling area and greatly decreases the overall boiling time (The Hints on Maple-

Sugar Making, 1879, December). Early evaporators could produce syrup in as little as 30 or 40 minutes of boiling (The Hints on Maple-Sugar Making, 1879, December).



No. 12,270. Improvements on Sugar Evaporators. (*Perfectionnements aux évaporateurs à sucre.*)

David H. Ingalls, Durham, Que., 27th January, 1881; for 5 years.

Claim.—1st. The combination, with a sugar evaporator, of the corrugated bottom B B with its longitudinal valves C C and clearing channel G, and the self-acting regulator valve H applied to the opening D in the partition E.

Figure 10: David H. Ingalls patent for his sugar evaporator.

(Improvements on Sugar Evaporators, 1881, March)

A popular evaporator developed by the Grimm Manufacturing Company and marketed during the late 19th and 20th century was the "Grimm Champion Evaporator" (Champion Evaporator 1895, December; Smith, 1996). A similar model also created by the Grimm Manufacturing Company was the "Sugaring-Off" model that sold for between $35 and $50 (Boilers for Making Jams and Jellies, 1894, May). This was an affordable price and increased production efficiency tremendously so that less time and energy was required to produce sugar or syrup.

Another popular evaporator known as the "Waterloo Evaporator" began to be used extensively in Lanark County during the beginning of the 20th century (Smith, 1996). The main advantage of this design was that it incorporated a raised flue evaporator that increased the heated surface area of the pan, trapped heat and further increased boiling efficiency (Smith, 1996).

Figure 11: Advertisement for the Grimm Manufacturing Co. "Champion" evaporator. (Champion Evaporator, 1895, December)

Technology has further improved since the development of the evaporator and now includes things such as reverse osmosis, vacuum pumps and gravity fed tubing (Farrell, 2013). These are just a few of the numerous ways in which a producer can improve production efficiency and make more money. However, from the early traditional methods of production to industrialized forms of mass production, refining maple sap into a sweet sugar or syrup has come a long way.

In addition to technological adaptation archival results also cited that the maple tree adapts well to environmentally strenuous situations and change (Houston, 1990; Kidon, 2000; Nordin, 1954; Trelease, 1894). Finlayson (1930) notes the lineage of the maple tree dates "back farther than the warm blooded animals that furnished the stock from which humanity arose in the late Tertiary period" (p.3). This is based on fossil remains of leaves and twigs "found in the Upper Cretaceous of Western Greenland and Western Canada" (Finlayson, 1930, p.4). This source also

noted that "the number of maple species that existed during ancient times was probably greater than exists to-day" (Finlayson, 1930, p.4).

Further, Trelease (1894) remarked that the sugar maple has "good winter characteristics" (p.18); and effortlessly withstands the harsh Canadian winters. In a more current context Houston (1990) cited that the sugar maple tree is resistant to airborne pollutants and increased levels of ozone. Also the maple tree is able to heal quite easily from tap wounds (Houston, 1990). Finally Kidon (2000) presents the findings of a recent study examining the impacts of the 1998 Eastern Ontario ice storm on maple syrup production and noted that yields following the ice storm decreased but that the "syrup yield in the second year after the attack was significantly greater than yield of the first year" (p.22); suggesting that maple trees have the ability to recover quickly. Though these references are more current they give credibility to the remarks cited by Finlayson (1930) related to the longevity of the maple tree and provide evidence of its ability to adapt.

Transformation

The second indicator to measure resilience used by this research relates to transformation. Based on the archival results of this research two transformations were identified. The first occurred in the 19th century as cane sugar replaced maple sugar as North America's primary sweetener. The second occurred in the 20th century when maple sugar was usurped by maple syrup as the primary maple product produced.

As illustrated previously maple sugar was the primary sweetener used among Aboriginal peoples as they had a long-standing tradition with the maple and preferred maple sugar to the West Indies cane sugar. During the 19th century there was a strong push by new settlers to not depend on imported cane sugar and instead harvest domestic maple sap wherever possible. Edward (1824), and early periodicals including the *Farmer's Manual* (Maple Sugar, 1844, December), the *British American Cultivator* (Work for the Month, 1845, February; Work for the Month, 1845, March) and the *Famer and Mechanic* (1848), all stressed that every farmer should known how to make maple sugar and that no family with a sugarbush should ever depend on foreign sugar. Johnston (1851) estimated that in 1848 maple sugar accounted for close to a third of Canada's sugar consumption.

For many it was a matter of national importance that the Canadian markets be supplied solely with sugar manufactured on home soil. In addition to eliminating dependency on foreign sugar, maple production occurred at a time when farm work is limited (Maple Sugar, 1844, December). It could be used as a supplemental income for many farmers and is sustainable in practice (Bloomfield, 2006; Fretz, 1989; Government of Canada, 1950).

With respect to quality, price and quantity Neilson (1793) claimed that maple sugar is superior or equal in all regards. Hubbard and Lawrence (1874) echo these sentiments. In reference to quality Neilson (1793) noted that:

> The quality of this sugar (maple sugar) is necessarily better than that which is made in the West Indies. It is prepared in a season when not a single insect exists to feed upon it… the same observation cannot be applied to the West India sugar… the superior purity of the maple sugar is farther proved by its leaving a less a sediment when dissolved in water than the West India sugar.
> (Neilson, 1793, p.363)

Further, "maple sugar may be manufactured much cheaper, and sold at less price than that which is made in the West Indies" (Neilson, 1793, p.365). Lambert (1813) remarked that maple sugar, at the time, was sold at half the price of cane sugar. During the late 18th century maple sugar fetched approximately 6 cents per pound (Nielson, 1793). By 1865 maple sugar was selling for approximately 8 cents per pound (Fortin, 1865; Perrault, 1866). "As late as 1890 it was being exchanged for cane sugar – pound for pound" (Martin, 1979, p.40). After that time, the sale of maple sugar began to fall off and cane sugar took over as the dominant sweetener. Smith (1996) noted that this was primarily because the Federal government dropped tariffs on imported cane sugar in 1880 meaning the price of cane sugar decreased dramatically.

The results of this research also illustrated that there was a transformation during the 20th century from producing maple sugar toward producing maple syrup. Fortin (2010) attributes the introduction of canning as one of the major reasons for increased production of maple syrup. This was due to the fact that maple syrup could be stored without fear of spoilage (Fortin, 2010). Another possibility could

relate to the re-emergence of cane sugar as an affordable sweetener, influencing producers to make the shift from sugar to syrup. In addition syrup requires less energy to produce, and is sold at roughly the same price meaning higher profit returns (Paterson and McDougald, 1900).

Figure 12 illustrates total maple sugar and maple syrup production in Ontario and Quebec from 1851 to 1951. Maple syrup production was not reported until 1911, as this marked the first time that maple syrup was incorporated as part of census statistics. Data after 1921 were not accessible from LAC due to the fact that census returns after 1921 are in the custody of Statistics Canada and are not released for public use until 92 calendar years after conducting the census (Library and Archives Canada, 2014). However, yearly provincial data on maple production from 1924 until 2013 was accessible from Statistics Canada CANSIM data tables (Statistics Canada, 2013). In order to have a truly comparative analysis maple syrup production data was converted into pounds based on the conversion ratio outlined previously from Statistics Canada (2011).

Figure 12 demonstrates that Ontario shifted heavily toward maple syrup production during the 20th century. In Ontario there was a sharp decline in maple sugar production during the first decade of the 20th century and production remained fairly limited throughout the first half of the century. In terms of maple syrup in Ontario, production remained fairly stable throughout the first half of the century with a slight downward trend in production as the century wore on. Quebec

historically has been the dominant producer of both sugar and syrup, however during the late 1930's their dominance was more noticeable as they began to produce roughly 25,000,000 pounds of maple products compared to the roughly 5,000,000 pounds produced by Ontario.

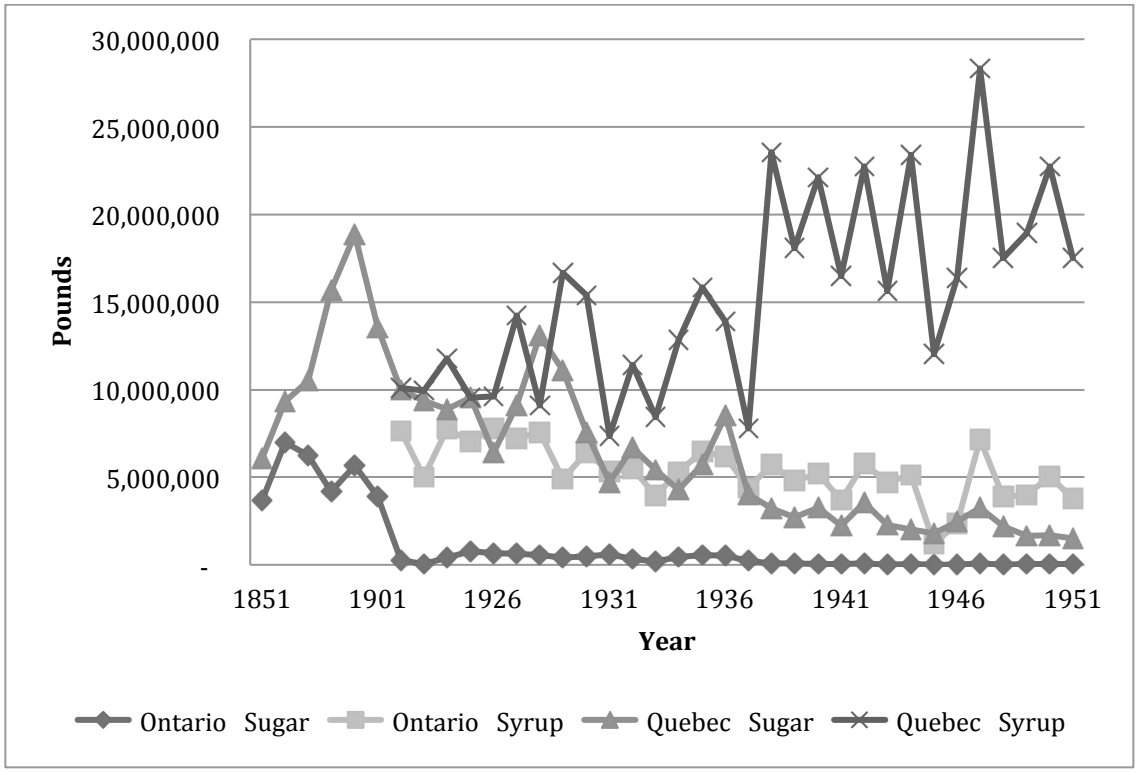


Figure 12: Pounds of maple sugar and maple syrup produced by Ontario and Quebec from 1851 to 1951.

(Board of Registration and Statistics, 1854; Bureau of Agriculture and Statistics, 1864; Government of Canada, 1875; 1883; 1897; 1904; 1914; 1925, Statistics Canada, 2013)

During the late 1920's syrup production in Quebec was approximately equivalent to sugar production, but by the 1930's there was a spike in Quebec maple syrup production that continued throughout the first half of the 20th century. There were localized exceptions to this as certain areas, such as Beauce-Sartigan, QC, and Drummond, QC, continued to focus on maple sugar production rather than syrup throughout the first half of the century (Figure 13). However, for the most part

communities that had traditionally produced sugar made the shift to producing syrup. Figure 13 shows that Brome-Missiquoi, QC, Waterloo, ON, Lanark, ON, and Leeds and Grenville, ON all made the shift from producing maple sugar to producing maple syrup.

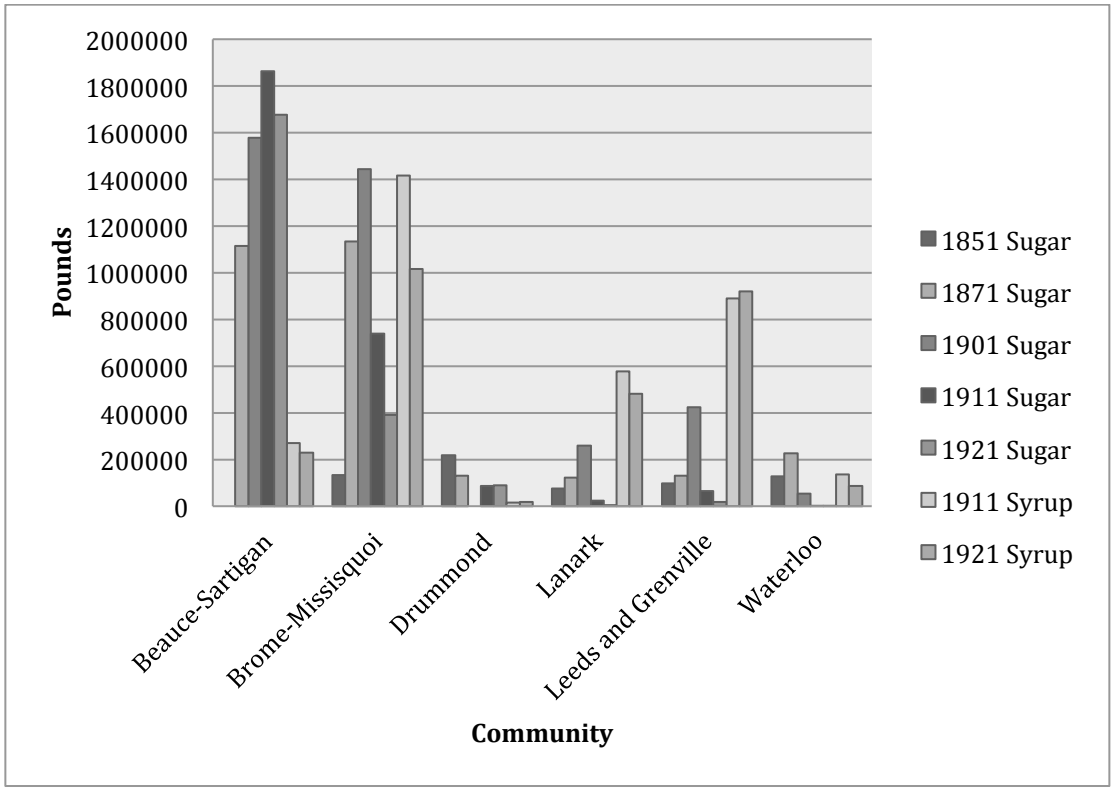


Figure 13: Pounds of maple sugar and syrup produced in selected Ontario and Quebec communities from 1851 to 1921.

(Board of Registration and Statistics, 1854; Bureau of Agriculture and Statistics, 1864; Government of Canada, 1875; 1883; 1897; 1904; 1914; 1925)

By the 1940's and 50's maple sugar production was a small proportion of total Canadian production compared to maple syrup (Figure 12). This shift has continued in current contexts throughout the 20th century and into the 21st century. In 2013 Canada produced a total of 10,053,000 gallons of maple syrup and is the world leader in total production, accounting for approximately 90% of total world reserves (Darrach, 2012; Statistics Canada, 2013).

Discussion

The discussion section of this paper represents an opportunity to take a step back and explore the implications or the reasons behind the findings. The project used an evaluation framework to assess historical WB in Aboriginal and non-Aboriginal communities associated with maple production. Four domains were chosen for each of the frameworks. For Aboriginal communities these were: emotional, physical, mental and spiritual. For non-Aboriginal communities the domains selected were: social, economic, environment and resilience. These domains provided the basis for analyzing the archival results of this research and also for disseminating results in the previous section of this paper. In addition to these domains, indicators were chosen to represent dynamics that could influence WB in each domain. These indicators were updated based on what was available and collected from the archival collections.

The results illustrated that the dominant indicators referenced among Aboriginal sources fell under the emotional domain of WB related to community and family. Indicators related to the mental domain of Aboriginal WB were referenced second most among Aboriginal communities. These primarily had to do with IK. Indicators related to physical WB were referenced third most and were primarily focused on economy. Results also stressed the role of maple ceremony as being an important component of Aboriginal cultures and spiritual WB.

For non-Aboriginal communities the majority of references fell under the economic domain. 72 of the 186 or 39% of all sources coded using NVivo referenced the role of economy. Results related to the cultural and social domains were referenced the second most. Dynamics related to environmental WB were referenced the least among non-Aboriginal domains. The results illustrate that historical WB in non-Aboriginal maple producing communities is more focused on social and economic dimensions rather than environmental dimensions. This could be attributed to the fact that the research imposes 21st century concepts related to ecological services and ecological resilience on a historic time period. The focus on economy and social dynamics is more indicative of the overall perspectives of the time that stressed the importance of economy and social welfare rather than concepts related to the environment. This is also reflective of early indicators used to measure WB that were primarily concerned with the economy.

In Aboriginal communities the relationship between the environment and producers is much more complex. Environmental connections are important concepts to Aboriginal peoples and the majority of their activities aim to work in harmony with the natural world. Results showcase this connection to the environment referencing IK and how Aboriginal peoples would know the exact time to tap the maple tree. Further, results noted the spiritual connection to the maple tree among Aboriginal peoples and bands. Aboriginal WB is also much more difficult to contextualize, as Dumont (2005) noted the concept of wholeness in Aboriginal tradition. He noted that Aboriginal peoples are interested in total health and must

reflect harmony in body, mind, spirit and heart (Dumont, 2005). Therefore, though physical and mental WB were referenced most often from the archival results the spiritual and emotional domains are deemed to be equally as important in influencing overall historical WB of Aboriginal producers.

In addition to the evaluation of Aboriginal and non-Aboriginal WB, this research aimed to provide the governance contexts of the time and how they influenced WB of maple producers. In relation to this research and governance, the results presented two major themes that have had lasting impacts on the WB of Aboriginal and non-Aboriginal producers. The first has to do with the dynamics of colonization, its impacts on traditional Aboriginal maple practices and how it contributed to a decline in Aboriginal maple production post-confederation. The second has to do with adulteration of maple products, legislation to combat adulteration and specifications regarding maple quality, packaging and distribution. The following sections are focused on discussing and exploring some of these themes related to governance.

Colonization and Aboriginal Maple Production

The first stage of Frideres' (2012) colonization framework relates to forced-voluntary entry. Forced-voluntary entry had an immediate impact on Aboriginal ways of life. As noted by Frideres' (2012) large tracts of their traditional territory were taken, which meant that many Aboriginal peoples were not able to migrate as easily and were also potentially not able to hunt or harvest in their traditional

territories. This impact is particularly relevant in the context of maple products as the sugar maple only grows in certain parcels of northeastern North America. Further, as was noted in the results, maple sugar was an important staple of the Aboriginal diet, especially after food stores had been depleted over the winter. Thus, the research results suggest that due to forced-voluntary entry, without access to traditional maple harvesting locations, many Aboriginal peoples were potentially without this important springtime dietary staple. The limited access to maple stands suggests that many other factors associated with Aboriginal maple practices may have also been restricted. These practices include culturally significant practices such as the maple ceremony and also socially significant aspects of the maple harvest such as the role of family.

Frideres' (2012) second stage of colonization, associated with the destruction of social and cultural structures, was manifested through legislation such as the *Indian Act*. Few documents in Canadian history have generated the same type of debate and legacy as the 1876 *Indian Act*. Its basic premises were to "civilize" and assimilate Aboriginal peoples and communities into the Canadian mainstream. The *Indian Act* aimed to do this by imposing legislation that marginalized Aboriginal ways of life and separated Aboriginal communities from larger Canadian structures until they were ready to transition into Canadian mainstream society.

One of the major keys to the 1876 *Indian Act* was that Aboriginal peoples and communities were not allowed to undertake traditional practices including

ceremonial observance, as outlined previously. From the results of this research maple production was shown to be a ceremonial practice revered among many Aboriginal bands, most notably the Iroquois. The *Indian Act* made it illegal to undertake these types of traditional practice, as noted above: "ceremonies were banned, and people who conducted them could be jailed" (Riley, 2000, p.14). This heavily impacted the spiritual WB of Aboriginal communities as they were forced to conduct ceremony in secret if they were to practice them at all.

In conjunction with the *Indian Act* residential schooling further tore apart Aboriginal families, communities and culture. Residential schools ripped Aboriginal families apart, kept children from being with their parents and destroyed many traditional Aboriginal practices that involved the entire family. As the role of family was noted as an important piece of Aboriginal maple production residential schools undoubtedly impacted the emotional WB of Aboriginal maple producers. Another lasting legacy of residential schools is destroying the transmission of IK.

There is no doubt that one of the lasting legacies of residential schools was that IK related to Canadian Aboriginal peoples were lost among Aboriginal youth. It is likely that this also included IK related to maple practices and impacted the mental WB of Aboriginal peoples. For example, IK associated with knowing when to tap the tree in the spring and how the sound of thunder marks the end of the maple harvest may have been lost as a result of residential schooling. Recently there has been a movement to reclaim this lost IK, however, the *Indian Act* and residential schools

have undoubtedly contributed to a decline of maple production among Aboriginal producers during the 20th century.

This is supported by the results of this research, as it is noted that based on this research there was little evidence of maple production in Aboriginal communities during the late 19th and throughout the 20th century. This could be attributed to the lasting legacy of forced-voluntary entry, colonialism and legislation that aimed to destroy Aboriginal social and cultural structures and practices. Future research should explore Aboriginal maple production in the late 19th and through the 20th century in order to provide a stronger understanding of Aboriginal practices during this time period and to explore the validity behind the archival results of this research related to limited Aboriginal maple production post-confederation.

Governance of Maple Products

Another lasting governance issue identified by this research has to do with the adulteration of maple products in the early 20th century and the regulations put in place to combat this adulteration. Archival results identified a push by maple producers in the early 20th century to have binding regulations regarding the production, packaging and sale of maple products. In 1920 the government of Canada released a document outlining the rules and regulations that would define what could be considered a maple product and delineated penalties for improper packaging or marketing adulterated products under false pretense. This act and the associated rules and regulations provided the backbone for all future governance related to maple products.

Adulteration, to this day, remains an important issue among maple producers. In the March 19, 1997 edition of the Sudbury Star Harold Carmichael wrote a story warning residents about a scam artist who went door to door selling adulterated maple syrup (Carmichael, 1997, March 29). This type of case is not uncommon and producers continue to stress that further action in enforcing the rules and regulations related to maple products is necessary, exemplified through the International Maple Syrup Institute (IMSI)[7].

The 1920 and subsequent *Maple Products Rules and Regulations* acts also delineated conventions regarding how maple products could be labeled and packaged. As illustrated in the results, maple products were required to be packaged with the producer's address as well as the grade of syrup. The act also delineated that only 100% pure maple syrup could be labeled with the word maple unless it was clearly identified that the product was in fact not 100% pure. An example of such a label could have "maple flavoured syrup" as part of the labeling. This early legislation set the groundwork for the more in depth standards and the subsequent formal and informal governance structure surrounding maple products in the current context.

This type of legislation seems to have had a long-lasting positive impact on the WB of the maple industry and maple producers. Producers can now compete on a

[7] http://www.internationalmaplesyrupinstitute.com/

level playing field and obtain fair value for their products. These early rules and regulations also helped to develop early co-operatives and associations, outlined previously, which has also had a lasting positive impact on maple producers. An example of a current association is OMSPA whose mission is to support the maple syrup industry in Ontario.

Conclusions

Limitations

One of the most notable limitations of this research is that it relied primarily on materials retrieved from LAC and ECO. Though the LAC collection is extensive it may not capture more localized voices that could be obtained from collections such as the Wellington County Archives. This meant that results were more general and did not necessarily highlight themes related to specific locations. In addition there are archival collections focused primarily on themes such as Aboriginal history, which were not consulted and could have provided relevant results.

Another limitation of the paper is that it imposes 21st century values and understandings on historical data, which can be problematic. For example, ideas such as ecological services and the concepts of resilience are contemporary ideas that may not be important in historical contexts. Also, these types of contemporary frameworks may or may not be appropriate for discussing Aboriginal issues, as they do not reflect Aboriginal ideals or concepts. This paper also did not address many

governance contexts, such as war, in the overall research. These governance contexts could have surfaced further themes related to maple products in the historical context.

The nature of contemporary archival research presented further limitations to the research as it hindered the overall effectiveness of archival searches. There has been a major shift toward digitized archival repositories, which has meant that a large portion of archival materials are currently being digitized and are not available to be viewed until later dates. This meant that many potentially useful sources could not be consulted. Also, many collections have been moved to distant archives and are labeled as "in-transit," meaning that they were also not accessible. This proved to be a frustrating component of archival research at LAC but could not be avoided. In order to combat this limitation, material that was not accessible was still recorded so that future research could search for these unavailable resources at a later date.

Future Research

Highlighting Aboriginal Perspectives

Aboriginal voices and perspectives are often underrepresented in literature related to maple products and WB. Though this research aimed to highlight marginalized Aboriginal voices, further research related to maple products should continue to focus on highlighting marginalized Aboriginal voices. The results of this research support that there is a need for further research related to these dynamics. Future research could also include a specific focus on Aboriginal maple production

in the 20th and 21st centuries the results from this research also identified this as a potential research gap. There could also be a role for the collection of oral histories to fill in these gaps.

Geographic Specific Contexts

Future research related to maple products could include a geographic-specific focus to provide the context of maple production within a localized area. These geographically focused research projects could incorporate dynamics related to resilience, Aboriginal perspectives or WB. The framework developed by this research could be used to measure WB within a particular maple community such as Lanark County, Waterloo-Wellington or important Quebec producing regions. This would provide a local context and could garner interesting results that would help further reveal more broadly related themes.

Measuring Current WB of Maple Producers

Another area of future research identified by this paper would be to conduct an appraisal of WB in communities currently associated with maple products. WB indicators could be developed through participatory processes, consulting producers, instead of relying on a theory-based approach. These participatory indicators could help reflect the validity and effectiveness of the indicators that were chosen by this research and also assess the overall WB of current maple communities.

Broadening the Archival Database

The final area of future research has been identified has to do with conducting more archival research related to the historical contexts of maple products and WB. As mentioned previously limitations of this research included that alternative archival collections were not consulted and that a large body of material was not currently available from LAC. These unavailable materials were recorded and future research could search for these materials in order to address limitations and provide further information to understanding the historical dynamics of maple products. Also focusing on archival searches using master lists other than the geography master list could garner further results. Conducting archival searches focused on alternative search lists could potentially fill gaps in the research including Aboriginal maple production during the 20th century. Further, broadening the types of materials consulted to include more audio and visual materials could enhance the overall analysis. Finally, considering more dynamics related to governance in the historic time period could yield potentially telling themes and results. This research represents a starting point to understand the history of maple products in Canada and it is hoped that future research will continue to advance this understanding.

Conclusions

The objectives of this research were:

I. To undertake archival research that will outline the historical value of maple products in Aboriginal and non-Aboriginal Canadian communities as it relates to WB.

II. To conduct a review of relevant archival research related to maple products in Ontario and Quebec.
III. To analyze and integrate the results in order to develop an understanding of historical maple practices up to 1950.

All three objectives were achieved. The archival results of this research provided a timeline of the historic value of maple products and its role and relationships within Aboriginal and non-Aboriginal communities in Quebec and Ontario. These results were analyzed an integrated in order to develop an understanding of historical maple practices up to 1950. The results also illustrated that maple production in non-Aboriginal communities and Aboriginal communities influenced WB, primarily through social contexts as well as economic contexts.

This research by no means claims to represent a comprehensive account of all materials related to the history of maple products. In fact no research can reasonably make that claim. Limitations such as the nature of contemporary archival research narrowed the overall scope of the research. However, it still presents an initial baseline to understand the historical contexts of maple products in Aboriginal and non-Aboriginal communities. Nonetheless, future research including highlighting Aboriginal perspectives and looking at localized contexts of production, is still necessary. Specifically, this research emphasizes understanding the relationships of Aboriginal communities and the dynamics of maple production in the 20th century as an important area of future research. This would provide a

deeper understanding of the roles, practices and importance of maple products in Canada over the historic time period, current contexts and into the future.

Appendix 1: Preliminary Highlighted Primary Sources

Author	Title	Date Published	Publisher	Page Numbers	Volume
Anon.	History of the Delaware and Iroquois Indians formerly Inhabiting the Middle States.	1832	Philadelphia	89	
B., J.C.	Voyage au Canada dans le nord de l'Amerique septentionale, fair depuis l'an 1751 a 1761; H.E Casgrain, Editor.	1887	Quebec		
Barbeau, M.	Maple Sugar: Its native origin	1946	Trans R. Soc.		
Brissot de Warveille, J.P.	Nouveau Voyage dans les Etas-Unis de L'Amerique Septentrionale, fait en 1788.	1791	Paris	41	II
Brissot de Warville, J.P.	New Travels in the United States of American, including the Commerce of America.	1792	London	301	
Butterfield, R.	The Great Days of Maple Sugar	1958	N.Y. Hist	151-164	39
Dansereau, P.	L'Industrie de l'erable.	1944	Institut de Biologie, Universite de Montreal, Montreal		
Fox, W.F.	Forestry and Maple Sugar Industry	1903	Forestry Irrigation	132-138	9
Fox, W.F., Hubbard, W.F. and Wiley, H.W.	The Maple Sugar Industry	1905	Deparment of Agriculture, Washinton, DC		
Goodrich, S.G.	Manners and Customs of the American Indians.	1848	Boston	204	
Grant, W.L.	The History of New France	1914	Toronto	194, 256	III
Hennepin, Louis	A contiuation of the New Discovery of a Vast Country in America, Extending above Four Thousand Miles, between New France and New Mexico	1698	London	147	Bon ed.
Henry, Alexander	Travel and Adventures in Canada and the Indian Territories between the Years 1760-1765.	1809	New York	68, 216, 217	
Hough, F.B.	Report on the production of maple sugar in the United States and Canada	1884	Egleston, N.H. (ed.), Report on Forestry, Washington, DC	394-414	4
Jack, J.G.	Notes on the production of maple sugar	1889	Garden Forest	302-303	2
Lambert, John	Travels through Canada and the United States.	1814	London	83	
Lexcarbot, Marc	Histoire de la Nouvelle-France	1866	Paris	750, 815	III
McAfee, H.H/	The maple family of trees for cultivation.	1870	Trans. Wisconsin State Agr. Soc.	288	9
Pendergast, J.F.	The Origin of Maple Sugar	1982	Ottawa: National Museums of Canada		Syllogeus 36
Stevens, S.K., Kent, D.H., Woods, E.F.	Travels in New France	1941	Pesnnsylvania Historical Survey, Harrisburg	93	
Sy, A.P.	History, manufacture and analysis of maple products	1908	J. Franklin Inst.		
Thevet, Andre	La Cosmographie Universelle	1575	Paris	1008-1016	
Verwyst, Chrysoston	Historic sites on Chequamegon Bay	1895	Wisconsin Historic Collection	429	13

Appendix 2: Research Log

Data Gathering Log

Searches in LAC began the week of June 9, 2014. These searches were executed using the general master list developed in preliminary preparation and were structured based on the search strategy outlined above. During this week the research advisors Dr. Brenda Murphy and Dr. Annette Chretien aided the search process by providing a basic orientation of LAC as well as aiding in the search for material related to the general master list.

Searches were conducted using the Amicus database. This database encompasses not only material found in LAC but also material in other libraries across Canada. From approximately 1000 search results 105 resources were deemed to be potentially relevant. Of these 65 resources were available for order. The remainder were either not available until a later date or only through inter library loan. All 105 relevant results were recorded so that they could be potentially searched and accessed at a later date. Further general searches were conducted during the week of June 16, 2014. Also during the week of June 16, 2014 general search material was consulted in the third floor reading room and recorded as deemed necessary.

Searches using the geography master list began June 19, 2014 and ended the week of July 7, 2014. Over this time period periodicals from the near North, Southern Ontario, Eastern Ontario and documents related to the publisher master list were also searched for. Periodicals consulted include: the Sudbury Star, the Lanark Era, the Almonte Gazette, the Berlin Daily Record and the Berlin News record. Materials were recorded as deemed necessary.

Searches based on geography account for the majority of time spent searching in the Archives. From the geography search process approximately 420 resources were deemed to be potentially relevant. Of these approximately 200 were available and ordered from LAC. These 200 resources were reviewed over the June 19, 2014 to July 13, 2014 time period in the third floor reading room and recorded if they were deemed to be relevant to the research results and WB framework. After consultation many of these resources were deemed irrelevant and not presented in the results.

The next two weeks (July 14, 2014 to July 28, 2014) were primarily focused on reviewing literature related to the concepts of WB. During that time period searches related to the author master list and relevant bibliographical sources were also searched at LAC.

The next three weeks, from July 28, 2014 until August 17, 2014, involved performing data processing and management activities including formatting

accumulated data and adding data to NVivo software. These activities are explained in more detail in the subsequent section.

After completing the necessary out of archive research components the accumulated data was reviewed and research gaps were identified. It was found that there was limited data related to maple practices in Western Quebec and also limited early statistical data. It was deemed necessary to re-enter the archives in order to address these gaps.

During the week of August 18, 2014 material related to maple practices in Western Quebec and early statistical data were consulted. The second floor reference room in LAC contains the first Canadian census of 1871 as well as the 1851 and 1861 census of Upper and Lower Canada. These materials contain statistics related to maple products at the county level. Statistics were recorded into an excel spreadsheet at the county level for years 1851, 1871, 1901, 1911 and 1921. Further statistics were recorded at the provincial level for the years 1861, 1881 and 1891. Finally, resources related to maple practices in Quebec were consulted and recorded in order to fill this gap in data.

Data Processing and Management Log

In conducting archival research the time spent working outside the archives is potentially more time consuming than the time spent in the archives. Out of archive undertakings began before entering the archives, continued throughout the time in the archives and only culminated with the submission of the final research paper. These responsibilities can often be very time consuming and mundane in nature but are integral components to the archival research process.

Starting in May 2014 preliminary archival preparations began, including developing master lists and a research proposal. Initial online searches of Early Canadiana online and the Museum of Civilization online archives, also began during this time period and collected the first documents related to the research. These preparations and online searches continued until June 2014.

June 2014 marked the beginning of archival research at LAC. As part of this process many undertakings were also required out of the archive. The primary out of archive responsibility was formatting collected materials. The formatting process involved cropping page images and combining them to create a pdf. Pages were cropped using Adobe Photoshop software and combined to create a pdf using Adobe Bridge software. Formatting was very time consuming and continued throughout the entire archival research process.

Another out of archive undertaking that was required as part of the archival process was organizing search results in a database. This created a way to check if material was received as well as organize data for future citations. This also

provided the opportunity to classify data based on theme and write notes on the material. Organizational methods are outlined in more detail above.

Once materials were formatted and reviewed the pdf's were added to NVivo' qualitative data software for further analysis. All materials added to NVivo were coded based on five major criteria, previously outlined. Data was added and coded to NVivo over a three week time period starting in early August 2014.

The final portion of this project involved analyzing, synthesizing and presenting the findings from the material amassed from LAC and Canadiana Online. This process began in late August 2014 and culminated in the submission of the major research paper. Materials are presented in the following results section and additional analysis is offered in the discussion section.

Appendix 3: Master List Examples

General Master List	
English	**French**
Aboriginal	Aborigène
Acer Saccharium	
Agriculture	Agriculture
Cane Sugar	
Evaporators	
Maple	érable
Maple Boiler	Chudière D'érable
Maple Bush	
Maple Butter	Beurre D'érable
Maple Candy	Bonbons D'érable

General Master List	
Maple Culture	L'Acériculture
Maple Dance	
Maple Fudge	
Maple Moon	
Maple Products	Produit de l'érable
Maple Sap	Sève D'érable
Maple Snow	Neige D'érable
Maple Sugar	Sucre D'érable
Maple Syrup	Sirop D'érable
Maple Syrup Industry	Industrie Sirop D'érables

Geographic Master List	
Ontario	
	Perth
	Ottawa
	Lanark County
	Waterloo
	Waterloo-Wellington
	Elmira
	St. Jacobs
	Six Nations Reserve
	Manitoulin Island
	Sudbury

Geographic Master List	
Québec	
	Montreal
	Beauce
	Beaupré
	Gatineau
	Saint-Jean-sur-Richelieu
	Kitigan Zibi Anishinabeg
	Maniwaki
	White Meadows Farms
	La Gourdelle
	Au Pain du Sucre

Publisher/Organization Master List
Department of Agriculture
Ontario Maple Syrup Producers Association
Fédération des Producteurs Acéricoles du Québec
Citadelle Maple Syrup Producers Cooperative
Sudbury Star
Lanark Era
Berlin Daily Record

Aboriginal Master List		
Ojibwe		
	Isikigamizian	Sugar Bush
	Ziinzibaak-Wadwaaboo	Maple Sap
	Zhiiwaagamizigan	Maple Syrup
	Shilshiigwaansag	Birch Bark Cones
	Nadoban	Birch Bark Sap Collector
	Adjagobi Min	Maple Tree
	Giwagomisigan	Maple Syrup
	Sizbaludikegizis	Sugar Making Moon
Iroquois		
	Owa No	Sugar
	Owa No Gi	Syrup/Sap
	Wat Do	Maple

Author/Person Master List
Barbeau, Marius
Dansereau, Pierre
De Champlain, Samuel
Dupont, Jean-Claude
Eagleson, Janet
Hennepin, Louis
Henry, Alexander
Lessard, Vincent
Pendergast, J.F.
Andre Thevet
J.F. Snell
Thomas Vercheres

Appendix 4: Search Logs

Library and Archive Canada Search Log

Date	Database	Term	Results
2014.06.09	Amicus	Wikwemikong Maple	1
2014.06.09	Amicus	Wikwemikong	178
2014.06.09	Amicus	Maple & Syrup & Sugar	376
2014.06.09	Amicus	Maple & Manitoulin	1
2014.06.09	Amicus	Manitoulin Island	5
2014.06.09	Amicus	Maple & Birch Island	0
2014.06.09	Amicus	Sudbury & Maple	42
2014.06.09	Amicus	Ottawa & Maple	559
2014.06.09	Amicus	Ottawa & Syrup & Sugar	29
2014.06.09	Amicus	Maple & Sugar	669
2014.06.17	Amicus	Maple & Wahnapitae	0
2014.06.17	Amicus	Wahnapitae	42
2014.06.17	Amicus	Nipissing	784
2014.06.17	Amicus	Nipissing & Maple	25
2014.06.17	Amicus	Nipissing First Nation	9
2014.06.17	Amicus	Nipissing First Nation & Maple	0
2014.06.17	Amicus	Nipissing Aboriginal	0
2014.06.17	Amicus	Wahnapitae & First Nation	0
2014.06.17	Amicus	Wahnapitae & Aborigianl	0
2014.06.17	Amicus	Atikameksheng Anishnawbek	1
2014.06.17	Amicus	Whitefish Lake	761
2014.06.17	Amicus	Whitefish Lake & Maple	0
2014.06.17	Amicus	Whitefish Lake & First Nation	9
2014.06.17	Amicus	Whitefish Lake & Reserve	15
2014.06.17	Amicus	Reserve Number 6	0
2014.06.17	Amicus	Whitefish River	289
2014.06.17	Amicus	Whitefish River & First Nation	8
2014.06.17	Amicus	Whitefish River & Maple	0
2014.06.17	Amicus	Whitefish River & Reserve	12
2014.06.17	Amicus	Dokis	55
2014.06.17	Amicus	Dokis & Maple	0
2014.06.17	Amicus	Dokis & Reserve	6
2014.06.17	Amicus	Dokis & First Nation	8
2014.06.17	Amicus	Henvey Inlet	5
2014.06.17	Amicus	Henvey Inlet & First Nation	0
2014.06.17	Amicus	Henvey Inlet & Reserve	0
2014.06.17	Amicus	Aundeck Omnikaning	3

2014.06.17	Amicus	Aundeck Omnikaning & Sucker Creek	1
2014.06.17	Amicus	Sucker Creek	40
2014.06.17	Amicus	Sucker Creek & Maple	0
2014.06.17	Amicus	Sucker Creek & Reserve	7
2014.06.17	Amicus	Sheguiandah	31
2014.06.17	Amicus	Sheguiandah & Maple	1
2014.06.17	Amicus	Zhiibaahaasing	2
2014.06.17	Amicus	Zhiibaahaasing & Reserve	1
2014.06.17	Amicus	Sheshegwaning	6
2014.06.17	Amicus	Sheshegwaning & Maple	0
2014.06.17	Amicus	Sagamok Anishnawbek	11
2014.06.17	Amicus	Sagamok Anishnawbek & Maple	0
2014.06.17	Amicus	Magnetawan	64
2014.06.17	Amicus	Magnetawan & Reserve	4
2014.06.17	Amicus	Magnetawan & Maple	0
2014.06.17	Amicus	Shawanaga	17
2014.06.17	Amicus	Shawanaga & Maple	0
2014.06.17	Amicus	French River	5000+
2014.06.17	Amicus	French River & Maple	57
2014.06.17	Amicus	French River & Reserve	93
2014.06.17	Amicus	Point Grondine	4
2014.06.17	Amicus	Point Grondine & Maple	0
2014.06.17	Amicus	Naiscoutaing	0
2014.06.17	Amicus	Sudbury & Maple	47
2014.06.17	Amicus	Sudbury & Sugar	7
2014.06.17	Amicus	Sudbury & Sap	30
2014.06.17	Amicus	Sudbury & Syrup	1
2014.06.17	Amicus	Espanola & Maple	2
2014.06.17	Amicus	Espanola & Sap	0
2014.06.17	Amicus	Espanola & Sugar	22
2014.06.17	Amicus	Espanola & Syrup	1
2014.06.17	Amicus	Little Current & Maple	0
2014.06.17	Amicus	Little Current & Sap	0
2014.06.17	Amicus	Little Current & Sugar	0
2014.06.17	Amicus	Little Current & Syrup	0
2014.06.17	Amicus	Espanola	5000+
2014.06.17	Amicus	Little Current	2
2014.06.17	Amicus	Coniston	187
2014.06.17	Amicus	Coniston & Maple	1
2014.06.17	Amicus	Coniston & Sap	0
2014.06.17	Amicus	Coniston & Sugar	0
2014.06.17	Amicus	Consiton & Syrup	0
2014.06.17	Amicus	Timiskaming	2027

2014.06.17	Amicus	Timiskaming & Maple	29
2014.06.17	Amicus	Timiskaming & Sap	0
2014.06.17	Amicus	Timiskaming & Sugar	0
2014.06.17	Amicus	Timiskaming & Syrup	0
2014.06.17	Amicus	Cochrane	5000+
2014.06.17	Amicus	Cochrane & Maple	2
2014.06.17	Amicus	Cochrane & Sap	2
2014.06.17	Amicus	Cochrane & Sugar	8
2014.06.17	Amicus	Cochrane & Syrup	0
2014.06.17	Amicus	Kilarney	25
2014.06.17	Amicus	Kilarney & Maple	0
2014.06.17	Amicus	Kilarney & Sap	0
2014.06.17	Amicus	Kilarney & Sugar	0
2014.06.17	Amicus	Kilarney & Syrup	0
2014.06.17	Amicus	Manitoulin	1452
2014.06.17	Amicus	Manitoulin & Maple	5
2014.06.17	Amicus	Manitoulin & Sugar	2
2014.06.17	Amicus	Manitoulin & Sap	0
2014.06.17	Amicus	Manitoulin & Syrup	2
2014.06.17	Amicus	Tobermory	331
2014.06.17	Amicus	Tobermory & Maple	0
2014.06.17	Amicus	Tobermory & Sap	0
2014.06.17	Amicus	Tobermory &Syrup	0
2014.06.17	Amicus	Goergian Bay & Maple	0
2014.06.17	Amicus	Georgian Bay & Sap	0
2014.06.17	Amicus	Georgian Bay &Sugar	2
2014.06.17	Amicus	Georgian Bay & Syrup	0
2014.06.17	Amicus	Lake Huron & Maple	6
2014.06.17	Amicus	Lake Huron & Sap	0
2014.06.17	Amicus	Lake Huron & Sugar	3
2014.06.17	Amicus	Lake Huron & Syrup	0
2014.06.17	Amicus	Chalk River	5000+
2014.06.17	Amicus	Chalk River & Maple	6
2014.06.17	Amicus	Chalk River & Sap	0
2014.06.17	Amicus	Chalk River & Syrup	0
2014.06.17	Amicus	Naughton	807
2014.06.17	Amicus	Naughton & Maple	0
2014.06.17	Amicus	Naughton & Sap	0
2014.06.17	Amicus	Naughton & Sugar	0
2014.06.17	Amicus	Naughton & Syrup	0
2014.06.17	Amicus	Powassan	82
2014.06.17	Amicus	Powassan & Maple	2
2014.06.17	Amicus	Powassan & Sap	0

2014.06.17	Amicus	Powassan & Sugar	0
2014.06.17	Amicus	Powassan & Syrup	0
2014.06.17	Amicus	Trout Creek	355
2014.06.17	Amicus	Trout Creek & Maple	2
2014.06.17	Amicus	Trout Creek & Sap	0
2014.06.17	Amicus	Trout Creek & Sugar	0
2014.06.17	Amicus	Trout Creek & Syrup	0
2014.06.17	Amicus	Lavigne	3315
2014.06.17	Amicus	Lavigne & Maple	3
2014.06.17	Amicus	Lavigne & Sap	0
2014.06.17	Amicus	Lavigne & Sugar	3
2014.06.17	Amicus	Lavigne & Syrup	0
2014.06.17	Amicus	North Bay	5000+
2014.06.17	Amicus	North Bay & Maple	47
2014.06.17	Amicus	North Bay & Sap	0
2014.06.17	Amicus	North Bay & Sugar	24
2014.06.17	Amicus	North Bay & Syrup	2
2014.06.17	Amicus	Monetville	10
2014.06.17	Amicus	Monetville & Maple	0
2014.06.17	Amicus	Monetville & Sap	0
2014.06.17	Amicus	Monetville & Syrup	0
2014.06.17	Amicus	Monetville & Sugar	0
2014.06.17	Amicus	Wanup	5
2014.06.17	Amicus	Wanup & Maple	0
2014.06.17	Amicus	Wanup & Sap	0
2014.06.17	Amicus	Wanup & Sugar	0
2014.06.17	Amicus	Wanup & Syrup	0
2014.06.17	Amicus	Hanmer	799
2014.06.17	Amicus	Hanmer & Maple	0
2014.06.17	Amicus	Hanmer & Sap	0
2014.06.17	Amicus	Hanmer & Sugar	0
2014.06.17	Amicus	Hanmer & Syrup	0
2014.06.17	Amicus	Azilda	61
2014.06.17	Amicus	Azilda & Maple	0
2014.06.17	Amicus	Azilda & Sap	0
2014.06.17	Amicus	Azilda & Sugar	0
2014.06.17	Amicus	Azilda & Syrup	0
2014.06.17	Amicus	Gore Bay	176
2014.06.17	Amicus	Gore Bay & Maple	0
2014.06.17	Amicus	Gore Bay & Sap	0
2014.06.17	Amicus	Gore Bay & Sugar	0
2014.06.17	Amicus	Gore Bay & Syrup	0
2014.06.17	Amicus	West Nipissing	108

2014.06.17	Amicus	West Nipissing & Maple	2
2014.06.17	Amicus	West Nipissing & Sap	0
2014.06.17	Amicus	West Nipissing & Sugar	2
2014.06.17	Amicus	West Nipissing & Syrup	0
2014.06.17	Amicus	Nipissing Village	34
2014.06.17	Amicus	Nipissing Village & Maple	0
2014.06.17	Amicus	Coppercliff	305
2014.06.17	Amicus	Coppercliff & Maple	1
2014.06.17	Amicus	Long Lake & Maple	11
2014.06.17	Amicus	Spanish River	2228
2014.06.17	Amicus	Spanish River & Maple	3
2014.06.17	Amicus	Verner	2355
2014.06.17	Amicus	Verner & Maple	0
2014.06.17	Amicus	Callander & Maple	527
2014.06.17	Amicus	Callander	1
2014.06.17	Amicus	Bonfield	47
2014.06.17	Amicus	Bonfield & Maple	0
2014.06.17	Amicus	Walden & Maple	2
2014.06.17	Amicus	Lively	148
2014.06.17	Amicus	Lively & Maple	7
2014.06.17	Amicus	Mindemoya	37
2014.06.17	Amicus	Mindemoya & Maple	1
2014.06.17	Amicus	Astorville & Maple	0
2014.06.17	Amicus	Noelville & Maple	0
2014.06.17	Amicus	Laurentian University	0
2014.06.17	Amicus	Canadore College	0
2014.06.17	Amicus	Sturgeon Falls & Maple	1
2014.06.17	Amicus	New Liskeard & Maple	0
2014.06.17	LAC	University & Maple	524
2014.06.17	LAC	Sudbury Star	Specific Searches
2014.06.23	Amicus	Six Nations of the Grand River	141
2014.06.23	Amicus	Six Nations & Maple	5
2014.06.23	Amicus	Grand River & Maple	16
2014.06.23	Amicus	Bay of Quinte Mohawk	19
2014.06.23	Amicus	Bearfoot Onondaga	0
2014.06.23	Amicus	Onondaga Clear Sky	0
2014.06.23	Amicus	Onondaga	1154
2014.06.23	Amicus	Onondaga & Maple	4
2014.06.23	Amicus	Onondaga & Reserve	12
2014.06.23	Amicus	Delaware & Reserve	148
2014.06.23	Amicus	Delaware & Maple	9
2014.06.23	Amicus	Konadaha & Seneca	0
2014.06.23	Amicus	Nihargnoasa Seneca	0

2014.06.23	Amicus	Seneca & Maple	6
2014.06.23	Amicus	Seneca & Reserve	45
2014.06.23	Amicus	Cayuga & maple	9
2014.06.23	Amicus	Cayuga & Reserve	15
2014.06.23	Amicus	Cayuga	1212
2014.06.23	Amicus	Mohawk Reserve	435
2014.06.23	Amicus	Mohawk & Maple	5
2014.06.23	Amicus	Lower Mohawk	41
2014.06.23	Amicus	Upper Mohawk	64
2014.06.23	Amicus	Walker Mohawk	21
2014.06.23	Amicus	Mississaugas of the Credit	39
2014.06.23	Amicus	Mississauga & Maple	63
2014.06.23	Amicus	Oneida & Maple	4
2014.06.23	Amicus	Oneida & Reserve	29
2014.06.23	Amicus	Tuscarora	317
2014.06.23	Amicus	Tuscarora & Maple	1
2014.06.23	Amicus	Tuscarora & Reserve	15
2014.06.23	Amicus	Chippewas of the Thames	19
2014.06.23	Amicus	Munsee & Reserve	5
2014.06.23	Amicus	Waterloo & Maple	189
2014.06.23	Amicus	Waterloo & Sugar	78
2014.06.23	Amicus	Wellington & Maple	15
2014.06.23	Amicus	Waterloo-Wellington & Maple	5
2014.06.23	Amicus	Kitchener & Maple	19
2014.06.23	Amicus	Berlin & Maple	123
2014.06.23	Amicus	Cambridge & Maple	81
2014.06.23	Amicus	Elmira	1320
2014.06.23	Amicus	Berlin Ontario	779
2014.06.23	Amicus	Elmira & Maple	8
2014.06.23	Amicus	St. Jacobs	1796
2014.06.23	Amicus	St. Jacobs & Maple	3
2014.06.23	LAC	St. Jacobs & History	241
2014.06.23	LAC	Elmira & History	19
2014.06.23	Amicus	Alma	5000+
2014.06.23	Amicus	Alma & Maple	28
2014.06.23	Amicus	Arthur & Maple	168
2014.06.23	Amicus	Atwood & Maple	2
2014.06.23	Amicus	Atwood & Ontario	148
2014.06.23	Amicus	Breslau & Maple	1
2014.06.23	Amicus	Breslau & Ontario	36
2014.06.23	Amicus	Caledon & Maple	3
2014.06.23	Amicus	Cambelville & Maple	0
2014.06.23	Amicus	Campbelville Ontario	98

2014.06.23	Amicus	Drayton & Maple	0
2014.06.23	Amicus	Drayton & Ontario	123
2014.06.23	Amicus	Elora & Maple	2
2014.06.23	Amicus	Elora & Ontario	449
2014.06.23	Amicus	Elora & History	99
2014.06.23	Amicus	Erin & Maple	33
2014.06.23	Amicus	Gowanstown & Maple	0
2014.06.23	Amicus	Gowanstown & Ontario	3
2014.06.23	Amicus	Guelph & Maple	142
2014.06.23	Amicus	Linwood & Maple	1
2014.06.23	Amicus	Milton & Maple	31
2014.06.23	Amicus	Moorefield & Maple	0
2014.06.23	Amicus	Mount Forest & Maple	5
2014.06.23	Amicus	New Dundee & Maple	3
2014.06.23	Amicus	New Hamburg & Maple	2
2014.06.23	Amicus	St. Catherines & Maple	7
2014.07.09	Amicus	Algonquins of Pikwakanagan	3
2014.07.09	Amicus	Pikwakanagan	5
2014.07.09	Amicus	Mohawks of Akwesasne	2
2014.07.09	Amicus	Akwesasne	437
2014.07.09	Amicus	Akwesasne & Maple	1
2014.07.09	LAC	Akwesasne	71
2014.07.09	Amicus	Mohawks of Kanestake	35
2014.07.09	Amicus	Kanesatake	281
2014.07.09	Amicus	Kanesatake & Maple	1
2014.07.09	LAC	Kanesatake	75
2014.07.09	Amicus	Mohawks of Kahnawake	65
2014.07.09	Amicus	Kahnawake	654
2014.07.09	Amicus	Kahnawake & Maple	3
2014.07.09	LAC	Kahnawake	185
2014.07.09	Amicus	Kitigan Zibi Anishinabeg	33
2014.07.09	Amicus	Kitigan Zibi	64
2014.07.09	Amicus	Alexandria & Maple	57
2014.07.09	Amicus	Apple Hill & Maple	7
2014.07.09	Amicus	Casselman & Maple	0
2014.07.09	Amicus	Chesterville & Maple	0
2014.07.09	Amicus	Cumberland & Maple	27
2014.07.09	Amicus	Dunvegan & Maple	0
2014.07.09	Amicus	Iroquois & Maple	22
2014.07.09	Amicus	Lancaster & Maple	17
2014.07.09	Amicus	Original & Maple	713
2014.07.09	Amicus	Mooscreek & Maple	0
2014.07.09	Amicus	Spencerville & Maple	0

2014.07.09	Amicus	St. Isidore & Maple	1
2014.07.09	Amicus	Williamstown & Maple	5
2014.07.09	Amicus	Addison & Maple	16
2014.07.09	Amicus	Almonte & Maple	2
2014.07.09	Amicus	Athens & Maple	4
2014.07.09	Amicus	Balderson & Maple	0
2014.07.09	Amicus	Brockville & Maple	3
2014.07.09	Amicus	Carp & Maple	1
2014.07.09	Amicus	Clayton & Maple	4
2014.07.09	Amicus	Elgin & Maple	11
2014.07.09	Amicus	Frankville & Maple	0
2014.07.09	Amicus	Glenburnie & maple	0
2014.07.09	Amicus	Godfrey & Maple	37
2014.07.09	Amicus	Harrowsmith & Maple	0
2014.07.09	Amicus	Kemptville & Maple	15
2014.07.09	Amicus	Kingston & Maple	35
2014.07.09	Amicus	Lanark & Maple	3
2014.07.09	Amicus	Lansdowne & Maple	1
2014.07.09	Amicus	McDonald Corner & Maple	1
2014.07.09	Amicus	Ottawa & Maple	1366
2014.07.09	LAC	Ottawa & Maple	715
2014.07.09	Amicus	Pakenham & Maple	1
2014.07.09	Amicus	Parham & Maple	2
2014.07.09	Amicus	Perth & Maple	3
2014.07.09	Amicus	Portland & Maple	38
2014.07.09	Amicus	Sharbot Lake & Maple	0
2014.07.09	Amicus	Stitsville & Maple	0
2014.07.09	Amicus	Toledo & Maple	1
2014.07.09	Amicus	Verona & Maple	4
2014.07.09	Amicus	Lanark County	793
2014.07.09	LAC	Lanark County	272
2014.07.09	Amicus	Carleton & Maple	39
2014.07.09	Amicus	Leeds & Maple	3
2014.07.09	Amicus	Granville & Maple	18
2014.07.09	Amicus	Prescott & Maple	10
2014.07.09	Amicus	Russell & Maple	78
2014.07.09	Amicus	Renfrew & Maple	4
2014.07.09	Amicus	Beauce & Maple	10
2014.07.09	Amicus	Beaupré & Maple	0
2014.07.09	Amicus	Beaupré & Érable	1
2014.07.09	Amicus	Beauce & Érable	58
2014.07.09	Amicus	Franklin Centre & Érable	0
2014.07.09	Amicus	Montreal & Érable	404

2014.07.09	LAC	Montreal & Érable	176
2014.07.09	Amicus	Montreal & Maple	579
2014.07.09	LAC	Montreal & Maple	279
2014.07.09	Amicus	Lachute & Érable	1
2014.07.09	Amicus	Chambly & Érable	0
2014.07.09	Amicus	Gatineau & Érable	14
2014.07.09	Amicus	Cantley & Érable	0
2014.07.09	Amicus	Wakefield & Érable	1
2014.07.09	Amicus	Maniwaki & Érable	2
2014.07.09	Amicus	Montebello & Érable	0
2014.07.09	Amicus	Saint-Jean-Sur-Richelieu & Érable	3
2014.07.09	Amicus	Papineauville & Érable	1
2014.07.09	Amicus	Val-Des-Monts & Érable	0
2014.07.09	Amicus	L'Ange-Gardien & Érable	0
2014.07.09	Amicus	Saint-George & Érable	0
2014.07.09	Amicus	Montgamny & Érable	0
2014.07.09	Amicus	Outaouais & Érable	26
2014.07.21	Amicus	Marius Barbeau	1030
2014.07.21	Amicus	Pierre Dansereau	293
2014.07.21	Amicus	Jean-Claude Dupont	300
2014.07.21	Amicus	James Pendergast	68
2014.07.21	LAC	Marius Barbeau	242
2014.07.21	Amicus	J.B. Spencer	224
2014.07.21	Amicus	J.G. Kohl	156
2014.07.21	Amicus	John Grimm	136
2014.07.21	Amicus	J.A.F.	144
2014.07.21	Amicus	Thomas MacFarlane	193
2014.07.21	Amicus	William Trelease	84
2014.07.21	Amicus	Francis Densmore	1
2014.07.21	Amicus	Densmore	414
2014.07.21	Amicus	Frances Densmore	176
2014.07.21	Amicus	Franic Speck	273
2014.07.21	Amicus	Slexander Chamberlain	225
2014.07.21	Amicus	Jean Gaulthier	61
2014.07.21	Amicus	Benjamin Rush	682
2014.07.21	LAC	Benjamin Rush	12
2014.07.21	LAC	H.A. Schuette	1
2014.08.19	LAC	Thevet	24
2014.08.19	LAC	Lafiteau	0
2014.08.19	LAC	Census & 1871	298
2014.08.19	LAC	Maple & Fur Trade	1
2014.08.19	LAC	Ottawa Citizen & Maple	0
2014.08.19	LAC	Lanark Era	16

2014.08.19	LAC	Elmira Independent	0
2014.08.19	LAC	Berlin Daily Record	42
2014.08.20	LAC	Argenteuil & Érable	0
2014.08.20	LAC	Argentueil & Maple	0
2014.08.20	LAC	Deux Montagnes Érable	3
2014.08.20	LAC	Deux Montagnes & Maple	0
2014.08.20	LAC	Laval Érable	85
2014.08.20	LAC	Laval & Maple	46
2014.08.20	LAC	Terrebonne Érable	1
2014.08.20	LAC	Terrebonne & Maple	2
2014.08.20	LAC	L'Asomption Érable	0
2014.08.20	LAC	L'Asomption & Maple	0
2014.08.20	LAC	Hochelga Érable	0
2014.08.20	LAC	Hochelga & Maple	0
2014.08.20	LAC	Jacques-Cartier Érable	2
2014.08.20	LAC	Jacques-Cartier Maple	2
2014.08.20	LAC	Vaudreuil & Maple	1
2014.08.20	LAC	Vaudreuil & Érable	0
2014.08.20	LAC	Soulanges & Maple	0
2014.08.20	LAC	Soulanges & Érable	0
2014.08.20	LAC	Beauharnois & Maple	7
2014.08.20	LAC	Beauharnois & Érable	0
2014.08.20	LAC	Chateauguay & Maple	2
2014.08.20	LAC	Chateauguay & Érable	2
2014.08.20	LAC	Huntingdon & Maple	1
2014.08.20	LAC	Huntingdon & Érable	0
2014.08.20	LAC	Laprarie & Maple	0
2014.08.20	LAC	Laprarie & Érable	0
2014.08.20	LAC	Napierville & Maple	0
2014.08.20	LAC	Napierville & Érable	0
2014.08.20	LAC	St. Jean & Maple	10
2014.08.20	LAC	St. Jean & Érable	14
2014.08.20	LAC	Chambly & Maple	0
2014.08.20	LAC	Chambly & Érable	0
2014.08.20	LAC	Verchères & Maple	0
2014.08.20	LAC	Verchères & Érable	1
2014.08.20	LAC	Richelieu & Maple	1
2014.08.20	LAC	Richelieu & Érable	4
2014.08.20	LAC	St. Hyacinthe & Maple	0
2014.08.20	LAC	St. Hyacinthe & Érable	4
2014.08.20	LAC	Bagot & Maple	0
2014.08.20	LAC	Bagot & Érable	0
2014.08.20	LAC	Rouville & Maple	0

2014.08.20	LAC	Rouville & Érable	0
2014.08.20	LAC	Iberville & Maple	0
2014.08.20	LAC	Iberville & Érable	0
2014.08.20	LAC	Missiquoi & Maple	0
2014.08.20	LAC	Missiquoi & Érable	0
2014.08.20	LAC	Brome & Maple	0
2014.08.20	LAC	Brome & Érable	1
2014.08.20	LAC	Shefford & Maple	0
2014.08.20	LAC	Shefford & Érable	0
2014.08.20	LAC	Yamaska & Maple	0
2014.08.20	LAC	Yamaska & Érable	3
2014.08.20	LAC	Drummond & Maple	7
2014.08.20	LAC	Drummond & Érable	0
2014.08.20	LAC	Richmond & Maple	25
2014.08.20	LAC	Richmond & Érable	1
2014.08.20	LAC	Sherbrooke & Maple	9
2014.08.20	LAC	Sherbrooke & Érable	26
2014.08.20	LAC	Stanstead & Maple	1
2014.08.20	LAC	Stanstead & Érable	0
2014.08.20	LAC	Compton & Maple	0
2014.08.20	LAC	Compton & Érable	0
2014.08.20	LAC	Montcalm & Maple	2
2014.08.20	LAC	Montcalm & Érable	0
2014.08.20	LAC	Joilette & Maple	0
2014.08.20	LAC	Joilette & Érable	0
2014.08.20	LAC	Berthier & Maple	1
2014.08.20	LAC	Berthier & Érable	4
2014.08.20	LAC	Stanstead & Quebec	274
2014.08.20	LAC	History & Lower Canada	1271

Early Canadiana Online Search Log

Date	Database	Term	Results
2014.05.27	Canadiana Online	Maple Sugar	7469
2014.05.27	Canadiana Online	Maple Sugar: 1500-1800	17
2014.05.27	Canadiana Online	Maple Sugar: 1801-1850	316
2014.06.01	Canadiana Online	Maple Sugar: 1851-1900	5963
2014.06.01	Canadiana Online	Maple Sugar: 1950-2014	4
2014.06.01	Canadiana Online	Maple Sugar: 1900-1950	1463
2014.06.01	Canadiana Online	Maple Sugar: 1867-1900	5431
2014.06.03	Canadiana Online	Maple Sugar: 1865-1870	273
2014.06.03	Canadiana Online	Maple Sugar: 1896-1914	2336

2014.06.03	Canadiana Online: Early Official	Maple Sugar: 1896-1914	118
2014.06.05	Canadiana Online: Early Official	Maple Sugar: 1910-1914	0
2014.06.05	Canadiana Online	Maple Sugar: 1920-1930	41
2014.08.28	Canadiana Online	A Voyage to North America	10692
2014.08.28	Canadiana Online	A Voyage to North America: Titles	10
2014.08.28	Canadiana Online	Brissot de Warveille	0
2014.08.28	Canadiana Online	Brissot	122
2014.08.28	Canadiana Online	Charlevoix	3522
2014.08.28	Canadiana Online	Charlevoix: Creator Names	17
2014.08.28	Canadiana Online	Catalogne	724
2014.08.28	Canadiana Online	Dansereau	1973
2014.08.28	Canadiana Online	Dansereau: Creator Names	2
2014.08.28	Canadiana Online	David Ingalls	315
2014.08.28	Canadiana Online	David Ingalls Evaporator	16
2014.08.28	Canadiana Online	Farming Magazine	3672
2014.08.28	Canadiana Online	Goodrich	496
2014.08.28	Canadiana Online	Goodrich: Creator Names	2
2014.08.28	Canadiana Online	Manners and Customs	3857
2014.08.28	Canadiana Online	Manners and Customs Goodrich	63
2014.08.28	Canadiana Online	Gedeon de Catalogne	78
2014.08.28	Canadiana Online	George Cary	5528
2014.08.28	Canadiana Online	George Cary Maple King	1246
2014.08.28	Canadiana Online	Hennepin	323
2014.08.28	Canadiana Online	Alexander Henry: Creator Names	4
2014.08.28	Canadiana Online	Hough	3796
2014.08.28	Canadiana Online	Houhg: Creator Names	3
2014.08.28	Canadiana Online	J.F. Snell	1484
2014.08.28	Canadiana Online	J.F. Snell: Creator Names	0
2014.08.28	Canadiana Online	Lambert	8836
2014.08.28	Canadiana Online	Lambert: Creator Names	3
2014.08.28	Canadiana Online	Lexcarbot	0
2014.08.28	Canadiana Online	New Travels in the United States	5938
2014.08.28	Canadiana Online	New Travels in the United States: Titles	0
2014.08.28	Canadiana Online	Nouveau Voyage	16584
2014.08.28	Canadiana Online	Nouveau Voyage: Titles	3
2014.08.28	Canadiana Online	McAfee	360
2014.08.28	Canadiana Online	McAfee: Creator Names	0
2014.08.28	Canadiana Online	Sagard	326
2014.08.28	Canadiana Online	Sagard: Creator Names	6
2014.08.28	Canadiana Online	Sarazin	421
2014.08.28	Canadiana Online	Sarazin: Creator Names	0
2014.08.28	Canadiana Online	Thomas Vercheres	2458
2014.08.28	Canadiana Online	Thomas Vercheres: Creator Names	0

2014.08.28	Canadiana Online	Vercheres: Creator Names	0
2014.08.28	Canadiana Online	W.F. Fox	7794
2014.08.28	Canadiana Online	W.F. Fox: Creator Names	0
2014.08.28	Canadiana Online	Fox: Creator Names	0
2014.09.07	Canadiana Online	Maple Tree Health	4169
2014.09.07	Canadiana Online	Maple Tree Services	4405
2014.09.07	Canadiana Online	Maple Ecology	12
2014.09.07	Canadiana Online	Maple Environment	447

Appendix 5: Definitions of Indicators

Definitions for Non-Aboriginal Indicators of Well-Being:

1. *Economic*

Value

For this research value refers to production, monetary returns and secondary considerations related maple production such as labour. Maple production is currently a multi million-dollar industry and provides household income for many Canadians, an important piece of WB (CIW, 2012). In regards to labour, being part of the workforce or involvement in meaningful employment is also attributed to improving WB of individuals (O'Sullivan, 2011). Value can be classified at local, regional or national levels and is primarily an objective indicator of WB.

2. Culture/Social

Family

Spending time with family and loved ones has been associated to increased levels of WB (Diener, 1999). Hinrichs (1998) noted that an important aspect of maple production is the role of family. Further, family and maple products has been linked to improving production efficiency and providing additional markets and contacts (Morin, 2014). This is especially notable in families that have been involved in the maple industry for several decades as long standing relationships are established and knowledge is passes down from one generation to the next (Morin, 2014). These dynamics can influence WB of individuals and communities associated with maple activities. Materials referencing the role of family in historic maple contexts are recorded in this indicator.

Social Cohesion

Maple production brings communities together every spring. Festivals or parties are ingrained in maple culture and provide a time for communities to come together and build strong relationships (Hinrichs, 1998). These networks and relationships can help to build things such as trust and reciprocity among producers and provide new customers (Morin, 2014). Social gatherings also provide an important time for the community to spend time with one another and can influence overall WB. Any materials referencing a social activity associated with maple products are classified under the social cohesion indicator.

Identity

Maple products are synonymous with Canadian identity. Developing and maintaining identity has been identified as a key to psychological WB by many authors (Suh, 2002). Maslow refers to identity as one of the highest elements of self-actualization and can only be pursued from a position of WB (Maslow, 1954). The maple leaf and maple products are a source of pride for Canadians and symbol of

identity (Murphy et al., 2012). Materials that reference this link between Canada and maple products are listed under this indicator.

3. Environment

Ecological Services

Trees are an important component to a healthy environment. They provide many environmental services including improving air quality and sequestering carbon. As well as improving ecosystem health these services have also been shown to influence human WB (Bizikova, 2011). These references are not limited to environmental services but can also be more aesthetic references to the maple tree. Further, the nature of maple trees inherently provides an ecological service, producing sap, which influences WB in a variety of manners. Materials that speak to the role of maple trees and environmental services are classified as an ecological service indicator.

Connection

Human beings have had a long-standing relationship and connection with nature. In a world that is becoming more and more urbanized individuals are becoming disconnected with natural environments. There has been a growing movement to increase green space in urban areas and increase an individual's connection with nature. This connection with nature has been shown to benefit WB of individuals (Berman, 2008). This indicator provides a classification for any material that references maple related activities involving individuals engaging in a natural environment.

4. Resilience

Adaptation

Adaptability refers to the ability of a system to cope with, manage or adjust to changing conditions (Smit and Wandel, 2006). As part of this research adaptation is not only focused on ecological adaptation but also social adaptation. Further, the role of technology and changing technology is incorporated within the adaptation indicator as a social adaptation. Morin (2014) cites that adopting new technology and innovating is important in order to remain competitive. Results referencing social or ecological adaptation are referenced under this indicator.

Transformation

Transformation is similar to adaptation in that it requires overcoming challenges in order to continue to be successful. However, transformation refers to the ability of a system to be able to move from one steady state to another state of equilibrium (Folke, 2010; Walker and Salt, 2012). Transformation can be successful or unsuccessful. Any materials that reference a transformation in relation to maple products are classified under this indicator.

Definitions for Aboriginal Indicators of Well-Being:

1. Emotional

Community

The role of community has been attributed to promoting WB in non-Aboriginal settings as well as Aboriginal settings (O'Sullivan, 2011). Hinrichs (1998) cites that the role of community is an important aspect to maple production. Community can be defined as a particular location or place, a group of individuals with the same values or interests, and can be real or virtual in nature (e.g. online social networks such as Facebook) (Murphy and Gunson, 2014). For this research Aboriginal community indicators refer to specific bands living in a particular geographic area but also groups of individuals that share broader Aboriginal values and philosophies. Materials that reference the role of community in Aboriginal maple production are classified under this indicator.

Family

Maple activities often involve family and can influence WB (Hinrichs, 1998). Family is also regarded as an important piece of Aboriginal WB (Diener, 1999). Traditional maple practices are often a family affair and in Aboriginal contexts the maple season often represented a familial migration from the winter to the spring camp. Materials that have reference to family in Aboriginal maple contexts are classified under this indicator.

2. Physical

Economy

The majority of early literature related to WB emphasizes the role of money and economy as an influence of WB (Murphy and Gunson, 2014). In Aboriginal contexts economy remains an important piece of WB (White et al., 2007). This indicator encompasses any material that references the maple economy in Aboriginal contexts. Similar to the non-Aboriginal definition materials are not limited to include only monetary value but also employment and any other associated economic references that impact WB, positively or negatively.

Health and Healing

Many plants have healing and medicinal properties and are used exclusively among Aboriginal populations. Boyer (2014) noted that healing practices are important aspects to Aboriginal society and good health. These are important to alleviate sickness, in promoting physical WB and also in promoting mental WB (Boyer, 2014; Dumont, 2005). Further, maple products are a food staple and further promote physical health and WB. Materials that reference maple in healing or health contexts are coded under this indicator.

3. Spiritual

Ceremony
Ceremony refers to activities that have sacred features that typically celebrate a particular event or anniversary (Fonda, 2009). This concept of ceremony is not limited to particular events or anniversaries but is also a part of everyday life that shapes Aboriginal relationships with the world. Materials that reference such practices, related to maple, are coded under this indicator.

4. Mental

Indigenous Knowledge
Indigenous knowledge (IK) relates to traditional knowledge among Aboriginal peoples and the transmission of this knowledge from generation to generation (Hart, 2010). Aboriginal peoples often learn by doing, by observation or by experience rather than being explicitly taught, in what can be understood as "lifelong learning" (Chrétien, 2010). For example, in maple practices understanding how to tap the tree and gather sap is a form of IK transmitted from generation to generation. Materials that reference IK are classified under this indicator.

Technology
Technology refers to any advancements that help to improve efficiency, allow for new processes or improve the quality of maple products. This could also incorporate an evolution of methods or an object that improves the overall efficiency of production. Morin (2014) notes the importance of innovation and incorporating new technologies in order to remain competitive. Materials that reference technological change in Aboriginal communities are listed under this indicator.

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