Cultivating the Three Sisters: Haudenosaunee Foodways and Acculturative Change in the Fur Trade Economy

by

Jennifer Seidel
Bachelor of Arts, University of Toronto, 2013

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Supervisory Committee

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Abstract

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This study examines Haudenosaunee foodways in the Great Lakes Region between the early seventeenth century and the mid to late eighteenth century. The study is divided into two parts. First, the Creation Story is explored as it transmits the origin of the Three Sisters, a cropping system of inter-planted corn, beans and squash. The teachings of the Three Sisters highlights the importance of polyculture and sustainability. Conversely, a Westerners' scientific account of how the Three Sisters came to be farmed together is studied. The independent pathways of the corn, beans and squash is examined as they arrived in New York State from the Mexico highlands. Recent findings show the Three Sisters were adopted independently in eastern North America beginning around A.D. 1300. They were grown together in some locations on a regular basis. The adoption of the polycultural complex of the Three Sisters was gradual and took place approximately 700 years ago as each of the crops adjusted to the climate and new surroundings. Secondly, the relationship between food, specifically the Three Sisters and acculturative change are examined pre-and-post contact. Acculturative change occurs when two independent cultures comes into contact with one another. The degree of influence is not equal as one culture can be absorbed, shaped or influenced more strongly by the other culture. The Haudenosaunee culture underwent acculturative change because the fur trade economy affected their foodways due to the influx of European goods such as the brass kettle and encroachment on their land and hunting grounds. The Haudenosaunee retained the core of their cultural beliefs and cultural practices because they made decisions, specifically their selection of goods and agricultural practices, as an extension of their cultural beliefs. Acculturative change resulted in a more monocropped and creolized agricultural system, usage of draft animals, fruit orchards and the plow. This study lies at the intersection of ethnohistory and food history. This study will serve as a tool to analyze and understand Haudenosaunee historical experiences from a First Nations cultural perspective.

Table of Contents

List of Tables

Table 1: Squash

Squash	*Cucurbita pepo*
Cucumber Family	Cucurbitaceae
The Cucurbitaceae varieties include: *Cucurbita pepo*	summer squash, hubbard squash and pumpkins
Cucurbita mixta	winter squash and cymlings
Cucurbita moschata	winter squash and pumpkins
Cucurbita maxima	winter squash
Cucurbita ficiolia	fig leaf gourd

The Haudenosaunee prepared the squash and other types of melons by boiling, mashing, drying, frying, baking or using it as an additional ingredient as part of a dish. Archaeological evidence reveal that each of the species was domesticated at different times and most likely in different regions. The genus *Cucurbita* originated in the region south of Mexico City.[1]

Table 2: Corn

Zea mays amylacea	soft corn
Zea mays indurate	flint corns
Zea ,mays saccharata	sweet corns
Zea mays everta	popcorn
Zea mays amylea-saccharata	starchy sweet corn

[1] Thomas W. Whitaker and Hugh Cutler, "Cucurbits and Cultures in the Americas," *Economic Botany* vol. 19, 4 (Oct-Dec., 1965), 349.

The Haudenosaunee divided corn into five major categories with many subspecies. Corn can be prepared in a variety ways such as Green corn loaf bread, corn soup with sunflower seeds, succotash and dried pumpkin hominy.[2]

Evidence show that the cultivation of corn was introduced in surrounding regions of southwestern Ontario in A.D. 540, New York State in A.D. 640 and south-central Ontario between A.D. 700-900.

Table 3: Beans

Beans	*Phaseolus vulgaris*
Pea Family	Leguminosae
Phaseolus vulgaris	Common Bean
Phaseolus Lunatus	Lima bean
Phaseolus coccineus	Runner bean
Phaseolus acutifolius	Tepary bean
Phaseolus polyanthus	Year bean

The Haudenosaunee divided beans into three major categories: broad beans for corn bread, soup beans as an ingredient in soup making and cranberry beans that are short and round.[3] Beans can be prepared as a soup, cooked whole or boil the pods then season and add butter. Other ways bean can be prepared are mashed, fried or added with another ingredient.

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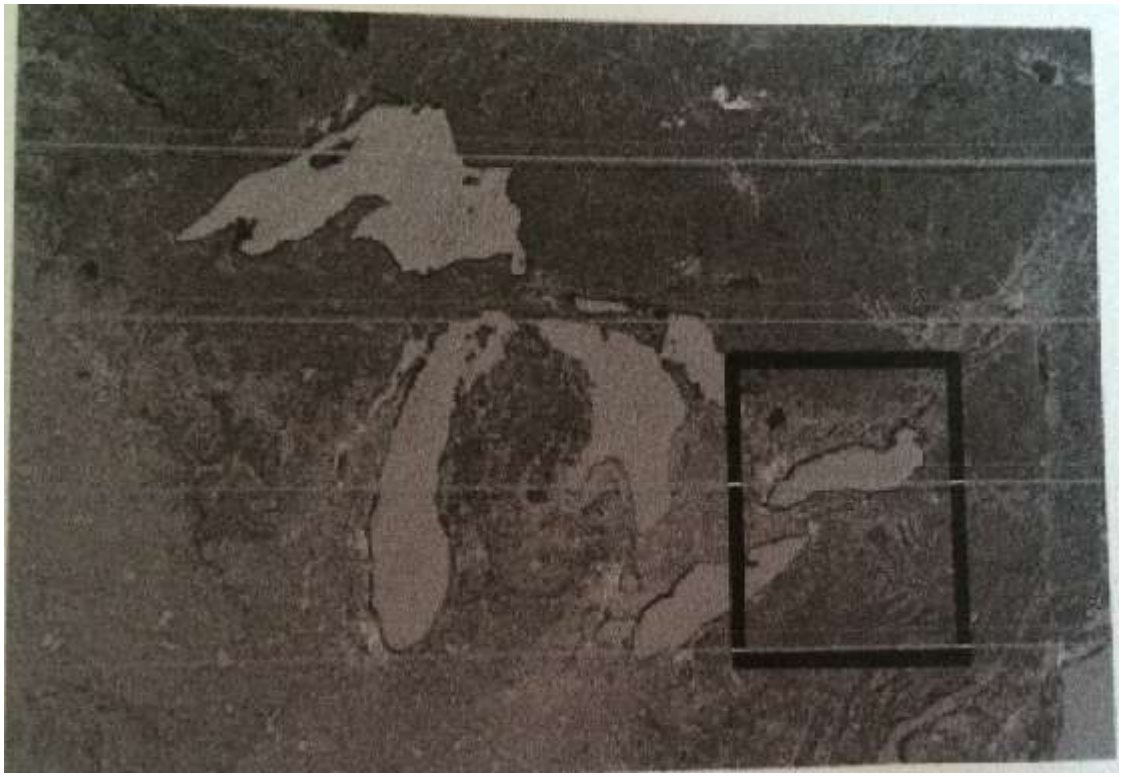
[2] F.W. Waugh, *Iroquois Foods and Food Preparation* (1916; repr., Hawaii: University Press of the Pacific, 2003), 93- 95.

[3] Waugh, *Iroquois Foods and Food Preparation*, 104.

The beans are cultivated from the genus *Phaseolus* and is regarded to have been Indigenous to South America.[4]

[4] Waugh, *Iroquois Foods and Food Preparation*, 103.

List of Figures



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Dedication

To those who came before us and those who will come after. Let us forever pass on our knowledge to allow us to always continue to grow.

Introduction

Felipe Fernández-Armesto, citing the old adage "we are what we eat," emphasizes that food provides people with both sustenance and the identities that define them as cultural, social, and historical beings.[5] Food is a basic necessity of life steeped in culture and tradition. Food defines nationalities and occupies a place in spiritual and cultural daily life. Foodways - the ways in which food is grown and prepared, and the etiquette used when it is consumed - provide a matrix that defines a large portion of our culture. The relationship between food and cultural change will serve as the focus of this thesis on Haudenosaunee foodways in the Great Lakes Region between the early seventeenth century and the mid to late eighteenth century.

The Haudenosaunee Confederacy was a league of Five Nations that occupied areas of present-day New York State up to the St. Lawrence River, west of the Hudson River, and south into northwestern Pennsylvania. The Haudenosaunee are also sometimes referred to as the Five/ Six Nations and the Iroquois. I have chosen to use the name Haudenosaunee because that is the Seneca word that they used to refer to themselves. The word Haudenosaunee means "People of the Longhouse."[6] The tribes consisted of "(from west to east) Seneca (great hill people), Cayuga (people at the landing or where the boats are taken out), Onondaga (people of the hill), Oneida (people of the standing stone) and Mohawk (people of the flint)."[7] Archaeologists and historians estimate that

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[5] Coll Thrush, "Vancouver the Cannibal: Cuisine, Encounter and the Dilemma of Difference on the Northwest Coast, 1774- 1808," *Ethnohistory* 58: 1 (2011): 8.

[6] James W. Herrick, *Iroquois Medical Botany* (New York: Syracuse University Press, 1995), 1.

[7] Jennifer Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." *Journal of Archaeological Research* 23: 3 (2015), 267.

these nations merged between A.D 1400 and A.D. 1600; the Tuscarora joined the confederacy later in 1722.[8] The purpose of the league was to suppress blood feuds and and form peaceful tribal alliances. This political and economic union was advantageous as the defensive alliances and strength in numbers could be of assistance when tribal groups attempted to encroach upon their lands and hunting grounds.

The Haudenosaunee were agricultural peoples living close to the northern edge of the North American zone in which food crops could be grown in the climatic conditions that prevailed during the sixteenth century. For the Haudenosaunee, the primary crop complex was the Three Sisters. This term refers to the triumvirate of corn (*Zea mays*), beans (*Phaseolus vulgaris*) and squash (*Cucurbita pepo*) that was planted in different variations in each Haudenosaunee garden.[9] They were the dominant crops in the Haudenosaunee agricultural systems because of their nutritional qualities and reliable cultivation.[10] Corn provided carbohydrates, beans the protein, and squash was rich in vitamin A and C for the immune system.[11] Each of the three vegetables was essential to the survival of the Haudenosaunee and, over time, became an important part of their culture pre-and-post colonial contact.

The agricultural strategy of the Three Sisters demonstrates an important cultural complex where the three plants "feed the people, feed the land, and feed our

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[8] James W. Herrick, *Iroquois Medical Botany* (New York: Syracuse University Press, 1995), 1.

[9] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," in *Current Paleoethnobotany II*, ed. John Hart (New York: University of the State of New York, 2008), 87-90.

[10] Herrick, *Iroquois Medical Botany*, 20.

[11] William Engelbrecht, *Iroquoia: The Development of a Native World.* (Syracuse: Syracuse University Press, 2003), 25-27.

imaginations, telling us how we might live."[12] The Haudenosaunee planted the Three Sisters in every seventh hill – six hills were planted with corn and one hill was planted with the Three Sisters. The Three Sisters offer lessons of reciprocity, which are "written" in the garden. The relationship among the Three Sisters is mutually supportive, according to which the corn grows tall, the beans intertwine with the corn stalks and the vines from the beans provide a layer of protection for the squash.[13] Table 1, 2, and 3 presents a summary of the Three Sisters (see appendix).

The Three Sisters and other sources of food acted as markers of cultural identity. The three vegetables were integrated into the Haudenosaunee's highly ritualistic traditional practices of cultivation, creation stories, and ceremonial gatherings in their longhouses. Rituals are a "form of social contract with spirit forces."[14] This means that the Haudenosaunee had to act and follow the proper cultural protocols based on oral tradition and traditional knowledge. If the Haudenosaunee did not follow the protocols then problems or repercussions may follow from the spirits forces.[15]

The nations of the confederacy shared an "ideological commonality" or "worldview" with each other where even inanimate objects played an integral role in their lives and were believed to have human qualities.[16] For the Haudenosaunee, the *orenda* - the "spiritual power inherent in existence," - became magnified and more powerful when humans participated in ceremonial offerings to Mother Earth to encourage

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[12] Robin Wall Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plant* (Minnesota: Milkweed Editions, 2015), 131.
[13] Kimmerer, *Braiding Sweetgrass,* 132.
[14] Engelbrecht, *Iroquoia: The Development of a Native World,* 4.
[15] Engelbrecht, *Iroquoia: The Development of a Native World,* 4.
[16] Engelbrecht, *Iroquoia: The Development of a Native World*, 4.

the annual return of their food sources and plantings.[17] The Seneca believed that the Three Sisters planted together had an inseparable spirit, *Diohe'ko*, and the vegetables needed to be planted together in order to thrive and yield a good harvest.[18] The Haudenosaunee's traditional beliefs about inter-planting the Three Sisters continues to be practiced in some communities to the present day.

The study of food, with a specific focus on the Three Sisters, plays an integral role and allows us to develop a greater understanding of Haudenosaunee culture because food's "symbol[ism], material [culture] and embodied meanings" offer a unique way to interpret the past.[19] The symbolic meaning of the Three Sisters in Haudenosaunee culture is demonstrated through their presence in the Creation Story.

The primary sources used in the study are "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America"[20] and Kalm's *Travels in America*,[21] an account of the animals and agriculture he encountered during his trip to Pennsyvannia from 1748-1749. I also used *Jesuit Relations* to find what plants were native to the Great Lakes region.[22] The Creation Story and the Three Sisters is largely based on Haudenosaunee traditional knowledge. These stories shape the Haudenosaunee's cultural

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[17] Engelbrecht, *Iroquoia: The Development of a Native World*, 5.

[18] Stephen Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," *Agriculture and Human Values* 4, no. 2 (1987): 76.

[19] Jeffrey Pilcher, "Cultural Histories of Food" in *The Oxford Handbook of Food History*, ed. Jeffrey Pilcher (Oxford; Oxford University Press, 2012), 55.

[20] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 102.

[21] Esther Louise Larsen and Pehr Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant." *Agricultural History Societ*y 9 no. 2 (April 1935), 102.

[22] The Jesuit Relations and Allied Documents 43: 147, 257- 259, The Jesuits Relations and Allied Documents Website, http://puffin.creighton.edu/jesuit/relations_43.html.

practices because the transmission of Indigenous knowledge is passed on orally. Traditional knowledge is considered sacred and kept private amongst the Indigenous tribes. Western accounts of history have not acknowledged the importance of orality and as a result, traditional knowledge have not received the same attention from scholars. There is mention of corn, beans and squash but not all has been associated with the Three Sisters polycultural complex. Scholarly research on foodways, daily life and the economy has been limited. Examining the Three Sisters through storytelling will add a new dimension to our understanding of the Haudenosaunee worldview as it relates to their foodways and agricultural practices.

The study of traditional foods can offer insights into why we are here, how we behave and what it means to be thankful. The study of foodways helps to explore historical practices, but also has implications for cultural rejuvenation. One way that the Haudenosaunee have worked toward such rejuvenation is through the Iroquois White Corn Project in New York State, which I visited in July 2015. The goal of the project is to rejuvenate the inter-cropping farming methodology, "consumption, and distribution of the traditional Iroquois White Corn." [23] In the seventeenth century, the town of Ganondagan had a population of 4,500 and white corn was the primary crop that enabled them to survive.[24] Iroquois white corn is presently grown at Ganondagan State Historic Site, New York. The corn is an heirloom seed that grew in abundance prior to contact. Intertwined with the plantings of the Three Sisters is the goal of attaining a "Good Mind,"

[23] "About Us," Iroquois White Corn Project, http://www.iroquoiswhitecorn.org/contact (accessed 5 June 2015).
[24] "Ganondagan," Iroquois White Corn Project, http:''www.iroquoiswhitecorn.org/contact (accessed 5 June 2015)

to be aware of one's thoughts and intentions. This state of mind ensures that the Haudenosaunee are able to be in touch with the spirit — the *orenda* — and to communicate with the Creator.[25] An analysis of the symbolic importance of the Three Sisters and other sources of food will enable us to achieve a deeper understanding of Haudenosaunee culture.

The purpose of this study is to examine the impact of European colonization on the Haudenosaunee's Three Sisters. In order to conduct this study, I analyze Haudenosaunee foodways immediately prior to European contact and after seven generations of interaction. Foodways changed after 1700 with the expansion of the fur trade and the Peace Treaty of Montreal 1701. Foodways changed acculturatively as the Haudenosaunee were mainly farmers but hunting became more of a priority due to its economic benefits. As James W. Bradley notes, acculturative change is one of many stages in the ongoing redefinition of (Indigenous) culture.[26] He defines acculturation as, "the process of reciprocal interaction that occurs when two autonomous cultures come into contact."[27] Acculturation allows for the interplay of continuity and change to be examined. The goods traded with the Europeans were selectively chosen in keeping with their traditional beliefs. The Three Sisters polycultural complex continued to be practiced but gradually changed over time to become more monocropped. The Haudenosaunee adopted some of the technological innovations from the goods traded and agricultural subsistence practices of the Europeans that gradually led to acculturative change. The

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[25] "Good Minds," Iroquois White Corn Project, http://www.iroquoiswhitecorn.org/about/good-minds (accessed 5 June 2015).
[26] James W. Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500-1655* (New York: First Nebraska, 2005), 167.
[27] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change*, 167.

implications this had for the Three Sisters was a possible loss to Haudenosaunee agricultural practices, but more importantly, to their autonomy and core cultural values. The hope is that this study will serve as a tool to encourage other scholars to analyze North American history from a First Nations cultural perspective.

Literature Review

My research is based on scholarly sources that focus on how food can teach us about a particular group's life and culture. I predominately look at writers who focus on First Nations research. Within the past decade there has been an increase in the amount of scholarly work on foodways. This research has largely been based on analysis of primary and secondary sources related to specific groups, and has mostly taken place in the fields of archaeology and anthropology. Historians are still in the early stages of writing about food history, although in the past ten years an increasing amount of research using foodways methodology has flourished. There are a few early books and articles written by scholars such as Arthur Caswell Parker and F.W. Waugh that focus on foodways. Their approaches commonly stem from working directly in the Haudenosaunee community.

In *Iroquois Uses of Maize and Other Food Plants,* Arthur Parker focuses his archeological and ethnological study primarily on the New York State Seneca and their counterparts in Canada.[28] Parker's work is the culmination of ten years of intensive research based on interviews and notes gathered from the Iroquois community – mainly from the Tonawanda Seneca Reservation, Onondaga Reservation and the Grand River

[28] Arthur Caswell Parker, *Iroquois Uses of Maize and Other Food Plants* (Albany: University of the State of New York, 1910), 4, 8.

Reservation.[29] The notes focus on how maize and other food plants are prepared, cooked, and utilized by the Iroquois. Parker was of Seneca and Scottish- English descent. He spoke Seneca which allowed him to have a greater understanding of the Haudenosaunee traditional way of life and culture. The book is divided into two sections. The first section examines corn's origin, the variety of species and how each component of the corn serves a different purpose. For example, corn kernels can be eaten on their own, roasted or popped/crushed and mixed with maple syrup to be made into popcorn pudding.[30] Parker explores the importance of sustainability in Seneca culture by tracing the many ways in which care was taken not to waste food. His array of photographs and drawings highlights his in-depth descriptions of Seneca life. The second section of the book examines how different types of food, such as squash, beans, berries, and nuts, are consumed, farmed or gathered by the Haudenosaunee. Parker describes the variety of squashes available during the period, the medicinal uses of certain foods, and the types of beans available before the occurrence of hybridization.[31] Parker's observations about changes in taste and food consumption add dimension to narratives of how Haudenosaunee culture changed over time. An interesting aspect of Parker's study is how he utilizes the Seneca language - particularly the different endings of the words and sounds - to explain the process of growing corn.[32] For example, *o'geot* means the silk from the corn has grown and is showing. The usage of traditional language and terms demonstrates Parker's respect and understanding of the importance of language to the

[29] Parker, *Iroquois Uses of Maize and Other Food Plants,* 6.
[30] Parker, *Iroquois Uses of Maize and Other Food Plants,* 77-78.
[31] Parker, *Iroquois Uses of Maize and Other Food Plants,* 89, 92.
[32] Parker, *Iroquois Uses of Maize and Other Food Plants,* 44.

Seneca culture and worldview. This is important when discussing the Three Sisters because Haudenosaunee culture is based on orality.

F. W. Waugh's monograph, *Iroquois Foods and Food Preparation*, is one of the first historical works to focus on and examine Iroquois foodways from 1912-1915. Waugh's intensive twelve-month research investigation involved observing and living amongst the Iroquois of Quebec, Ontario and New York state; his work has played a pivotal role as a primary source for researchers.[33] He also uses primary and secondary sources from missionaries and Iroquois scholars to attain a deeper understanding of the subject matter. Waugh's in-depth investigation provides insight into a range of food-related topics focusing largely on the Three Sisters: agricultural methods and ceremonial customs, types of utensils, recipes and illustrations of the tools used such as corn cribs, pump drills and various baskets.[34] The recipes offer a deeper understanding of how ingredients were used and accessed.

One of the main weaknesses of Waugh's study is his lack of regard for each tribe's culture. He amalgamates the Haudenosaunee tribes and treats their cultures as being essentially the same, thereby blurring the differences between them. Waugh also does not discuss the duration or circumstances surrounding his stays with each particular Haudenosaunee community. He does make reference to some of the Onondaga, Seneca, Huron and Algonkian ceremonies but does not fully explain the reasons why a meal was prepared or celebrated in a specific tradition. Waugh's research incorporates European and missionary sources alongside those produced by Iroquois scholars. He does include

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[33] F.W. Waugh, *Iroquois Foods and Food Preparation* (1916; repr., Hawaii: University Press of the Pacific, 2003), 1.

[34] Waugh, *Iroquois Foods and Food Preparation,* i-v.

insight from Haudenosaunee informants such as John Echo, Chief Gibson - Seneca speaking Onondaga and Chief David Skye - Onondaga.[35] Waugh's study tends to be a bit confusing when he integrates past historical research into his study. The delineation between what actually occurred in his investigation and what occurred in those of others is not always clearly defined.

Anthropologist Gilbert Livingston Wilson's study, "Buffalo Bird Woman's Garden" is a transcribed first-person narrative published in 1917. Buffalo Bird Woman is known as Maxidiwiac in the Hidatsa tribe.[36] She is an esteemed and knowledgeable gardener. Her agricultural practices, similar to those described by Waugh and Parker, are centuries old and focused on the plantings of the Three Sisters at Like-a-fishbook village, near the Missouri River. The study fills a gap in foodways by establishing a better understanding of the American Indian's economic way of life and the acculturative changes that took place upon colonial contact (preface). The Plains Indian established a dual economy similar to the Haudenosaunee and were introduced to draft animals, fences, iron kettles and creolized farming. Wilson's study covers a range of the Hidatsa agricultural and cultural practices which can be compared with the Haudenosaunee.

Modern food studies approaches differ from Parker and Waugh by taking on a more broad interdisciplinary approach. Historical research on food has extended into areas of: food and identity, advertising and culinary change and anorexia and the perception of food. Jonathan Deutsch and Jeffrey Miller, food studies scholars, assert that

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[35] Waugh, *Iroquois Foods and Food Preparation*, 20; 34.

[36] Gilbert Livingstone Wilson, *Buffalo Bird Woman's Garden: Agriculture of the Hidatsa Indians* (Minnesota: Minnesota Historical Society Press, 1987), 1.

the "construction of racial and ethnic identities, and religious beliefs all hinge to a degree on shared or differentiated food consumption." [37] They argue that the symbolism and culture of food, such as how a specific crop is cooked, what food choices are available, and how food is grown, or how it is consumed, all highlight the values of the society being studied.[38] This understanding can be applied to the Three Sisters, the Haudenosaunee's staple diet. The Three Sisters were valued as a nutritious source of food when planted and eaten together. Corn played a pivotal role in Haudenosaunee culture due to its versatile nature and nutritional qualities. Squash was also a major component of the Haudenosaunee diet as it grew in abundance for four to five months a year, as stated in the Jesuit Relations of 1656 – 1657.[39] The Haudenosaunee mashed, boiled and dried squash, and also used it in bread making. Squash played an essential role in ceremonies and feasts in response to dreams.[40]

In a similar vein, food can be used as a foundation to examine shared or differentiated cultural beliefs. Corrie Norman, a scholar from Harvard University, asserts that the cosmology of the Christian creation story is largely centered on food; she cites, for example, the prominence of Eve's apple in Genesis.[41] Norman defines cosmology as food-based memory where food serves as a reminder of the rituals, special occasions and daily meals.[42] Food-based memories and their interpretations provide insight into how

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[37] Jonathan Deutsch and Jeffrey Miller, "Teaching with Food," in *The Oxford Handbook of Food History*, ed. Jeffrey Pilcher (New York: Oxford University Press, 2012), 193.
[38] Deutsch and Miller, "Teaching with Food," 198.
[39] Waugh, *Iroquois Foods and Food Preparation*, 112.
[40] Waugh, *Iroquois Foods and Food Preparation*, 112
[41] Corrie Norman, "Food and Religion" in *The Oxford Handbook of Food History*, ed. Jeffrey Pilcher (New York; Oxford University Press, 2012), 409.
[42] Deutsch and Miller, "Teaching with Food," 195.

people live their lives by "explaining who we are and why we are here." [43] This is evident in the origins of the Three Sisters and their role in feeding humanity. Food production was so central that Haudenosaunee life revolved around agricultural cultivation, production and consumption of food.[44] Agricultural practices were also reinforced through seasonal ceremonies due to the vegetables' cultural symbolism of sustenance. For example, the Haudenosaunee celebrated the Green Corn Thanksgiving. The designated leader would hold a bunch of corn and cornbread and lead others to march around a kettle of corn soup.[45] The ceremonial march was performed to appease the spirits of the Three Sisters and ensure future crops will be plentiful.

Lucy M. Long, a folklorist, asserts that simple foods such as beans, corn and rice need to be examined from a holistic perspective.[46] She addresses the political and cultural politics behind commensality and the hierarchy of power - the ability to control and decide the type of food served and the underlying meaning behind it.[47] Commensality is the act of eating and drinking together at the same table. This social activity can establish close bonds but also exclude others from participating according to the boundaries set by society. For example, in Haudenosaunee ceremonial exchanges – only the chiefs and top hierarchy are allowed to participate. Long reveals how one's identity can be shaped by present/past cultural attitudes, social hierarchies and historical events.[48] A holistic perspective employs different approaches and considers various interconnections in order

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[43] Deutsch and Miller, "Teaching with Food," 195.
[44] Deutsch and Miller, "Teaching with Food," 197.
[45] Arthur Caswell Parker, *Iroquois Uses of Maize and Other Food Plants* (Albany: University of the State of New York, 1910), 27.
[46] Lucy Long, "Introduction," *Journal of American Folklore* Vol. 122, 483 (2009), 7.
[47] Long, "Introduction,"6.
[48] Long, "Introduction," 3.

to attain a greater understanding of the whole picture or situation. This has important implications for a study on Indigenous foodways in an era of colonization because Indigenous identities have been shaped by discriminatory attitudes, manipulation of identity and falsely interpreting situations. Long states that food studies needs to encompass cultural beliefs and practices when it comes to understanding oral tradition.[49]

Michael Pollan, journalist and author of *Omnivore's Dilemma*, delves into how corn has adapted and changed pre-and-post contact. He stresses the importance of corn to Native American identity and its currency in trade.[50] Pollan traces how corn is thought to have originated in central Mexico and spread to New England as it genetically adapted to different climate conditions.[51] He compares the versatile nature of corn not only as a means of subsistence but as a protocapitalist plant, a tradeable commodity and high yielding compared to wheat.[52] He highlights how Western culture has changed corn through genetic modification and monocropping. These were some of the issues the Haudenosaunee had to grapple with upon colonial contact and their import of draft animals and usage of the plow in agricultural practices will be examined later on.

Robin Wall Kimmerer's *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*, she draws upon her scientific expertise as a botanist and her Indigenous understandings as a Potawatomi woman. As an Anishinabek scientist, Kimmerer examines the relationship between science, spirit and stories that are old and new. This "pharmacopoeia" of stories such as Sky Woman and the Three Sisters,

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[49] Long, "Introduction," 3.
[50] Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: Penguin Group, 2006), 28.
[51] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 28.
[52] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 26.

allows for a more in-depth look at the relationship between people and their environment.[53] In Indigenous agriculture, the Native people modifies the plants to fit the landscape, whereas Western agriculture modifies the land to fit the plants.[54] Hence, Indigenous agriculture has led to an assortment of corn domesticated by Indigenous ancestors because of its ability to adapt to different climate conditions and soil quality.[55] Kimmerer's ethnohistorical approach examines foodways through an Indigenous and Western lens.

Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany and Use by Harriet V. Kuhnlein and Nancy J. Turner is a reference guide written for the Indigenous people, ethnologists, biologists and organizations that work with the Indigenous community.[56] The guide documents and preserves knowledge on botany, nutrition and ethnic use of traditional plant foods.[57] The ethnographic information in the book is gleaned from the Canadian Indigenous peoples, as well as those from Alaska and other states that border onto Canada.[58] The reference guide is divided into five sections and each chapter covers an array of information: list of plant species, Indigenous food, nutrient values, use of traditional plant foods and a description of each plant. Both use Waugh as a secondary source for Iroquois names, descriptions and illustrations.

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[53] Kimmerer, *Braiding Sweetgrass,* x, 6.
[54] Kimmerer, *Braiding Sweetgrass,* 138.
[55] Kimmerer, *Braiding Sweetgrass,* 139.
[56] Harriet V. Kuhnlein and Nancy J. Turner, *Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany and Use* (Philadelphia: Gordon and Breach, 1991), 1.
[57] Kuhnlein and Turner, *Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany and Use*, viii.
[58] Kuhnlein and Turner, *Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany and Use*, 1.

In Alison Norman's "'Fit for the Table of the Most Fastidious Epicure': Culinary Colonialism in the Upper Canadian Contact Zone," she argues that after 1791, changes in the diets of the Haudenosaunee and the Loyalist/British settlers gradually led to changes in their culture.[59] The sharing of food and recipes amongst the Haudenosaunee and British settlers was a key factor in cultural change. The Haudenosaunee incorporated wheat and barley into their diet along with the Three Sisters.[60] The Haudenosaunee culture changed as they became exposed to European monocrop farming techniques though they managed to maintain aspects of the Three Sisters polycultural system. The influx of Christian missionaries also affected the Haudenosaunee's spiritual beliefs taking on more of a patriarchal system compared to the past matriarchal way of life.

In turn, the British foodways adapted. Settlers' diet changed because they had difficulties transporting and accessing their traditional food. Their diet of bread, salted pork, cheese, tea and milk changed to a more Native diet consisting of sassafras, berries, root vegetables, the Three Sisters and maple syrup.[61] Work was gendered where British middle class women took on more household duties such as food preparation and cooking for the family because they did not have a servant. The men occupied themselves with the arduous task of tilling the land, hunting and fishing. Although my research does not focus specifically on recipes, I will examine how the Three Sisters were used for cooking, and how colonial contact and trade goods affected the Haudenosaunee culture.

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[59] Alison Norman, "Fit for the Table of the Most Fastidious Epicure: Culinary Colonialism in the Upper Canadian Contact Zone," in *Edible Histories, Cultural Politics: Towards a Canadian Food History*, ed. Franca Iacovetta (Toronto: University of Toronto Press, 2012), 32.

[60] Norman, "Fit for the Table of the Most Fastidious Epicure," 34.

[61] Norman, "Fit for the Table of the Most Fastidious Epicure," 36-38.

Another important component is Norman's examination of the "exchange mode," whereby different goods exchanged hands. The Haudenosaunee invented maple syrup, a key ingredient in some Canadian breakfasts, due to the prized brass kettle. The Haudenosaunee had the ingenuity to tap the maple trees, use the kettle to boil the sap and make maple syrup. Prior to colonial contact, the Haudenosaunee were unable to bring the sap to a boil because they only had birch bark containers. The bark containers were not a good conductor of heat. In turn, the process of making maple syrup was reconstructed by the colonial settlers as they incorporated the ingredient into their recipes and food.[62] This type of exchange established traditional and culinary understandings between the Haudenosaunee and the settlers.

A more global analysis is present in the works of historians about the Haudenosaunee in the colonial era. In Bruce G. Trigger's study, *The Children of Aataentsic: A History of the Huron People to 1660*, he draws upon archaeological sources and written documents especially the Jesuit Relations to present an ethnohistorical account of the cultural change due to contact with Europeans.[63] Trigger's history of the Hurons (Wendat) is relevant to a literature review of Iroquois foodways because the two groups are culturally related, both depended on the Three Sisters, experienced contact about the same time and endured the fur trade. Trigger argues for a more in-depth understanding of the events and natural occurrences during the pre-contact period. This understanding is important because it enables a different perspective of the underlying motives behind the events leading up to contact between the Europeans, Hurons, and

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[62] Norman, "Fit for the Table of the Most Fastidious Epicure,"42.

[63] Bruce Trigger, *The Children of Aataentsic: A History of the Huron People to 1660* (Montreal: McGill-Queen's University Press, 1976), preface.

Iroquois. Trigger believes that agricultural transformation may have been rapid and turbulent as Indigenous societies changed.[64] In one part of the study, Trigger compares and contrasts the changes that took place within the Owasco, Princess Point and Pickering cultures which is useful because they provide evidence of a rapid shift towards an agricultural subsistence pattern prior to A.D. 500.[65] More importantly, Trigger argues that the pre-contact spread of agriculture may be attributed to the need for new food sources.[66] He offers plausible explanations for this hypothesis: i) increase in population ii) conflict and competition over natural resources iii) limited supplies or over-hunting of fish, meat and deer, which kept the population densities low and iv) the seasonality that revolved around the hunter-gatherer economy allowed for an easier transition to agriculture.[67] He also highlights the similarities and differences between the Iroquoian and Huron cultural practices focusing on subsistence, gender roles, kinship groups, Creation Stories, and settlement fortified villages which together offer a greater understanding of the agricultural and hunting economies from the Indigenous perspective.[68]

Daniel K. Richter's *Ordeal of the Longhouse* stresses how the Five Nations beliefs based on kinship and reciprocity not only led to the formation of the Haudenosaunee Confederacy but structured their village settlements.[69] The practice of

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[64] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 131.
[65] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 131.
[66] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 132.
[67] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 131.
[68] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 100-104.
[69] Daniel K. Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization* (Virginia: University of North Carolina Press,1992), 22.

living in longhouses populated by many families illustrates the importance of sharing and trading food, especially the Three Sisters, amongst the tribes. The nations which comprised the Haudenosaunee Confederacy shared similar spiritual beliefs shaped how meals were made, cooked, shared and celebrated. For them, the values and gender roles espoused on earth was the same as in Sky World: the women were responsible for cultivating the Three Sisters and the men hunted and fished.[70] Understandings of Haudenosaunee spirituality, culture and foodways need to be examined from the Indigenous perspective. Richter's work is based principally on historical documents. Richter argues that the Haudenosaunee may be the most researched and studied group of North American Indians but not from their cultural perspective.[71] He asserts that some of the main problems with the study of the Haudenosaunee has been the perpetuation of misinterpretations or the "cameo" mentions made in the writings by Jesuit missionaries and European traders.[72] A balanced approach needs to be incorporated that takes into account Indigenous and European perspectives when primary or secondary sources are used.

Jennifer Birch's article "Current Research on the Historical Development of Northern Iroquoian Societies" uses an ethnogenesis and archaeological approach to trace how the Northern Iroquoian societies developed. Birch synthesizes many archaeological studies based on analysis of material remains. Specifically, Birch focuses on the central

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[70] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 19.
[71] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 1.
[72] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 1.

geographical core of Iroquoian society which surrounded Lake Ontario and Lake Erie from the Late Woodland period to the colonial era.[73] She highlights how the Iroquoian cultural traits of the Owasco period in New York are linked with specific ceramic technologies and with the integration of longhouses.[74] Leading us through a pre-and-post systematic process of analysis, Birch shows how maize, acculturation, settlement patterns and domesticated crops were adapted into Iroquoian culture prior to contact. In discussing post-contact, Birch examines other factors including epidemic diseases, warfare, displacement and the formation of political economy, which all play a pivotal role in cultural change. She further explains differences between pre- and post- contact by considering how cultural practices emerged, what conflicts arose, and the resistance and adaptations that took place in response. Birch explains that in the last decade new insights and ideologies have been developed about the fluid and dynamic nature of the Northern Iroquoian societies as they navigated the settlement landscape.

Jane Mt. Pleasant's article, "The Paradox of Plows and Productivity: An Agronomic Comparison of Cereal Grain Production under Iroquois Hoe Culture and European Plow Culture in the Seventeenth and Eighteenth Centuries," challenges the dichotomy between Indigenous and European agriculture. Mt. Pleasant contends that Indigenous hoe production was more productive than its European counterpart - Indigenous methods produced three to five times more grain per acre compared to the

[73] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 264.
[74] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 271.

European plow.[75] She contends that with hoe production, soil and organic matter performed better because nitrogen did not decline but performed consistently.[76] As such, corn produces a higher yield compared to wheat due to the "C 4 photosynthetic pathway and lower protein content."[77] European agriculture also required the use of domesticated animals. This enabled the farmers to plow the fields at a faster rate but also subjected the land to erosion.[78] She also asserts that most Indigenous agriculture was permanent cropping rather than slash and burn. This meant that Indigenous agriculture was largely sustainable. Indigenous farmers did not need to relocate to new plots of land because the nutrients in the soil was depleted.

Mt. Pleasant points out that in the late eighteenth century American farmers used the plow in five counties in western New York State. Fifty years later, maize yields declined to less than thirty bushels per acre. What is particularly interesting is that the Haudenosaunee did not operate at a disadvantage; they were not unproductive because they did not use a plow. Rather, the Haudenosaunee's agricultural cultivation system were even more productive than the more technologically advanced European methods. Plowing initially releases a great deal of nitrogen that contributes to increased grain yields, but these yields decline over time in tandem with the depletion of nitrogen in the soil. European farmers counteracted this decline by rotating cereal crops fertilized with manure, grain legumes such as peas, lentils and fallow periods. Tillage played an

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[75] Jane Mt. Pleasant, "The Paradox of Plows and Productivity: An Agronomic Comparison of Cereal Grain Production Under Iroquois Hoe Culture and European Plow Culture in the Seventeenth and Eighteenth Centuries," *Agricultural History*, Vol. 85, no. 4 (2011); 460.
[76] Mt. Pleasant, "The Paradox of Plows and Productivity," 478.
[77] Mt Pleasant, "The Paradox of Plows and Productivity," 460.
[78] Mt Pleasant, "The Paradox of Plows and Productivity," 467.

important role in how the Haudenosaunee attained a yield advantage over the Europeans in the nineteenth century.[79] The Europeans began to grow corn with plows. In the latter part of the nineteenth century in western New York, corn yields increased similar to the levels of the Haudenosaunee almost two hundred years ago.[80]

In the *Seneca Restoration 1715-1754: An Iroquois Local Political Economy*, Kurt A. Jordan argues against scholarly interpretations, made largely by anthropologists and historians such as Daniel Richter and Dean Snow, of the Haudenosaunee's cultural downfall and colonization into European society. Jordan challenges these empirically inaccurate narratives and decline models. He uses archaeological data with a history of material culture, analysis of European goods and historical documents to re-interpret eighteenth century Haudenosaunee history. He contends that archaeological data is invaluable because it grounds the study and the physical body of evidence allows for a more conclusive interpretation of Haudenosaunee cultural change. He points out that this has been a key component missing in documentary sources.[81]

Jordan's archaeological evidence is obtained from his work co-directing the 1996-2000 excavation at the Seneca Townley-Read site, near present day Geneva, New York. The Townley-Read/New Ganechstage Project focuses on understanding major changes in settlement preferences with respect to the structures of the sites, the formation of the residences, and household activities.[82] He highlights how these continued practices in housing construction, animal use and creolized farming illustrate the Seneca's control

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[79] Mt Pleasant, "The Paradox of Plows and Productivity," 488.
[80] Mt Pleasant, "The Paradox of Plows and Productivity," 467.
[81] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 339.
[82] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 91.

over their economy and social way of life.[83] Jordan's work is an excellent secondary source because he is able to utilize the collection of artifacts and field notes compiled at the Townley-Read site but also at the Rochester Museum and Science Center (RMSC). He has access to RMSC documents, materials and data pertaining to Seneca daily life that frames his research.[84] In addition, Jordan brings forth a different outlook with the relatively new data presented from the Townley-Read site. He zooms in on the housing formations used by the Haudenosaunee from 1715-1754 because there was much less European influence than other scholars assert.[85]

He does an excellent job using primary and secondary sources to address acculturative change among the Seneca and his work is relatively recent. Some of his primary sources include: Wentworth Greenhalgh's 1677 survey of the Haudenosaunee villages and the Moravian Cammerhoff's 1750 journal. These sources offer details on Seneca settlement patterns, migratory nature and population figures.[86] He uses a range of secondary sources and offers a balanced perspective in his study.

Jordan asserts that accounts of Haudenosaunee history, especially from 1687-1779, have often focused on warfare while the daily activities and economic conditions are often ignored. Jordan's study addresses this gap by examining the timing and cause and effect in the settlement patterns, gender roles and economic changes.[87] This is valuable information because it highlights how acculturative change occurred and the reasons that led up it. More importantly, he does a commendable job examining the

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[83] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 351.
[84] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 4.
[85] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 1.
[86] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy*,37.
[87] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 2.

Seneca dispersal of settlement, and argues that this was a move designed to attain autonomy in the face of growing European encroachment onto Indigenous land and hunting grounds. The Mohawks dispersed to be closer to their hunting grounds and to ensure the Europeans abided by the peace treaties. The Seneca's adoption of some of the new technologies and subsistence practices such as their use of European domesticated animals with no evidence of fences, harnesses or barns shows they still hunted for their food.[88] The Seneca made decisions that pertained to their cultural practices as they dealt with acculturative change.

Recent research on foodways include Treena Delormier's "A Socioecological Framework to Understand Weight-Related Issues in Aboriginal Children in Canada." Delormier uses a socioecological model to examine childhood obesity in Aboriginal populations but more importantly, she addresses the systematic ways in which social and economic structures have disadvantaged them. For example, the structural inequalities, food insecurity and a history of colonization have led to a diet that is unhealthy, low quality and highly caloric. Delormier argues for the need to improve access to food choices, education attainment and health programs that focus on Indigenous cultural practices (an Indigenous school curriculum and pride in Indigenous culture) to prevent childhood obesity.[89]

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[88] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 344.
[89] Noreen D. Willows, Anthony J.G. Hanley, Treena Delormier, "A Socioecological Framework to Understand Weight-Related Issues in Aboriginal children in Canada" *Applied Physiology, Nutrition, and Metabolism*, Vol 37 no.1, (2012).

Research Placement

This research lies at the intersection of ethnohistory and food history. Ethnohistory is a methodology developed to study the history of small-scale societies using documentary, archaeological, and oral history evidence. Food history is a recent field of study that has emerged only within the last decade. As yet there has been little to no research bearing directly on Haudenosaunee foodways. In this project, I intend to emulate the approach of prominent food historian Ian Mosby, whose research examines food as a way of understanding cultural and economic change. In addition, by placing the Three Sisters at the centre of my inquiry, my study highlights the role of Haudenosaunee women as agricultural producers. My research project represents an effort to understand Haudenosaunee historical experiences in terms of Indigenous cultural categories.

Organization

This study is organized into four sections: introduction, chapter I, chapter II, and the conclusion. The year 1701 is used to divide chapters I and II. 1701 is a significant date because it was in that year that the Great Peace of Montreal was signed culminating in ending the Iroquois wars. Chapter I examines Haudenosaunee life prior to 1701. The chapter discusses the origin story of food from a Haudenosaunee and Western perspective, and analyzes how the Three Sisters came to the Great Lakes region, how the intercropping of the Three Sisters developed and how the Three Sisters together are culturally significant. Chapter II examines Haudenosaunee life after 1701. The arrival of Europeans brought with it new trade items, the fur trade and ways of thinking that impacted Haudenosaunee foodways. Moreover, the Haudenosaunee facilitated the intense peace negotiations at four sites: Onondaga, Michilimackinac, Albany and

Montreal with the French, the English in New York and Indigenous allies.[90] The Haudenosaunee recognized their autonomy and culture was being threatened as the French and English encroached onto their hunting territories and land.

Our understandings of the Haudenosaunee foodways' landscape consist largely of snapshots in time of how the Haudenosaunee lived throughout the pre-contact and post-contact periods. The geographic location of each of the Haudenosaunee tribes affected the types of interactions that took place between the European settlers and the Haudenosaunee. William Engelbrecht, Professor of Anthropology at Buffalo State College, notes that ethnologists, historians and anthropologists make different observations about Haudenosaunee culture based on the nature of colonial contact and the experience gathered between these two parties.[91] Haudenosaunee culture and cultural change are not static but dynamic and enmeshed in different understandings of goods traded, agricultural production and worldviews. The Three Sisters can be used as an analytical lens to trace the cultural development of the Haudenosaunee and how their culture, including relationships between communities, colonialists, natural and social environments, changed.[92]

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[90] Gilles Havard, *The Great Peace of Montreal of 1701: French-Native Diplomacy in the Seventeenth Century*, trans. Phyllis Aronoff and Howard Scott (Montreal: McGill-Queen's University Press), 59.

[91] Engelbrecht, *Iroquoia: The Development of a Native World. 149.*

[92] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 306.

Chapter One
Indigenous and Western Accounts of the Three Sisters Pathways

The Three Sisters polycultural crop complex is based on the intercropping of corn, beans, and squash. Polyculture is defined as the simultaneous growth or cultivation of multiple crops in the same space.[93] In the Western hemisphere, there is a history of polycropping the Three Sisters; however, it is uncertain exactly when this practice was first introduced or when the Three Sisters were eaten and grown together.[94]

The Three Sisters served as the Haudenosaunee's main agricultural yield and as such also constituted their sacred food. The three vegetables, as a polycultural crop complex, illuminate the Haudenosaunee's belief in sustainability.[95] The focus is on the human ability to only take the resources needed to live without jeopardizing the potential for future generations to enjoy and to meet their needs.[96] The importance of sustainability is transmitted in the Creation Story as the Three Sisters are cultivated by the Haudenosaunee for future generations to enjoy.

In Haudenosaunee culture, the Creation Story depicts Sky Woman falling from Sky World, the "world beyond the sky," to what is now called earth.[97] Each of the

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[93] *Merriam-Webster,* s.v. "Polyculture," Merriam-Webster.com (2011), http://merriam-webster.com (accessed May 10, 2016).

[94] John P. Hart, "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," in *Current Northeast Paleoethnobotany II*, ed. John P. Hart, 87-99 (New York: New York State Education Department, 2008), 87.

[95] Stephen Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," *Agriculture and Human Values* 4, no. 2 (1987): 76.

[96] *Merriam-Webster,* s.v. "Sustainability," Merriam-Webster.com (2011), http://merriam-webster.com (accessed May 10, 2016).

[97] James W. Herrick, *Iroquois Medical Botany,* ed. Dean Snow (New York: Syracuse University Press, 1995), 11.

Haudenosaunee nations has a slightly different version of the Creation Story but all begin with Sky Woman's descent. In the Mohawk version, as told by Kay Olan, a Mohawk storyteller, Sky World is known as "Karonhia:ke" and the beings living there have additional powers and strength compared to the humans living on earth.[98] The first people lived on Sky World because only "water and creatures of the water" existed on earth as land had not yet been created.[99] The Creation Story teaches the Haudenosaunee the importance of their bond and connection to the land and emphasizes the need to honour the Three Sisters and maintain a balanced way of life.

Creation Story

The Creation Story serves as the foundation of morality for the Haudenosaunee.[100] There have been 40 recorded Haudenosaunee origin myths since 1632 as different animals and supernatural spirits have been cast in various roles; despite these modifications, the function and meaning behind the themes did not change.[101] The variety of Creation Stories and ceremonies can be attributed to the amalgamation of the five, and, later, Six Nations. Intertribal relations, alliances, warfare, and trade amongst the Indigenous people all contributed to the intermixing of stories and ceremonies.

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[98] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

[99] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

[100] Dean R. Snow**,** *The Iroquois,* The Peoples of America series (Cambridge: Blackwell, 1994), 4.

[101] Dean R. Snow**,** *The Iroquois,* The Peoples of America series (Cambridge: Blackwell, 1994), 4.

The Creation Story, as told by Mohawk Elder Olan, highlights the importance of the Tree of Life, which grew in the middle of Sky World and bore a variety of fruits. The Tree signifies the interconnection between Sky World and the world below, or earth. A woman named Atsi'tsiaka:ion, meaning Mature Flower, fell from Sky World when her husband dug at the roots around the Tree to make a cup of tea for her.[102] When Atsi'tsiaka:ion was falling, she attempted to stop herself and ended up grabbing at some seeds from the Tree of Life. The name Atsi'tsiaka:ion was changed to Sky Woman when she fell from the sky. Sky Woman's descent from Sky World is a reflection of basic Haudenosaunee cultural beliefs, such as the importance of sustainability, brought down to earth.[103] Sky World is regarded as a prototype of how life on Earth will be.[104] The fall of Sky Woman was broken by a swarm of birds in blanket formation who came to her rescue but could not manage to bring her back up to Sky World. Elder Olan points out that some versions represent the birds as geese, blue herons, or swans. However, Sky Woman was too heavy and was saved by a giant turtle who supported her on his back when she landed safely with the help of the birds. Turtle Island is now known as the North American continent.[105]

As mentioned, when Sky Woman descended, she grabbed the seeds from around the Tree of Life. When Sky Woman landed on the turtle's back, she asked for the assistance of

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[102] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

[103] Herrick, *Iroquois Medical Botany*, 11.

[104] Herrick, *Iroquois Medical Botany*, 11.

[105] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

different animals to help her get some dirt from underneath the water. She needed land and food to survive. The muskrat or otter finally managed to take the grains of dirt up to the water's surface. The role of animals in the Creation Story illustrates their importance; they were on earth before humans. The seeds from the Tree of Life allowed for other diverse plants to grow and adapt to the conditions on earth. Sky Woman danced and sang and her singing suddenly transformed the turtle's shell and dirt into planet earth and the seeds flourished and grew into a variety of plants.[106]

Sky Woman eventually became pregnant and gave birth to a girl. The daughter was blessed with an understanding of Sky World and planet earth. Her mother had this same knowledge because she had lived in both worlds. As the daughter grew up, she became impregnated by the Spirit of the West Wind and gave birth to twin boys. The right hand twin, Creator, was born by natural childbirth. However, Flint, the left hand twin, was born through his mother's armpit which resulted in her death. This left Sky Woman, now grandmother to the two boys, to raise them. The death of Sky Woman's daughter illustrates how the Three Sisters were gifted to the people on earth:

> They buried their mother and from her head grew corn, beans, and squash. The staple foods of the traditional Haudenosaunee diet, they are called The Three Sisters. From her heart grew sacred tobacco which is used when there is a desire to communicate with the Creator. From her feet grew the wild strawberry which is known as The Big Medicine. Even in her death, the mother of the two boys still made sure that they had had what they needed to survive. She is called Mother Earth and to this day she still supports all of the people, animals and plants.[107]

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[106] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

[107] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

The right-handed Twin is the keeper of the day and the left-handed Twin is the keeper of the night. The Twins' significance is focused on the creation of the earth's mountains, insects and humans. Humans need to remember the "original instructions" of Sky Woman: the importance of sustainability and an environmental consciousness. For example, Sky Woman ensured that the Three Sisters, wild strawberries and tobacco would support, enrich and be shared with future generations. The Twins' creations on earth ensure that life on earth is balanced and in unity.[108]

Sky Woman's teachings – about the human responsibility to ensure that resources, animals and food, especially the Three Sisters, are equitably balanced in terms of cultivation, production, consumption and trade – are central to Haudenosaunee culture. The Three Sisters serve as a reminder of the Haudenosaunee's connection to Mother Earth and the importance of women as the producers of life.

As anthropologist James Herrick who studied with William N. Fenton explains, the Haudenosaunee Creation Story is culturally derived from their cosmology. Sky World floats "above the Rim of the Earth" among the clouds, moon and stars.[109] The Haudenosaunee's cultural values are largely based on humankind's relationship to nature, and focus on the Creator's hierarchy of spiritual forces between the earth and sky.[110] The spiritual forces assist in determining how humankind will enjoy the fruits of their labour, such as the Three Sisters, bestowed by Mother Earth. The Three Sisters were considered

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[108] Kay Olan, "Creation Story: The Beginning" (storytelling, Mohawk Story) www.mbq-tmt.org/assets/Wellbeing/.../HBHCnews-creationthestory.pdf (Accessed December 8, 2015).

[109] Barbara A. Mann, "The Lynx in Time: Haudenosaunee Women's Traditions and History," *American Indian Quarterly*, vol. 21, no. 3 (Summer, 1997): 423-449.

[110] Herrick, *Iroquois Medical Botany*, 10.

the "seeds of agriculture" because Mother Earth provided the vegetables for humanity. Humankind needs to express its appreciation through ceremonial events and repeated greetings and thanks which must be remembered and practiced on a regular basis in order for the Three Sisters and other offerings to thrive and grow.[111]

The Haudenosaunee and other Indigenous tribes regard the Creation Story as factually and historically accurate. Storytelling is a vital component of Indigenous culture. Linda Tuhiwai Smith, an Indigenous scholar, asserts that in storytelling Elders transmit traditional knowledge and traditions from one generation to the next, and also at the same time connect the past with the people and the land.[112]

Comparison of Haudenosaunee and Western Methodologies

Western scientific scholars present a different story of how the Three Sisters came to be cultivated and farmed together. The Haudenosaunee's introduction of the Three Sisters crop complex to the Great Lakes region has not yet been fully explained from a scientific or academic standpoint. Western researchers focus their methodologies primarily on scientific hypotheses, theories, literate communication, experimental data and objective approaches.[113] They typically do not regard the medium of storytelling as a reliable or valid source because the data is qualitative rather than quantitative. The stories provide clues as to where to look for scientific facts, but they themselves cannot, according to Western methodologies, serve as valid evidence for a given phenomenon.

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[111] Herrick, *Iroquois Medical Botany*, 10.
[112] Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples*, 144.
[113] Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples*, 164-165.

Through the Creation Story, we can see how Sky Woman's daughter taught the Haudenosaunee the principles of sustainability and balance behind the polycultural cropping of the Three Sisters. The concept of balance, to take only what is needed from the land and focus on the importance of seed renewal, is central to the Creation Story and Sky Woman's daughter's legacy. The repetition of the Creation Story transmits the oral traditions and traditional knowledge across multiple generations. Western researchers often contest the accuracy of the story, its methods of transmission, and its various interpretations. The genre and the content of the story also come under scrutiny because Sky Woman is a mythical character: the story is considered fictional and cannot be reliably proven. As a result, Western research tends to ignore "diversities of truth" as well as spiritual or holistic connections.[114]

The Haudenosaunee used seed technology on a long-term sustainable basis. Nazarea, Rhoades and Andrews-Swann, editors of *Seeds of Resistance, Seeds of Hope,* discuss how Western societies focus on scientific manipulation which privileges certain genetic traits. The Westernized seed tends to dominate the landscape and threatens the native seed because plant breeding is monocultural and outside the ecological niche.[115] The monocultural approach depletes the soil of its nutrients due to overharvesting. In Indigenous agricultural techniques, animate and inanimate beings are coequal and interactive; rituals are the "passages through which harmony, balance and life are

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[114] Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples,* 173.

[115] Virginia D. Nazarea, Robert E. Rhoades and Jenna Andrews-Swann, ed.,*Seeds of Resistance, Seeds of Hope: Place and Agency in the Conservation of Biodiversity,* Project MUSE (Tucson, University of Arizona Press, 2013), 95. http://muse.jhu.edu/ (accessed November 10, 2015).

procured."[116] Native seeds evolved in situ and, as a result of natural selection, are hardy, disease resistant and adaptable to extreme climate conditions.

The Haudenosaunee and other Indigenous tribes were knowledgeable farmers and they cross pollinated new corn varieties for their community to sustain themselves. They had a long history that predates contact, of improving the desired traits of food crops by manipulating the crops' reproductive cycle. However, the purpose behind genetic manipulation differed between the Indigenous and the Westernized methodologies. The Haudenosaunee Three Sisters crop complex fosters the importance of native seeds, land and biodiversity for a healthy and productive ecosystem. The Haudenosaunee regarded the Three Sisters as a gift for which humans should be grateful. This is quite different from the Western agri-business attitude, which is geared towards profit. The Haudenosaunee and European farmers, both shared similar economic goals when it came to crops – both wanted maximum yields. The Western focus was on a monoculture crop and maximizing volume for trading purposes. The seeds used may not be native to the region but exported from Europe.

The origin stories and ritualistic beliefs surrounding the Three Sisters were quickly derided in Western histories and accounts. According to Pehr Kalm, a Swedish-Finnish explorer and botanist who travelled to North America in the 1740s, the origin of corn may not have been known by the "American savages" because the Haudenosaunee

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[116] Virginia D. Nazarea, Robert E. Rhoades and Jenna Andrews-Swann, ed.,*Seeds of Resistance, Seeds of Hope: Place and Agency in the Conservation of Biodiversity,* Project MUSE (Tucson, University of Arizona Press, 2013), 95. http://muse.jhu.edu/ (accessed November 10, 2015).

based their knowledge on legends and folklore.[117] Kalm found it "amusing" that the Haudenosaunee believed that the first bean was brought over by the crow, and that the sterling or jackdaw brought the first kernel of corn.[118] The tone of this account is indicative of the Eurocentric attitude shared by explorers and missionaries who looked upon Haudenosaunee stories with amusement at best, and derision and contempt at worst. Sir William Johnson, a Superintendent of Northern Indians, commented that "trustworthy history" only began when Europeans such as Champlain appeared on North American shores.[119] Although Indigenous legends and stories had purpose, their messages were often unclear to the European settlers. Tuhiwai Smith contends that Indigenous people want to tell their own stories, in their own way and for their own reasons.[120]

Western Scientific Accounts of How the Three Sisters came to be Farmed Together

The Three Sisters polycultural complex has played an integral role in the early development of agriculture in the Western Hemisphere. When the Europeans arrived in the Western Hemisphere, the Three Sisters were often transplanted to Africa and Europe.[121] This same planting form is used in many different areas and not just by the Haudenosaunee. Evidence on the origin, dispersal and adoption for each of the Three

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[117] Esther Louise Larsen and Pehr Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant." *Agricultural History Society* 9 no. 2 (April 1935), 102.

[118] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 102.

[119] William Elliot Griffis, *Sir William Johnson and the Six Nations* (New York: Dodd, Mead and Company, n.d), 38.

[120] Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples*, 29.

[121] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 87.

Sisters goes back a thousand years to Central and South America.[122] In the Andes, the Three Sisters along with manioc, the potato, and chili peppers were regarded as the "founder crops" by at least 5000 B.P.[123] The innovation of the Three Sisters suggests it was shared in the distant past by others with similar agricultural practices. In the North American Southwest, East and Plains the history of the Three Sisters complex is much shorter.

Western researchers argue that the majority of the Haudenosaunee practiced the Three Sisters polycultural crop complex in Northeastern America and around the Great Lakes region from late A.D. 1300 or early A.D. 1400.[124] There are strong indications that the Three Sisters entered along the Finger Lakes in the state of New York.[125] James V. Wright, an archaeologist, asserts that all of the plants that were cultivated in the Northeast originated from the south. Squash was the first, then corn followed, and finally beans moved along a similar trajectory.[126] The domestication of corn, beans and squash all originated in Mexico.

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[122] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 87.

[123] Tom D. Dillehay, Jack Rossen, Thomas C. Andres and David E. Williams, "Preceramic Adoption of Peanut, Squash, and Cotton in Northern Peru", *American Association for the Advancement of Science*, Vol. 316, No. 5833 (Jun. 29, 2007), Tom D. Dillehay, Jack Rossen, Thomas C. Andres and David E. Williams, "Preceramic Adoption of Peanut, Squash, and Cotton in Northern Peru", *American Association for the Advancement of Science*, Vol. 316, No. 5833 (Jun. 29, 2007), 1890.

[124] John P. Hart and C. Margaret Scarry, " The Age of Common Beans (Phaseolus vulgaris) in the Northeastern United States," *American Antiquity* 64, no. 4 (October 1999), 657.

[125] Stephen Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," *Agriculture and Human Values* Vol 4, no. 2 (1987): 76.

[126] William Engelbrecht, *Iroquoia: The Development of a Native World*. (Syracuse: Syracuse University Press, 2003), 23.

The pathways for each of the Three Sisters were different. Corn, beans and squash arrived independently in New York State from the Mexico highlands. Squash and corn have existed for over a thousand years prior to A.D 1000, while beans have only existed for three centuries.[127] The reasons why the Three Sisters arrived in the Great Lakes region when they did are not well understood. Initially, the Three Sisters were thought to have arrived in the northeastern part of the United States one after another or adopted at the same time between A.D.1000 to 1100.[128]

For contemporary historians, there are several barriers or challenges that make it difficult to understand how exactly the Three Sisters came to be adopted or cultivated together. These challenges include the need for a more comprehensive understanding of the past specifically: i) the seasonal cycles and weather conditions each of the Three Sisters have undergone ii) differences and similarities in agricultural techniques used in each of the Five Nations and iii) the Haudenosaunee's time and energy spent on the propagation of the polycultural crop system.[129] All of these variables come into play in obtaining a better understanding of the Three Sisters from a Westernized perspective. Recent findings show that the Three Sisters were adopted independently in some regions of eastern North America beginning around A.D 1300.[130] They were grown together in

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[127] John P. Hart and Hetty Jo Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York," *Journal of Anthropological Archaeology* 28, no. 4 (Dec. 2009), 378.

[128] John P. Hart, "Squash Down, Beans Up, Corn Steady," *Archaeology- A Publication of the Archaeological Institute of America,* vol. 53 no. 1.

[129] Patti J. Wright and Christopher A. Shaffer, "Crop Selection: Perspectives from the Lower Missouri River Basin," *Midwest Archaeological Conference Inc. Occasional Papers,* no. 1. (2014), 88.

[130] John P. Hart, "Squash Down, Beans Up, Corn Steady," *Archaeology- A Publication of the Archaeological Institute of America,* vol. 53 no. 1.

some locations on a regular basis.[131] The adoption of the polycultural crop complex of the Three Sisters was gradual and took place approximately 700 years ago as each of the crops adjusted to the climate and new surroundings.[132]

Squash

According to archaeologist Dr. Richard S. MacNeish, there is decisive evidence that the cucurbita material in the Americas originated from the Ocampo Caves and Tehuacan in the Mexican highlands or Central America.[133] Evidence that the cucurbitas entered into agriculture in this area was found in strata 5200 B.C at Tehuacan and 5000 B.C at Ocampo. This demonstrates that the domestication of these plants occurred much earlier than these dates.[134]

Cucurbita is the genus or plant of origin of the gourd family. Archeological sites have identified five species of cultivated *Cucurbita*: *Cucurbita pepo*, summer squash and pumpkins; *C. mixta*, winter squash and cymlings; *C. moschata*, winter squash and pumpkins; *C. maxima*, winter squash, pumpkins; *C. ficiolia*, fig leaf gourd.[135] These species and sub-species have been identified from seeds but, genetic manipulation between species is difficult to track.[136] This implies that the *Cucurbitas* evolved from different sites of domestication and were domesticated at different time periods. One example of this is *Cucurbita pepo* which was cultivated "south of Mexico City, then

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[131] John P. Hart, "Squash Down, Beans Up, Corn Steady," *Archaeology- A Publication of the Archaeological Institute of America,* vol. 53 no. 1.
[132] John P. Hart, "Squash Down, Beans Up, Corn Steady," *Archaeology- A Publication of the Archaeological Institute of America,* vol. 53 no. 1.
[133] Thomas W. Whitaker and Hugh Cutler, "Cucurbits and Cultures in the Americas," *Economic Botany* vol. 19, 4 (Oct-Dec., 1965), 344-439.
[134] Whitaker and Cutler, "Cucurbits and Cultures in the Americas," 346.
[135] Whitaker and Cutler, "Cucurbits and Cultures in the Americas," 346.
[136] Whitaker and Cutler, "Cucurbits and Cultures in the Americas," 346.

northward to southern Canada along the East Coast of the United States; westward through the Mississippi Valley into northwestern Mexico and southwestern United States." [137]

The *Cucurbito pepo*'s macrobotanical remains were discovered in the central area of Pennsylvania in 800 B.C.[138] Archaeologists and researchers speculate that this crop may have been grown at an earlier date in the central areas of New York.[139] Macrobotanical remains are carbonized remains from burned plants.[140] There has been no recent evidence of squash found in central New York. However, the earliest macrobotanical squash remains were discovered in the upper Susquehanna valley, New York and dated AD 1300.[141]

Tropical squashes, such as pumpkins, only entered agriculture around A.D. 1000. In time, other types of squash appeared in the eastern regions of the United States but cultivation only began in the Northeast around 700 B.C., not more than 2700 years ago.[142] One of the main reasons information is limited regarding the geographic distribution of early squash and gourd use is the lack of evidential finds. John P. Hart

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[137] Whitaker and Cutler, "Cucurbits and Cultures in the Americas," 346.
[138] John P. Hart and Hetty Jo Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York" *Journal of Anthropological Archaeology* vol. 28, 4 (December 2009), 369.
[139] Hart and Jo Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York," 369.
[140]Clarissa Cagnato, "What is Macrobotanical Analysis?" *Macrobotanical Research,* http://clarissacagnato.weebly.com/macrobotanical-analysis.html (Accessed: June 19, 2016).
[141] John P. Hart and Hetty Jo Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York" *Journal of Anthropological Archaeology* vol. 28, 4 (December 2009), 369.
[142] "A Guide to the Three Sisters Diorama." *New York State Museum*. http://www.nysm.nysed.gov/IroquoisVillage/Sistersone.html (accessed 9 Dec 2015).

points out that the spread of gourds in the Northeast may be attributed to genetic crop selection as the seed coats were removed from the squash due to the coats' bitter taste.[143] The seed coat is the outer layer or the protective layer of the seed. The non-bitterness of the squash may have been attributed to human mediation by isolating the gene's dominant trait – bitterness. This means that sweet squash was genetically modified by humans and evolved over time in the eastern region of North America.[144] Also, the dried fruit of the squash was also used as a flotation device to help fishing nets stay above the water.[145] The seeds from the fruit may have disseminated in the waterways leading to the expansion of growth in the Great Lakes area.

Corn

Significant advances have been made over the past decade as historians have gained a stronger understanding of how corn entered the Great Lakes region and grew to play a dominant role in the Haudenosaunee crop system. Anthropologists, archaeologists and paleontologists rely on analysis of chemical composition of human bones and teeth which reveals evidence of diet; study of carbonized remains near cooking sites show what plants were cooked; and preserved organic remains uncover how seeds were disseminated and integrated into the Haudenosaunee agricultural complex and diet.[146]

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[143] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 89.
[144] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 89.
[145] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 89.
[146] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 273.

Corn has been an invaluable food source for New World cultures due to its genetic variability; it is able to adapt to the microclimate conditions of the Great Lakes region.[147] Corn's ability to self-fertilize and pollinate by wind allow it to multiply, while adjusting to and surviving different weather conditions.[148] The Haudenosaunee can take the "pollen from the tassel of the corn plant and dust it on the silks of another" in order to manipulate and focus on specific qualities as they developed new corn varieties that will meet their agricultural and cultural needs.[149] The Haudenosaunee's genetic manipulation of corn focused on native seeds and bringing out the plant's best qualities for consumption and production. The Westernized scientific manipulation of genetic traits focused on industrialized agriculture and reproducing corn for the masses. They did not fully take into account the importance of heirloom seeds or environmental concerns.

Corn is thought to have originated in central Mexico, and then spread to the New England area.[150] The botanical trait of corn has allowed it to evolve substantially since its domestication in the Tehuacan Valley of Mexico approximately 7000 years ago.[151] The Indigenous people were thought to have biologically manipulated the corn. Nina V. Federoff, a Pennsylvania State University geneticist, contends that this was "arguably man's first, and perhaps his greatest, feat of engineering." [152] Wild corn comes in a variety of colours such as red, orange, purple and multi-coloured. This shows the

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[147] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 25.
[148] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 28.
[149] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 29.
[150] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 25.
[151] Galinat, "The Evolution of Corn and Culture in North America," 351.
[152] Charles C. Mann, *1491- New Revelations of the Americas before Columbus,* (New York: Vintage Books, 2011), 223.

diversified nature of the corn. Domesticated corn is of fewer varieties than wild corn because the less desired characteristics have been genetically modified or removed.[153]

The pathways for the dissemination and transmission of landraces (families or cultivated varieties) of corn are not clear.[154] Corn is open pollinated and scatters the pollen into the air. As a result, maize researchers in Mexico have identified more than fifty types of landraces. The "multiple demes" of local corn that were disseminated by different networks of distribution depended on weather conditions, the fertility of the soil and the environment surrounding the crops.[155] Evidence of fossilized plant tissues of corn has been discovered in New York, and dated to be around 300 BC in the Finger Lakes, New York but there the first evidence it was cooked and used in pots not until 1500 B.P.[156]

Evidence indicates that corn cultivation was introduced in surrounding areas of southwestern Ontario in A.D. 540, New York State in A.D. 640, and south-central Ontario dated between A.D. 700- 900.[157] Researchers have found evidence of early corn, based on findings of carbonized encrustations inside pots, dated from seventh-century A.D sites in New York State.[158]

It is uncertain how the Haudenosaunee acquired corn and developed the Three Sisters crop complex. Written documentation by European explorers, and archaeological

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[153] Mann, *1491- New Revelations of the Americas before Columbus,* 224.
[154] Mann, *1491- New Revelations of the Americas before Columbus,* 224.
[155] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 273.
[156] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," 89.
[157] Gary Warrick, *A Population History of Huron- Petun, A.D 500 - 1650*. (New York: Cambridge University Press, 2008), 165.
[158] Warrick, *A Population History of Huron- Petun, A.D 500 - 1650,* 166.

data related to earliest contact with the Haudenosaunee in the Great Lakes region are limited. Daniel K. Onion, a scholar, speculates that the Seneca may have acquired corn through warfare or raids.[159] Cartier describes the Mohawk village of Hochelaga near the St. Lawrence River as "encompassed by cornfields" in 1535.[160] The corn may also have been taken from Indigenous groups who resided in the southern areas across central New York.

Historians postulate that the adoption of maize-based agriculture took place around A.D 1000 in central New York.[161] Many researchers believe that longhouses and matrilocality developed as a result of the agricultural production of maize during this time period.[162] By contrast, Hart states that maize consumption in central New York began around A.D. 500; this suggests that the adoption of corn agriculture in central New York may have taken place prior to this date. This narrative of the development of maize agriculture is based on macrobotanical remains dated A.D. 500.[163] Evidence of corn's macrobotanical remains were discovered in New York 1050 +/- 50 B.P. but Hart points out that more evidence is needed to substantiate the exact cultivation date.[164] The discovery of the "stable carbon isotope of human bone apatite and collagen" indicates

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[159] Daniel Onion, "Corn in the Culture of the Mohawk Iroquois," *Economic* Botany (1964), Vol 18 (1).
[160] Daniel Onion, "Corn in the Culture of the Mohawk Iroquois," 1.
[161] Hart and Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York," 369.
[162] Hart and Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York," 369.
[163] Hart and Brumbach, "On Pottery Change and Northern Iroquoian Origins: An Assessment from the Finger Lakes Region of Central New York," 369.
[164] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," in *Current Paleoethnobotany II,* ed John Hart (New York: University of the State of New York, 2008), 89.

that corn was part of the Haudenosaunee diet as early as A.D. 250.[165] Other scholars assert that evidence of corn cultivation in New York can be dated to A.D. 800, 1200 years ago.[166]

The earliest evidence of modern corn was discovered in Mexico and dated to 500 BC.[167] Modern corn was hybridized from wild corn to produce a more hardy, productive and drought resistant variety. Between the dates A.D. 700 – 1400, the cultivation of corn moved from the southwest to the northeast in New England.[168] As corn cultivation moved, natural selection filtered out certain features to adapt to the cooler and shorter growing season. This produced two hundred distinct varieties of corn as the crop adapted to its surrounding areas by A.D. 1400.[169]

Originally, wild corn had miniature cobs that were male above and female below along with an estimated eight rows of kernels wrapped in husks. The modern corn cob has increased about ten times in size and is now largely female with over eight rows of kernels. The Haudenosaunee cultivated five varieties of corn that varied in taste and texture.[170] These were: *Zea mays amylacea* (a starchy corn that was light in colour); *Zea mays indurate* (flint or *horminy* corn with a hard exterior layer); *Zea mays saccharata* (sweet corn); *Zea mays everta* (popcorn) and *Zea mays omylea saccharata* (starchy-sweet

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[165] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," in *Current Paleoethnobotany II*, ed John Hart (New York: University of the State of New York, 2008), 369.
[166] "A Guide to the Three Sisters Diorama." *New York State Museum*. http://www.nysm.nysed.gov/IroquoisVillage/Sistersone.html (accessed 9 Dec 2015).
[167] Galinat, "The Evolution of Corn and Culture in North America," 354.
[168] Galinat, "The Evolution of Corn and Culture in North America," 355.
[169] Galinat, "The Evolution of Corn and Culture in North America," 351.
[170] Daniel Onion, "Corn in the Culture of the Mohawk Iroquois" 60; Waugh, *Iroquois Foods and Food Preparation,* 76.

corn).[171] Early Iroquoian and contemporary remains of corn, around the areas of New York State and Mississippi Valley, show that corn comprised 20-35% of the diet from A.D. 900-1200.[172] The most cultivated variety was the flint or *horminy* corn due to the Haudenosaunee's mainstay corn soup. To make this soup, the corn is hulled, ground and cooked. Beans may also be incorporated into the recipe**.**[173]

Beans

New findings indicate that beans were established in the Northeast around A.D. 1300 or later, two centuries later than originally estimated. The beans were found in four sites in the states of Vermont, Pennsylvania and New York.[174] The common bean, *Phaseolus vulgaris*, was domesticated 7000 years ago in Mexico.[175] Lawrence Kaplan, professor emeritus in botany, states that the earliest domesticated remains of small lima, *P. lunatus* beans were found in the Ocampo Caves at Tehuacan Valley and at Dzibilehaltun in Mexico, 1400-1800 years ago.[176] John Hart contends that there has been no reliable macrobotanical evidence to support the fact that beans were in existence in northeastern North America prior to 700-650 B.P.[177]

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[171] Daniel Onion, "Corn in the Culture of the Mohawk Iroquois" 60; Waugh, *Iroquois Foods and Food Preparation,* 76.
[172] Warrick, *A Population History of Huron- Petun, A.D 500- 1650*, 166.
[173] Waugh, *Iroquois Foods and Food Preparation,* 92.
[174] John P. Hart, "Squash Down, Beans Up, Corn Steady," *Archaeology- A Publication of the Archaeological Institute of America*, vol. 53 no. 1.
[175] Lawrence Kaplan, "Archeology and Domestication in American Phaseolous (Beans)." *Economic Botany* 19, no. 4 (Oct- Dec, 1965): 367.
[176]Ibid.., 363-364
[177] John Hart "Evolving the Three Sisters: The Changing Histories of Maize, Bean, and Squash in New York and the Greater Northeast," in *Current Paleoethnobotany II*, ed. John Hart (New York: University of the State of New York, 2008), 90.

The differences between domesticated American beans and wild beans are: the size of the seeds, the water permeability of the seeds, and the "fleshiness" of the roots.[178] The fact that beans were discovered in a cave suggests that they were brought there, from where the beans once grew.[179] Kaplan asserts that, based on archeological evidence, beans were independently domesticated.[180] He notes that beans and corn may have been domesticated together but early records indicate that they did not co-exist until agricultural production was more prominent.[181] Archaeologists analyzing plant remains assert that the absence of a parchment layer on an uncharred pod valve demonstrates that the bean was domesticated.[182] The beans may have been genetically modified to their present condition.

Transition from a Hunter-Gatherer to an Agricultural Economy

Twenty-first century archaeological research on the Haudenosaunee has mostly relied on a "theoretical self-consciousness" approach. This approach recognizes the importance of culture and history on a continual basis. Jennifer Birch, an archaeologist notes that the "theoretical self-consciousness"- based study of settlement patterns now focuses more on the interactions between communities, migration patterns, site sequences and the communities themselves.[183] The approach is more dynamic and detailed than a cultural historical vision of the past, used prior to the twenty-first century, because a more

[178] Kaplan, "Archeology and Domestication in American Phaseolous (Beans)," 367.
[179] Kaplan, "Archeology and Domestication in American Phaseolous (Beans)," 364.
[180] Kaplan, "Archeology and Domestication in American Phaseolous (Beans)," 359.
[181] Kaplan, "Archeology and Domestication in American Phaseolous (Beans)," 368.
[182] Kaplan, "Archeology and Domestication in American Phaseolous (Beans)," 364.
[183] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 269.

complete understanding is generated from examining complementary and interconnecting views.[184]

Prior to the twenty-first century, archaeological research used culture historical taxonomies to "order sites into cultural sequences."[185] The technique largely involves identifying, naming, describing and classifying objects or organisms. In the past, researchers focused their inquiry on the Haudenosaunee Confederacies, adoption of longhouses and similarities in the design of the ceramics with other tribes. This approach attempted to construct a culture-historical vision of the past, based on culture-historical taxonomies and distinct cultural changes.[186] Archaeological understandings of human activity was largely based on analysis of material culture that humans left behind at a particular location.[187] There were no central beliefs or principles as to how archaeologists were meant to perceive the past. Rather, archaeologists centered some of their understandings on theories of how people behaved or changed due to societal and cultural roles.[188] Most scholars believe that the new approach is more balanced because the analysis of demographics, ecology and culture allows researchers to delve deeper into other factors that affect communities such as past conflicts, ceremonial spaces and ethnic groups.[189]

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[184] Rieth and Hart, "Introduction to Current Research in New York Archaeology," 1-2.
[185] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 268.
[186] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 269.
[187] Rieth and Hart, "Introduction to Current Research in New York Archaeology, "1.
[188] Rieth and Hart, "Introduction to Current Research in New York Archaeology, "1.
[189]Birch, "Current Research on the Historical Development of Northern Iroquoian Societies." 269.

The adoption of agriculture and subsequent increase in population were gradual processes that took place over an estimated 600-800 years.[190] There have been numerous speculations as to the reasons why an agricultural economy was adopted.

Around A.D. 1260, communities in Ontario showed indications of expanding at a time when widespread adoption of agricultural production of corn was occurring. Some scholars such as Bruce G. Trigger posited that larger populations encouraged farming while others such as Gary Warrick posit that farming encouraged population growth. Trigger hypothesized that population pressure led to the adoption of an agricultural economy while Warrick believed that maize agriculture was adopted by the Indigenous population to supplement their hunting and food gathering in times of famine.[191] Regardless of which is correct, there are clear signs that both farming and population grew during that time.

Agricultural cultivation is thought to have required a peaceful environment in order to succeed. However, assertions have been made that agricultural cultivation was correlated with warfare. Ritchie and Funk has suggested that agricultural farmland may have contributed to conflict arising from inter-tribal competition over deer hides or over the resources in New York.[192] Arthur Parker point to the idea the acquisition of the Three the Three Sisters, and corn in particular, were acquired through Haudenosaunee raids on other tribes.[193]

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[190] Warrick, *A Population History of Huron- Petun, A.D 500- 1650,* 167.
[191] Bruce Trigger, *The Children of Aataentsic: A History of the Huron People to 1660,* 132.
[192] Engelbrecht, *Iroquoia: The Development of a Native World*, 36.
[193] Parker, *Iroquois Uses of Maize and Other Food Plants,* 36.

Daniel K. Richter argues that in warfare, the Haudenosaunee believed it was better to retreat and lose their homes and cornfields than to lose their honour and fight at a disadvantage when outnumbered by enemies. In Haudenosaunee culture, death in the battlefield was honourable only if it was a surprise attack.[194] If the Haudenosaunee were at a disadvantage, they would flee. If the Haudenosaunee warrior died in the battlefield, the warrior's soul would be separated from his body in the afterlife. His soul would be forced to wander for eternity to attain revenge.[195] A warrior's body would not be buried with others in the cemetery. Warfare was specifically related to the death of individuals and the kidnapping of enemies to replace the dead as this was foremost a symbolism for social mourning.[196] The act of stealing food from enemies and mourning wars may be attributed to the Haudenosaunee restoring balance in the life of the departed.[197] These assertions are based mainly on speculation and it might be that numerous factors contributed.

Anthropologist Bruce G. Trigger argues that the different cycles of the growing season allowed hunter-gatherers to more easily transition to agricultural life because they were predisposed and already adapted to rituals that centered on the four seasons. The organizational structure and support system is already built in as the members of the group continue to live together.[198] He also postulates population growth may lead to a need for new sources of food.[199] As populations grew, reliance on hunting and gathering

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[194] Richter, "War and Culture: The Iroquois Experience," 536.
[195] Richter, "War and Culture: The Iroquois Experience," 536.
[196] Richter, "War and Culture: The Iroquois Experience," 536.
[197] Engelbrecht, *Iroquoia: The Development of a Native World. 35.*
[198] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660,* 133.
[199] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660,* 132.

necessarily decreased due to limited resources, most notably deer and other animals that provided skin for clothing.[200]

Daniel K. Richter, a historian, argues that warmer weather was the principal driver behind the shift from a hunting and gathering society to an agricultural one which occurred between A.D. 300-1350.[201] This was especially evident throughout the eastern part of North America, excepting the colder northern areas. The warm weather stimulated a resurgence of agricultural productivity that centered on the Three Sisters, which became a principal food source in the east.[202] The warmer weather encouraged innovativeness in farming leading to improved varieties of the older and more established crops, squash and corn, and the introduction of a new one, beans.[203] Richter further notes that in the mid-fourteenth century the warm weather changed to a "Little Ice Age" which lasted until the 1800s.[204] Jennifer Birch asserts that reliance on agricultural production by the Haudenosaunee and other Indigenous population residing around the Great Lakes occurred at the same time as the Little Ice Age, ca 1300-1800. Birch further elaborates that after ca 900-1250 the agricultural adoption of corn increased in the northeast as the weather became significantly warmer.[205]

Mississippian agriculture in the period 900-1400 flourished due to global warming – a few degrees increase in the average annual temperature. The warm weather conditions spurred colonization through eastern North America but also to an agricultural

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[200] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660,* 131- 133.
[201] Ritcher, *Facing East from Indian Country: A Native History of Early America,* 5.
[202] Ritcher, *Facing East from Indian Country: A Native History of Early America,* 5.
[203] Ritcher, *Facing East from Indian Country: A Native History of Early America,* 5.
[204] Richter, *Facing East from Indian Country: A Native History of Early America,* 5.
[205] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 277.

economy. The rise and collapse of the Mississippian cultures occurred during the "Medieval Optimum," between 900-1350. The term "Mississippian cultures" refers to the groups that lived around the Mississippi region, which included what is now "Cahokia (east St. Louis), Natchez (in Mississippi), Moundville (in Alabama) and Coosa and Etowah (in Georgia)." [206]

Agricultural production played a vital role in Mississippian stratified societies. The agricultural hamlets, located on the outskirts of the urban centers, were responsible for producing food for the upper classes. Agricultural production in these societies appears to be specialized and organized, as the lower classes were trained to work in specific roles. The chiefs and priests were regarded as the "Great Suns" because it was believed that they could bring agricultural crops to fruition and feed the masses. The Three Sisters would have adjusted to the warm weather conditions, in order to spread and grow in the northeastern part of North America.[207] The Three Sisters were already adapted to warmer weather since they came from the south.

By 1492, as the "Little Ice Age" unfolded, the stable economic climate began to unravel and people began to question the authority and wisdom of political and religious leaders, who were unable to control or predict the weather.[208] The collapse of the Mississippian cultures was largely attributed to the chiefs' and religious leaders' inability to produce food and cultivate the crops. This resulted in the Mississippians dispersing to other territories.[209]

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[206] Richter, *Facing East from Indian Country: A Native History of Early America*, 3
[207] Richter, *Facing East from Indian Country: A Native History of Early America*, 3
[208] Richter, *Facing East from Indian Country: A Native History of Early America*, 3
[209] Richter, *Facing East from Indian Country: A Native History of Early America*, 3-5.

Evidence show that Mississippian groups migrated throughout southeastern North America. Changes in climate from a warm period to a cooler period – after 1492 – motivated migrations to disperse to smaller more, diverse communities. Each of these communities had their own agricultural villages, and hunting and fishing territories, but on a smaller scale than previously seen.[210]

Mississippian history allows for a greater understanding of the ingenuity behind the formation of the Three Sisters. The manipulation of native seeds most likely led to an improved variety of squash and corn along with the introduction of a new vegetable, beans. The Three Sisters became the staple diet in the east for the majority of the Indigenous people and also eased the transition to an agricultural economy from a hunting and gathering one.[211] By the time the Mississippian dispersal occurred, agriculture was already well established in the territories of the Haudenosaunee.

The transition from a gathering to a farming economy involved more densely populated settlements, adapting to different agricultural techniques and domestication of plants and more of a hierarchical class structure as the Cahokia regions developed. In the state of New York, clusters of early Iroquoian sites were discovered in three major areas: northern regions of the Finger Lakes, Susquehanna River valley and Mohawk River valley.[212] The structures were ovoid in shape i.e. similar to the longhouses the Haudenosaunee would later build. Some of the longhouses would be surrounded by palisades for defensive or symbolic reasons. Thirteenth and fourteenth century

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[210] Richter, *Facing East from Indian Country: A Native History of Early America*, 5.
[211] Richter, *Facing East from Indian Country: A Native History of Early America*, 5.
[212] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 274.

settlements appear to be unorganized because the structures were reconfigured over successive periods as each generation grew and occupied, moved or re-occupied the longhouses.[213] Clusters of settlement may be interpreted as "contemporary communities" because the hunting grounds and natural resources were to be utilized by each individual in the community.[214] As a result, it is difficult to fully determine whether population growth was increased due to the amount of people or whether it was an amalgamation of settlements and villages.

There are indications that community integration were taking place across southern Ontario and other regions prior to the 15th centuries.[215] Longhouses became more aligned and this may or may not constitute evidence that these communities belonged to the same kinship group or that many villages were merging into one settlement group.[216] This change in settlement may be attributed to intermarriage or clan exogamy. Community integration created an obligation or reciprocity which may have led to similar agricultural subsistence patterns and ceremonial activities. The Haudenosaunee settlements were mainly composed of small villages as the clans began to integrate into communities. With community integration came the consolidation of territories, subcultural identities and political groups.[217] Intertribal trade gradually began to expand along with the growth of

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[213] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 274.
[214] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 274- 276.
[215] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 280.
[216] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 279.
[217] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 277.

Haudenosaunee communities. Periodic relocations due to the migratory nature of the Onondaga tribe resulted in the gradual integration of two or more separate villages into larger communities.[218] The Onondaga shared a similar nature to other Haudenosaunee and Indigenous tribes such as the Huron and the Neutral.[219]

After the mid-fifteenth century, the amalgamation and relocation of villages were affected by trade, defense, kinship and intermarriage.[220] Common characteristics of coalescent communities include; the expansion of palisades, alignment of buildings and a focus on defensive measures.[221] Fewer tribal relocations took place in the fifteenth century because local resources were depleted at a slower rate due to a smaller population. However, the size of the uninhabited territory was still an important factor in selecting and maintaining a settlement because the Haudenosaunee needed areas for hunting, fishing, food gathering and agricultural production. Access to food and space for the agricultural cultivation of the Three Sisters and other staples were of utmost importance for survival.

Evidence found in the Mohawk Valley shows that the aggregation of villages only began to occur from the start of the sixteenth century. The Indigenous initially settled on flat land with lots of green space, most likely for the purposes of agricultural production. Then, they moved to higher points of elevation surrounded by water, mainly as a defensive mechanism against enemy tribes.[222] Between the sixteenth and seventeenth

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[218] James Tuck, *Onondaga Iroquois Prehistory- A Study in Settlement Archaeology* (Syracuse: The Iroquois and their Neighbours, 1971), 2.
[219] Tuck, *Onondaga Iroquois Prehistory- A Study in Settlement Archaeology*, 2.
[220] Tuck, *Onondaga Iroquois Prehistory- A Study in Settlement Archaeology*, 284.
[221] Tuck, *Onondaga Iroquois Prehistory- A Study in Settlement Archaeology*, 285.
[222] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 286.

centuries, the Iroquoian villages can be classified as town-sized, both in terms of population and physical area.[223]

In the seventeenth century, Jesuits living in Haudenosaunee villages near Lake Gannentaa observed the usage of wild plants such as grapes, plums and strawberries along with chestnuts and walnuts trees.[224] Domesticated plants included the Three Sisters and sunflowers.[225] The Haudenosaunee's central crop, corn, was planted on a large scale which necessitated more permanent settlements as the population grew.

During the seventeenth century, Seneca and Cayuga settlement aggregation began. The Seneca lived in two villages which were extended from a larger village.[226] In planning these communities, the Haudenosaunee took into account concerns such as garbage disposal, availability of agricultural land for growing crops and assignment of roles and responsibilities for clearing land, chopping trees for firewood and building palisades for protection.[227] Quoted in Tuck, Father Lamberville, writing in 1682, describes the process involved in periodic settlements and village relocation:

> On my arrival, I found the Iroquois of this village occupied in transporting their corn, their effects, and their cabins to a place 2 leagues distant from their former residence, where they had dwelt for 19 years. They made this change in order to have firewood in convenient proximity, and to secure fields more fertile than those they were abandoning. This is not done without difficulty; for, in as much as carts

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[223] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 287.

[224] *The Jesuit Relations and Allied* Documents 43: 147, 257- 259, The Jesuit Relations and Allied Documents web site, http://puffin.creighton.edu/jesuit/relations/relations_43.html.

[225] *The Jesuit Relations and Allied* Documents 43: 147, The Jesuit Relations and Allied Documents web site, http://puffin.creighton.edu/jesuit/relations/relations_43.html.

[226] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 286.

[227] Bruce Trigger, *Native and Newcomers: Canada's "Heroic Age Reconsidered"*, (Montreal: McGill- Queen's University Press), 101.

> are not used here, and the country is very hilly, the labor of the men and women, who carry their goods on their backs, is consequently harder and of longer duration. To supply the lack of horses, the inhabitants of these forests render reciprocal aid to one another, so that a single family will hire sometimes 80 to 100 persons; and they are, in turn, obliged to render the same service to those who may request it from them, or they are freed from that obligation by giving food to those whom they have employed.[228]

Population size was a critical factor in determining how long the Haudenosaunee remained in a given spot. The villages consisted not of permanent settlements but of relocated structures; these were likely moved around due to diseases affecting humans, the exhaustion of nutrients in the soil, and perhaps bad omens or supernatural signs that appeared in dreams.[229] The relocations of the villages, as Father Lamberville attests, were characterized by a sense of communal responsibility and teamwork. As the towns grew more complex and formalized, political leaders emerged out of the organizational framework in the community.[230] Each member of the tribe acted to ensure that the palisades kept intruders out of their longhouses.[231]

The majority of the Haudenosaunee settlements grew the Three Sisters. Lewandowski speculates that the intercropping of the Three Sisters may have been introduced gradually over time either through the blending of the Confederacy's different cultures or the importation and adaptation of the crop complex.[232] The Three Sisters' arrival in the Great Lakes region may be linked to Haudenosaunee migration. The

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[228] James Tuck, *Onondaga Iroquois Prehistory: A Study in Settlement Archaeology* (Syracuse: The Iroquois and their Neighbours, 1971), 3-4.
[229] Tuck, *Onondaga Iroquois Prehistory: A Study in Settlement Archaeology,* 3-4.
[230] Tuck, *Onondaga Iroquois Prehistory: A Study in Settlement Archaeology,* 3-4.
[231] Tuck, *Onondaga Iroquois Prehistory: A Study in Settlement Archaeology,* 3.
[232] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 77.

formation of the Haudenosaunee Confederacy, and the intercommunity connections and cultural entanglements that came with it, may explain how the Three Sisters crop complex came to be.

There is some compelling evidence from European explorers and missionaries that the Three Sisters polycultural complex was adapted "syncretistically with other culture(s)" in the Finger Lakes.[233] In other words, each of the Five Nations fused different cultural beliefs and developed a common version of the agricultural techniques for growing corn, beans and squash. In this hypothesis, the spiritual ideologies behind the ceremonial events practiced in each nation may have gradually fused together to create the symbolic function of the Three Sisters intercropping complex.[234]

Dean R. Snow supports an Iroquoian migration model largely based on anthropological, archaeological, linguistic and demographic evidence.[235] He advocates for a migration hypothesis, in opposition to the *in situ* hypothesis that is favoured by Trigger and other scholars. Snow believes that Iroquoian cultural traits developed around Pennsylvania and then the people bearing this culture migrated northward to New York, southern Ontario and Quebec, displacing earlier Algonquian-speaking populations.[236] The migration model suggests that Princess Point sites were the ancestral Iroquoian residence in the Grand River Valley. The Iroquoian speakers arrived with a range of Iroquoian cultural traits already in place including: maize agriculture, matrilocal

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[233] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 77.
[234] Bruce Trigger, *Native and Newcomers- Canada's "Heroic Age Reconsidered",* (Montreal: McGill- Queen's University Press), 97.chap
[235] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 422.
[236] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 422.

residence/matrilineal descent systems and palisaded longhouses.[237] Princess Point settlement-subsistence is largely based on year round occupancy in the villages with corn agriculture. The adoption of corn at Princess Point is attributed by the Haudenosaunee to the adaptive nature of the vegetable and its nutritive qualities.[238] Trigger argues, in contrast, that Iroquoian cultural traits emerged, not from a migrating population, but through gradual adoption by populations that more or less stayed in place. Trigger points out, based on the *in situ* hypothesis, the Iroquoian speaking people do not all share common cultural traits or features. For example, the Stadaconans, an Iroquoian group, cultivated corn up to northern Quebec. However, due to unsuitable climate conditions for farming, the Stadaconans adopted hunting and fishing into their way of life.[239] The Stadaconans shared similar cultural traits – hunting and fishing, with the Algonkians whereas with other tribes who did not live near waterways may not have fished at all. This example aligns itself with the *in situ* hypothesis. Warrick tends to lean towards Trigger's interpretation and argues that the agricultural production of corn was adopted by the Wendat-Tionontateé. This was a way to supplement their diet along with hunting, fishing and food-gathering. He contends that population growth followed only after the adoption of corn agriculture due to European colonization.[240]

Snow's migration hypothesis has been disputed by some researchers such as Trigger and Engelbrecht; they contend that material culture and language do not clearly delineate a correlation of demographic/ethnic continuity.[241] Warrick points out that

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[237] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 422.
[238] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 433.
[239] Trigger, *The Children of Aataentsic: A History of the Huron People to 1660*, 181.
[240] Warrick, *A Population History of Huron- Petun, A.D 500 - 1650*, preface.
[241] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 425.

radiocarbon dating in southern Ontario from "A.D. 500-800, Middle Woodland hunter-gatherers and Princess Point agriculturalists" do not show consistent archaeological evidence of the transition either.[242] Furthermore, the linguistic and material evidence Snow relies on cannot be proven because each is a distinct entity and there is a lack of reliable evidence to illustrate the languages spoken at the sites.[243] This shows that the adoption of the Three Sisters most likely occurred based on the *in situ* hypothesis. Each of the Haudenosaunee tribes planted the Three Sisters but each tribe may have practiced some of the ceremonies or plantings slightly differently.

In discussing matrilocal residence, Snow asserts agricultural production may have come to the Princess Point area by Haudenosaunee immigrants. Matrilocal residence occurs when a newlywed couple moves in and lives with the bride's family. However, Snow argues that matrilocal residence did not develop further because of their dependence on maize agriculture and the role of women in agricultural subsistence production.[244] Matrilocal residence is regarded by migratory Haudenosaunee as an adaptive strategy. For example, once a Haudenosaunee clan settles into an occupied area, they would soon dominate the settled groups using this strategy.[245] Arguments about the development of matrilocality are hampered by insufficient archaeological evidence and problems related to the reconstruction of longhouses after A.D. 1000. Based on these archaeological findings, the Three Sisters most likely developed through the blending of the Confederacy's different cultures as they moved into the Great Lakes region.

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[242] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 423.
[243] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 425.
[244] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 425.
[245] Warrick, "The Precontact Iroquoian Occupation of Southern Ontario," 425.

Cultural Agricultural Practices: The Three Sisters

The polycultural cropping of the Three Sisters was based on a mixed subsistence strategy. The corn, beans and squash were planted amongst each other to ensure greater yields and productivity. Agricultural fields were not always adjacent to the villages but in areas that provided variable drainage for crops to grow.[246] This enabled crops to acclimatize themselves: some crops fared better in the rainy season under well-drained areas because this prevented root rot, while others were planted in less drained areas for the dryer season to ensure the retention of moisture.[247] There was also a distinct separation between fields that grew food specifically for council members in the league, and those reserved for national festivals.[248] The Three Sisters agricultural cycle was as follows: In the spring, the seeds from the Three Sisters would be planted "when the white oak leaves are the size of red squirrel's foot."[249] In the summer, the vines from the beans grew and became entwined around the corn husks. The squash grew on the ground and the shade kept the weeds under controls.[250] In the fall, the roots of the beans ensured nitrogen would be released back into the soil as fertilizer that the corn had siphoned out. Furthermore, the squash absorbed the lime back into the linings of their tissues and into the ground when the plants were recycled and made into fertilizer.[251] The polycultural intercropping and the consumption of the Three Sisters stress the importance of reducing susceptibility to diseases, preventing vitamin deficiencies and increasing biodiversity.

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[246] Engelbrecht, *Iroquoia: The Development of a Native World. 30.*
[247] Engelbrecht, *Iroquoia: The Development of a Native World. 30.*
[248] Parker, *Iroquois Uses of Maize and Other Food Plants*, 24.
[249] Engelbrecht, *Iroquoia: The Development of a Native World. 31.*
[250] "How to Plant the Three Sisters," *Cornell Garden- based learning- resources for gardeners and educators*, http://blogs.cornell.edu/gblblog/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/ (accessed 5 June 19).
[251] Engelbrecht, *Iroquoia: The Development of a Native World. 31.*

In part of the story of the Three Sisters cited below, the proper picking order of the vegetables is shared: beans, squash and then corn.[252]

> This was the youngest sister in green, the sister who could only creep. She was scarcely able to stand alone in the field unless she had a stick to which she clung… That night the second of the sisters left, the one who was dressed in yellow and who always wanted to run away… Now there was but one of the sisters left. Tall and straight she stood in the field not once bowing her head with sorrow, but it seemed to her that she could not live there alone. [253]

The knowledge transmitted in the story highlights: The "sister in green" are the beans who cling to the corn. The second sister is the squash "dressed in yellow" who is harvested next followed by the corn standing alone, the "tall sister." Corn and squash do not taste as sweet when they are harvested early. The story seems like a fairy tale to Western eyes, but serves to transmit valuable information.

The symbolic significance of these cultivation practices reflects the Haudenosaunee's spiritual beliefs and worldview. The Senecas planted the seeds from the corn in a hole on the ground. Some Three Sisters varieties used by the Seneca included Northern flint corn, cornhill bean and crookneck squashes.[254] The seeds from the corn may have been soaked in "corn medicine" which prevented insects, birds and other pests from eating it. One particular ingredient in the "corn medicine" was hellebore, a natural

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[252] "How to Plant the Three Sisters," *Cornell Garden- based learning- resources for gardeners and educators*, http://blogs.cornell.edu/gblblog/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/ (accessed 5 June 19).

[253] "How to Plant the Three Sisters," *Cornell Garden- based learning- resources for gardeners and educators*, http://blogs.cornell.edu/gblblog/lessons/curricula/the-threesisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/ (accessed 5 June 19).

[254] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 76.

form of insecticide.[255] The seeds from the squash and beans were only planted with the corn in every seventh hill because the Haudenosaunee did not want to separate the spirits of the Three Sisters.[256] The six hills were planted with corn and one hill with the Three Sisters. The number seven holds special significance for the Haudenosaunee. It has been hypothesized that seven correlates with Seven Generations; this implies that decisions made today should consider the effects on those living seven generations from now. The importance of sustainability may be associated with the planting in the seventh hill. There are different versions of the Three Sisters in which four to six kernels of corn are used instead of seven.[257] The significance of these numbers are unknown. More corn seeds may have been planted in the same spot to ensure healthy growth. The Three Sisters were planted in this traditional way because the spirits of the three vegetables were united; the seeds needed to be planted together in order to attain a good harvest.[258] The importance of the Haudenosaunee's spiritual belief and worldview are demonstrated through their agricultural practices.

Cropping Methods

The Haudenosaunee's agricultural production of the Three Sisters was a two-step process. First, the Haudenosaunee practiced a "shifting or swidden" (slash and burn) agriculture.[259] The labour involved in this process was divided according to gender: men were responsible for clearing the land while the women completed the field work. The

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[255] Engelbrecht, *Iroquoia: The Development of a Native World. 31.*
[256] Parker, *Iroquois Uses of Maize and Other Food Plants*, 27.
[257] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State",82.
[258] Parker, *Iroquois Uses of Maize and Other Food Plants*, 27.
[259] Snow**,** *The Iroquois*, 67.

men's responsibilities included girding the trees, "bush burning," and uprooting the remaining tree trunks.[260] The slash and burn technique involved burning the undergrowth around the surrounding areas. This process was important because it allowed the loam to be loosened, which made it easier to plant the Three Sisters.[261]

The second step in cultivating the Three Sisters was soil preparation and planting. Haudenosaunee agricultural implements were generally made out of wood, bone or antlers that looked like a short hoe.[262] The handle of the hoe was built from a single piece of the trunk of a sapling with the bulbous root, which was used as the digging end, formed into right angles.[263] Land was prepared with bones and sticks. The women would drag the implements across the soil. A large stick was used to strategically place the seeds in every seventh hole in accordance with Haudenosaunee cultural beliefs. The Haudenosaunee hoed the plantings three times. The first hoeing took place when the corn was a "span high" and the second hoeing when the corn was knee high.[264] Harris describes the planting of corn in *Discoveries and Settlements*:

> The manner of planting is in holes or trenches, about five or six feet distance from each other; the earth is opened with a hoe (and of late years, with a plough), four inches deep, and four or five grains thrown into each hole or trench, about a span distant from each other, and then covered with earth, they keep weeding it from time to time, and as the stalk grows high they keep the mould about it like the hillocks in a hop garden…[265]

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[260] Waugh, *Iroquois Foods and Food Preparation,* 7.
[261] Parker, *Iroquois Uses of Maize and Other Food Plants,* 21.
[262] Parker, *Iroquois Uses of Maize and Other Food Plants,* 25.
[263] Parker, *Iroquois Uses of Maize and Other Food Plants,* 24.
[264] Parker, *Iroquois Uses of Maize and Other Food Plants,* 29.
[265] Parker, *Iroquois Uses of Maize and Other Food Plants,* 26.

In the summer, the Three Sisters were weeded and watered. As the cornstalks grew, the Haudenosaunee would maintain a mound of soil around them to keep out the weeds.[266] Planting usually took place in April and continued until the middle of June. The main agricultural planting typically occurred in May. Under most circumstances, if the corn was planted in April then it could be harvested in August; if the corn was planted in May then the harvest would be in September. The last harvest took place in October.[267] The fields were usually tended by women, as they were the proprietors.[268] Fields could be individually owned, or they could be tribal property. If the fields were individually owned, then there would be a post showing the name of the owner along with a painted totem pole representing the owner's clan.[269] Only the people who worked in the agricultural fields would be able to share in the bounty during the harvest season.

Women who belonged to a particular tribal community and owned fields could enlist their husbands or other males to form a society. The purpose of the society was to name a matron of the cornfields who would then delegate tasks such as hoeing, planting the seeds, weeding and harvesting. She would also monitor the progress of the fields.[270] The intercropping of the Three Sisters was particularly functional when it came to harvesting the crops, as each vegetable ripened at a different time. This allowed for agricultural crops to be better scheduled and managed. The Haudenosaunee picked the most viable seeds after harvest to plant for next season based on each of the Three

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[266] Parker, *Iroquois Uses of Maize and Other Food Plants,* 26.
[267] Parker, *Iroquois Uses of Maize and Other Food Plants,* 26.
[268] Parker, *Iroquois Uses of Maize and Other Food Plants,* 29.
[269] Parker, *Iroquois Uses of Maize and Other Food Plants,* 29.
[270] Parker, *Iroquois Uses of Maize and Other Food Plants,* 30.

Sisters' yield and ability to thrive. Seeds were selected based on the "propagation of such qualities as size, flavour, colour and early maturity."[271]

The Haudenosaunee had the foresight to plant extra quantities of the Three Sisters and other types of food for trading purposes and also to prepare for potential emergencies, such as famine, bad weather conditions, or enemies burning their fields in times of warfare.[272] Surplus crops were stored in pits for the winter season. There were two types of storage pits: some were constructed inside the longhouse and others were built miles away. The pits ensured food for survival and were blended into the natural landscape to avoid ransacking by thieves or animals. The storage pits inside the longhouses were lined with bark mats while the lining of the outdoor pits was made of grass.[273] The Three Sisters would be buried in pits that were approximately five feet deep and covered in soil.

Consumption

The majority of the Haudenosaunee were farmers and their diet was based on their agricultural practices, fishing, food gathering and hunting with a reliance on deer.[274] The agricultural cultivation of the Three Sisters produced up to 80% of the Haudenosaunee's diet.[275] The consumption of corn may have composed 20% to 30% of

[271] Waugh, *Iroquois Foods and Food Preparation,* 73.
[272] Parker, *Iroquois Uses of Maize and Other Food Plants,* 34.
[273] Waugh, *Iroquois Foods and Food Preparation,* 43.
[274] Warrick, "The Prehistory Iroquoian Occupation of Southern Ontario", 437.
[275] Wright, "Before European Contact," 42.

their diet.[276] Other types of food that were an important part of their diet included nuts, root foods, insects and crustaceans.[277]

The types of utensils the Haudenosaunee made and utilized provide a broad picture of the meals the Haudenosaunee prepared. Corn mortars and pestles were essential tools in Haudenosaunee food preparation. The two items were mainly used to pulverize corn for bread, soups and hominy.[278] Prior to the 1860s, the Seneca used stone mortars and pestles too. They ranged in size, with some small ones constructed specifically for travel.[279] Wooden pestles were often made from maple, and were 48 inches long and similarly shaped from one end to the other.[280] The mortars were often carved out of a block of wood or the wood was burned to form a conical hollowed out center which was usually eight to twelve inches in depth.[281]

The utensils the Haudenosaunee used mainly consisted of bowls, spoons and ladles. The dishes were made out of bark or wood. The men were responsible for making these. The spoons and ladles were carved and most likely made out of maple. Each of the spoons specifically belonged to an individual. The carved handle of the spoon often illustrated a clan animal, in order to indicate to which clan the individual belonged.[282] The ladles were made out of hickory or maple and used for stirring the large brass kettles or cauldrons post-contact.

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[276] Warrick, "The Prehistory Iroquoian Occupation of Southern Ontario", 437.
[277] Waugh, *Iroquois Foods and Food Preparation,* ii-iv.
[278] Parker, *Iroquois Uses of Maize and Other Food Plants*, 48.
[279] Parker, *Iroquois Uses of Maize and Other Food Plants*, 48.
[280] Parker, *Iroquois Uses of Maize and Other Food Plants*, 48.
[281] Parker, *Iroquois Uses of Maize and Other Food Plants*, 45; Waugh, *Iroquois Foods and Food Preparation,* 58.
[282] Frank Gouldsmith Speck, *The Iroquois- A Study in Cultural Evolution* (Michigan, Kessinger Legacy Reprints, 1945), 84.

The Three Sisters were prepared individually or as a group and were either boiled, baked, dried or incorporated as an ingredient into other dishes. Some of the Haudenosaunee dishes included: baked corn bread, dried pumpkin hominy, cornmeal and pumpkin and mashed beans.[283] The women of the house were responsible for calling and gathering the family together when the meal was prepared. Waugh, an ethnologist, points out that the Haudenosaunee basically had one regular main meal per day.[284] Most of the Onondaga meals were prepared in a pot and the people served themselves when they were hungry.[285] The type of pot is not mentioned. There appeared to be a specific order as to who ate first: the men, followed by the women and then the children but it does not mention if this was a regular routine or during ceremonies.[286]

Ceremony: Transmission of Cultural Knowledge

The Three Sisters also played an important role as the Haudenosaunee's ceremonial food. It is important to note that food is not only about calories and nutrients but also about culture. Individuals were assigned specific duties involved in the preparation of corn soup, wine of the huckleberries and other rituals.

Anthropologist Annemarie Shimony believes that ceremonial rituals provide a regular routine that acts as a guideline to ensure that a particular course of action is continued and that the spiritual powers will grant requests.[287] The nature of ceremony is to "provide a nucleus for the perpetuation of the culture, for like-minded individuals to

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[283] Waugh, *Iroquois Foods and Food Preparation,* 87, 93, 109.
[284] Waugh, *Iroquois Foods and Food Preparation,* 46.
[285] Waugh, *Iroquois Foods and Food Preparation,* 46.
[286] Waugh, *Iroquois Foods and Food Preparation,* 46.
[287] Annemarie Anrod Shimony, *Conservatism Among the Iroquois at the Six Nations Reserve*, (New York: Syracuse University Press, 1994), 130.

come together as regularly as the seasons." [288] Shimony states that the Haudenosaunee believed the omission of a ceremonial routine would bring forth repercussions such as crop failure for the Three Sisters. The Creation stories and ceremonies co-exist to teach and transmit the Haudenosaunee oral traditions and traditional knowledge. The ceremonies reflect the Haudenosaunee cosmos and ideology of balancing positive and negative forces to maintain sustainability.

Ceremony provided knowledge and guidance to the Haudenosaunee about how to be more productive in their agricultural practices and foodways. The performance of ceremonial events is rooted in the ideal of honouring the Creator, and giving thanks for the Three Sisters in particular. The right-handed Twin in the Creation Story reminds the Haudenosaunee about the importance of ceremonies and rituals – if these are neglected, there will be consequences:

> An outcome of the people's neglect of the ceremonies was the destruction and diminution of the gifts of wild plant and animal food sources. To compensate for these losses and ensure the survival of man-beings, the Creator provided the gifts of domesticated corn, beans, and squash, all of which would require much hard labor when compared to that needed to harvest the once abundant wild foods. Accompanying these three gifts were the ceremonies that would allow thanks and beseechment.[289]

The Creator gave the human beings four sacred ceremonies or rites that were performed in the Sky World.[290] These were the Great Feather Dance, the Skin Dance, the Peach Stone Game and the Men's Personal Chant.[291]

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[288] Shimony, *Conservatism among the Iroquois at the Six Nations Reserve*, 130.
[289] Herrick, *Iroquois Medical Botany*, 10.
[290] Herrick, *Iroquois Medical Botany*, 8.
[291] Herrick, *Iroquois Medical Botany*, 8.

The Great Feather Dance is usually performed after the Thanksgiving address on the eighth day of the Midwinter Ceremony. The Feather Dance is performed with songs to thank the Creator for their harvests, more specifically the Three Sisters, "Our Supporters." The Mohawks used feathers to symbolize a connection with the spirits in the cosmological world. The Feather Dance is performed by selected members of the tribe and is considered to be a dramatic and imposing dance.[292]

The Skin Dance is known by the Elders as the Delaware Skin Dance or today as the Stick Dance. The path of the Delaware people, the "Grandfathers" or the Algonquians, stretched from the Eastern Woodlands ranging from Delaware, Pennsylvania, New Jersey and New York.[293] The Skin Dance performed by the Haudenosaunee acknowledges the Delaware people becoming part of the Confederacy and abandoning their own traditions in the early eighteenth century.[294] The Delaware never became full members like the Tuscarora, but were considered tributaries. The Skin Dance symbolizes the maintenance of balance, the ebb and flow of the positive and negative, to attain sustainability and peace for the Haudenosaunee nations.[295]

The Men's Personal Chants were songs that were usually performed on the fourth day of the Thanksgiving ceremonies. The chants called out to the spirits and thanked them for what the Haudenosaunee received. The chants were performed by the men as

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[292] "Green Corn Dance and the Great Feather Dance," *Journal of American Folklore* vol. 4, no. 12 (Jan - March., 1891), 71-78.

[293] Susan Taffe Reed "Colonization's Chain: Tracing the Links that Bond Communities through the Delaware Skin Dance," *Ethnomusicology Review* Vol 16, (2011): 2.

[294] Reed "Colonization's Chain: Tracing the Links that Bond Communities through the Delaware Skin Dance,"2-4.

[295] Reed "Colonization's Chain: Tracing the Links that Bond Communities through the Delaware Skin Dance,"2-4.

they were the hunters and gatherers. The performance of these rites was meant to appease the beings living in Sky World. The ceremonies would be performed during the blossoming of the first fruits, at harvest time and midwinter.[296] Mutual congratulations, rejoicing and repeated thanks to the Creator needed to be performed but also evenly distributed so that the feelings expressed were authentic.

The Midwinter Ceremony, during which the Haudenosaunee offered thanks to the Creator, played an important role in the agricultural production of the Three Sisters. The Peach Stone or Bowl Game was played during the Midwinter Ceremony. The Midwinter Ceremony takes place either in the month of January or February. Usually, it is on the day after the new moon appears.[297] The game symbolizes the earth's renewal and the Three Sisters' and other agricultural crops' ability to survive winter conditions.[298] The right-handed and left-handed Twins played this game as they competed to take control of the earth. The game is played with six peach stones. Each of the peach stones have a blackened side. The peaches are all placed in a bowl, stirred up, and the combination of the blackened or the white side is recorded. The game can be played with different scoring techniques and against opponents– women against men or clan against clan.[299]

The ceremony lasted a week and began in late January or early February depending when the midwinter new moon came into view. Some of the events that took place included the Corn Dance, Woman's Dance and the Thanksgiving address.[300] During this ceremony, it was important for people to gather and ask the Creator for all the

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[296] Herrick, *Iroquois Medical Botany*, 8.
[297] Snow**,** *The Iroquois: The Peoples of America*, 7.
[298] Snow**,** *The Iroquois: The Peoples of America*, 7.
[299] Snow**,** *The Iroquois: The Peoples of America*, 160.
[300] Snow**,** *The Iroquois: The Peoples of America*, 7.

plants and the animals to return after the winter season. The offerings of thanks and gratitude had to be expressed as a united group. If the ceremonies were not performed then people would face the consequences of neglect and social decay which meant they would be under the influence of Flint, the left-handed Twin.[301] The people would have difficulty growing the Three Sisters and producing enough food to feed their families or trade with others. Other consequences included dissension within the families living together in the longhouses, bad weather conditions for agricultural cultivation and production, and divisions between the Elders and the younger workers when gathering and cultivating the crops. The performance of these ceremonies serves as a reminder for the Haudenosaunee of the importance of sustainability and creating a positive foundation on earth for the next generation.

The Three Sisters were also seen as gifts given by the Creator to compensate for the destruction of wild plants and animals as a food source when ceremonial ways were not practiced.[302] According to anthropologist James W. Herrick, the Three Sisters were regarded as the "mothers of all the people."[303] The Creator taught the people how to ensure these gifts would be multiplied:

> An adolescent boy and girl would have to be chosen to make a journey following the path of the Creator leading to the grave of Earth Mother. There, they would find the Three Sisters growing. They would also learn of the practice of interring the dead. Again, the people were reminded that they had to think of him and thank him repeatedly. For a time, after the people had sent the two youths to collect the Three Sisters, things proceeded smoothly. But deaths continued to occur, and many people became so disturbed in mind that they could not perform their ceremonies properly, especially the rites of the four sacred ceremonies. A solution to their problem was sought. A good, quiet boy, the Creator in disguise emerged on the scene with a suggestion. He pointed out to the people that the Creator provided

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[301] Herrick, *Iroquois Medical Botany*, 8.
[302] Herrick, *Iroquois Medical Botany*, 9.d
[303] Herrick, *Iroquois Medical Botany*, 9.

> diversity among other living things, and that humans, too, should become diverse. This diversity would allow them to assist one another, to lift the minds of those who are worried or sorrowed. Thus the boy proposed that humans imitate plants and animals and break up into groups of different kinds of humans, thus leading to the formations of moieties, and clans."[304]

Herrick reminds us that ceremonial practices serve as reasons why the Three Sisters were grown together to feed humanity. The vegetables were to be shared with others. Interplanting the three vegetables ensured that the crops would be more disease resistant and multiply organically. The Three Sisters were the most important of all the plants due to their nutritional value and reliability.[305]

Other types of ceremonies included the Planting ceremony and the Green Corn ceremony. During the Planting ceremony, a community would call upon the Creator to continue to provide the bounty of food that had been bestowed upon them in the morning. The prayer is as follows: "We thank thee for this return of the planting season. Give us a good season,that our crops may be plentiful. Continue to listen, for the smoke yet arises. {Throwing on tobacco}." [306] The throwing of the tobacco invokes a line of communication between the Haudenosaunee and the spiritual powers. The ceremony lasted for a full day. The responsibility of leading the ceremony fell on the Elder women of each family.

The Green Corn Ceremony marks the time when sweet corn can be harvested and eaten.[307] During the Green Corn Thanksgiving, a leader would rise and say "We give

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[304] Herrick, *Iroquois Medical Botany*, 9.
[305] Herrick, *Iroquois Medical Botany*, 20.
[306] Parker, *Iroquois Uses of Maize and Other Food Plants, 29*.
[307] Snow**,** *The Iroquois: The Peoples of America*, 134.

thanks to our sustainers." [308] Some of the women would form a group and appease the spirits of the Three Sisters by participating in a ceremonial march. The leader would hold a bunch of corn and a loaf of cornbread and march around a kettle of corn soup.[309] In the Green Corn Ceremony, the four rituals return with a new addition in the nineteenth century: Feather Dance, Personal Chant, Bowl Game (Peach Stone) and the Thanksgiving Dance.[310]

The Haudenosaunee Three Sisters crop complex and culture are grounded in their spiritual beliefs regarding animate and inanimate objects, and sustainability. The Haudenosaunee's belief system is based on the story of the Great Spirit's creation of the earth and all the living things on it. This Creation Story is closely tied to the ideals of sustainability: the Haudenosaunee believe that "the Creator gave of his bounty for good of the entire body of people" and "whatsoever liveth on land, whatsoever growth out of the earth, and all that is in the rivers and waters flowing through the same, was given jointly to all, and everyone is entitled to his share." [311] The Creation Story teaches the Haudenosaunee the importance of sharing the Three Sisters and other types of food. This is evident in Arturo Warman's, a Mexican historian, statement that "corn was the means that permitted successive waves of pioneers to settle new territories."[312] By sharing corn, squash, beans and other types of food with the Europeans, the Haudenosaunee enabled the settlers to survive in the Great Lakes region and in the New World.

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[308] Parker, *Iroquois Uses of Maize and Other Food Plants, 27*.
[309] Parker, *Iroquois Uses of Maize and Other Food Plants, 27*.
[310] Snow**,** *The Iroquois: The Peoples of America*, 134.
[311] Parker, *Iroquois Uses of Maize and Other Food Plants*, 63.
[312] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 26.

For the Haudeneosaunee, new challenges lay ahead as the core values of their traditional culture would be tested as intense warfare over fur-bearing territories and the need for European goods threatened their political autonomy and territorial hunting grounds. The changing landscape due to the influx of English and French traders and western Indigenous allies would bring forth difficult political decision making as the Haudenosaunee tried to protect their territories from encroachment and maintain their autonomy.

Chapter Two

Acculturative Change and the Effects of the Fur Trade

With the expansion of trade networks from the seventeenth to the mid to late eighteenth century, acculturative change had a definitive effect on Haudenosaunee foodways. By the 1620s, trade became increasingly complex as economic motives and a capitalistic market system gradually entered into the Great Lakes region after the Haudenosaunee "first made sustained contact with Europeans."[313] The Haudenosaunee entered the fur trade as active participants and continued this role until the nineteenth century. Acculturative change and foodways are intertwined, and changes in Haudenosaunee foodways are associated with the expansion of trade. By examining the effects of trade on foodways, we can discern how this change affected consumption, agricultural production and ceremonial practices. Trade enabled the Haudenosaunee access to European goods such as brass kettles and plows along with draft animals. The Haudenosaunee adopted some European technological innovations and agricultural subsistence practices such as plows, draft animals and monoculture which gradually led to acculturative change.[314] The Haudenosaunee's pledge of neutrality, as part of the Great Peace Treaty of Montreal 1701, tested their political alliances and the viability of their shared hunting grounds. Moreover, encroachment on Haudenosaunee territorial land due to trade accompanied changes in land use and gender roles. The Haudenosaunee's commitment to retain autonomy over their land and consequentially, their culture and foodways is shown by their ability to strategize and negotiate terms in the treaty, integrate only goods and agricultural subsistence practices that was ideally appropriate to their cultural way of life.

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[313] Richter, "War and Culture: The Iroquois Experience," 537.
[314] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 344.

Bradley argues that in the acculturative interaction process, the degree of influence is not necessarily equal as one culture can be shaped more strongly by the other.[315] For example, the Haudenosaunee taught the Europeans how to plant corn and about its nutritional value. This affected European culture a great deal, especially compared to the lesser influence of the introduction of the potato into the Haudenosaunee diet.[316] I will examine acculturative change using a pre-and-post contact analysis. Specifically, I will focus on how Haudenosaunee's cultural practices were shaped by or absorbed from the European culture.[317] Although the Haudenosaunee underwent acculturative change because of the fur trade they retained the core of their cultural beliefs and practices by selecting specific types of goods and agricultural practices which were compatible with their cultural values. The Haudenosaunee's perspective of the fur trade was limited to a local market whereas the Europeans' perspective was focused on a global market where the Haudenosaunee was one of many trading partners. The Europeans influence over the Haudenosaunee economy was much greater. The Europeans were able to provide many more types of trade goods and had different suppliers. The Haudenosaunee and the Europeans differed in how they pursued these economic exchanges and in their engagement in agricultural and cultural practices.

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[315] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change,* 166.
[316] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change,* 167.
[317] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change,* 167.

Fur Trade and the Grand Settlement of 1701

The fur trade in the Great Lakes region was part of a transatlantic enterprise. At the beginning of the eighteenth century, beaver exports from both New France and British colonies totalled an estimated 250,000 skins annually.[318]

Trade relied on Indigenous kinship communities to facilitate these economic exchanges in the region. The Haudenosaunee were primarily farmers, but hunting took on greater significance due to the economic benefits derived from trade for beaver pelts and furs. The fur trade economy and Haudenosaunee foodways are strongly interlinked. The Haudenosaunee were able to exchange the pelts for European goods. The animal meat from the pelts may have led to an increase in the consumption of meat and became a bigger part of the Haudenosaunee diet but this has not been proven.

The reconfiguration of Haudenosaunee identity led to a more localized and acculturative economic system from 1713 onwards.[319] Ownership of land and hunting grounds played a critical role in Haudenosaunee foodways. They needed land to hunt, grow and gather their food. The Haudenosaunee, as farmers and hunters, took control by gradually re-defining land ownership on their own terms. The Haudenosaunee negotiated the Peace Treaty separately with the French and maintained a position of neutrality. The Haudenosaunee wanted to use the English to protect themselves against the French's activity in the west and territorial expansion.[320]

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[318] Thomas Wien, "Selling Beaver Skins in North America and Europe, 1720-1760: The Uses of Fur-Trade Imperialism," *Journal of the Canadian Historical Association* 1, no. 1 (1990): 309.

[319] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 343.

[320] Harvard, *The Great Peace of Montreal of 1701: French- Native Diplomacy in the Seventeenth Century*. Montreal: McGill- Queen's University Press, 161.

The Three Sisters polycultural system and extensive agricultural fields were now smaller in scale though subsistence farming still remained as a result of dispersal in settlement. The conflicts with the Europeans were economically and politically motivated, and focused on issues of ownership, division of land and resources.[321]

The Great Peace Treaty of Montreal and the Albany Treaties, known together as the "Grand Settlement of 1701" was instrumental in ending hostilities between the Haudenosaunee and New France and their Western Indian allies.[322] The Treaty of Montreal 1701 was important because it demonstrated and formalized the English, French and their Western Indian allies' acknowledgement of Haudenosaunee claims to the hunting territories north of Lake Ontario.[323] The treaty would ensure a more stable political economy and enable the Haudenosaunee to retain sovereignty over their land and maintain their core cultural practices. The signing of the treaties was part of a formative rebuilding process as past conflicts between the English and the French had a detrimental effect on Haudenosaunee way of life.[324] However, the relative peace garnered by the treaties was often troubled by warfare instigated by the gradual depletion of beaver stocks in more localized hunting grounds. Competition with the Europeans became more intense as demand could not meet supply. This contributed to conflicts over encroachment of land and access to extra-regional hunting grounds to the north and west which still had beavers and fur-bearing animals.[325]

Economic exchanges – Trade Goods

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[321] Richter, "War and Culture: The Iroquois Experience," 540.
[322] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 209.
[323] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 209.
[324] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization,* 214.
[325] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 63.

In effect capitalistic thinking about the accumulation of wealth, land and shared hunting grounds, and ownership of goods gradually penetrated Indigenous societies around the early eighteenth century.[326] Richter bases this assertion on evidence from Conrad Weiser, a Pennsylvanian interpreter, who, in 1736, translated comments by Indigenous leaders that their fellow tribesmen had the tendency to walk off with possessions not kept inside the shops or with goods left unattended.[327] The idea behind ownership of goods was at the initial stages and only began to affect the Indigenous communities. The concepts of buying, selling and paying for goods rather than bartering became more evident in the mid-eighteenth century.[328] What appeared as theft to the Europeans was a cultural change from a shared economy to one of ownership for the Haudenosaunee.

The French cornered the market by controlling prices at the end of the seventeenth century. A wide variety of European goods were traded including items such as "kettles, knives, axes, iron arrowheads and awls; produce such as peas, prunes, tobacco and sea biscuits; and textiles such as blankets, hats, shirts and sheets."[329] European traders were primarily interested in only one Indigenous product: furs. Beaver pelts were a unique commodity because they were not found in Western Europe. The furs came mostly from beavers, but also animals such as muskrats, martens, otters and bears. The Haudenosaunee often traded beaver pelts for guns, kettles, ammunition and the

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[326] Richter, *Facing East from Indian Country: A Native History of Early America*, 177.
[327]Richter, *Facing East from Indian Country: A Native History of Early America*, 5.177.
Richter, *Facing East from Indian Country: A Native History of Early America*, 5.
[328] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 177.
[329] Delâge, *Bitter Feast*, 132

replacement of flint arrowheads with more effective alloys such as iron to increase mortal casualties in warfare or to hunt animals.[330] Indigenous weapons such as bows, arrows and knives made out of oyster shells or wood were quickly abandoned. The European weapons were made of iron and thus more durable and effective. [331] In addition, European products infiltrated other aspects of Indigenous life. The iron knives, for example, enabled the Haudenosaunee to be more efficient in food preparation, especially in skinning animals; the brass kettles generated a faster cooking time because brass was a better conductor of heat than ceramic pottery, the traditional material used by the Haudenosaunee.[332]

The French appear to have gotten a good return on investment for the furs but the net benefit for the Haudenosaunee is not as clear as capitalistic thinking came to the forefront with the fur trade. As discussed in Chapter One, the Haudenosaunee worldview was based on their spiritual beliefs. Birch contends that the introduction of European goods into the Indigenous trade network could be largely attributed to the Indigenous political economies and spiritual worldviews.[333] The Indigenous believed native copper and quartz crystal were "supernaturally charged substances" because the goods had a powerful *orenda*, or spiritual energy.[334] According to some scholars, such as Engelbrecht, the Haudenosaunee may have seen the Europeans as having a powerful *orenda*, capable

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[330] Richter, "War and Culture: The Iroquois Experience," 538.
[331] Richter, "War and Culture: The Iroquois Experience," 538; Waugh, *Iroquois Foods and Food Preparation,* 71.
[332] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 166.
[333] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 298.
[334] Engelbrecht, *Iroquoia: The Development of a Native World.* 135.

of showing good or evil. The Haudenosaunee may have used the spiritual energy as an important way of evaluating people and things or likened it to the shamans or the French missionaries, the "black robes" who possess the power of a higher being.[335] The Haudenosaunee made the decision to change and accept certain European goods into their way of life. This is an indication of their purchasing power in retaining their Indigenous practices through the specific use of the goods bought and traded. The type of fur exchanged for tobacco could include: 4 beaver furs, 12 martens, 4 bears, 4 otters and 60 muskrats. The rate of return was highest for bear and otter (279%), marten (129%), beaver (113%) and muskrat (-5%).[336] Traders, producers or sellers would be interested in knowing what animal to hunt to attain the highest rate of return for the goods desired. The demand for furs affected the Indigenous division of labour and time, as more focus was placed on accumulating furs and hunting – before the depletion of the beaver by the 1630s-1640s depending on the location – than on agricultural production.[337]

In the eighteenth century, the Haudenosaunee did not reside close to European communities.[338] The transportation of large commodities or goods was expensive. The Three Sisters may have been traded for goods at forts close by. Some of the forts built by the French and English served as suppliers of provisions for more remote locations. Fort Oswego in particular became an important trading post for the British from the 1720s onward. The fort was close to the Haudenosaunee villages and became an important trading post by supplying European tools for agricultural cultivation, building

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[335] Engelbrecht, *Iroquoia: The Development of a Native World.* 145.
[336] White, "Balancing the Book: Trader Profits in the British Lake Superior Fur Trade," 179.
[337] Trigger, *Native and Newcomers: Canada's "Heroic Age Reconsidered,"* 207.
[338] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 223.

construction and weapons for hunting.[339] As discussed in Chapter One, the Three Sisters were traded on a small scale amongst Indigenous tribes well before contact. The Three Sisters were perishable commodities and thus may not have been suitable for long distance trade. It is also possible that the Europeans exchanged goods with the Indigenous for seeds from the Three Sisters. There is no record of the Three Sisters seeds being traded or recorded. The Haudenosaunee relied on the Three Sisters as a food source, and the Three Sisters were well-suited for shorter hunting and warring expeditions. Even though the Three Sisters were among the goods traded, however, they were not nearly as profitable – nor as in demand – as beaver pelts.

Delâge cites a seventeenth-century French source, Nicholas Denys, claiming that the Indigenous people living along the North Atlantic coast "abandoned all their own utensils, whether because of the trouble they had as well to make as to use them, or because of the facility of obtaining from us, in exchange for skins which cost them almost nothing, the things which seemed to them invaluable, not so much for their novelty as for the convenience they derived therefrom." [340] Nicholas Denys surmises that European commodities changed Haudenosaunee culture because the goods allowed for more convenient preparation, consumption and production of food. The traditional knowledge of ceramic-making and daily material cultures was no longer deemed important enough to be shared or transmitted and these skill sets were therefore lost. The aforementioned comment from Delâge is a reflection of earlier

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[339] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 268.

[340] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655*, 166.

colonialist views at the time. The perception of the Indigenous people was based on a hegemonic attitude that they were inferior to the colonial settlers. In addition, the Indigenous people were not fully aware of the comparative market value of furs in exchange for brass, metal objects and guns.[341] The aforementioned examples are important in highlighting the Europeans perception of acculturative change. European culture appears to dominate Indigenous culture through the replacement of their material goods. The question that arises is: is this abandonment or is the new item serving the same function as the good being replaced? Transformational exchange is defined as, "the circulation of objects, especially across the edges of societies, civilizations and trading regimes, is not merely a physical process but is also a movement and displacement of competing conceptions of things."[342] According to historian John Sutton Lutz, the Indigenous people's way of life were overhauled and re-arranged as they moved into a capitalistic economy. For example, when the Haudenosaunee entered into the fur trade – a work-for- pay system – where changes in needs of earnings and capital had an effect on one's culture.[343] The workplace now reflected a social system based on ideologies of private ownership, individuality and working under a managerial system.[344] In Neal Ferris' study, he asserts that change in the material culture at the Haudenosaunee sites is attributed to a steady supply of European goods at the end of the seventeenth century. The Haudenosaunee were able to access new technological innovations making their daily way of life easier because it

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[341] Delâge, *Bitter Feast*, 79.
[342] John Lutz *Makúk: A New History of Aboriginal-White Relations.* (Vancouver, UBC Press: 2008), 22
[343] Lutz, *Makúk: A New History of Aboriginal-White Relations*, 22.
[344] Lutz, *Makúk: A New History of Aboriginal-White Relations*, 22.

saved time on their labour.[345] The Europeans profited from the exchange of these goods and focused on meeting the Haudenosaunee's needs. The Haudenosaunee and the Europeans benefited from each other even though each had different goals. The expansion of trade depended on the co-existence of both a non-capitalistic economy which encompassed different modes of production such as farming, hunting and fishing and a capitalistic economy.[346] Or as Bradley notes, have more innovative processes or goods arisen to take the place of the original? Bradley argues that the Onondaga's response to trade was an acculturative process rather than an acceptance of "superior" European goods.[347] Bradley states the goods the Haudenosaunee wanted was based on function and a way to improve their way of life. The Haudenosaunee did not want to assimilate into European society because they were selective in what goods were exchanged.

The main European commodity that had an immediate impact on Haudenosaunee culture was the kettle. During this period, kettles were primarily made from copper or brass. The smaller kettles were made from cast-iron, which was especially popular with the Haudenosaunee. The kettles suited the Haudenosaunee way of life in the longhouses due to their simplicity: they could be used as a sole pot for cooking for the clan families in the longhouses. The convenience of the kettle enabled the Haudenosaunee to shorten their food preparation time. The different sizes of the brass kettles allowed the Haudenosaunee to cook in larger quantities than was possible using their local handmade

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[345] Lutz, *Makúk: A New History of Aboriginal-White Relations*, 121.

[346] Ferris, Neal. *The Archaeology of Native- Live Colonialism: Challenging History in the Great Lakes*. (Tucson: The University of Arizona Press, 2009), 22.

[347] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 165*, 166.

earthenware vessels or bark kettles. The kettles made from earthenware or bark did not cook food uniformly in the fire. The copper and brass were also good conductors of heat and cooked the food faster. The Haudenosaunee prepared and cooked their food using a fire pit. The kettle would be hung from a receptacle suspended from a tripod or a crane beneath a burning fire.[348]

To create fire, the Haudenosaunee predominately used a pump drill. A pump drill was a bow and string which was used to spin a wooden dowel on a dry piece of tinder wood to create friction. The heat from the friction was used to ignite easily combustible material and start a fire.[349] With trade, the Europeans taught the Haudenosaunee how to start fire using flint, steel and a burning glass.[350] The Haudenosaunee learned a faster way of setting fire to cook their meals. They did not need to search for kindle wood but could start a fire in a shorter amount of time. The Haudenosaunee added these traded goods to their repertoire but the purpose behind the goods remained the same – they were to cook food more efficiently.

The demand for copper declined while the wampum replaced it in the early seventeenth century.[351] Europeans discovered that they could manipulate and increase demand for copper kettles by supplying a thinner lined kettle that would wear out more quickly.[352] Even though this enabled Europeans to control trade and rendered the Haudenosaunee more dependent upon them for these goods, often the kettle-copper was

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[348] Parker, *Iroquois Uses of Maize and Other Food Plants,* 67.
[349] Waugh, *Iroquois Foods and Food Preparation,* 50.
[350] Waugh, *Iroquois Foods and Food Preparation,* 53.
[351] Birch, "Current Research on the Historical Development of Northern Iroquoian Societies," 298-299.
[352] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 131.

completely re-configured and re-worked by the Indigenous people.[353] For example, the iron handle would be removed and pounded into an awl; the body of the kettle would be made into tubular beads, pendants, pipe bowl liners or knife blades; the lug taken from the hinges of the gauge metal would be made into triangular projectile points for other tools, including saws, blades and needles.[354] Some of the techniques that the Indigenous used to meld the kettle scraps included scoring, cold hammering and heating.[355] These new goods were then traded throughout the Haudenosaunee Confederacy, spreading products beyond the purview of European traders and strengthening the bonds between tribes.[356] Indigenous people incorporated novel tools into their traditional practices.

The transition from earthenware vessels to copper or brass kettles was nearly instantaneous as trade between the Haudenosaunee increased. Bradley views the integration of European goods as only changing Indigenous culture on a superficial level. The kettles and utensils such as spoons were versatile and easily transportable, especially for migratory tribes. However, the fact that the traditional pottery skills and Indigenous methods of manufacturing earthenware ceased was largely based on material preference.[357] The Haudenosaunee actively made the decision to change the material used. The traditional knowledge related to the skills in pottery and earthenware may have ceased but a new knowledge such as coppering replaced it. The practicality of the brass

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[353] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 131.
[354]Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 131.; Engelbrecht, *Iroquoia: The Development of a Native World.* 149.
[355] Engelbrecht, *Iroquoia: The Development of a Native World*, 135-136.
[356] Engelbrecht, *Iroquoia: The Development of a Native World*, 135.
[357] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 174

kettle contributed to an acculturative process where the material changed but not the function of the artifact.

The Haudenosaunee's ability to hammer out the kettles into brass or copper sheets and re-fashion them into projectile points, knives and other weapons had a profound impact on their hunting and foodways. The tools were more efficient which meant the Haudenosaunee could be more productive hunting, skinning furs and preparing the meals. Even though iron axes replaced the more traditional stone and lithic tools, there was very little change in terms of techniques and function.[358] The Haudenosaunee culture retained its traditional hunting practices as the functionality of the tools remained the same.

Later, during the seventeenth century, these goods were increasingly valued for more than their utilitarian purposes.[359] Bradley contends the Onondaga were able to assume a continuous transformed identity as they devised their own unique uses for foreign-made goods.[360] Hence, Onondaga's acculturative change is attributed to the usages of European materials as they were transformed into other functional objects. The Haudenosaunee were primarily interested in the metals themselves, particularly copper, brass and iron. The Haudenosaunee traded goods and re-constructed goods were still aligned with their cultural practices and beliefs.

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[358] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 175.

[359] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 169.

[360] Bradley, *Evolution of the Onondaga Iroquois: Accommodating Change, 1500- 1655,* 168.

Richard White's study of Indigenous-European cultural relations from 1650 to 1815 attributes these actions and understandings to the "middle ground."[361] White argues against Indigenous dependence on the fur trade. He regards both parties as acting on the "middle ground" where each acts according to "interests derived from their own culture,… they had to convince people of another culture that some mutual action was fair and legitimate."[362] Co-operation was needed as the Indigenous and the Europeans adopted some of these acculturative practices.

The fur trade placed certain Indigenous communities in a seat of power compared to other communities. The Haudenosaunee "profited both politically and materially" by being part of the fur trade as permission was needed to pass through their territories and as ceremonial gifts were exchanged.[363] Some tribes, such as the Seneca, became wealthy as a result of the gifts exchanged by the Western Indians to attain passage on the waterways.[364] The Haudenosaunee took notice and adapted to the competitive trading environment. Hunting for pelts still served as a means to buy European goods for the Haudenosaunee after the 1701 Peace treaty, the focus shifted to trade because it was more lucrative.[365] This decreased reliance of agricultural production to subsistence farming as settlement dispersal and local peace was established from 1712-1720.[366] Haudenosaunee

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[361] White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650- 1815*, 52.
[362] White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650- 1815*, 52.
[363] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 64.
[364] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 58.
[365] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 58.
[366] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 345-346.

culture gradually changed as the focus became more oriented towards hunting than farming.

The Haudenosaunee and the Europeans both wanted to attain the best market price for goods. The Europeans may have had a more of a global reach, but the common ethos of getting the best value for money grew just as important for the Haudenosaunee. These transformational exchanges had an impact on foodways in terms of what the Haudenosaunee can seek, be gifted or exchange when tribes or Europeans passed through their territories and at the trading posts.

Delâge argues that the Indigenous population became dependent on European goods because the fur trade was founded on an unequal exchange of labour.[367] The Haudenosaunee were regarded primarily as the consumers and suppliers of fur. The Haudenosaunee and other Indigenous groups were "price takers" and they were unable to dramatically ask for better prices for the pelts. They could only sell furs to a small group of buyers such as the French, English and Dutch who monopolized the market. The prices of the furs were controlled by European buyers. The fur trade became more difficult as the Haudenosaunee men had to spend more time away from their homes hunting as the beaver population decreased. Productivity in the fur trade was unequal but the Haudenosaunee came to focus more on deer hunting to try and still maintain their standard of living and feed their families. An acculturative process was taking place for Haudenosaunee traders as they fine-tuned their skills and understandings of the competitive nature of the industry. This process shows the Haudenosaunee did not

[367] Delâge, *Bitter Feast*, 79.

depend on the fur trade but worked with the Europeans as both parties adjusted to the market economy.

Food was not only a commodity to be consumed but represented to a certain degree how Haudenosaunee cultural beliefs may have changed with the influx of European traders and settlers. The Haudenosaunee dealt with acculturative change with the farming of the Three Sisters and augmenting this activity with hunting using novel tools to maintain their traditional ways. The Haudenosaunee were exposed to capitalistic thinking and by reconfiguring their role as hunters became part of the hierarchical fur trade system. The Haudenosaunee had to work within the parameters of the fur trade industry in order to make a living. However, the Haudenosaunee traditional way of life founded on their spiritual belief in the Creation Story was still practiced.

Encroachment of Land

Historians J.A. Brandão and William A. Starna argue that it was the Haudenosaunee who were responsible for masterminding the 1701 treaty negotiations with New France and their Western Indian allies.[368] Land was important to the Haudenosaunee because it served as their connection to the Creator. The Haudenosaunee practiced ceremonial rites to ensure they had grounds on which to hunt, fish, gather food and cultivate agriculture for subsistence. As discussed in Chapter One, the Creation Story served as the foundation of morality for the Haudenosaunee. The importance of Sky Woman's teachings – human responsibility to ensure our resources, animals and food, especially the Three Sisters, are equitably balanced in order for all the gifts bestowed by the Creator to be shared with the next generation.

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[368] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 209.

The Haudenosaunee's concept of ownership was based on their belief in a communal system; Richter demonstrates this with the following quotation from a French missionary: "They possess hardly anything except in common."[369] The Haudenosaunee did have a concept of land as private property but land was divided based on principles of reciprocity according to use and need. These principles are different from European understandings of possession and proprietorial ownership. Land and other commodities belonged to the individuals or kinship groups that used them.[370] Properties that were not being used were considered to be public and were available for others to use. Hence, the boundaries delineating ownership by the Haudenosaunee basically followed trails or paths of river and waterways. The Haudenosaunee also based their claims of land ownership on the transmission of traditional knowledge, treating land as their own if it is "the place where we do our hunting since the beginning of the world."[371] Based on this understanding of usage and ownership, the Haudenosaunee, by continually using the hunting territories in the "St. Lawrence Valley from Montreal to the eastern end of Lake Ontario and along its north shore," owned this section of land for their foodways.[372] Furthermore, the Haudenosaunee believed they had possession of the land north of Lake Ontario, specifically around the areas of Fort Frontenac, known today as Kingston, Ontario, based on a meeting with the French in 1700.[373]

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[369] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 21.
[370] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 21.
[371] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 211.
[372] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 211.
[373] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 211.

In the 1701 Peace Treaty, the Haudenosaunee managed to retain some control over the western hunting territories through "deeds" but they did not have title that clearly delineated ownership.[374] The Haudenosaunee were especially concerned with the following regions: southern areas of Lake Ontario (west of the Genesee River) and Lake Erie, the Saugeen Peninsula in western Ontario, and Michigan's Lower Peninsula which was rich in hunting and other food resources.[375] The Haudenosaunee worked with the French by negotiating to keep their land and hunting grounds and to maintain their treaty rights.

The main problem the Haudenosaunee faced after 1701 was settler encroachment on their land. Accusation of encroachment requires proof of original land ownership. From a settlers' standpoint, the boundaries of Haudenosaunee land were not clearly defined. There was no physical evidence like a map that specifically points to the territories deeded.[376] Hence, the French and the English interpreted this as unclaimed land and not Haudenosaunee territory. As a result, acculturative changes began to occur as the Europeans' understanding of unclaimed land led them to encroach onto Haudenosaunee territory. The Haudenosaunee had to work within the European definition and parameters of land ownership as defined by the treaties. Oral traditions were not recognized as valid. This was happening at a time when more Europeans were coming to North America and the Europeans' demand for land grew. Europeans had better weaponry to take the land. Muskets were integrated into the Indigenous material culture but the bow and arrow still continued to be used based on personal preference and choice (Ferris, 121). The decline

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[374] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 58.
[375] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 211.
[376] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 58.

of the fur trade made the Haudenosaunee less useful to the Europeans as a trading partner and supplier of furs. The Europeans had other suppliers to meet their demand.

The Great Peace of Montreal 1701 specified hunting territories which were shared amongst the allies.[377] The goal behind this was to ensure relative peace for a working economy. However, as aforementioned, there is no contemporary map depicting the deeded areas. The "Lewis Evans map of the Middle British Colonies in America… 1755" identifies British hunting grounds ranging from "the St. Clair River to about Toronto, and north to Lake Huron."[378] The Haudenosaunee added land that expanded west in what is now Chicago to the English. British presence, in or on the borders of Haudenosaunee territory, identifies the areas "north of Lake Erie and Lake Ontario, to the northern end of Lake Huron, and from the Ottawa River to the eastern shore of Lake Michigan" as their own.[379] The rationale behind the Haudenosaunee transfer of land to the English was to obtain protection against encroachment by the French. However, there are no primary documents that prove the Haudenosaunee sold or ceded the land to the English.[380]

The Haudenosaunee was placed in a dire predicament as they recovered from losing over half of their warrior population between 1687 and 1698.[381] Richter contends that the Haudenosaunee lost at least 25% of their population between 1689 and 1700.[382] The Haudenosaunee population was 5,100 in 1700 and 7,100 in 1710.[383] The population

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[377] Harvard, *The Great Peace of Montreal of 1701: French- Native Diplomacy in the Seventeenth Century,*148.
[378] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 241.
[379] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 241.
[380] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 243.
[381] Brandão and Starna. "The Treaties of 1701: A Triumph of Iroquois Diplomacy," 215.
[382] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 55.
[383] Snow**,** *The Iroquois,* 110.

increases may be attributed to the relative peace that occurred due to the Peace Treaties and the mourning wars, the kidnapping of other Indigenous people to replace Haudenosaunee members. Though exact statistics are not known, the Euro-American population around 1700 was estimated to be 250,000.[384] The colonial settlers resided mainly around the waterways and coastal areas.[385] The Haudenosaunee were outnumbered due to the influx of European settlers. This created a hegemonic cultural divide between the Europeans and the Indigenous people.

Pehr Kalm describes the surrounding landscape prior to the Europeans' arrival in Pennsylvania; "the country was uncultivated and full of great forests," "as population increases, the cultivation of maize increases," and the Indigenous people "caught fish, hunted frogs, beavers, bears, wild cattle and other animals whose flesh was delicious to them."[386] As discussed in Chapter One, corn was an important part of the Indigenous people's staple diet. Kalm contends that the Indigenous people living in the Pennsylvania area were self-sufficient and lived off the land with the different types of vegetation and food sources. The Indigenous did not hunt by taking more than they needed to survive, "soon appear how little they disturbed the birds."[387] Meaning, they did not overhunt and the bird population was kept stable unlike the beavers. In keeping with the Haudenosaunee cultural beliefs, the Haudenosaunee were selective in how they hunted and gathered food but more importantly, they were sustainable.

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[384] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 7.
[385] Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the Era of European Colonization*, 7.
[386] Pehr Kalm, *Travels into North America*, 290-291.
[387] Kalm, *Travels into North America*, 291.

Conversely, Kalm points out that the Europeans gradually changed the landscape as they settled into their new life by having the "woods (are) cut down: they have by hunting and shooting in part extirpated (sic) the birds."[388] He remarked that the forest, what was once filled with a plethora of animals such as wild oxen, wolves, cranes, partridges, wild turkeys, wild cattle, and beavers were now slowly disappearing but other animals were taking their place.[389] The European settlers, coming from different social classes and backgrounds, in many ways tried to reinvent and adapt their "traditional" foods to their new surroundings. They imported domesticated animals such as: chickens, sheep, cattle and hogs from their European homeland.

With colonial settlement, problems were further compounded by encroachment on extra-regional hunting grounds leading to even fewer beaver pelts and furs available to be hunted. The peace treaty agreements became less valuable. The fur trade was an important industry to the Indigenous people because it allowed them to buy European goods. The goods became relatively more expensive. Contact with European settlers produced changes as imported domesticated animals entered into the Haudenosaunee diet. [390] Acculturative change was taking place. The Haudenosaunee maintained their way of life by making decisions that incorporated the changing landscape.

Consumption

An understanding of a person's consumption or diet reveals aspects of their cultural identity and how they may be shaped by those around them. Consumption can also be a reflection of the changes that have taken place in the two cultures, the

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[388] Kalm, *Travels into North America*, vol. 1, 291.
[389] Kalm, *Travels into North America*, vol. 1, 285-286; 290-291.
[390] Kalm, *Travels into North America*, vol. 1 284.

Haudenosaunee and the European.[391] As discussed in Chapter One, corn was one of the Three Sisters' most versatile and adaptive crops. Popcorn pudding can be traced back to the Haudenosaunee: they used a clay or metal kettle, handcrafted locally, to pop the corn. The popped corn would then be pounded with a mortar and pestle followed by an added touch of oil or syrup mixed in before eating. After contact, Arthur Parker remarks on the continued consumption of popcorn pudding. Popcorn pudding was still made but with a "modern [automatic] popper" and a chopping machine. The "modern popper" could be the brass kettle since the corn would certainly pop faster due to a more efficient transfer of heat. The addition of sugar and milk to the popcorn produced a caramel popcorn similar to that consumed today.[392]

Roasted corn or *Gani'sten'da* is now recognized as common carnival or fair food but its humble beginnings can be traced to the Haudenosaunee. Corn was baked with the husk on over hot coals. The corn husks allowed the heat to spread and cook the corn uniformly.[393] Another cooking method involved baking the corn in a clay pot. It is possible that the colonial settlers were taught these methods or that they simply observed and adapted them in their culinary cultural exchange. These Haudenosaunee methods of roasting corn are still practiced today.

Corn bread was a popular food item and could be baked, boiled or fried. Boiled cornbread is best made on a daily basis. The boiled bread is approximately two inches thick and less than seven inches in diameter.[394] First, the corn is soft-boiled, then drained

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[391] Norman, "Fit for the Table of the Most Fastidious Epicure," 32.
[392] Parker, *Iroquois Uses of Maize and Other Food Plants*, 78.
[393] Parker, *Iroquois Uses of Maize and Other Food Plants*, 78.
[394] Waugh, *Iroquois Foods and Food Preparation*, 80.

and dried. The next step is *ganchana'wedi*, which involves the pounding and sifting of the corn to make a type of flour.[395] The cornbread is mixed with boiling water, molded and shaped into a flattened cake. The cornbread is then placed in boiling water to cook for about an hour.[396] The Hurons also ate cornbread, known as "journey cake"; it was a popular snack especially for excursions.[397] The Haudenosaunee also ate this type of cornbread since they shared similar cultural practices with the Hurons. The Haudenosaunee added additional ingredients to the cornbread such as herbs, roots and parsnips.[398] Acculturative change appears to have taken place as the Europeans in Virginia were also familiar with the cornbread, which they called "johnny-cake," derived from "journey cake."[399] Ash-cake and hoe-cake were other European names for cornbread.[400] The Europeans may have added other ingredients such as fruits or honey from the orchards to make the cornbread taste more familiar and home-like. These represented new types of food which originated from a traditional Haudenosaunee recipe. European colonists brought with them different types of grain such as wheat, oats and barley. The Haudenosaunee diet began to include these grains as they incorporated these commodities into their agricultural production by 1700. Acculturative change is shown by Arthur Parker's remark that he exchanged his boiled cornbread with other Indigenous boys for meat sandwiches, "civilized viands" at school.[401] Indigenous tribes may have

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[395] Waugh, *Iroquois Foods and Food Preparation,* 81.
[396] Parker, *Iroquois Uses of Maize and Other Food Plants,* 69.
[397] Waugh, *Iroquois Foods and Food Preparation,* 81.
[398] Waugh, *Iroquois Foods and Food Preparation,* 82.
[399] Parker, *Iroquois Uses of Maize and Other Food Plants,* 71.
[400] Waugh, *Iroquois Foods and Food Preparation,* 82.
[401] Parker, *Iroquois Uses of Maize and Other Food Plants,* 71.

been exposed to European types of salted meats and bread and incorporated them into their diet when exchanging lunches.

It appears that wild rice was not a Haudenosaunee staple even though other Indigenous tribes living along the Great Lakes considered it an important part of their diet.[402] Parker does not specify a year as to when the Haudenosaunee and the Europeans incorporated wild rice into their diets while continuing to practice their individual cultural beliefs. As discussed in the Introduction, Alison Norman notes the adoption of European food such as pork, honey, wheat, barley, chicken and beef into the diet of Haudenosaunee living in Upper Canada after the American Revolution. Norman suggests this was part of a collective colonial effort by missionaries and state officials to "civilize" the "savages."[403] Colonization is evident in the Haudenosaunee's adoption of some European culinary practices and customs. However, this was not a unilateral relation: European settlers adopted Haudenosaunee food into their diet and culture to not only help them survive the colder winters but also to integrate them into the Great Lakes region. Norman points out that "culinary exchange" - the interplay and interchange of culinary traditions and cultural practices – was a choice and in some cases one made out of necessity by the Haudenosaunee and the European settlers.[404] Though Norman's study focuses on a different time period 1790-1850, fifty years outside of this study, she fosters a greater understanding of acculturative change between the Haudenosaunee and the European settlers.[405]

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[402] Waugh, *Iroquois Foods and Food Preparation,* 109.
[403] Norman, "Fit for the Table of the Most Fastidious Epicure," 45.
[404] Norman, "Fit for the Table of the Most Fastidious Epicure," 45.
[405] Norman, "Fit for the Table of the Most Fastidious Epicure," 45

The Haudenosaunee diet, as discussed in Chapter One, focused on living off the land. Their diet expanded to include aspects of the European diet as they became more colonized. For example, the honey bee, *A pis mellifica,* was imported into North America from Europe for honey. According to Pehr Kalm, the bees were named "English flies" and the Indigenous had not seen these type of insects before in the woods or fields.[406] Honey was a newly introduced good to the Haudenosaunee culture. The honey bee plays an important role as agricultural crops and orchards rely on bees as pollinators for plants to reproduce. Some plants were wind pollinated, while others were self-pollinated and there were other types of bees such as bumblebees and orchard bees that were native to the region.

The colonial settlers gradually changed foodways by importing and incorporating insects, crops and animals such as chickens, sheep and cattle into the region.[407] Despite these incursions, Jordan contends that the "disintegration of traditional (Haudenosaunee) culture" did not occur. He attributes the problem to colonization and encroachment on Haudenosaunee land.[408] The Haudenosaunee culture was not absorbed by the European settlers. Rather, cultural exchanges for the Haudenosaunee and European settlers took place between them in the culinary practices as they adjusted to the Great Lakes region. For example, the Cayuga fried the squashes "fricasseed" in grease.[409] The meal exposed the Europeans to the variety of squashes available and how to prepare and cook the squashes properly. Some of the Europeans usually baked the pumpkins but they found it

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[406] Kalm, *Travels into North America*, vol. 1, 288.
[407] Kalm, *Travels into America*, vol. 1 278, 282, 285.
[408] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy*, 356.
[409] Parker, *Iroquois Uses of Maize and Other Food Plants*, 91.

tasted better roasted.[410] Both the Haudenosaunee and the Europeans were introduced to different cooking methods and varieties of food as a result.

The Haudenosaunee took advantage of the plentiful resources in the Great Lakes region. Maple syrup was considered the "liquor that runs from the trees toward the end of winter, and which is known as 'Maple-water.'"[411] The Haudenosaunee gathered sap not only from maple trees but also birch trees.[412] According to Waugh, the Haudenosaunee taught the colonial settlers about the syrup but the settlers turned it into sugar; "It is certain that they did not know how to make a sugar of it, which we have since taught them. They were contented to let it boil a little, to thicken it something, and make a sort of syrup."[413] Under Waugh's scenario, the Haudenosaunee taught the settlers how to make maple syrup, acculturative change took place. The settlers gained a new skill and adapted the recipe to suit their needs. This was an expansion of their cultural practices and values.

As a result of a polycultural crop system, the Haudenosaunee had a broader diet than the French peasants in France. Some Haudenosaunee meals included fried mushrooms, hickory nuts, owls, maple syrup, venison and wild gooseberries which they took from the land.[414] This was a diverse diet. Conversely, in the eighteenth century, the French diet consisted largely of cereal products such as bread, and on lesser occasions, barley, rye, wheat and porridge. Daniel Roche, a cultural historian, asserts that the diets

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[410] Parker, *Iroquois Uses of Maize and Other Food Plants*, 91.
[411] Waugh, *Iroquois Foods and Food Preparation,* 140.
[412] Waugh, *Iroquois Foods and Food Preparation,* 140.
[413] This differs from Norman's account, according to which the Haudenosaunee discovered the method of boiling the sap in kettles but did not teach the settlers. Waugh, *Iroquois Foods and Food Preparation,* 141.
[414] Waugh, *Iroquois Foods and Food Preparation,* 1, 127, 135.

of the country people were monotonous compared to the townspeople in Paris. The price of food was beyond what the country people could afford. The bread was "eleven times less than meat and sixty times less than fish."[415] The country people subsisted more on cereal grains while only the townspeople could afford meat and fish. [416] As a result of acculturative change, the Haudenosaunee diet was an amalgamation of both cultures. The Haudenosaunee gathered food off the land but over time they gradually introduced some of the European goods into their diet.

Acculturation changes Haudenosaunee culture. The question that arises is to what degree and what changes was a choice. Culture is not static. The transmittal of traditional knowledge from one generation to the next is dynamic because of economic and social influences. As long as the foundation/framework of the Haudenosaunee culture, such as the Creation Stories, are shared and practiced – the culture will evolve. Material culture changes such as, the purchase of brass kettles has an effect on Haudenosaunee culture through the loss of ceramic making or the introduction of potatoes changes the Haudenosaunee diet and utensils used. The unintended consequences does have a socioeconomic impact but the major concern are the underlying motives behind these decisions.

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[415] Roche, *.A History of Everyday Things: The Birth of Consumption in France, 1600-1800*, 225.

[416] Roche, *.A History of Everyday Things: The Birth of Consumption in France, 1600-1800*, 225.

Consumption and Land: Private and Public Property

Ownership of land took on more of a functional meaning for the Haudenosaunee as they made the decision to disperse and re-locate to other hunting grounds after 1701. The Haudenosaunee maintained their neutral stance and claimed their treaty rights as to what land and hunting grounds belonged to them. However, there were cultural misunderstandings of what is public and private property – between the Haudenosaunee and European. Most of the Europeans wanted the Indigenous people removed and resettled away from them. The French settlers moved into areas where there were no Indigenous farmers other than hunter-gatherers who were of a migratory nature.[417] The Haudenosaunee and Indigenous groups' semi-sedentary nature enabled the European farmers to encroach onto their land and led to conflicts. Jordan highlights the Mohawk communities' decision to disperse after 1711 because they wanted to ensure their foodways would be safe from European encroachment.[418] Seneca land in the eighteenth century was plentiful but problems associated with land, despite the Peace treaties, were not equitably dealt with by the French or the English as each had their own agenda.[419]

Kurt A. Jordan argues that the major reasons why the Haudenosaunee adopted a European way of life in the eighteenth century was the result of colonization and encroachment of land rather than the effects of acculturation.[420] This does not appear to be the case. The fundamental decisions the Haudenosaunee made about hunting, dispersal in settlement and agricultural practices incorporated some aspects of European colonialism. The Haudenosaunee regarded these decisions as "active opportunism" where

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[417] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 224.
[418] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 198.
[419] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 223.
[420] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 355.

change was directed by them and not dictated by the Europeans.[421] For example, European settlers raised hogs but did not keep the hogs confined behind fences. The hogs were allowed to roam and feed freely in the forest. The Indigenous had to resort to different ways to find and hunt for meat because the settlers had killed off most of the wild game. The Indigenous people ended up hunting hogs which were considered by the Europeans as domesticated and private property.[422] In a similar vein, the Seneca mainly used pigs as meat but the pigs were allowed to run wild. The main difference between pigs and hogs were, the hogs were larger and over 120 pounds. The Seneca's use of domesticated animals were kept to a minimum and confined to pigs. The pigs were considered a new form of wild meat and not domesticated animals.[423] The Seneca did not keep the animals confined inside a fence. Jordan and Delâge contend that when the Europeans used the forest for their own collective needs, it was considered public property but this reasoning did not apply to the Indigenous.

The acculturative process took on a creative route for Haudenosaunee culture. The Haudenosaunee hunted for their food so they did not appear to domesticate the pigs like the Europeans. Acculturative change is shown by how the pigs were considered domesticated animals but because they were not fenced in; the pigs were considered wild animals to the Haudenosaunee. In both cases, the Indigenous followed their cultural practices whereby if the pigs or hogs were not in a confined space then they were allowed to hunt and eat it. This posed to be a problem for the European settlers as they still

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[421] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 356.
[422] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 355.; Delâge, *Bitter Feast*, 285
[423] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 344.

considered the pigs and hogs to be private property but the Haudenosaunee continued to still hunt them.

Agricultural Practices – Polyculture and Monoculture

The Three Sisters were the dominant agricultural crop prior to and upon contact in what is now New York state and Ontario. Upon contact, the rotation of fields that was part of the Three Sisters' land use changed to rotation of crops because the Europeans believed this was a more efficient method of cultivation.[424] However, the Haudenosaunee continued to practice the Three Sisters polycultural system to this day.

The Europeans introduced a monocultural system as part of their farming techniques. The monocultural system has a higher risk of crop failure because cultivation is solely focused on one particular type of crop. The monocultural system is advantageous for mass production, especially for trading purposes, but shortages may occur on individual farms because a failed crop due to weather or exposure to crop diseases may wipe out an entire field. In contrast, the Haudenosaunee's polycultural system is a more sustainable approach to farming than European monoculture; it lowers the risk of crop disease and accommodates local biodiversity.

According to Delâge, the Indigenous people were not particularly interested in the types of agricultural production brought over by the Europeans; these new methods appeared to have too many limitations and rules.[425] In many ways, sweet corn out-produced the European cereal grains which may explain its importance as part of the Haudenosaunee's staple diet. As discussed in Chapter One, the Haudenosaunee were

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[424] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 81.
[425] Delâge, *Bitter Feast,* 160

exposed to European cereal grains such as wheat in the early 1600s. Wheat proved to be a disappointment because the commodity adjusted poorly to the Great Lakes weather conditions and often did not survive. The yield on wheat was less than 50:1 compared to the yield on corn which was 150: 1.[426] The agricultural yield is calculated on a per-seed-sown-basis. Meaning, when a single corn seed is planted, the seed will yield more than 150 kernels whereas the return on a seed of wheat was less than 50. These comparisons was based on the understanding when land was plentiful and labour was scarce.

The European agricultural techniques focused on monoculture rather than polyculture because they believed it to be more lucrative, as it produced greater yields per unit of labour. Kalm states that the "Europeans allow the maize to stand alone."[427] The Europeans gradually incorporated monoculture agricultural techniques most likely around Albany, New York in 1750 but this is not clearly stated.[428]

The Europeans also exported various plants to North America to be planted around the meadows which may have led to changes in the ecosystems.[429] The Great Lakes regional landscape was slowly changing due to colonization and a new monocultural crop system. Before 1800, these changes occurred mostly to the east of the Great Lakes. The Haudenosaunee knew about the monocrop system but it was the other First Nations who were exposed to and surrounded by this system.[430]

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[426] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals,* 25.
[427] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 106.
[428] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 101.
[429] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 104.
[430] Larsen and Kalm, "Pehr Kalm's Description of Maize, How it is Planted and Cultivated in North America, Together with the Many Uses of this Crop Plant," 101.

Agricultural Practices and Technologies

The Haudenosaunee's adoption of the European's subsistence practices and technologies were largely acculturative.[431] The Haudenosaunee adopted some of these practices because it improved their daily lives. The European introduction of iron ploughs and draft animals such as horses and cattle changed the scope of agricultural production for the Haudenosaunee because the focus shifted from manual intensive labour to a more animal-powered labour. Europeans used draft animals, such as horses and cows, to plough their fields and considered these animals to be part of the work force. The Haudenosaunee had no domestic animals prior to contact, except for dogs, which were domesticated in North America.[432] The purpose of the domesticated dogs was threefold: they could serve to guard the Three Sisters against wild animals, to eat the leftover vegetables, and as a food source in times of famine.[433]

Draft animals were introduced to Indigenous farming and remained in the Great Lakes region as part of a more monocultural system. This may have caused problems for the Haudenosaunee as the French, English and Dutch used domestic animals and cultivated the land.[434] The agricultural fields were rotated to allow time for the soil to replenish itself. In addition, technological advances such as the introduction of horse collars and harnesses enabled the farmers to increase the area of land that could be

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[431] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 344.
[432] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 81.
[433] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 81.
[434] Lewandowski, "Diohe'ko, The Three Sisters in Seneca Life: Implications for a Native Agriculture in the Finger Lakes Region of New York State," 285.

cultivated.[435] Mt. Pleasant points out that the combination of livestock with cropping allowed for improvements in agriculture. Plowing initially releases nitrogen which improves grain yields. However, the grain yields declines over time as nitrogen depletes in the soil. European farmers counteracted this problem by rotating fertilized manure, grain legumes such as lentils and draft animals.[436] The Haudenosaunee incorporated some of the techniques and tools from the best of both worlds. The Haudenosaunee made conscious decisions whether draft animals and agricultural technologies such as the plow suited their way of life.

Agricultural Practices: Crops and Plants

The Seneca economy, as reconstructed on the basis of archaeological evidence from the Townley-Read site in 1715-1754 focused more on traditional subsistence production; this was likely due to the nature of settlement dispersal. Most of the farming took place in the outfields, which were a few feet away from their homes. Some agricultural plantings of "pease [sic], corn, and squashes" were discovered between homes at an Onondaga village in 1743.[437] Kurt A. Jordan states that it is likely that the "pease" were mistaken for beans. This would mean that the Three Sisters were planted between the homes. The polycultural crop complex was continued.

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[435] Jane Mt. Pleasant, "The Paradox of Plows and Productivity: An Agronomic Comparison of Cereal Grain Production Under Iroquois Hoe Culture and European Plow Culture in the Seventeenth and Eighteenth Centuries," 464-465.

[436] Mt. Pleasant, "The Paradox of Plows and Productivity: An Agronomic Comparison of Cereal Grain Production Under Iroquois Hoe Culture and European Plow Culture in the Seventeenth and Eighteenth Centuries," 464-467.

[437] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 213.

Fruit orchards were also planted, and included plum, apple, and sugar maple trees that were located a bit further from the village.[438] Farming prior to 1700 was economically more productive than after 1701because the Three Sisters and other crops were planted on extensive fields and traded. The crops were mainly used for subsistence after 1701 most likely due to a combination of factors; a decrease in population, encroachment on land and the migratory nature of Haudenosaunee. The migratory nature of the Haudenosaunee was new after 1701 because the reason was attributed to controlling their land from the encroachment by the European settlers.

By the 1760s, some of the Haudenosaunee adopted a "creolized" agricultural system. The system incorporated domesticated plants from Europe crossed with the cultigens of traditional Indigenous plants.[439] For example, the Three Sisters would be intercropped with red cabbage, broccoli, sunflowers and other crops that were sensitive to weather conditions. The "creolized" system is a representation of both cultures being farmed together. The Haudenosaunee still followed their year-to-year allocation of land as part of their traditional practices and they depended on members of their tribe to help with the fields. Haudenosaunee agriculture was largely semi-permanent and the Three Sisters were mainly cultivated with a hoe.[440] Extensive hoe based agriculture was used because the land did not necessitate the removal of rocks or roots and stumps from trees. The Three Sisters may have been cultivated with a plow by the eighteenth century.

The Seneca, like other Haudenosaunee tribes, adopted some European agricultural practices not because they believed European methods were superior but because they

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[438] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 213.
[439] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 213.
[440] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 214.

were open to the techniques that were most suitable for their way of life.[441] Acculturative change occurred as European fruit trees and vegetables were introduced into Indigenous gardens. The Three Sisters crop complex was still being practiced but different vegetables were now slowly being planted alongside it.

Ceremonial Practices

The Three Sisters still play an important role as the Haudenosaunee's ceremonial food after 1701. The Great Feather Dance, Peach Stone game, Skin Dance and Men's Personal Chant most likely would have continued as part of the Haudenosaunee ceremonies. However, the missionaries' entry into the Haudenosaunee settlements may have altered the Haudenosaunee agricultural practices and ritualistic beliefs over time.

Even today, the Haudenosaunee perform the Seed Planting Ceremony, especially with the Three Sisters, at the Six Nations Reserve in Ohsweken, Ontario and now with the White Corn Project in upstate New York.[442] Annemarie Anrod Shimony's monograph states that the Haudenosaunee have retained some of their cultural beliefs and practices with the intercropping of the Three Sisters but have also incorporated the use of the plough at the Six Nations Reserve because there is "no taboo against ploughing." [443] This indicates acculturative change because the Haudenosaunee ceremonial practices and values are still being continued. The hoe is replaced by the plough, but the purpose and techniques of the work have not changed.

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[441] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy*, 214.
[442] Annemarie Anrod Shimony, *Conservatism among the Iroquois at the Six Nations Reserve* (New York: Syracuse University Press, 1994), 154.
[443] Shimony, *Conservatism among the Iroquois at the Six Nations Reserve*, 155.

Deer Economy

In the seventeenth century, the Haudenosaunee were pro-active and transitioned from a beaver hunting economy to a more deer-hunting-based one as the beaver population gradually declined. The Haudenosaunee had easy access to woodlands, fields and waterways, which made it simpler to hunt deer. Deer were easier to hunt compared to beavers because their predators, such as wolves and bears, had been killed off.[444] The transition from a beaver hunting economy had a definitive impact not only on their way of life but on gender roles.

Scholar Gretchen L. Green argues that in Haudenosaunee culture, the different roles assigned to men and women were not a reflection of inequity. Men and women were regarded as "interdependent" and the differences between the genders were valued.[445] Women and men were not regarded as equals because they each had "their own rights, duties, and responsibilities which were complimentary and [those of women were] in no way secondary to those of men."[446] She argues for a mutual dependence of both genders as they worked towards a better economy.

The Seneca men did not have to venture far from their village settlements to hunt for deer. The men were able to remain close to home as a measure of security. In the past, most of the warfare was attributed to encroaching on hunting grounds and access to beaver pelts. The Seneca men had to venture far from their longhouses and go on fur

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[444] Shimony, *Conservatism among the Iroquois at the Six Nations Reserve*, 298.
[445] Gretchen Green, "Gender and the Longhouse: Iroquois Women in a Changing Culture," *Women and Freedom in Early America* (New York: New York University Press, 1997), 7-8.
[446] Green, "Gender and the Longhouse: Iroquois Women in a Changing Culture," 8.

expeditions that lasted weeks, months and even years.[447] Land was still owned by the women and it was their responsibility to divide up the responsibilities. Haudenosaunee women were responsible for cultivation but also opened up new farmland.[448] Without the extensive fields, women were now able to access to waterways, natural resources, fishing on Seneca Lake and the hunting grounds.[449] This enabled the women to work the fields more efficiently, which were comparatively smaller.

As discussed in Chapter One, the role of the Haudenosaunee men prior to contact revolved around agricultural production such as clearing the land to girding the trees while women completed the field work and planted the Three Sisters. The Haudenosaunee by entering into the fur trade and later a more deer-skin based economy were affected by acculturative change. The Indigenous people played an active role in the fur trade by working collectively to produce different types of commodities for the fur-bearing European markets.[450] The Indigenous roles and responsibilities were three-fold: i) Consumer and supplier - They hunted and supplied different types of furs ranging from deerskins to otters to beavers. The Haudenosaunee also acted as consumers in using the furs for their own purposes i.e. coats. ii) Manufacturing – This process took place in Europe. Furs were processed and manufactured into finished products, such as leather goods.[451] The Haudenosaunee did not have a role in the manufacturing process - only as a supplier of furs. This may explain the unequal relationship. Jordan argues that the Indigenous men served variously roles as producers, traders and interpreters but on a

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[447] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 297.
[448] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 214.
[449] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 210.
[450] Richter, *Facing East from Indian Country: A Native History of Early America,* 177.
[451] Richter, *Facing East from Indian Country: A Native History of Early America,* 178.

more localized setting. For example, the Huron traded corn in exchange for furs with the Algonkians. Then, the Huron would take the furs and trade with the French for manufactured goods.[452] Trade could be a direct exchange or involve multiple parties before a good exchanged hands. iii) Geographic middleman which will be discussed in the following section.

Dispersal of Settlement and Housing

The introduction of European childhood diseases greatly affected the Haudenosaunee population. Between 1630 and 1730, there was a significant overall decline, the estimated Haudenosaunee population was 21,740 to under 3,660.[453] This weakened the Haudenosaunee. At the same time, European populations in North America were growing, putting added pressure on the ownership of Haudenosaunee controlled lands. Sustained contact with European settlers after 1620 introduced "childhood diseases" such as smallpox, typhus and influenza which decimated the Haudenosaunee and other Indigenous tribes. Europeans who survived exposure to most of the infectious diseases did acquire personal immunity because of repeated epidemic exposure.[454] However, the immunity did not pass on to their children. The Europeans did not pass the immunity to their children either but most were exposed to the diseases as children and as they became adults, they had already developed the immunity.[455] The Haudenosaunee faced tremendous losses as these diseases affected the youngest and oldest members of the community, constituting a disproportionate share of the dead.[456]

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[452] Richter, *Facing East from Indian Country: A Native History of Early America,* 96- 97.
[453] Snow**,** *The Iroquois, The Peoples of America,* 110.
[454] Snow**,** *The Iroquois: The Peoples of America,* 99.
[455] Snow**,** *The Iroquois: The Peoples of America,* 99.
[456] Delâge, *Bitter Feast,* 93.

The population losses had a definitive impact on Haudenosaunee settlements. The longhouses became more standardized with three or four hearths.[457] In effect, most of the Haudenosaunee who survived the epidemics were forced to merge with other clans or adopt other members in order for the longhouses to remain in its traditional form.[458] In the eighteenth century, the traditional longhouses gradually changed to shorter longhouses as the size of Haudenosaunee families got smaller.[459] Jordan argues that the dispersal of settlements and transition to shorter longhouses is a return to the traditional roots of the Haudenosaunee. This is characterized by smaller Haudenosaunee sites with a population of one to two hundred.[460]

Between 1715 and 1754, relaxed peace and an improved political economy, especially in the Townley-Read site near what is now Geneva, New York, may have led to the dispersal of Haudenosaunee communities. The fur trade remained viable until the mid-eighteenth century enabling the Haudenosaunee to cope with some of the economic changes though other areas saw the depletion of beavers as early as the 1640s.[461]

Dispersal of settlement is defined as the resettlement or abandonment to new nucleated settlements. Jordan argues the Haudenosaunee dispersal was a logical progression that they planned in response to political and economic circumstances.[462] Dispersal of settlement changed how the Haudenosaunee dealt with their food situation. The Haudenosaunee were weakened and did not have the support system should crops

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[457] Snow**,** *The Iroquois: The Peoples of America,* 111.
[458] Snow**,** *The Iroquois: The Peoples of America,* 111.
[459] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy, 2*35.
[460] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy, 2*35.
[461] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 1.
[462] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 198.

fail. In times of food shortages, the Haudenosaunee would occasionally borrow grain from other villages or eat the corn seeds they were able to save in their storage facilities to supplement their diet.[463] By dispersing into other areas, the Haudenosaunee would be able to hunt and find other sources of food. In 1750, the Cayuga were saved from starvation as the Onondaga carried corn 50km over land to help them with food. The alliances formed by the Confederacy enabled each nation to survive by sharing their food supplies especially corn.[464] Under dire circumstances, the Haudenosaunee would resort to eating eels, dogs, muskrats, rotten meat and basswood bark in times of famine and crop failure.[465]

The dispersal of Haudenosaunee communities varied in the distances travelled and the seasons. Some of the Haudenosaunee tribes took advantage of the trade opportunities with the French and English as their territories were part of the trade route. According to anthropologist Kurt A. Jordan, the Haudenosaunee acted more as geographic middleman than as consumers or suppliers of the fur trade. The Haudenosaunee encouraged west-east trade routes through their own territories and influenced trade with particular European parties, especially the British.[466] This enabled the Haudenosaunee to receive ceremonial gifts and form alliances with different parties. Jordan contends the Seneca initiated the changes to their way of life, from a "position of strength" as they took advantage of opportunities to re-direct the social disintegration that was affecting their daily lives.[467] The Seneca faced population pressure from the

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[463] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 45.
[464] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 45.
[465] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 45.
[466] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 64.
[467] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 224.

Europeans. Most of the government officials and European settlers did not like the Haudenosaunee's dispersed settlements because they could not control their movements or force them to stay in a particular region. The Europeans had "agrocentric" beliefs defined as, the disapproval of the Haudenosaunee's traditional agricultural practices such as polycropping and lack of fencing.[468] These colonizing attitudes will eventually impact Haudenosaunee cultural practices and their way of life as shown with the fur trade.

In many ways, the Seneca settlement dispersal in the Townley-Read site was economically beneficial to the local community.[469] The Seneca actively made decisions that fit into their cultural way of life while adapting some European agricultural practices.[470] The Seneca worked to attain the best of both worlds as they had to deal with changing agricultural practices, population pressure and encroachment on hunting grounds.[471]

Housing Settlements

Housing is an important aspect in understanding how the Haudenosaunee lived pre-and-post contact. Information from the study of the form and structure of the longhouses can be used to frame and further our understandings of the matrilineal system, household activities and agricultural practices.

The shorter longhouses reflects how the size of the familial household decreased with the dispersal of settlements. Houses were now built for two families, and included only one fireplace. Prior to the eighteenth century, most longhouses had at least two

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[468] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 204.
[469] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 2.
[470] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 344.
[471] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 354.

fireplaces with room for at least four families.[472] The smaller family size can also be attributed to the return of subsistence farming. In the past, extensive agricultural fields were a necessity to feed the kinship families. In times of relative peace, the Haudenosaunee did not need to take in prisoners to replace their population so agricultural production and size of the longhouses were not as crucial. The changes to the household sizes did not reflect any changes to the matrilineal organization of the tribes or the allocation of land.

Acculturative change can be seen in the design of the longhouses, which reveals a balance of European construction techniques with Iroquoian features spread prominently throughout. Some of the European features include: large interior posts, fasteners, modifications to the structures size, and the placement of large posts centered around two sleeping benches and a fireplace. A European ax was used to ensure the proper dimensions of wood was made.[473] The use of logs, planks and nails indicated the use of European tools because the Haudenosaunee traditional methods did not allow for this.[474]

Prior to colonization, the Haudenosaunee homes were largely bark-covered structures. The traditional construction materials such as bark and wooden posts were still used and incorporated into the homes.[475] The posts were v-shaped indicating they were vertically set into the ground and holes were dug into the ground for larger support posts inside the homes.[476] Interlocking joints were used compared to European siding braced by posts.

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[472] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 345.
[473] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 234.
[474] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 234.
[475] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy,* 234.
[476] Engelbrecht, *Iroquoia: The Development of a Native World.* 71.

The acculturative process is made visible through the integration of European and Haudenosaunee construction and style in the homes. Haudenosaunee families lived in classic longhouses with three or four hearths by 1700. The longhouses sheltered ten to twelve people, which often made up of three generations. Fewer members of the family now lived together compared to the larger lineages of the past (Snow, 131).

Most of the homes were built close together in order to facilitate discussion between community members about tribal issues.[477] However, the space between homes was wide enough to ensure that individual house fires would not catch and spread. Open fireplaces were still used for cooking during this period.[478] Haudenosaunee culture was affected by the smaller longhouses as communal cooking was not an essential necessity. With colonization, the homes were constructed with European tools straying moderately away from Indigenous techniques and materials. The communal nature of kinship groups in the longhouses remained intact but reverted to a smaller scale.

By 1700, European goods had flowed through Indigenous communities for 175 years.[479] The fur trade was an important industry to the Indigenous people because initially it was a lucrative market and allowed them to purchase European goods. Some of these goods held spiritual significance but they also enabled the Haudenosaunee to be more efficient in meal preparation and in their hunt for food. In the Great Lakes region, the Haudenosaunee and European settlers underwent acculturative changes due to the fur trade. The Haudenosaunee retained the core of their cultural beliefs and practices because they made decisions, specifically their selection of specific types of goods, diet and

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[477] Engelbrecht, *Iroquoia: The Development of a Native World.* 344-345.
[478] Engelbrecht, *Iroquoia: The Development of a Native World.* 212.
[479] Jordan, *The Seneca Restoration 1715- 1754*: *An Iroquois Local Political Economy*, 352.

agricultural practices. With the decline of the fur trade and dispersal of settlements, the Haudenosaunee returned back to their cultural roots to live in the shorter longhouses and nucleated settlements. The Haudenosaunee adoption of honey, wheat, oats, barley into their diet indicates an acceptance of European food and culture as part of the influx of European settlers and the fur trade. For the Haudenosaunee, they incorporated draft by animals and creolized farming into their agricultural practices. The Haudenosaunee were open to new ideas while balancing their spiritual beliefs and cultural practices.

Conclusion

Food is a major pre-occupation for everyone. From the time we wake up to have breakfast, where to go out for dinner or what to plant in our vegetable garden – food is a constant in our mind. Food awakens in us memories of the types of food we eat to celebrate special occasions, sad times or at family gatherings. But more importantly, food is a connection to who we are today and how we were raised. The Three Sisters were not only the Haudenosaunee's staple diet but occupied an important spiritual and cultural place in their daily lives. The Haudenosaunee were concerned with all aspects of the agricultural process, including cultivation, harvest, protection of the farmlands and hunting territories. After 1620, they also had to deal with the expanding network of European traders that threatened their autonomy and culture. As such, European encroachment on Indigenous land had a definitive impact on Haudenosaunee culture. The Haudenosaunee had to maintain a neutral stance and negotiate treaties with the French, English and Indigenous allies to ensure their foodways - hunting territories and farmlands - remained under their domain.

Using the Three Sisters as a lens provides a new understanding of the impact European trade had on Haudenosaunee foodways. Colonial contact and the exchange of goods altered traditional preparation and culinary methods as well as definitions of land ownership and gender roles. This study demonstrates a new way of understanding cultural change through the Haudenosaunee perspective. According to Linda Tuhiwai Smith, revisiting history is a significant part of decolonization.[480] Haudenosaunee history

[480] Linda Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples* (New York: Zed Books Ltd, 1999), 34.

is commonly studied through their interactions with Europeans and as the marginalized Other.[481] The process of reclaiming the past and approaching history through a different lens enables the Indigenous voice to be heard – allowing Indigenous history, stories and beliefs to be understood.

Chapter One acknowledges the importance of the Three Sisters and their role in agricultural production. This chapter discusses the role of Sky Woman and the origin story of the Three Sisters, while also considering Western scientific explanations of Indigenous agricultural practices. This helps to elucidate how spirituality and culture influenced the Haudenosaunee way of life. The social construction of gendered roles behind the Three Sisters and Sky Woman reinforces ideas of cultural norms from the Haudenosaunee and Western perspective. By analyzing both perspectives, we gain a deeper understanding of what shapes culture, what are the common narratives being analyzed and what are the complexities and variables that lead to cultural change. This allows for a more in-depth and balanced understanding of Western and Indigenous perspectives.

In Chapter Two, the focus turns to the cultural importance of land, sustainability and peace in the negotiation and ratification of the Great Peace of Montreal of 1701. This chapter also explains how, as trade networks with the English and French expanded, access to new commodities gradually changed Haudenosaunee foodways: shorter meal preparation times, the plow and draft animals changed Haudenosaunee agricultural practices and with this, women were relegated more to household-related duties as a

[481] Smith, *Decolonizing Methodologies: Research and Indigenous Peoples*, 34.

patriarchal system gradually entered the Haudenosaunee way of life. This suggests acculturative change.

Some of the topics that needs to be further explored in this study include: Christianity, Metis and rivalries between tribes. One important topic that is not discussed in the study was the impact of Christianity on the Indigenous people. My study briefly mentions missionaries being allowed to be involved in the Haudenosaunee villages but it does not go in-depth. The process of assimilation by missionaries could be expanded to examine cultural change. Another topic recommended for future study is the introduction of mixed First Nations/Europeans and how this affected their foodways. Mixed French and First Nations created their own distinct category, Metis. With this, I hypothesize that new culinary methods and meals involving the Three Sisters would have emerged. A Metis would have to navigate between two worlds - the cultural and spiritual beliefs that is fundamentally Indigenous and European. In addition, the issue of rivalries and competition among the Haudenosaunee and Indigenous tribes could be explored. The cultural values of New France's Western alliances – what led them to develop trade relations with the French but war with the English. These issues were not explored given the allotted time and space.

Presently, Haudenosaunee communities are reclaiming their language and this has enabled the transmission of Creation Stories, traditional ceremonies and ideologies of sustainability. The Three Sisters have continued to play an important role in modern-day Haudenosaunee life. The Haudenosaunee polycultural complex has been rejuvenated with the White Corn Project in Ganondagan, New York. The Indigenous agricultural methods are environmentally friendlier and more sustainable. Concerns over climate change,

GMOs and water rights have created greater awareness of what we, as humans have been doing to Mother Earth.

On the Six Nations Reserve in Ohsweken, Ontario, the Corn Tasting Ceremony/Green Corn Dance is still being celebrated to express their thanks to the food spirits.[482] Despite the effects of colonialism and land displacement, the Three Sisters are planted for human consumption. Some tribes still use the traditional polycultural way. Mankind's responsibility is to ensure the "seeds" will be grown and passed on to the next generation. For example, in the Iroquois White Corn Project, the corn grown is organic, hand-picked, hand-husked and hand-processed.[483] This speaks to the ways in which Indigenous and non-Indigenous people are going back to their roots; however, this belief in sustainability has now been extended into different mediums. It is fascinating to see how the oral transmission of traditional beliefs has been transformed in the age of YouTube, food blogs, television and social media.

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[482] Shimony, *Conservatism among the Iroquois at the Six Nations Reserve*, 172.
[483] "About Us", *Iroquois White Corn Project*, http://www.iroquoiswhitecorn.org/contacted (Accessed: June 5, 2016).

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