RECONSIDERING THE DEPOPULATION OF THE ST. LAWRENCE RIVER VALLEY USING A RADIOCARBON AND MATERIAL-BASED APPROACH

By

Jonathan Micon

(Under the Direction of Jennifer Birch)

ABSTRACT

This dissertation evaluates the timing, scale, and connectivity of Iroquoian population movements from the St. Lawrence River Valley in northeastern North America into neighboring communities in southern Ontario and central New York between CE 1450 and 1580. Archaeologists have long attempted to understand these movements within cultural historic and processual-based frameworks that are often overly rigid and fail to encapsulate the dynamic nature of movement in Iroquoian lifeways. Indeed, in these models historical contingencies are typically viewed as inconsequential to the larger environmental or material processes that 'pushed and pulled' people between regions. In this dissertation, I use updated radiocarbon chronologies and material culture associated with St. Lawrence Iroquoian population movements to highlight the diverse ways in which St. Lawrence Iroquoians engaged in the act of leaving and arriving. Data derived from forty-four ancestral Huron-Wendat and Haudenosaunee village sites across southern Ontario and Upstate New York are employed to consider the mechanisms that structured St. Lawrence Iroquoian dispersal. My results build on previously accepted mechanisms (i.e., captive vs. refugee) to argue that kin-based relationships were paramount for structuring SLI movements into each sequence. Differences in the timing, scale, and connectivity of SLI movements speak to a more dynamic dispersal in which St. Lawrence Iroquoians were active participants who developed long-lasting connections that cross-cut social boundaries.

INDEX WORDS: Iroquoian archaeology, Southern Ontario, central New York, Radiocarbon Dating, Material Analysis, Population Movement, Social Boundaries

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JONATHAN JOSEPH MICON

B.A. Purdue University, 2016

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JONATHAN JOSEPH MICON

B.A. Purdue University, 2016

Major Professor: Jennifer Birch

Committee: Timothy Abel
Victor Thompson
Stephen Kowalewski

Electronic Version Approved:

Ron Walcott
Dean of the Graduate School
The University of Georgia
December 202

DEDICATION

For Mom, Dad, and Katie

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CHAPTER 1

Introduction

Migration has repeatedly fallen in and out of favor in archaeology as an explanation for large-scale cultural change. In North America, migration has been considered as both a driving force in the early development of sedentary, non-Western societies as well as a secondary 'historical' phenomenon (Adams et al. 1978; Binford 1972; Cushing 1890). These two diverging viewpoints relate to broader paradigm shifts in archaeology involving culture historic and systems-based thinking. Over the past thirty years, migration has again emerged as a popular explanation for large-scale cultural change, but this time, with a more dynamic interpretation of its causes and outcomes as influenced by Indigenous-derived frameworks (Duwe and Pruecel 2019; Schneider 2015; Smith and Wobst 2004) and studies across the social sciences dealing with contemporary migrations—generally termed as 'migration studies' (Baker and Tsuda 2015; Cabana and Clark 2011; Burmeister 2016). In this work, I argue that these updated Indigenous-centered and contemporary frameworks help archaeologists to build on previous migrationist models and create more agent-centered narratives that in turn favor persistent Indigenous histories. Here, new narratives rely on high-resolution temporal chronologies to identity shared trends in how individuals experienced relocation at the sub-regional and community levels as well as variations that speak more to historical contingencies as opposed to systems-based thinking.

In this study, I investigate an archaeological case of migration from the St. Lawrence River Valley by members of the Northern Iroquoian linguistic and cultural tradition between CE 1450 and 1580. Because migration is a dynamic phenomenon that has been defined by

archaeologists in a number of ways, I adopt a minimal definition used by Cabana and Clark (2011:5) that views migration as "*A one-way residential relocation to a different 'environment' by at least one individual.*" This definition makes no assumptions about the inherent causes or outcomes of migration but distinguishes it from smaller, more restrictive forms of movement. In place of the traditional term 'migration,' however, I refer to inter-regional flows of people as 'population movement' because as my collaborator from the Huron-Wendat Nation, Louis Lesage, once said, "animals migrate, people move."

Population movement in this sense (i.e., migration) is notably distinct from more restricted and cyclical forms of movement that occur within extended regions (Bernardini 2005; Fowles 2011; Schachner 2012), subsistence landscapes (Binford 1972), or communities (Varien 1999; Warrick 1988). From an archaeological perspective, population movement may be evident through inter-regional shifts in demographic trends, broad changes to material or settlement patterning, or the emergence of macro level pressures corresponding with environmental or social transformations (Burmeister 2000; Clark 2001; Cordell 1995). Here, I discuss a specific instance of population movement characterized by the complete dispersal of the 'giving' population and notable changes to neighboring material traditions (Kuhn et al. 1993; Williamson 2016; Ramsden 2016). In contrast to movements of this nature where some residents remain in place, complete depopulations can have added long-term consequences based on how travelers engage with and relate themselves to their previously occupied landscapes (Lamoureux-St-Hilaire et al. 2015). Indeed, how people leave landscapes has major impacts on the ways in which past landscapes are codified into the collective memory of receiving or 'host' societies and how shared memories are shaped over time (McAnany and Lamoureux-St-Hilaire 2020).

Population Movement in an Iroquoian Context

In this study, I investigate evidence of population movement among Northern Iroquoian communities and societies. The term Northern Iroquoian, or simply Iroquoian, refers to a cultural and linguistic tradition practiced by people whose inhabited territories currently lay in New York State, southern Ontario, southern Québec, and the Susquehanna River Valley. At the time of sustained European contact circa CE 1600, Iroquoians were organized into distinct clans, nations, and confederacies that shared many defining cultural characteristics. Most notable of these were a diet rich in maize, beans, and squash known as the "Three Sisters" which was supplemented by hunting, fishing, and gathering activities, a material tradition defined by robust bone tools and globular ceramic vessels, and the construction of bark-covered longhouses shared by members of the same matrilineage.

Beginning around the thirteenth century, Iroquoian societies in Ontario and New York gradually began to transition away from seasonal foraging strategies toward more permanent, year-round villages (Birch 2015:278-279). In both Ontario and New York, the largest villages, 3-4 hectares in area, date to the late-fifteenth and sixteenth centuries and are estimated to have sheltered as many as 2,000 individuals (Abel 2021:293; Englebrecht 2003:89). On average, villages during this period are believed to have been occupied for up to 30 years before being relocated (Warrick 1988:51). This pattern, along with the assumption that few villages were ever re-occupied, has allowed archaeologists to recreate community sequences that represent hundreds of years of activity by contiguous groups (e.g., Birch and Williamson 2013; Finlayson 1998; Pearce 1984; Snow 1995; Tuck 1971). Though community sequences hypothetically reflect the movement of one or two communities every few decades, they were also known to have been continually transformed by the inward and outward movement of individuals and households from adjacent sequences and regions (Birch and Hart 2021; Hart 2020). In this way,

population movement was a constant and ongoing process in Iroquoian lifeways and shaped many of the socio-political developments observed by archaeologists in the material record (Birch and Lesage 2020).

A History of Migrationist Models and Indigenous-Contemporary Perspectives

Though population movement has been a recurring theme in North American archaeology, the models archaeologists propose to explain its causes and outcomes often differ in how, or if, they make use of Indigenous and contemporary migration perspectives.

Culture History

The earliest approaches to population movement in North American archaeology relied heavily on aspects of Indigenous oral traditions to explain patterns in material culture (Cushing 1890; Parker 1916: Fewkes 1900). In the American southwest, archaeologists such as Frank Hamilton Cushing (1980) and Jesse Walter Fewkes (1900) believed that Pueblo oral traditions had a historical basis in reality and that stories of great migrations could be found in distributions of materials and settlements across the landscape (Fowler 2000:18). In the northeast, many scholars such as Hamilton Lloyd (See Morgan 1904) and Arthur Parker (1916) used Iroquoian accounts of a common, fairly recent, origin to argue that different Iroquoian material traditions were stylistically indistinguishable.

While these Indigenous perspectives were being considered, culture historians often ignored developments in other fields related to the specific mechanisms that structured population movement at the local level (Greenwood and Hunt 2003; Pisarevskaya et al. 2020). Sociology and geography pioneers Ravenstein (1885) and Thomas and Znaniecki (1918) used early census data in Europe and the U.S. to construct explanatory 'migration laws' that could describe the various economic or demographic factors "pushing and pulling" people into different regions. These laws identified key phenomena such as "currents of migration" and

"counter-streaming" that structured how and why people moved long-distances. As early as 1885, Ravenstein even noted variations in these supposed "laws" resulting from "spatial differentials" related to economic opportunity, physical climate, and public policies (1885:167-68).

Thus, while early archaeologists in North America were taking notice of Indigenous migration histories, these histories were often one-dimensional and lacked the detail necessary to describe the complex mechanisms responsible for large-scale population movement. Without an understanding of these basic mechanisms, migration histories invariably treated all population movements equally, without a nuanced consideration of how various factors, such as demographics, environment, or social organization, intersected to produce different moving narratives.

Systems-Based Archaeology

With the onset of processual archaeology in the mid-twentieth century, migrationist models began to change their use of Indigenous and contemporary perspectives. Processual-minded archaeologists acknowledged that previous migration histories lacked many of the descript mechanisms being discussed in other fields. They began to incorporate models derived from studies of contemporary migrations to support processual ideas, often at the expense of earlier Indigenous histories.

In 1978, archaeologists Adams and colleagues announced a "Retreat from Migrationism" in which 'historical' narratives of migration were argued to be secondary to the broader systems that structured them. These systems were thought to be internally driven and found many commonalities with functionalist arguments in other fields. Sociologist Hoffmann-Nowotny (1970) argued, for example, that migration—seen from the viewpoint of the social system—was

a way of stabilizing power tensions within a society. Similarly, Mabogunjie (1970) saw migration as a "circular, independent, progressively complex and self-modifying system" whereby migrations into a receiving society linked back to the donor society in a continuous circuit (building on previous "Push-Pull" models in sociology). In this way, the factors that drove the causes and outcomes of migration were not people, but rather processes, what Plog (2003) refers to as the Malthusian "triad:" economics, environment, and demography. In archaeology, this meant that discussions of large-scale population movements were often integrated into world systems models and generally thought of in terms of interaction, diffusion, and technological distribution rather than as simply movement alone (Anthony 1990:897).

While systems-based thinking seems to have helped archaeologists outline the macro level causes and outcomes of population movement, it also obscured the subtle mechanisms driving these processes at the local level and viewed migrants largely as passive performers (Anthony 1990). In North American archaeology, systems-based thinking has been condemned for omitting Indigenous perspectives of movement as a dynamic and transformative phenomenon (Duwe and Pruecel 2019:4-5). By its self-modifying nature, systems-based models tend to situate Indigenous societies within static, temporally defined boundaries that are complacent over centuries of interaction with other populations. Indeed, systems thinkers often interpret evidence for population movement (i.e., demographic changes, new material patterns) as aspects of wider social processes (e.g., exchange, interaction, settlement dynamics) or as proof of complete cultural collapse (Cobb and Butler 2002; Varien 2010). This reasoning directly contradicts the views of many descendant communities and fails to explain archaeological instances of more complicated social entanglements (Cobb 2005; Cohen 2020).

Contemporary and Relational Perspectives

Over the past thirty years, population movement has again emerged in archaeology as a popular topic of inquiry (e.g., Anthony 1990; Baker and Tsuda 2015; Burmeister 2000; Cabana and Clark 2011; Cameron and Ortman 2011; Duwe and Preucel 2019; Pluckhahn et al. 2020; Trabert 2020; Van Dommelan 2014). In contrast to earlier theories, this resurgence has been accompanied by new perspectives from both Indigenous scholars (Duwe and Preucel 2019; Naranjo 1995) as well as studies of contemporary migrations (Burmeister 2016; Tsuda 2011; Tsuda and Baker 2015). One of the most important insights to emerge from this conceptual turn has been that archaeological models of population movement cannot be separated from the people who participated in them. In other words, not all individuals experience population movements equally and people's decisions about how, where, and when to leave are shaped as much by factors 'on the ground' as by macro level pressures.

While systems-based migration models have championed the importance of economic, environmental, and demographic pressures in driving population movement, studies from the contemporary migrations show that many decisions by those on the move often contradict material logistics. For example, macro level pressures often have differential impacts on people of differing socio-economic statuses meaning that individuals with the means to withstand hardships will tend to stay in place while those in more vulnerable situations are more likely to relocate (Gilbert and McLeman 2010:17). These patterns are not restricted to contemporary examples either. At the end of the Maya Classic Period in the tenth century CE, many ancient Mayans attempting to escape from hierarchical political systems ventured away from agriculturally productive lowlands in the south into generally drier conditions along the northern coast (Webster 2002:243-244).

For those who leave, social networks are often more important in structuring the development and outcomes of movement compared to macro level pressures. Migrants almost always relocate to cities or countries where they have pre-existing ties, even if these tie are in high-population, low-resource areas (e.g., Japan, Las Vegas, etc.). Over time, as more migrants begin to follow these connections, migrant pathways emerge that are self-sustaining and ease the risk, cost, and difficulty of migration for others later in the movement process (Massey 1999). For archaeologists, this means that the effects of population movement can compound over time leading to contingencies that eventually create path dependencies (Hegmon 2017).

These contemporary insights have important implications for scholars attempting to write more nuanced and agent-centered Indigenous histories. Advancements in method and theory in archaeology over the past thirty years have led to a renewed adoption of relational perspectives that highlight the social relationships and behaviors which underscore broader social, political, and economic phenomena (Feinman and Neitzel 2020; Holland-Lulewicz et al. 2021). Relational studies approach social and political phenomena using bottom-up perspectives that stress the fundamental relationships that define and structure larger-scale processes. This mentality requires working outside previous cultural and temporal categorizations and continuously tacking back and forth between material patterns at multiple spatial and temporal scales (Wylie 2002). In this way, relational approaches downplay generalized processes as explanatory forces and instead favor individuals who shape these processes through acts of personal and collective agency.

The St. Lawrence Problem

In northeastern North America, the St. Lawrence River Valley reflects many of the issues that have plagued previous migrationist models in archaeology. It is estimated that during the

fifteenth and sixteenth centuries around 10,000 Iroquoian-speaking people dispersed from the St. Lawrence Valley and relocated into neighboring Indigenous communities and societies in southern Ontario, central New York, and southern Québec (Chapdelaine 2016; Wright 2007). This dispersal has been the focus of considerable archaeological debate over the past century, leading to numerous conflicting explanations regarding its true causes. Most of these explanations fall under the traditional material triad of economic, environmental, and demographic pressures, the most popular suggesting that St. Lawrence Iroquoians (SLI) were attacked by neighboring Huron-Wendat or Haudenosaunee members over their role as 'middlemen' in the burgeoning European fur trade (Jamieson 1990; Pendergast 1993; Trigger 2000). Other scholars insist that climate changes related to the Little Ice Age made northern farming difficult, forcing SLI to relocate further south into warmer climates (Barbeau 1949:229; Martijn 1969). Still others argue that disease brought by early Europeans devastated SLI populations causing a breakdown in social institutions and again forcing people to leave (Fenton 1940:175; Lesage and Williamson 2020; Warrick 2008:194). While all of these explanations provide a justification for dispersal at the macro level, they fail to tell the complete story and leave out important details that ultimately structured SLI movements.

Studies of SLI dispersal over the past thirty years have begun to illustrate a more complicated picture of depopulation than those described by previous explanations. For example, social network analyses of pottery collar decorations by Hart and colleagues (2017) show that SLI communities did not restrict the flow of materials and information to neighboring populations, but rather, were integral nodes in inter-regional networks that brokered information between ancestral Huron-Wendat and Haudenosaunee groups. In addition, Hart (2022) and Hart and Feranec (2020) have used nitrogen-isotope analyses to show that maize was being consumed

in increasingly higher quantities throughout the fifteenth and sixteenth centuries in parts of the St. Lawrence Valley and that Iroquoians in these areas had developed innovative soil management techniques to offset climate disruptions. Finally, studies by Snow and Lanphear (1989) used settlement data from a number of Iroquoian sites to argue that epidemics were not a major factor in northeastern population levels prior to CE 1616 (cf. Spiess and Spiess 1987). It is worth noting that there are other instances in eastern North America where disease did have a major impact on Indigenous populations before contact (See Cook and Borah 1971) so this latter point cannot be entirely dismissed (see Lesage and Williamson 2020).

Even with this last point in mind however, it is evident that a more dynamic history for SLI dispersal is needed in archaeology, one that recognizes the impact of shared macro level pressures but also contextualizes them within peoples' immediate situations and experiences. To do this, it is necessary to build a solid understanding of the underlying social mechanisms that structured SLI dispersal (Glowacki 2020:25) Currently in the northeast, there have been few studies that seriously explore these structural aspects of SLI dispersal. Those studies that do address them, albeit briefly, tend to fall under two main categories: captive-taking via raids and people seeking refuge from these raids (cf. Englebrecht 1995, 2004; Kuhn 2004; Pendergast 1993; Warrick 2008:199; Wonderley 2019). Both of these categories center warfare as their primary explanation for dispersal at the expense of other, more agent-oriented, explanations. Moreover, both tend to promote the assumption that SLI newcomers forfeited their previous attachments to the St. Lawrence Valley through joining Huron-Wendat and Haudenosaunee lifeways. This leads to a dangerous precedent in which SLI become helpless victims of broader processes rather than active participants in these same processes. Building on these scenarios and creating a more relational agent-centered perspective of depopulation requires developing a more

rigorous understanding of the basic dimensions that structured and defined SLI population movements.

Reconsidering the Depopulation of the St. Lawrence Valley

Characterizing Population Movement

Ortman and Cameron (2011:234) note that developing a framework for controlled comparisons of population movement requires defining relevant variables (i.e., dimensions) that can be addressed cross-contextually. Both authors outline several of these important dimensions, three of which I will focus on in my current analysis that I deem to be most important. These include timing/duration, scale/pace, and connectivity.

Timing/Duration

Understanding when and for how long a population movement occurs is arguably one of the most important dimensions that must be addressed before any other. This dimension gives a temporal context on which to understand changes in the causes and structures of movement and to contextualize within processes occurring simultaneously at other levels. Glowacki (2020:27) notes that "[d]elimiting the timing and intensities of emigration streams and their associated contexts can help characterize the vectors for change that are most influential for prompting emigration." In this way, population movements that are more long-term and gradual are less likely to be archaeologically observable than those that are sudden and require immediate accommodations by host societies. Understanding when people move can also provide important information about the initial motivations for leaving when this timeline is compared to macro level processes. In this study, I investigate the earliest emergence of SLI movements in each sequence to understand their relationship to the timeline for conflict and other proposed external pressures that supposedly prompted SLI dispersal.

Scale/Pace/Organization

After a movement pathway has been established between two populations, changes in the quantity and diversity of materials indicative of movement can reflect changes to people's motivations for movement. As the effects of population movement accumulate over time, the reasons for leaving might compound, creating a culture of leaving (*Sensu* Tsuda 2015) and which may, in turn, lead to an increase in the scale and tempo of movement. When changes in the scale of movement are compared to broader processes, they can be used to help delimit the important macro level pressures that were of most concern to people leaving. At the local level, variations in these scalar patterns can also provide important information about the more immediate, social factors that influenced and structured population movements. If material pressures are the only cause of regional depopulation, as has been proposed in the SLI literature, then it is expected that these material patterns will remain consistent across all sequences.

Connectivity

I use the term connectivity in this study to refer to the nature of social relationships between SLI and their hosts, both before and after incorporation. Clark (2011:87) notes that once newcomers have been observed in the archaeological record through material evidence for movement, archaeologists can investigate changes in the stylistic and spatial expression of these items to better understand how newcomers and hosts are getting along. This requires a bottom-up perspective centered around material expressions of local, intra-community, and intra-household relationships. This information can help to dissect the assumption that SLI adoptees were captives or refugees by observing how materials associated with SLI traditions were used and manipulated to negotiate immediate interpersonal relationships.

Investigating Material Evidence for Movement

Archaeologists have relied on a number of different strategies to identify movement. Notable techniques have included the examination of physical characteristics of human remains (Wray et al. 1991:28-32), documenting the presence of unique architectural arrangements (Poulton 1991:18; Jordan 2008:248; Williams Shuker 2005), and highlighting changes in demographic trends between regions (Cordell 1995). One of the most common techniques among contemporary archaeologists has been observing migration through the use of technological style (Clark 2001; Stone 2003). Technological style refers to those material traits that are less visible to the general public and therefore are less likely to be emulated or exchanged (Carr 1995: Table 7.5). Technological style has often been linked with Bourdieu's (1977) notion of habitus, or the underlying rules that structure interactions within society. These rules get passed down through generations, often unconsciously, at the family and community levels as people learn particular behaviors and skills from those who teach them and pass them on to others. This discreet communication can provide important information about the background of the artisan or user.

Clark (2011:87) notes that technological style is most commonly found in "mundane artifacts used in domestic settings such as bedding, clothing, utilitarian ceramics, and flaked and ground stone implements." He also notes that, "Although certain domestic activities may be rich in symbolism and meaning (Sterner 1989), many are conducted as part of daily routine with little attentiveness or self-evaluation" (Clark 2001:13). By associating these low-visibility traits with specific social groups and mapping their spatial and temporal distributions, archaeologists are able to track long-distance movements of the associated groups with reasonable confidence (e.g., Carr and Maslowski 1995, Clark et al. 2019, Mills 2018). Changes in the quantity or diversity of technological traits can reflect broader changes to the conditions of movement while patterns at

the community or even Household level might reflect the specific mechanisms responsible for integrating newcomers into a host community.

Establishing a Radiocarbon Timeline

Unpacking the causes and outcomes of population movement can be a complicated task when archaeologists are forced to rely on low-resolution temporal chronologies. The factors that structure large-scale movements are often shaped by specific historical contingencies that demand more refined, short-term resolutions. Without this perspective, archaeologists can often over-exaggerate the importance of large-scale processes in driving people to relocate and shaping movement outcomes. At the same time, high resolution chronologies can also present a problem as they "disregard history and misrepresent events and outcomes that have meaning and importance to the moment (Cohen 2020:206)." Understanding population movement therefore requires more than one type of resolution. This can be achieved through a practice that Wylie (2002) refers to as archaeological tacking, or the continuous switching back-and-forth between smaller and larger resolutions to infer broader trends in population movement while highlighting the particular mechanisms that make-up those trends.

Until recently, most models for population movement in archaeology were unequipped to address multiscalar phenomena at a fine-grained resolution. Relative, material-based chronologies can only be used to track cultural changes below the population level and generally within discreet 50-to-100-year periods (Feinman and Neitzel 2019; Manning et al. 2020). Such poor resolution encouraged many assumptions about population movement as being a societal phenomenon (Population A moves to B) and prevented the teasing out of lower-level patterning that hid evidence for human agency. Over the past thirty years, archaeologists have slowly come to replace relative timelines with independent radiocarbon chronologies that are better equipped

to bypass the circular reasoning inherent in earlier chronology-building techniques (Bayliss 2022; Bronk Ramsey et al. 2006; Taylor and Bar-Yosef 2016). While radiocarbon timelines are still largely underutilized in studies involving population movement (See Pluckhahn et al. 2020), they are ideally suited to articulate the complex realities involved in leaving and arriving and to situate these realities within a longer-term persistent framework.

In comparison to material chronologies, radiocarbon chronologies allow for archaeologists to make multiscalar inferences about material patterns at the community, sub-regional, and regional levels and to investigate how pressures and opportunities at each level tied into people's decisions about when, where, and how to relocate. They also allow for archaeologists to coordinate time frames between different regions and to align patterns across multiple material traditions. In this way, variations in population movement can be observed at different analytical levels, as well as between regions, sub-regions, and communities. This allows for more dynamic inferences about the multiple variables structuring movement pathways and the ways in which these variables shape the outcomes of movement in different social contexts.

Establishing a Timeline for Depopulation

To understand the dimensions behind SLI dispersal, it is first necessary to anchor the sites and sequences in which these dimensions are inferred within a solid timeline for leaving. Most Iroquoian archaeologists agree that dispersal occurred in a "domino-like" pattern extending west to east during the fifteenth and sixteenth centuries (Chapdelaine 2004). At the earliest point of this timeline in the western St. Lawrence Valley, Iroquoians are believed to have relocated from their permanent settlements by at least CE 1520. This belief is based on the knowledge that European materials are completely absent in northern New York and rare in southeastern Ontario until the mid-1500s (Abel et al. 2019; Chapdelaine 2004; Englebrecht 1995; Jamieson 1990). To

test this, Abel (2021) acquired 43 new high-precision AMS radiocarbon dates from 18 sites in northern New York and analyzed them using Bayesian modeling. This returned end boundaries around CE 1520 supporting the hypothesis that depopulation was complete in northern New York by 1520.

At the eastern end of the St. Lawrence Valley, where is believed that the last remaining SLI settlements were located, archaeologists generally agree that depopulation was complete by CE 1580 (Chapdelaine 2004; 2016; Jamieson 1990), in absence of a refined, radiocarbon-based chronology.. Chapdelaine (2016:151) notes that this date is based entirely on historical records and that "[n]o archaeological data on Native sites from the [eastern] Saint Lawrence Valley allows us to support or confirm this threshold date of circa 1580." With this being said, there are many historical accounts of Europeans, particularly Basque traders, venturing into the St. Lawrence Valley after 1580 (Plourde 2016). In 1583, Jacques Cartier's nephew, Noel, ventured to Mount Royal in the St. Lawrence Valley, but makes no mention of any Indigenous inhabitants in these accounts (Hakluyt [1598-1600] 1928,9:447-48). Moreover, in 1603, French merchant traders from St. Milo argued for a royal monopoly to sell furs in North America, insisting that since 1568, they had "[p]enetrated deep into the [St. Lawrence] river, passing Quebec and the lake [Lake St. Peter] (Pendergast 1991:49)." A 1580 date for Iroquoian dispersal is also supported by a number of unmodeled radiocarbon dates from six Iroquoian campsites in the St. Lawrence Estuary published by Plourde (2016: Table 5.1).

Therefore, in lack of additional evidence, this study considers 1580 as the temporal anchor point for SLI depopulation. Though this study focuses primarily on evidence for SLI dispersal among receiving societies, there are many opportunities going forward to acquire additional high-precision AMS dates from SLI contexts and to refine the chronology for

depopulation even further. Doing so would provide important information about both the broader and more localized pressures "pushing" people away at home in addition to those opportunities "pulling" them away abroad.

Research Questions

This dissertation research was organized around one central question: **How can archaeologists reframe depopulation as a dynamic and intentional strategy rather than a passive response to external pressures?** It argues that the answer to this question involves a dynamic and multiscalar understanding of the basic dimensions that structured and defined SLI dispersal both before, during, and after depopulation. Specifically, it looks at three key dimensions related to the timing/duration, scale/pace, and connectivity of SLI population movements through the following three questions. After each question, I note the current expected outcomes based on conventional understandings of material driven depopulations as well as a short summary of the methods used to address these questions and expectations.

Q1-Timing/Duration: When do materials associated with SLI movement first emerge in each sequence?

To investigate the timing and duration of SLI movements into each sequence, I combine radiocarbon dating and Bayesian modeling with materials indicative of SLI movement to examine the earliest potential arrival of SLI individuals into each of the seven community sequences in this study. I compare these timelines for SLI movement in each sequence with timelines for depopulation in the St. Lawrence Valley to argue that SLI established early social connections with ancestral Wendat and Haudenosaunee communities several decades prior to the onset of depopulation and almost a century before the final depopulation of the valley.

Q2-Scale/Organization/Pace: How does the quantity and diversity of materials associated with SLI movement differ in each sequence?

For my second question, I investigate the scale, organization, and pace of SLI movement by combining radiocarbon-based chronologies for each sequence with material evidence for SLI population movement, this time considering how their number and diversity track between 1450 and 1580. I operationalize these measurements within a criteria that organizes the scale, organization, and pace of SLI movements into each sequence using criteria outlined by Ortman and Cameron (2011). Through this data, I am able to argue that shifts in each of these dimensions around CE 1500 reflect broader changes in the general motivations for SLI movement while subtle differences in each of these dimensions between sequences reflect the local, kin-based relationships that ultimately structured SLI depopulation.

Q3-Connectivity: How are SLI-Host relationships conveyed through intra-community distributions of SLI material?

Finally, to understand the mechanisms for SLI incorporation at the community and household levels, I investigate intra-site spatial data on SLI materials from three Kanien'kehá:ka village sites. This information provides important information about the interpersonal relationships between SLI and their hosts and the ways in which material practices were leveraged by SLI and local Kanien'kehá:ka occupants in newcomer-host negotiations. This data demonstrates that while inter-regional kin-based institutions facilitated long-distance SLI movements into Kanien'kehá:ka communities, once arrived, local inter-Household kin-based institutions facilitated the incorporation of SLI into Kanien'kehá:ka lifeways and helped to structure the transmission of SLI traditions and identities into Kanien'kehá:ka society.

The above questions and their associated methods all focus on delimiting the timing, scale, and connectivity of SLI population movements at the shared and local levels. Each question tests underlying, and sometimes explicitly stated, assumptions about material drivers of

regional depopulation. Only a few studies in Iroquoian archaeology have ever attempted to evaluate these basic mechanisms for movement, often within a captive/refugee framework (Kuhn 2004; Snow 1995a:1603; Warrick 2008:194-199). By including a diachronic perspective of SLI dispersal at multiple analytical levels, and by using various lines of material evidence beyond pottery alone, this dissertation seeks to better underline the importance of considering social and particularly relational factors in models for regional depopulation.

Brief Overview of the Materials and Methods

Site Sampling Strategy

This dissertation research incorporated material and radiocarbon data from forty-four ancestral Huron-Wendat and eastern Haudenosaunee village sites composing seven distinct settlement sequences (i.e., sub-regional community clusters) from the fifteenth and sixteenth centuries (See Figure 1). These sites were selected based on the criteria that 1) They possessed published AMS date estimates on short-lived botanical samples which place their occupations squarely within the timeline of SLI dispersal (CE 1450-1580), and 2) they offered information on site-level material collections that included either ceramic, lithic, or bone tool objects associated with a St. Lawrence Iroquoian tradition. Table 1 lists the number of AMS dates and village sites sampled for each village sequence in this study. All seven sequences were selected for their representational sample of Iroquoian village sites extending from CE 1450 to 1580 and for the fact that each of these represents a closely interacting set of communities or an emically-defined Nation.

Radiocarbon Dating and Bayesian Modeling

Regional radiocarbon chronologies for southern Ontario and northern/central New York are based on Bayesian modeled dates published by Abel (2021), Birch and colleagues (2021), Birch and Manning (2021), and Manning and colleagues (2021). Because the historical

contingencies for each site and sequence were distinct, each of these models uses *a prior* information and other parameters that best fit current archaeological understandings of those sequences. This study also presents twelve new radiocarbon dates from three SLI village sites in southeastern Ontario using the Bayesian chronological modeling software OxCal version 4.4.1 and the IntCal20 Northern Hemisphere 14C calibration curve (Reimer et al. 2020).

The dates utilized in this study reflect village Date and Phase estimates (all OxCal operations are capitalized herein). The Date function in OxCal determines a hypothetical event describing the temporal extent of the Phase between its start and end Boundaries. These estimates were selected under the assumption that SLI materials may have been introduced into local material traditions at any point during village occupation. While the actual timing of village occupations or SLI material patterns may diverge slightly from the Date estimates presented here, these divergences are not considered significant enough to affect the proposed research interpretations regarding the timing/duration, scale/organization/pace, and connectivity of SLI dispersal.

Material Analysis

A major component of this dissertation involved assembling a dataset of SLI associated material culture from Iroquoian sites across southern Ontario and central New York. Materials considered to have an SLI association are discussed at length by Chapdelaine (2004), Gates-St. Pierre (2010), Jamieson (1990b; 2016), Kuhn and colleagues (1993), Pendergast (1966, 1992), and Wright (2007). These materials are characterized as occurring in significantly higher quantities in the St. Lawrence Valley and are commonly found in association with other SLI material traits. Most notable of these are pottery collars decorated with annular punctates, vertical-ladder-plaiting known as the 'corn ear motif,' deep basal notching, and parallel

horizontal incising referred to as ‘Durfee Underlining’. Other material traits also include smoking pipes with elaborate human face effigies, ceramic and red slate gaming discs, perforated stone or ceramic beads, and sophisticated tools made from bone, including harpoons, projectile points, smoking pipes, and incised awls.

Most SLI material culture compiled for this work derives from primary or secondary sources. Excavation field notes, articles, and unpublished manuscripts provided a wealth of information about available material collections from different Iroquoian sites. Several trips were also made to collections at the Canadian Museum of History in Gatineau, Québec and the New York State Museum in Albany, New York to record unpublished examples of SLI materials from sites in southern Ontario and east-central New York. When available, information on feature or Household level providence was recorded for materials from each site, although in most cases, SLI material information was limited to presence/absence data at the site level.

Chapter Outline

The following Chapters reflect over two years of writing and data analysis. While the primary research goals and questions of this project remained consistent during this time, certain interpretations and their organization were reframed between the writing of Chapters 2 and 4. As a result, these Chapters should be viewed as standalone articles that will be published following my defense in various high-impact journals. This will assist the reader in making sense of the shifting theoretical context in which data is interpreted over the course of this dissertation and to better explain any repetitive information that is present in each Chapter.

The objective of Chapter 2 is to explore the timing and duration of SLI population movements into seven community sequences in southern Ontario and central New York. Specifically, it explores the earliest evidence for SLI movement in each sequence and how this information speaks to the social and relational factors that structured SLI dispersal during the

late-fifteenth and early-sixteenth centuries. By contextualizing these findings within the timing of depopulation in the St. Lawrence Valley, this Chapter articulates how SLI actively established new social relationships with neighboring Wendat and Haudenosaunee communities prior to the onset of depopulation and almost a century before the complete depopulation of the St. Lawrence Valley.

In Chapter 3, radiocarbon and material data are again used to investigate the changing scale, organization, and pace of SLI population movements into six community sequences between CE 1450 and 1580. These findings are used to identify local variations in SLI movement that ultimately structured when, where, and how SLI relocated. In this sense, diachronic shifts in the scale, organization, and pace of SLI movements into each sequence can speak to the changing incentives that motivated SLI to move over time. It also highlights the importance of kinship in Iroquoian lifeways for facilitating and organizing long-distance movements and its utility during times of social upheaval.

Chapter 4 looks more explicitly at the community and Household level mechanisms responsible for integrating SLI into neighboring Iroquoian societies. It uses post-mold/feature density and SLI material data to examine SLI movements into three ancestral Kanien’kehá:ka village sites in central New York during the late-fifteenth to sixteenth centuries. This data tests previous understandings about the captive/refugee dynamics responsible for SLI incorporation and contributes to broader understandings about the ways in which inter-regional institutions helped to facilitate the incorporation of SLI newcomers. It also uses this data to get at the interpersonal dynamics responsible for shaping the transfer of material traditions between SLI and Kanien’kehá:ka Households and how these materials contributed to the formation of a new collective identity

Chapter 5 summarizes the findings from Chapters 2, 3, and 4 through the context of the original research question: **How can archaeologists reframe depopulation as a dynamic and intentional strategy rather than a passive response to external pressures?** I consider the main findings of this research and its broader contributions to Iroquoian and anthropological archaeology. I conclude by reviewing the limitations of this work and potential future directions for study.

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FIGURES

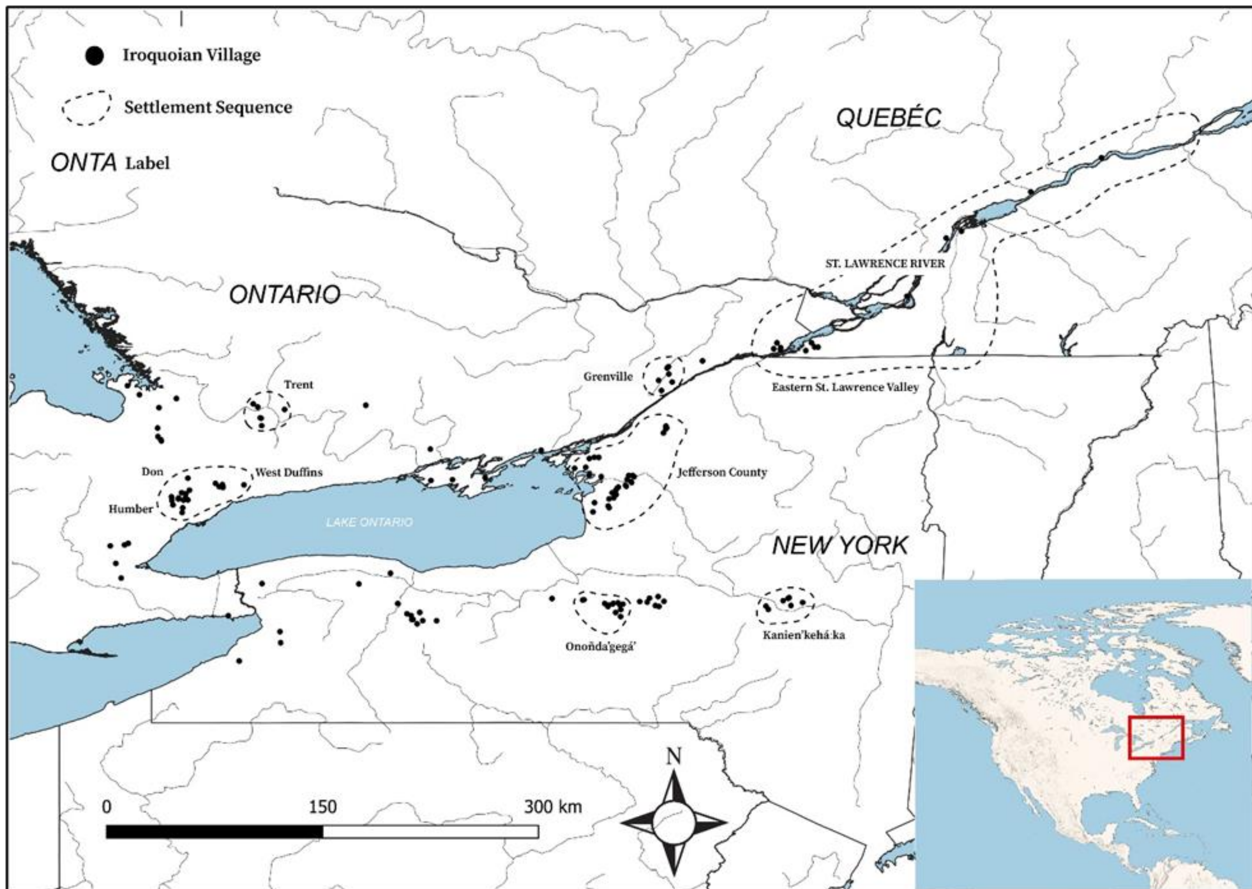

Figure 1. Location of all Iroquoian village sites and sequences in this study.

CHAPTER 2

CONSIDERING THE TIMING AND NATURE OF EARLY MOVEMENTS FROM THE ST. LAWRENCE RIVER VALLEY USING A RADIOCARBON AND MATERIAL-BASED APPROACH[1]

[1] Jonathan Micon and Jennifer Birch. To be submitted to *The Journal of Anthropological Archaeology*

Abstract

The depopulation of the St. Lawrence River Valley in Northeastern North America remains one of the most enduring topics in archaeology. During the sixteenth century, an estimated 8,000-10,000 Iroquoian-speaking people dispersed and relocated among neighboring groups in southern Ontario, central New York, and northern New England. After more than a century of scholarship on the matter, the primary consensus is that this depopulation was driven by external factors such as conflict, climate change, or disease. While these may have been important factors motivating St. Lawrence Iroquoians (SLI) to leave in part, they do little to tell us about the local mechanisms for leaving and how relationships between SLI and their hosts shaped the incorporation of SLI people and traditions into neighboring societies. Using high-resolution radiocarbon timelines and data on the distribution of SLI material culture, this study critically examines one important dimension of SLI dispersal—its timing and duration—into seven community sequences in southern Ontario and central New York belonging to an ancestral Huron-Wendat and Haudenosaunee tradition. It uses this data to argue that SLI movements preceded the onset of depopulation in most sequences by several decades and that the material signatures of these movements, when combined with ethnohistoric contextual references, reflect activities that would have been critical for developing and maintaining long-distance social relationships between Iroquoian communities. These results speak to the ways in which SLI actively engaged in the act of relocating and reframes the focus of depopulation away from external processes toward the relationships and agents that structured when, where, and how people left.

Introduction

Whether traveling nearby or farther afield, flows of people are constantly shaping human societies. As archaeologists, trying to define the causes and outcomes of these movements in the

past can be a difficult matter (Lamoureux-St-Hilaire and Macrae 2020). In cases of long-distance movement, archaeologists tend to favor generalized explanations that view leaving as a logical and often sudden response to external pressures, such as climate change, disease, or violence (Varien 2010). This is due in part to the legacy of processual-style archaeology and systems-based thinking that has stressed the importance of environmental or economic concerns in dictating people's rationales for settlement (Adams et al. 1978). While archaeological theory has moved on, the prevailing explanations for regional depopulation in many cases have not (Glowacki 2015:4-5). In this sense, there is a real need to bring methodological approaches into dialogue with new ways of thinking about the past (cf. Wylie 2017) in order to generate more satisfying explanations of the push- and pull-factors that result in population movement.

In this paper, we explore how advancements in the interpretation of radiocarbon dates allow us to think differently about how, and in turn, why regional depopulation happens. We use updated radiocarbon chronologies and data on the distribution of SLI material culture to better define the timing and nature of Iroquoian population movements from the St. Lawrence River Valley into seven distinct ancestral Huron-Wendat and Haudenosaunee community sequences in southern Ontario and central New York. Specifically, we argue that SLI movements into neighboring sequences began before the onset of depopulation in the St. Lawrence River Valley circa 1520 and that these early movements reflect more than just simply exchange or diplomatic engagements. Rather, they helped to establish long-lasting, potentially kin-based, relationships between SLI and neighboring communities that later facilitated the movement of other SLI in the sixteenth century. In this way, we suggest that the depopulation of the St. Lawrence River Valley is better thought of as a purposeful strategy that was commonly invoked by Iroquoian

communities in times of social or political upheaval rather than a sudden and unforeseen demographic collapse.

Northern Iroquoian Societies and Movement

The traditional territories of Northern Iroquoian societies are located in what is today Upstate New York, southern Ontario, southern Québec, and the Susquehanna Valley of Pennsylvania and New York (Figure 2). At the time of European contact, these societies encompassed diverse groups of people organized into lineages, clans, nations, and confederacies. Despite their differences, they shared a common language family as well as several cultural characteristics, including habitation in bark covered longhouses, a social structure built around matrilineal descent and clan membership, and subsistence based on maize horticulture supported by hunting, fishing, and gathering (Birch 2015; Englebrecht 2003; Williamson 2014). Two of the most influential Northern Iroquoian organizations at the time of European contact were the Huron-Wendat confederacy in south-central Ontario (Trigger 1987) and the Haudenosaunee confederacy in central New York State (Englebrecht 2003).

The archaeological record of the ancestral Huron-Wendat and Haudenosaunee is well-suited to address anthropological issues related to movement. Huron-Wendat and Haudenosaunee members traveled in various forms across their occupied landscapes ranging from long-distance, more permanent, movements, often termed ‘migration’, to shorter, more cyclical, movements often termed ‘population circulation’ (*sensu* Schachner 2012) (Parmenter 2012). For the purposes of this study, we focus on the former end of this continuum, what is referred to as ‘migration.’ However, in place of migration we select to use the term ‘population movement’ to avoid any confusion with ecological applications of the word.

One of the most well studied forms of Iroquoian movement situated within this continuum is the cyclical relocation of Iroquoian village sites every 15 to 30 years (Warrick 1988, 2008:123-125). As local resources depleted, Iroquoian villages were dismantled and moved to new areas, usually within a few kilometers of the original village location (e.g., Snow 1995; Tuck 1971), though longer moves took place as well (Ramsden 2016a). By mapping out these sequential movements, archaeologists have been able to reconstruct sub-regional community sequences that represent hundreds of years of activity by contiguous social groupings (i.e., Abel 2001; Bamann 1993; Birch and Williamson 2013; Bradley 2005; Tuck 1971). While each of these sequences hypothetically reflect the activities of one or two communities through time, it is evident through settlement patterning that sub-community groups regularly moved within and between sequences (Creese 2013; Hart 2021). In this way, each community sequence serves not only as an organizational tool, but also as a visible reminder of how population movements shaped Iroquoian lifeways and defined Iroquoian relationships to their physical and cultural landscapes over time (Birch and Williamson 2015).

Exchange, Movement, and Constructing Social Connections

Seventeenth and eighteenth century ethnohistoric accounts show that Iroquoians moved between communities for various reasons (Sioui 1999:160). Principle among these reasons is assumed to have been exchange and diplomacy (Englebrecht 2003:140). More than simply economic or political activities, exchange and diplomacy were responsibilities of Iroquoian men that were central to the formation of long-term social connections between different Iroquoian societies. These connections, in turn, prompted larger, more permanent movements of Iroquoians that allowed for other kinds of relationships to develop via inter-marriage or community coalescence.

One example of how materials facilitate social networks is through the exchange of Wampum, or tubular beads of white and purple shell (Bradley 2011). At the onset of the European Fur Trade in the seventeenth century, Wampum acted as a “cross-cultural medium” between European, Iroquoian, and other Indigenous communities (Englebrecht 2003:155) and possessed various symbolic associations with different groups. These intersecting meanings made Wampum a useful tool for facilitating inter-cultural engagements and providing a physical expression of formal political agreements. Sempowski and Wonderley (2019) note that the exchange of Wampum became particularly important in the context of Haudenosaunee confederacy-formation where it was intrinsically linked to the affirmation of life.

Another example of this is seen in the context of ceramic smoking pipes. Various seventeenth- and eighteenth-century accounts show that smoking was a common practice during both formal and informal Iroquoian gatherings (Fenton and Moore 1974:29). Wonderley (2005:215) notes that “[s]moking together’ was a figure of speech synonymous with peaceful, friendly negotiations” and that through the exchange of pipes, Iroquoians continually solidified their connections to others (McCallum 1932:16). These accounts seem to be supported by sourcing studies of Iroquoian smoking pipes that show distinct chemical signatures for different pipes indicative of their production by individuals (Braun 2012; Kuhn 2004). By personally creating their own pipes, Iroquoians could share aspects of their own personhood with the receivers of these gifts and, in turn, provide a material expression of themselves that continued to exist after their departure (Creese 2013).

Because material exchanges were necessary for building long-term social relationships, Iroquoians engaging in these practices would have needed to move beyond their immediate communities to engage with distant groups. While dealings outside of the community are

traditionally viewed as the work of Iroquoian men, there are certain recorded instances where women also moved between villages (Englebrecht 1974:61), albeit rarely (Latta 1991:378). The appearance of non-local, or 'atypical,' pottery types on Iroquoian sites has been used on occasion to argue for the movement of Iroquoian women given that the production of pottery was primarily within the realm of female related tasks (Ramsden 1990). Recent chemical sourcing studies of Iroquoian pottery, however, show that in most cases, Iroquoian pots were made using locally procured clays and thus not exchanged from outside the immediate community (Trigger et al. 1980; Kuhn 1985; Hawkins et al. 2021). Latta (1991:381) uses ethnohistoric evidence to argue that in a small number of cases, pottery was indeed exchanged, however this only accounts for a limited number of vessels, and as she notes, would likely have involved interactions between primarily Iroquoian men.

This all suggests that the exchange of symbolically charged materials provided important opportunities for Iroquoian men, and in certain cases women, to engage and build relationships with distant neighboring communities. These relationships could then be built upon later by friends and family members to facilitate larger, more permanent, population movements in cases of social or environmental upheaval (Labelle 2014; Lesage and Williamson 2020). Understanding the nature of these early engagements is therefore paramount in order to get at the mechanisms responsible for structuring the outcomes of large-scale population movements. This is best demonstrated through the case of St. Lawrence Iroquoian dispersal.

The Depopulation of the St. Lawrence River Valley

The depopulation of the St. Lawrence River Valley in the sixteenth century has long been positioned at the center of many discussions in Iroquoian archaeology (Chapdelaine 2004, 2016; Pendergast 1993; Sioui 1999:76-83; Trigger and Pendergsat 1972; Warrick 2008:194-204;

Wonderley 2019). One of the most enduring discussions relates to answering why SLI dispersal happened. Most scholars argue that external pressures, such as climate change, disease, or conflict, disrupted 'normal' village life along the St. Lawrence River and ultimately encouraged SLI to relocate into neighboring Indigenous communities. While these factors may in part explain the 'why' behind dispersal, they do little to tell us exactly—how—SLI left which, in turn, re-informs our understanding about the why of it (Glowacki 2020).

In order to better describe these details, one of the first aspects that must be addressed relates to the origins of SLI movement. When did SLI first begin to leave the St. Lawrence Valley? Where did they go? And what did these early movements look like in each community? Currently, the general consensus to these questions is that the depopulation of the St. Lawrence Valley unfolded in two 'acts'. The first act began in earnest after CE 1500 with the depopulation of the western St. Lawrence Valley (Pendergast 1985, 1993:25) while the second began after CE 1550 with the depopulation of the eastern St. Lawrence Valley. Beyond this basic timeline, there has been little research into the events preceding depopulation that may provide clues as to its initial causes. This has left many conceptual gaps related to the mechanisms structuring depopulation and how SLI relations with their neighbors relate to later population movements.

What information there is available about early SLI movements tends to revolve around the assumption that everything was fine between SLI and their neighbors until the sixteenth century. SLI materials found on Wendat or Haudenosaunee sites from before CE 1500 are commonly viewed as remnants of strictly economic or political interactions (Chapdelaine 2004; Pendergast 1993). In 2004, Kuhn conducted a chemical investigation of ceramic smoking pipes, considered to be representative of peaceful negotiations, from several fifteenth and sixteenth century Kanien'kehá:ka (Mohawk) sites. In these analyses, he found that the number of smoking

pipes produced using northern clay sources decreased after 1500 and, according to Kuhn, represents growing tensions between Kanien'kehá:ka and SLI communities. In a similar study, Wonderley (2019:151-155) identified several effigy smoking pipes that were shared between SLI and eastern Haudenosaunee communities in the late-fifteenth century but seem to have diminished several decades later. Like Kuhn, Wonderley interprets this decrease of SLI associated pipes as evidence for growing hostilities between SLI and their neighbors, ultimately leading to the depopulation of the St. Lawrence Valley after CE 1500.

Though these studies seem to support the idea that warfare prompted SLI dispersal, they do little to elaborate on the ways in which early SLI movements would have occurred 'on the ground' and tend to separate early SLI practices of exchange and diplomacy from later movements related to depopulation. To build on these explanations, a more refined, bottom-up perspective of early SLI dispersal is needed that highlights the interpersonal relationships and circumstances that would have helped to ultimately guide and structure later SLI movements away from the St. Lawrence Valley in the sixteenth century. This perspective requires delimiting patterns in the appearance of SLI materials outside the St. Lawrence Valley and relating them to patterns unfolding within the valley. Through this approach, archaeologists can begin to understand how local relationships between SLI and their hosts intersected across different spatial and temporal levels to create the conditions that eventually brought about SLI depopulation.

Considering the Timing and Nature of Early St. Lawrence Iroquoian Movements

In this study, we combine recently published radiocarbon timelines with information on the distribution of SLI material culture to better define the timing and nature of initial SLI movements into seven distinct community sequences belonging to ancestral Huron-Wendat

and/or Haudenosaunee traditions. Ortman and Cameron (2011) note that any comparative analysis of population movement requires a solid understanding about the timing and duration of movement at different analytical levels. Establishing a robust timeline in this way allows archaeologists to distinguish between the material remnants of earlier and later arrivals and relate these different phases to developments in broader social phenomena. Anthony (1990:903) notes that at the onset of large-scale population movements, initial newcomers will collect information about potential destination communities and relay it back to friends and family at home. Groups at home may then use this information to plan their own travels into the area as external pressures begin to worsen. Using ethnographic investigations of contemporary movements (Lefferts 1977; Swierenga 1982), Anthony asserts that these initial newcomers are often overwhelmingly young men with fewer attachments to home who are drawn by incentives that likely differ from those of later arrivals. Due to this behavior, archaeologists might expect evidence for "[a]n earlier penetration by…. information-relaying scouting groups who must have preceded any significant interregional movement (Anthony 1990:903)."

Over the past three decades, improvements in the application of radiocarbon dating and the advent of Bayesian statistical modeling have allowed archaeologists to create high-resolution timelines that are capable of distinguishing between material patterns that speak to different phases in the movement process. In Iroquoian archaeology, radiocarbon dating and Bayesian modeling techniques have been used most effectively to bring occupation spans for Iroquoian villages from their previous, century long, estimates to within decades of the thirty or forty-year spans that are more in-line with archaeological consensus (Warrick 1988). Through this refinement of village occupation estimates, archaeologists have been able to adjust the ordering of villages within each community sequence, and in turn, greatly refine our understandings about

the timing and pace of major socio-political processes occurring among Iroquoian societies in the fifteenth and sixteenth centuries (Birch et al. 2021; Manning 2020).

A Refined Timeline for Depopulation

Before examining the timing and nature of SLI movements into ancestral Wendat and Haudenosaunee community sequences, it is first important to situate these findings within a robust time frame for the depopulation of the St. Lawrence Valley. As previously noted, archaeologists have long assumed that SLI dispersal occurred in two ‘acts’ beginning in the western valley and gradually extending east. The earliest of these acts is believed to have begun around CE 1500 with the depopulation of northern New York, followed decades later by the eastern valley around CE 1580 (Jamieson 1990; Pendergast 1993). This time frame is based primarily on two sources of information: 1) That European items, which begin to appear with greater regularity throughout the sixteenth century, are rare on SLI sites west of modern-day Montréal (Abel et al. 2019), and 2) that according to ethnohistoric records, formal European trading activities began along the St. Lawrence Estuary by at least CE 1580 (Chapdelaine 2016). While these lines of evidence provide a general idea about when depopulation generally took place, they cannot provide a detailed enough time frame in which to compare developments involving SLI movements in neighboring sequences.

Recent radiocarbon dates for northern New York by Abel (2021) have begun to greatly refine our understanding of this conventional SLI dispersal sequence. Using Bayesian statistical techniques, Abel modeled a total of forty-three new, high-precision AMS radiocarbon dates collected from eighteen Iroquoian village sites in northern New York. His model strongly suggests that SLI groups occupied northern New York for a span of less than eighty-years between circa CE 1450 and 1520. Most important about these new dates is that it establishes CE

1520 as the earliest potential point in which depopulation can be said to have begun, and when, based on current narratives, SLI relationships with their neighbors started to deteriorate. Other SLI villages located just north of the St. Lawrence River are expected to have been depopulated shortly after northern New York, however their exact placement in this sequence, and their relationship to other SLI communities, remains unclear (Jamieson 1990). We argue that delimiting the occupation histories of these other western SLI communities has equal importance to northern New York in terms of understanding the full context for when, and as a result, why the St. Lawrence Valley was ultimately depopulated.

Methods

Radiocarbon Dating

This study incorporated over three hundred previously published radiocarbon dates for forty-three Iroquoian village sites in southern Ontario and central New York. Together, these sites provide a diachronic perspective of SLI movements into six ancestral Huron-Wendat and Haudenosaunee community sequences (see Table 1). Because the historical contingencies within each site relocation sequence are distinct, each was modeled using parameters that best fit current archaeological understandings of those local sequences and are available in their associated publications (Table 1). Interpretations about the timing and nature of SLI movements into each sequence were based on Date estimates which represent a hypothetical event, in this case the occupation of a village, describing the temporal extent of the Phase between its Start and End Boundaries. This was done under the assumption that SLI materials may have been introduced into each village at any point during its occupation. While actual occupation spans for each village may have diverged slightly from the Date estimates provided here, this divergence is

not considered significant enough to change our underlying assumptions about the timing and nature of SLI movements.

This study also considered twelve new modeled AMS dates from three village sites—Roebuck, Maynard-McKeown, and McIvor—from a community sequence in Grenville County, Ontario (Table 2). These dates were included to build on those modeled for northern New York by Abel (2021) and to further refine the chronology for the western St. Lawrence Valley. These new AMS dates were acquired with permission from the Canadian Museum of History in Gatineau, Québec. Samples from the Maynard-McKeown site specifically were selected from the initial village component and the first expansion phase. For Roebuck and McIvor, only site-level provenience was available. All maize samples were processed at the Center for Applied Isotopic Studies (CAIS) at the University of Georgia.

AMS dates from Grenville County were calibrated and modeled using the OxCal software (version 4.4.1 [2020]), outlier analysis (Bronk Ramsey 2009b) and the IntCal20 ^{14}C calibration dataset (Reimer et al. 2020), with the curve resolution set at one year to align with other modeled sequences in this study. We also employ the LnN operation as per Birch and colleagues' (2021) method to constrain sites as per the typical 0–40-year duration of village occupations. Two models were prepared for dated sites in Grenville County (Table 3) Model A considers each site as a Phase within an overarching Phase representing the episode of occupation in the western St. Lawrence Valley. Model B considers each site as a Phase with no other constraints. Both models returned high agreement indices and do not differ significantly in terms of Date estimates for individual sites. We therefore use the results of Model A, including data on the overall Phase of occupation for the Grenville County sequence of sites to base our interpretations.

Material Culture

Information on SLI materials were collected from a variety of primary and secondary sources, including publications, excavation field notes, and unpublished site reports (See Appendix A3 for full list). Material categories associated with SLI material traditions were selected based on categorization and investigations of SLI material culture by Chapdelaine (1983, 2015, 2019), Gates-St. Pierre (2010, 2015), Jamieson (1990, 2016), Pendergast (1966, 1981, 1985, 1992), Wonderley (2005, Wonderley and Sempowski 2019), and Wright (2004) and are summarized in Table 5. We focused our analysis on those materials that are generally agreed to have an SLI association based on their spatial and temporal distribution and occurrence. This includes three pottery types known as Durfee Underlined, Roebuck Low-Collared, and Roebuck Corn-ear, smoking pipes, bone tools, stone/clay beads and gaming discs. Information on the percentage of SLI pottery out of the total ceramic assemblage was available for most sites and included in this study. Data was also available on the three most common SLI pottery types (Durfee Underlined, Roebuck Low collared, and Roebuck Corn ear) as well as percentages of other SLI associated pottery from each site (Appendix A2).

Results

Southern Ontario - Humber, Don, West Duffins, and Trent Sequences

Four sequences in this study belong to an ancestral Huron-Wendat tradition and are located in southern Ontario along the Humber, Don, West Duffins, and Trent River drainages (Figure 2). All but one sequence—Trent—contain villages with SLI materials dating before CE 1520. The earliest sites in the Humber and West Duffins sequences, Black Creek (1476-1503) and Joseph-Picard (1441-1467), each contain SLI smoking pipes, bone tools, and decorative

stone beads as well as a small percentage (~1%) of SLI pottery (Figure 4-7). At Joseph-Picard, these items are distributed throughout the village site suggesting that most households were engaging in material exchanges with SLI individuals or groups in some capacity (Micon et al. 2021). At Black Creek, SLI bone tools are associated with fishing and hunting practices, including two conical bone projectile points and two leister harpoons.

In the Don Valley, SLI items appearing before CE 1520 are limited to several steatite beads and a single steatite smoking pipe recovered from the Baker and Walkington 2 sites. A pXRF analysis of these steatite specimens, as well as those from Joseph-Picard, was conducted by Jones and colleagues (2018), and found that they had originated from sources located in the western St. Lawrence Valley. This strongly suggests that these items were brought, directly or indirectly, by SLI individuals with access and knowledge of these particular steatite outcroppings.

As early as CE 1495, there is evidence that small to medium groups of SLI were living at the Parsons site, which is believed to have been the predecessor community to Black Creek in the Humber sequence. SLI potter, bone tools, and smoking pipes appear in this assemblage. As much as ten percent of the total pottery collection at Parsons is composed of SLI pottery types along with many bone tools associated with hunting and fishing practices, similar to Black Creek. Intra-site distributions of these materials show that while SLI bone tools and pipes are distributed across the site, SLI pottery appears to be restricted to the eastern end associated with Houses 8, 9, and 10 potentially representing the earliest arrival of nuclear family groups into ancestral Wendat households (Micon et al. 2021).

Central New York - Onoñda'gega' and Kanien’kehá:ka Sequences

Two sequences considered in this study belong to ancestral Haudenosaunee traditions in central New York—Onoñda'gega' (Onondaga) and Kanien'kehá:ka (Mohawk). In both sequences, SLI associated effigy pipes identified by Wonderley (2005, 2019) appear after CE 1450 but before CE 1520. These occur at the Burke, Elwood, Getman, and Smith-Pagerie sites (Figures 4-7). Various other examples of SLI associated bone tools and stone or clay beads also appear sporadically in each sequence between CE 1450 and 1520, most notably at the Howlett Hill, Bloody Hill, Getman, and Elwood sites.

One of the only sites in either sequence to contain SLI pottery is at Smith-Pagerie in the Kanien'kehá:ka sequence. Here, SLI pottery composes as much as two percent of the total ceramic assemblage. At the community level, distributions of SLI materials appear within an extension added to single longhouse, House 1, potentially representing a small family segment that joined a local Kanien'kehá:ka lineage at the site as early as CE 1478 (Micon forthcoming). Interestingly, there are few SLI associated bone tools at Smith-Pagerie but two items have been recovered made from LeRay chert, a source material found most notably in northern New York. These LeRay chert items compose a projectile point and a knife formed into a traditional Haudenosaunee ovate blade which are common on sites in the area (Kuhn et al. 1993). This may reflect an occupant of House 1 knowledgeable in ancestral Kanien'kehá:ka traditions who had connections with early SLI arrivals.

Southeastern Ontario - Grenville Sequence

A final component of this study involved the modeling of twelve AMS radiocarbon dates from three village sites in the Grenville sequence located in southeastern Ontario. These dates were acquired to better understand the timing of movements within the St. Lawrence Valley and

the relationship of the Grenville cluster to villages in northern New York. Date estimates for all three villages place their occupations well after the depopulation of northern New York around CE 1520. The earliest date estimate for the McIvor and Maynard-McKeown sites further suggests that this sequence was occupied until at least CE 1560, several decades later than previously believed. This challenges the notion that the western St. Lawrence Valley was entirely depopulated by CE 1550 and speaks to a growing need for more robust radiocarbon dates, both within, as well as outside, the St. Lawrence Valley and a questioning of commonly held models for depopulation.

Discussion: Early Connections and St. Lawrence Iroquoian Movements

The results of this research show that materials indicative of early SLI engagements with ancestral Wendat and Haudenosaunee communities appear well before the onset of SLI dispersal in CE 1520 and almost a century before its complete depopulation circa CE 1580. It also shows that these early engagements varied between sequences reflecting the dynamic nature of SLI relationships with their hosts and the ways in which these relationships were structured by circumstances 'on the ground.' In this section, we return to our opening framework about the importance of material exchanges in facilitating social connections between Iroquoian communities and discuss how these connections would have helped to inform, and later structure, movements of SLI from the St. Lawrence Valley in the sixteenth century.

As noted earlier, activities involving exchange and diplomacy were typically the roles and responsibilities of Iroquoian men. Far from being strictly economic or political practices however, these engagements helped to solidify social connections between distant communities that could be cultivated to facilitate other, more enduring, types of relationships. Results from

this study show that SLI materials which were central to these types of engagements—namely smoking pipes and beads— appear on ancestral Huron-Wendat and Haudenosaunee village sites decades before the onset of depopulation circa CE 1520. These items are also accompanied in many cases by small quantities of SLI bone tools associated with activities that would have been within the realm of male tasks as well (i.e., hunting and fishing).

While pottery is commonly believed to have been produced by Iroquoian women who made and used it within a restricted area, ethnohistoric accounts from seventeenth century Iroquoian societies suggests that small amounts of non-local pottery could, and likely did, travel between communities through exchanges between men, and occasionally women (Latta 1991). Low percentages of SLI pottery (~1%) on ancestral Wendat and Haudenosaunee sites before CE 1520 may reflect this practice. Therefore, while only a few SLI individuals may have been involved in early engagements with ancestral Wendat and Haudenosaunee communities, their importance as sources of information for SLI groups 'back home' in the St. Lawrence Valley were likely invaluable.

Sites dating to the late-fifteenth century, including Parsons and Smith-Pagerie, show some of the earliest evidence for larger scale movements of SLI into Ontario and New York, potentially as nuclear family or sub-lineage segments. This is indicated both by larger percentages of SLI pottery at each site as well as their spatial restriction within particular longhouses at the intra-site level. Notably, other SLI items associated with male oriented tasks (i.e., hunting, fishing) continue to appear randomly across both village sites. We interpret this spatial patterning as evidence for the marriage of SLI men into local Wendat and Haudenosaunee lineages. Considering that Iroquoian societies are assumed to have practiced matrilocal residency by this time (Trigger 1978), this is strong evidence that kin-based relationships had begun to

form between SLI newcomers and their hosts and that such kin-ties may have been an important incentive driving SLI men to engage with distant communities.

Findings from this research also highlight subtle variations in the timing and nature of early SLI engagements with ancestral Wendat and Haudenosaunee groups that speak to the specific nature of SLI-host relationships at the local level. In the Don and Onoñda'gega' sequences, material evidence for SLI engagements is restricted primarily to the exchange of steatite beads or smoking pipes while in other sequences, namely Humber and West Duffins, SLI materials are more variable and represent connections through various material practices. Considering that Don represents one of the most excavated sequences in this study and the Humber the least, these patterns cannot be easily explained as just products of sampling bias but rather suggest that relationships were being formed at different times between SLI and local individuals through activities involving distinct material signatures.

Lastly, radiocarbon results from Grenville County, Ontario show that while many SLI individuals chose to leave and actively engage with more distant groups, others chose to stay behind, even after the increase in pressures leading to the complete depopulation of northern New York circa CE 1520. This is a pressing reminder that not all SLI experienced external pressures in the same way and that the nature of social relationships between SLI and neighboring communities were important determining factors in how, when, and where SLI ultimately relocated. It is possible that SLI living in Grenville County composed those individuals who had established fewer connections with adjacent societies prior to CE 1520 or who had stronger connections with members within their own immediate communities. In any case, relationships between SLI individuals and their neighbors were clearly diverse and any

attempt to understand the causes and outcomes of depopulation must consider these local dynamics as seriously as broader, more collectively felt pressures.

Conclusion

This study employed radiocarbon chronologies and information on SLI material culture to examine the timing and nature of early SLI movements into ancestral Wendat and Haudenosaunee sequences. In addition, it modeled twelve new AMS radiocarbon dates from three SLI village sites in Grenville County to expand on recent radiocarbon chronologies constructed for the depopulation of northern New York. Overall, findings from this study show that early material engagements between SLI and ancestral Wendat or Haudenosaunee were occurring in several Iroquoian villages prior to the onset of depopulation in CE 1520. We argue here that these materials reflect small-scale interactions by primarily SLI men with adjacent societies that later facilitated the movement of other SLI at the turn of the sixteenth century.

In a broader sense, this research shows that discussions of population movement cannot be separated from the earliest engagements that ultimately facilitated later patterns of leaving. While initial SLI individuals may have moved for different reasons compared to their friends and family in the sixteenth century, these early movements were still integral for defining how, when, and where later movements were structured. This is an important reminder that archaeologists cannot begin to discuss the causes of regional depopulation without first addressing the basic mechanisms that defined how these phenomena occurred 'on the ground.' Doing this will lead to more complex and accurate social histories which expand our understanding of past societies and most importantly, reintroduce past peoples as active agents who dialectically shaped and were shaped by broader social and political pressures.

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TABLES

	Date Estimate C.E.		
Sub-Region/Site	**68.30%**	**95.40%**	**Source**
TRENT			
Jamieson	1504–1535	1485–1562	*Birch et al. 2021: Table 2:13*
Coulter	1515-1558	1509-1572	*Birch et al. 2021: Table 2:13*
Kirche	1525-1544	1517-1553	*Birch et al. 2021: Table 2:13*
Benson	1528-1556	1521-1568	*Birch et al. 2021: Table 2:13*
Sopher	1540–1567	1527–1582	*Birch et al. 2021: Table 2:13*
Dawn	1571-1604 (49.6%)	1552–1616 (65.4%)	*Birch et al. 2021: Table 2:13*
WEST DUFFINS/ LYNDE CREEK			
Joseph-Picard	1485–1562	1435–1505	*ASI 2016; Micon et al. 2021:Table 2:267*
Best	1504-1536	1472-1548	*Birch and Manning 2021*
Pugh	1505-1535	1483-1547	*Birch and Manning 2021*
Draper	1528-1544	1524-1555	*Birch and Manning 2021*
Spang	1548-1580	1539-1595	*Birch and Manning 2021*
Jean-Baptiste Lainé (Mantle)	1600-1613	1594-1618	*Birch and Manning 2021*
Aurora	1612-1629	1605-1638	*Birch and Manning 2021*
DON			
Baker	1476–1498	1462–1511 (95%)	*Birch et al. 2021: Table 2:13*
Walkington 2	1483–1504	1471–1519	*Birch et al. 2021: Table 2:13*
McNair	1488–1510	1474–1523	*Birch et al. 2021: Table 2:13*
Hope (North & South)	1480-1500	1469–1607	*Birch et al. 2021: Table 2:13*
Keffer	1527–1549	1519–1568 (93.9%)	*Birch et al. 2021: Table 2:13*
LOWER HUMBER			
Black Creek	1475–1614	1458–1622	*Birch et al. 2021: Table 2:13*
Parsons	1495–1523 (52.8%)	1480–1639	*Birch et al. 2021: Table 2:13*
UPPER HUMBER			

Seed-Barker	1506–1574	1494–1589	*Birch et al. 2021: Table 2:13*
McKenzie-Woodbridge	1522–1563	1507–1583	*Birch et al. 2021: Table 2:13*
Damiani (Core & Expansion)	1526-1553	1518-1569	*Birch et al. 2021: Table 2:13*
ONONDA'GEGA'			
Kelso	1399–1417	1390–1430	*Birch et al. 2021: Table 2:14*
Howlett Hill	1418–1437	1406–1444	*Birch et al. 2021: Table 2:14*
Schoff	1433–1451	1424–1460	*Birch et al. 2021: Table 2:14*
Bloody Hill	1463–1485	1452–1494	*Birch et al. 2021: Table 2:14*
Burke	1487–1504	1479–1511	*Birch et al. 2021: Table 2:14*
Christopher	1488–1506	1479–1513	*Birch et al. 2021: Table 2:14*
Cemetery	1508–1523	1499–1529	*Birch et al. 2021: Table 2:14*
Barnes	1524–1540	1517–1551	*Birch et al. 2021: Table 2:14*
Temperance House	1545–1568	1537–1580	*Birch et al. 2021: Table 2:14*
Atwell	1546–1569	1538–1581	*Birch et al. 2021: Table 2:14*
Chase	1574–1606	1556–1614	*Birch et al. 2021: Table 2:14*
Pompey Center	1619–1639	1570–1647	*Birch et al. 2021: Table 2:14*
KANIEN'KEH-A: KA			
Second Woods	1455–1475	1443–1490	*Manning et al. 2021:Table 2*
Getman	1456–1488	1441–1511	*Manning et al. 2021:Table 2*
Elwood	1460–1486	1448–1506 (92.7%)	*Manning et al. 2021:Table 2*
Smith-Pagerie	1479–1500	1470–1513	*Manning et al. 2021:Table 2*
Klock	1500–1521	1486–1532 (88.8%)	*Manning et al. 2021:Table 2*
Garoga	1550–1581	1512–1592 (91.0%)	*Manning et al. 2021:Table 2*
Cayadutta	1583–1622 (45.7%)	1565–1631 (59.1%)	*Manning et al. 2021:Table 2*
Otstungo	1586–1624 (44.6%)	1570–1631 (54.5%)	*Manning et al. 2021:Table 2*

Table 1. Bayesian modeled date estimates for village sites in each sequence.

Site	Lab Number	Material	Context	CRA 14C Age BP	+	δ13C	δ15N
Roebuck	*UGAMS-47859*	*Maize*	*Refuse Heap #15*	*340*	*25*	*-9.6*	
Roebuck	*UGAMS-47590*	*Maize*		*290*	*25*	*-10.3*	
Roebuck	*UGAMS-21909*	*Maize*	*Refuse Heap #15*	*300*	*20*		
Roebuck	*UGAMS-21910*	*Maize*		*340*	*20*		
Maynard-McKeown	*UGAMS-41528*	*Maize*	*House 13*	*342*	*20*	*-9.5*	*5.75*
Maynard-McKeown	*UGAMS-41529*	*Maize*	*House 6*	*305*	*20*	*-9.08*	*6.23*
Maynard-McKeown	*UGAMS-21913*	*Maize*	*House 13*	*362*	*21*		
Maynard-McKeown	*UGAMS-21914*	*Maize*	*House 6*	*345*	*21*		
McIvor	*UGAMS-47587*	*Maize*		*340*	*25*	*-8.9*	
McIvor	*UGAMS-47588*	*Maize*		*320*	*25*	*-9.3*	
McIvor	*UGAMS-21911*	*Maize*		*349*	*21*		
McIvor	*UGAMS-21912*	*Maize*		*355*	*21*		

Table 3. Radiocarbon dates acquired by authors for this study from the Roebuck, Maynard-McKeown, and McIvor sites.

	Model A (with constraining Prescott Phase)		Model B (no constraining Prescott Phase)	
Site/**Boundary**	68.3%	95.4%	68.3%	95.4%
Prescott Start	1490-1576 1490-1513 (19.6%) 1534-1576 (48.7%)	1468-1620		
Roebuck	1517-1630 1517-1530 (12.7%) 1551-1589 (52.5%) 1626-1630 (3.0%)	1508-1638 1508-1595 (83.8%) 1617-1638 (11.6%)	1520-1579	1506-1644 1506-1596 (81.2%) 1614-1644 (14.2%)
Maynard-McKeown	1510-1594 1519-1525 (15.1%) 1558-1594 (53.2%)	1500-1635 1500-1534 (22.3%) 1547-1635 (73.1%)	1505-1630 1505-1527 (18.5%) 1559-1598 (38.3%) 1615-1630 (11.5%)	1495-1637 1495-1536 (27.2%) 1545-1637 (68.2%)
McIvor	1508-1597 1508-1523 (15.8%) 1560-1597 (52.5%)	1497-1633 1497-1530 (22.8%) 1551-1633 (72.7%)	1499-1625 1499-1522 (21.2%) 1571-1625 (47.1%)	1484-1635 1484-1532 (32.5%) 1551-1635 (62.9%)
Prescott End	1528-1646	1522-1661		
Prescott Date estimate	1509-1532 (14.3%) 1547-1603 (54.0%)	1495-1641		

Table 2. Date estimates for Prescott cluster based on results from Models A and B.

	Estimated Start Boundary A.D.		**Estimated End Boundary A.D.**		
Sub-Region/Site	**68.30%**	**95.40%**	**68.30%**	**95.40%**	**Source**
GRENVILLE CO.	**1534-1576 (48.7%)**	**1468-1620**	**1528-1646**	**1522-1661**	***This Study***
Roebuck	1544-1582 (53.5%)	1501-1588 (84.9%)	1560-1596 (56.6%)	1517-1602 (84.6%)	*This Study*
Maynard-McKeown	1551-1587 (53.3%)	1540-1595 (61.4%)	1567-1600 (54.1%)	1556-1612 (61.2%)	*This Study*
McIvor	1552-1590 (52.5%)	1545-1626 (72.7%)	1568-1604 (52.9%)	1558-1638 (73.4%)	*This Study*
NORTHERN NEW YORK	**1429-1442**	**1420-1448**	**1520-1550**	**1512-1587 (87.3%)**	***Abel et al. 2019:10, Table 2***

Table 4. Date estimates for the Iroquoian occupation of Grenville County, Ontario compared to those for Northern New York.

Material Category	SLI Trait	References
Ceramic Pottery Types		
	Durfee Underlined	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:392*
	Roebuck Low-Collared	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:393*
	Roebuck Corn-ear	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:394*
Ceramic (Pipes)		
	Human-face effigy	*Pendergast 1992; Wonderley 2005*
	Horizontal bar motif	*Pendergast 1992*
	Incised stem	*Bradley 2005:63*
Ceramic (Misc.)		
	Ornamental bead (milled)	*Pendergast 1981; Jamieson 1990:392*
	Gaming disc	*Jamieson 1990:392*
Bone		
	Deer scapula pipe	*Jamieson 2016: 353*
	Incised awls	*Jamieson 1990:396*
	Fishhooks	*Jamieson 2016:346-7; Wright 2007:1249*
	Harpoon	*Jamieson 2016:346-7; Wright 2007:1249*
	Conical projectile point	*Gates-St. Pierre 2010; Jamieson 2016:335*
	Posterior ground deer phalanges	*Jamieson 2016: 355*
Stone		
	Perforated bead (steatite or red slate)	*Pendergast 1981*
	Red slate gaming disc	*Bradley 2005:221*
	Red slate	*Jamieson 1990:393*

Table 5. SLI associated materials incorporated in this study.

FIGURES

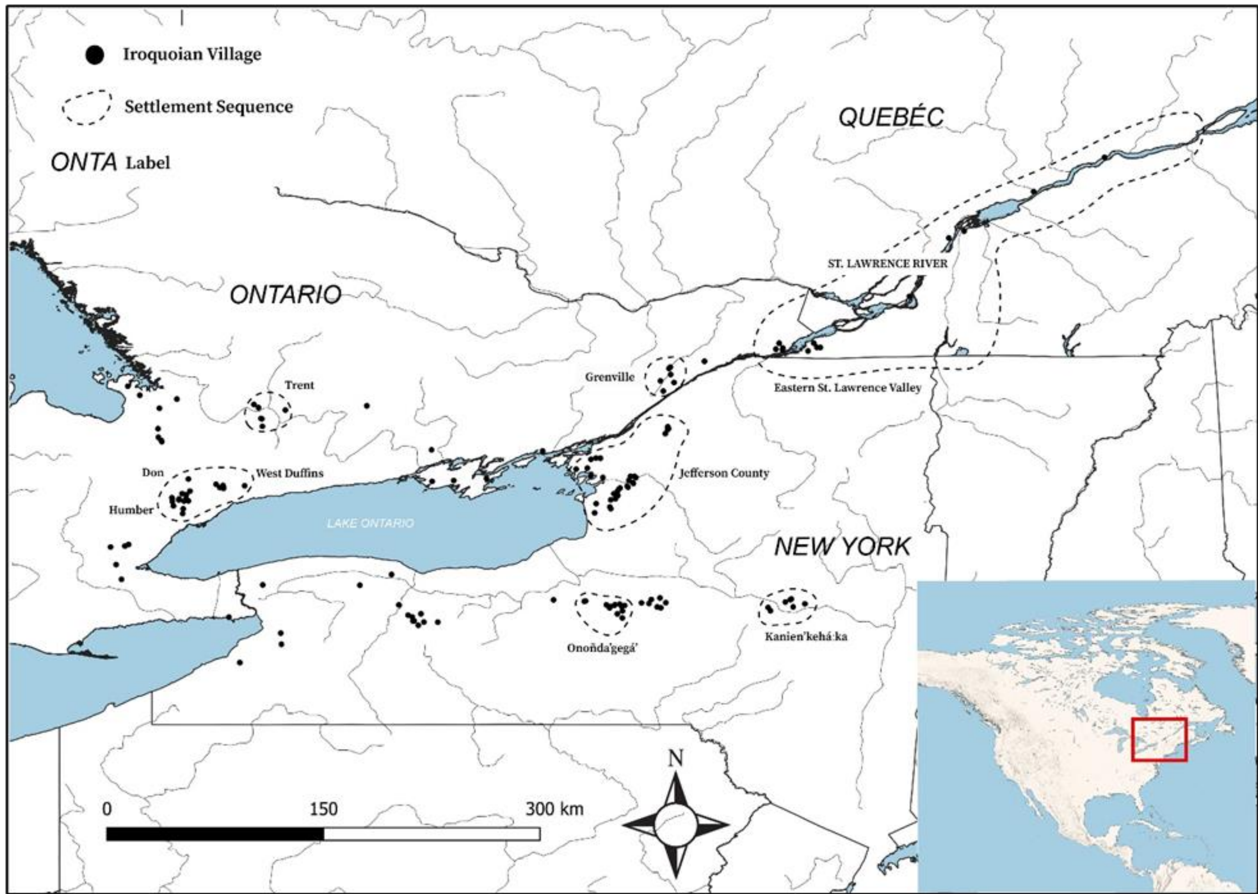

Figure 2. Map of the study region with sites and sub-regions indicated.

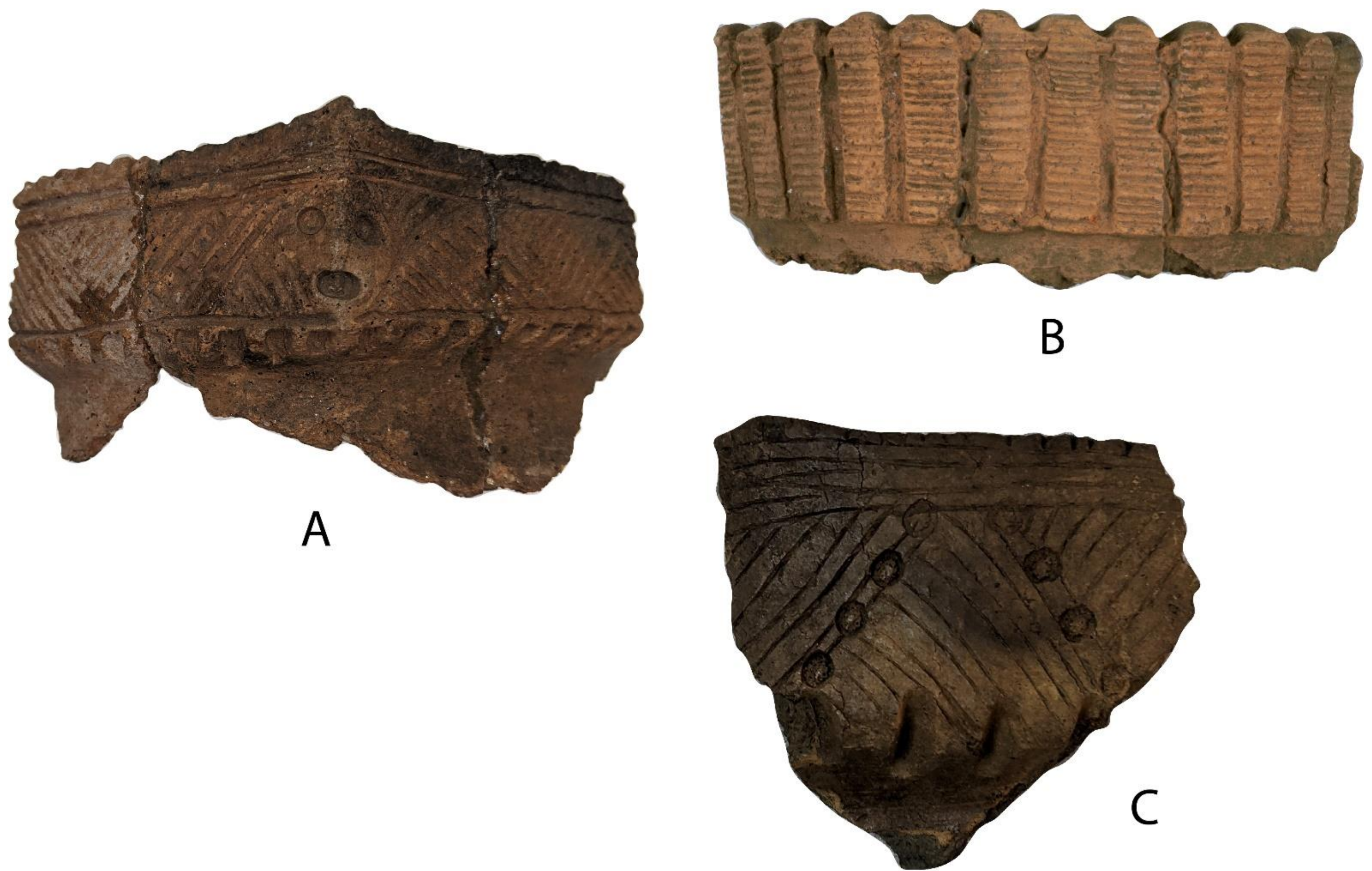

Figure 3. Sample of St. Lawrence Iroquoian pottery types (Courtesy of Canadian Museum of History and New York State Museum). A) Durfee Underlined with tri-punctate face effigy underneath castellation, B) Roebuck Corn-ear, C) Incised sherd from Garoga Site

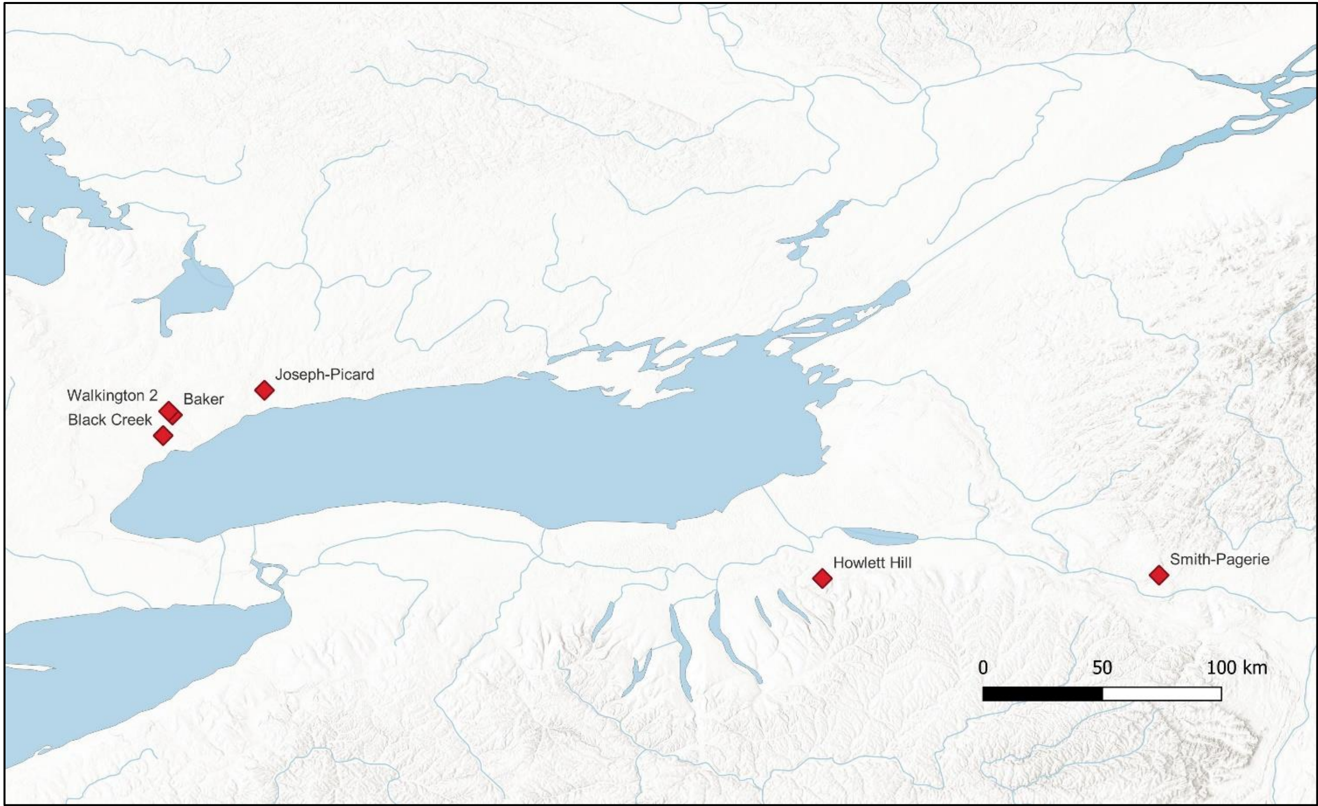

Figure 4. Village sites with SLI clay and stone beads in this study prior to 1520.

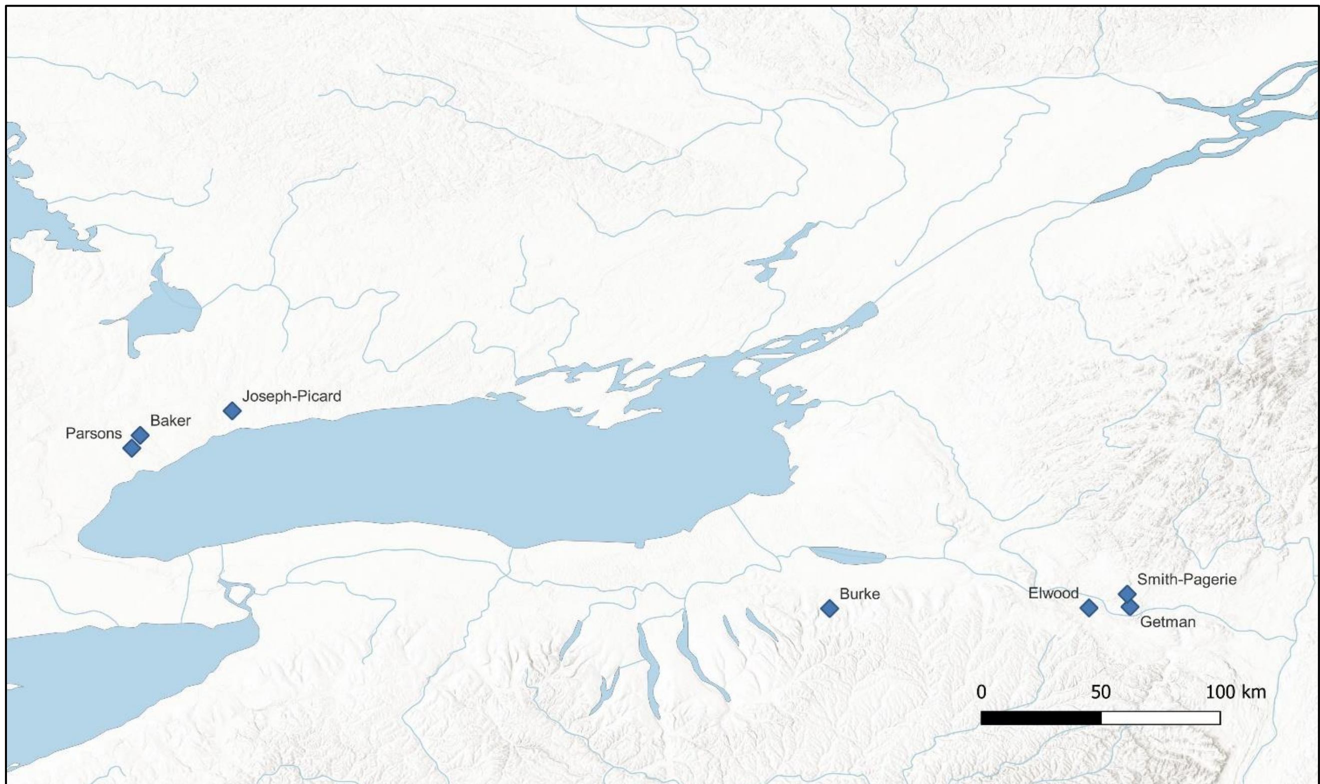

Figure 5. Village sites with SLI associated smoking pipes in this study prior to 1520.

Figure 6. Village sites with SLI bone tools in this study prior to 1520.

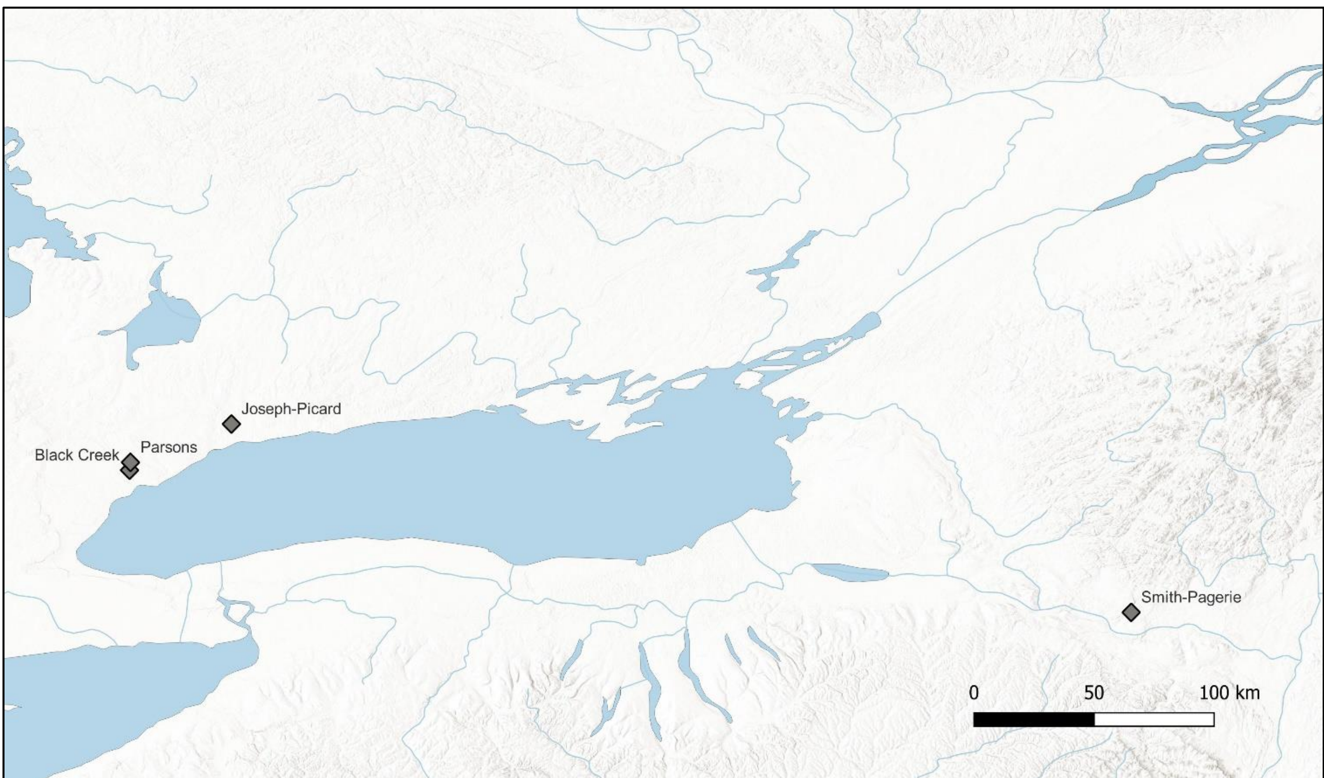

Figure 7. Village sites with SLI pottery in this study prior to 1520.

APPENDIX (Prescott OxCal Code)

Supplementary Table. Prescott Model A code (with constraining Prescott Phase)

```
Plot()
 {
  Outlier_Model("General",T(5),U(0,4),"t");
  Sequence()
  {
   Boundary("Start Prescott");
   Phase("Prescott")
   {
    Sequence()
    {
     Boundary("Roebuck");
     Phase("Roebuck")
     {
      R_Date("Roebuck_UGAMS-47589_maize", 340, 25)
      {
       Outlier("General", 0.05);
      };
      R_Date("Roebuck_UGAMS-47590_maize_cob", 290, 25)
      {
       Outlier("General", 0.05);
      };
      R_Date("Roebuck_UGAMS-21909_maize", 300, 20)
      {
       Outlier("General", 0.05);
      };
      R_Date("Roebuck_UGAMS-21910_maize_cob", 340, 20)
      {
       Outlier("General", 0.05);
      };
      Date("Date estimate Roebuck");
      Interval("Interval Roebuck",LnN(ln(20),ln(2)));
     };
     Boundary("End Roebuck");
    };
    Sequence()
    {
     Boundary("Start Maynard");
     Phase("Maynard")
     {
      R_Date("Maynard_UGAMS-41528_maize", 340, 20)
      {
       Outlier("General", 0.05);
```

```
    };
    R_Date("Maynard_UGAMS-41529_maize", 300, 20)
    {
     Outlier("General", 0.05);
    };
    R_Date("Maynard_UGAMS-21913_charcoal", 360, 20)
    {
     Outlier("Charcoal", 1);
    };
    R_Date("Maynard_UGAMS-21914_charcoal", 340, 20)
    {
     Outlier("Charcoal", 1);
    };
    Date("Date estimate Maynard");
    Interval("Interval Maynard",LnN(ln(20),ln(2)));
   };
   Boundary("End Maynard");
  };
  Sequence()
  {
   Boundary("Start McIvor");
   Phase("McIvor")
   {
    R_Date("McIvor_UGAMS-47587_maize", 340, 25)
    {
     Outlier("General", 0.05);
    };
    R_Date("McIvor_UGAMS-47588_maize", 320, 25)
    {
     Outlier("General", 0.05);
    };
    R_Date("McIvor_UGAMS-21911_maize", 350, 20)
    {
     Outlier("General", 0.05);
    };
    R_Date("McIvor_UGAMS-21912_maize", 350, 20)
    {
     Outlier("General", 0.05);
    };
    Date("Date estimate McIvor");
    Interval("Interval McIvor",LnN(ln(20),ln(2)));
   };
   Boundary("End McIvor");
  };
  Date("Date estimate Prescott");
  Interval("Interval Prescott");
 };
 Boundary("End Prescott");
};
};
```

Model B code (no constraining Prescott Phase)

```
Plot()
{
 Outlier_Model("General",T(5),U(0,4),"t");
 Outlier_Model("Charcoal",Exp(1,-10,0),U(0,3),"t");
 Sequence()
 {
  Boundary("Start Roebuck");
  Phase("Roebuck")
  {
   R_Date("Roebuck_UGAMS-47589_maize", 340, 25)
   {
    Outlier("General", 0.05);
   };
   R_Date("Roebuck_UGAMS-47590_maize_cob", 290, 25)
   {
    Outlier("General", 0.05);
   };
   R_Date("Roebuck_UGAMS-21909_maize", 300, 20)
   {
    Outlier("General", 0.05);
   };
   R_Date("Roebuck_UGAMS-21910_maize_cob", 340, 20)
   {
    Outlier("General", 0.05);
   };
   Date("Date estimate Roebuck");
   Interval("Interval Roebuck",LnN(ln(20),ln(2)));
  };
  Boundary("End Roebuck");
 };
 Sequence()
 {
  Boundary("Start Maynard");
  Phase("Maynard")
  {
   R_Date("Maynard_UGAMS-41528_maize", 340, 20)
   {
    Outlier("General", 0.05);
   };
   R_Date("Maynard_UGAMS-41529_maize", 300, 20)
   {
    Outlier("General", 0.05);
   };
   R_Date("Maynard_UGAMS-21913_wood charcoal", 360, 20)
   {
    Outlier("Charcoal",1);
   };
   R_Date("Maynard_UGAMS-21914_wood charcoal", 340, 20)
   {
```

```
    Outlier("Charcoal",1);
   };
   Date("Date estimate Maynard");
   Interval("Interval Maynard",LnN(ln(20),ln(2)));
  };
  Boundary("End Maynard");
 };
 Sequence()
 {
  Boundary("Start McIvor");
  Phase("McIvor")
  {
   R_Date("McIvor_UGAMS-47587_maize", 340, 25)
   {
    Outlier("General", 0.05);
   };
   R_Date("McIvor_UGAMS-47588_maize", 320, 25)
   {
   Outlier("General", 0.05);
   };
   R_Date("McIvor_UGAMS-21911_maize", 350, 20)
   {
    Outlier("General", 0.05);
   };
   R_Date("McIvor_UGAMS-21912_maize", 350, 20)
   {
    Outlier("General", 0.05);
   };
   Date("Date estimate McIvor");
   Interval("Interval McIvor",LnN(ln(20),ln(2)));
  };
  Boundary("End McIvor");
 };
};
```

CHAPTER 3

DEFINING THE ORGANIZATION, SCALE, AND PACE OF ST. LAWRENCE IROQUOIAN DEPOPULATION USING A RADIOCARBON AND MATERIAL APPROACH[2]

[2] Micon. To be submitted in *American Antiquity*

Abstract

The depopulation of the St. Lawrence River Valley by Iroquoian people is a perennial interest in northeastern North American archaeology. After more than a century of research, archaeologists agree that the dispersal of St. Lawrence Iroquoians into neighboring Iroquoian and Algonquian communities was complex, involving numerous actors and phases. Still, little is known about its exact details. Most scholars insist that aggressions by the ancestral Huron-Wendat or Haudenosaunee confederacies are at least partly to blame. This is despite the fact that few studies have fully considered how St. Lawrence Iroquoians relocated into Huron-Wendat or Haudenosaunee communities, how the specifics of these relocations were structured through social and interpersonal relationships, and the implications of those sets of relations for insights into the how, when, and why of depopulation. In this study, I use updated AMS radiocarbon time frames and information on St. Lawrence Iroquoian associated materials to better characterize the scale, organization, and pace of St. Lawrence Iroquoian movements into six ancestral Huron-Wendat and Haudenosaunee community sequences. Through my findings, I contend that while conflict was a major catalyst for depopulation, and should certainly be considered, it was ultimately social, kin-based, relationships that structured and facilitated St. Lawrence Iroquoian movements into new, neighboring societies.

Introduction

The depopulation of the St. Lawrence River Valley by Iroquoian people is a subject that has long attracted the attention of archaeologists in northeastern North America (Chapdelaine 2016; Emerson 1954; Fenton 1940; Lighthall 1899; Morgan 1904; Pendergast and Trigger 1972; Trigger 1987). The dispersal of an estimated 8,000-10,000 St. Lawrence Iroquoians (SLI) (Clermont 1980, Warrick 2008) into multiple adjacent Iroquoian and Algonquin communities dramatically altered the political landscape of Upstate New York, southern Ontario, and southern

Québec during the sixteenth century and after (Parmenter 2010). While archaeologists agree that dispersal was a complicated matter involving numerous actors and phases (Chapdelaine 2016; Englebrecht 1995), there is still little understood about the actual mechanisms that defined when, where, and how SLI groups moved and how these mechanisms structured the transmission of SLI traditions and ideas into hosting Iroquoian and Algonquian societies.

Scholars tend to view SLI depopulation as a sudden response to external social or economic phenomena (see Warrick 2008:194 and Wright 2007:1279). During the sixteenth century, the St. Lawrence Valley was positioned at the center of many transformational Indigenous and European developments (Hart et al. 2017; Pendergast 1993). Key among these was the formation of the Huron-Wendat and Haudenosaunee confederacies in Ontario and central New York (Englebrecht 1995) and the emergence of the European fur trade along the St. Lawrence estuary (Plourde 2016). Many archaeologists have speculated that SLI were victims of these processes, being attacked and assimilated by neighboring groups, most notably the Huron-Wendat and Haudenosaunee, who would have been incentivized by access to European goods and the bolstering of their populations through SLI captives (Englebrecht and Jamieson 2016; Jamieson 1990; Kuhn 2004; Pendergast 1993). While conflict was certainly an ongoing issue in the Lower Great Lakes region during the sixteenth century (Birch et al. 2021; Williamson 2007), this version of dispersal as a response to generalized conflict and trade overlooks recent archaeological findings indicative of a more complicated relationship between Iroquoian peoples (Hart et al. 2017; Warrick and Lesage 2016; Wonderley 2005) and prevents the asking of anthropologically-oriented questions about the relationship between movement and cultural change (Kintigh et al. 2014:12).

In this paper, I argue that any explanation for the depopulation of the St. Lawrence Valley by SLI must be grounded in a detailed understanding about the mechanisms that structured depopulation 'on the ground.' It uses recently constructed AMS radiocarbon timelines and data on SLI associated material culture to characterize the scale and organization of SLI movements into six community sequences in southern Ontario and central New York belonging to an ancestral Huron-Wendat and eastern Haudenosaunee tradition. Most notably, it finds that these dimensions vary at the regional, sub-regional, and community levels and that the nature of scale, organization, and pace factored largely into the ways in which SLI were incorporated in each sequence. I frame these results within a perspective that highlights the importance of Iroquoian kin-based institutions in facilitating movement at both the regional and intra-community level. Through this work, I demonstrate that radiocarbon-derived timelines provide a useful tool for writing detailed social histories of depopulation and for re-asserting Indigenous agency and relationships into decisions about when, where, and how depopulation occurred.

Community Sequences and Iroquoian Population Movement

Prior to sustained European contact after CE 1600, Northern Iroquoian-speaking peoples occupied a vast territory encompassing southern Ontario, southern Québec, central New York, and the Susquehanna River Valley (Figure 5). Northern Iroquoians spoke a distinct branch of the Iroquoian language that is related, but separate, from southern Iroquoian dialects used by the Cherokees of southern Appalachia. Northern Iroquoians, or just Iroquoians from here on, were organized into autonomous communities that shared many practices and belief systems including spirituality, subsistence based on maize horticulture supplemented by hunting, fishing, and gathering, settlement in longhouse villages that were often enclosed with palisades, and distinctive material traditions based on collared ceramic vessels and bone tools. In this study, I

focus specifically on ancestors of the contemporary Huron-Wendat, Onoñda'gega' (Onondaga), and Kanien'kehá:ka (Mohawk) Nations located today in southern Ontario and Upstate New York.

The archaeological record of Iroquoian societies show that movement was an important component of everyday life that transformed relationships between people at different societal levels. Though movement was dynamic, archaeologists have often highlighted three distinct types that were critical for structuring social and cultural changes in Iroquoian contexts. These include: 1) Long-distance, often permanent, population movements, typically termed 'migration,' 2) More cyclical, inter-village movements, similar to what Schachner (2012) terms as 'population circulation,' and 3) Regular generational village movements that occurred every 15 to 30 years on average in response to environmental considerations (Birch and Lesage 2020:1-2; Warrick 1988). The archaeological footprints of these various movements are in what archaeologists term community sequences. Community sequences reflect geographically adjacent groupings of Iroquoian village sites that represent hundreds of years of activity by a single contiguous social group (e.g., Bamann 1993; Birch and Williamson 2013; Bradley 2005; Niemczycki 1984). Although each sequence theoretically represents the unsevered continuation of one or two communities over time, the composition of these sequences frequently shifted as individuals and groups moved within and between regions (via population circulation and 'migration'). Many village sites from the fifteenth and sixteenth centuries also exhibit evidence for household re-configuration and palisade expansion as new members arrived and departed for new destinations (Creese 2013). In this way, movement was a critical component of Iroquoian lifeways that facilitated the creation of complex, overlapping networks both within and across social boundaries.

For the purposes of this study, I focus specifically on instances of long-distance population movements between regionally distinct Iroquoian groups, termed by scholars as 'migration.' I base my interpretations on Cabana and Clark's definition of migration as "*A one-way residential relocation to a different 'environment' by at least one individual* (Cabana and Clark 2011:5)." I select however to use the term 'population movement' in place of 'migration' in order to escape its ecological associations and because as my Huron-Wendat colleague, Louis Lesage, likes to say, "animals migrate, people move." Though population movement is treated separately here, it is important to note that this phenomenon was intimately linked to other, more cyclical, forms of movement and as such, represents just one way in which Iroquoians engaged with and shaped their physical and cultural landscapes (Birch and Williamson 2015).

Movement and Iroquoian Kinship

Wendat historian George Sioui notes that kinship is "[t]he basic principle of any Nadouek [Iroquoian] society (Sioui 1999:118)." An Iroquoian individual's role within their community is continually defined and redefined through terms of kinship. Two institutions, lineages and clans, structure these familial obligations (Steckley 1982). Lineages, or matrilineages, were composed of family members related through the mother's line in which possessions and hereditary titles were passed through (Morgan 1962:79, 85). Clans composed several lineages that were all believed to have shared a common, distant ancestor (Sioui 1999:115). Trigger (1978) argues that through lineages and clans, Iroquoians effectively managed relationships both within and outside the village vicinity.

Within the village, rules concerning potential marriage partners, assigned domestic duties, and political decision-making through village councils all revolved around the matrilineage, or a descent system based on relationship through the mother's side (Thwaites

1896-1901: 10:213; 10:229-31). Based on seventeenth century ethnohistoric accounts, members of the same matrilineage occupied a common longhouse, typically divided into compartments for each nuclear family (Wrong, 1939: 79). Upon the arrival of distant relatives, accommodations could be made to extend one or two ends of the appropriate longhouse. Creese (2016:15) notes that these extensions were not a simple response to population growth but involved complicated negotiations between community members about the nature of kin-based relationships and political alliances.

Outside of the village, interactions between Iroquoians from different communities, whether near or far, were structured by clans. A single clan often encompassed multiple matrilineages that crosscut community, sub-regional, and regional boundaries. Trigger (1990:66) noted that "Huron [Wendat], Neutral, and Iroquois [Haudenosaunee] who belonged to clans named after the same animal regarded themselves as bound by many of the same ties of affinity as were members of a single clan within their home community." In this way, "[m]embership in the same clan was used to facilitate social and political interactions between different communities and different [groups] of people (Trigger 1990:66)."

These clanship ties were important in 1656 when a Kanien'kehá:ka delegation in Québec attempted to convince members of the Attignawantan Huron-Wendat to return with them to the Mohawk River Valley. In their arguments, the delegation invoked vivid kinship imagery as a means of demonstrating their willingness to incorporate Huron-Wendat groups in a peaceful manner. One Kanien'kehá:ka member declared, "My Brother…Fear not, I no longer look upon thee as an enemy, but as my relative: thou shalt be cherished in my country, which shall also be thine (Thwaites 42:189)." A similar case was made by the Oneyoteaka (Oneida) toward the Wendat in 1653 in which it was declared that the Wendat and Haudenosaunee should be "one

cabin and one country (Labelle 2014:121).” Thus, kinship was an important structuring element at every level of Iroquoian society. Through it, decisions were made about how to engage with other Iroquoians, where to live within Iroquoian villages, and most importantly, where to move when conditions at home began to deteriorate. All of these decisions are implicated in the questions about population movement being presently considered.

The Depopulation of the St. Lawrence River Valley

The depopulation of the St. Lawrence River Valley during the sixteenth century remains one of the most prevalent yet least understood phenomena in Iroquoian archaeology (Chapdelaine 2016; Gates-St. Pierre et al. 2021; Lesage and Williamson 2020). This depopulation is most archaeologically observable through the appearance of distinct SLI associated material objects at sites located outside the St. Lawrence Valley after 1450 (Fox and Pilon 2016; Kuhn 2004; Micon et al. 2021; Peterson et al. 2004; Williamson 2016). SLI associated materials include finely decorated pottery with complex incising and a robust bone tool industry centered around the acquisition of riverine and marine resources (Chapdelaine 2021). Despite this distinct tradition, there is no meaningful evidence to suggest that SLI established any sort of collective organization or were politically distinct from their Iroquoian or Algonkian neighbors (See Warrick and Lesage 2016). I use the term ‘St. Lawrence Iroquoian’ (SLI) in this analysis strictly as a means of operationalizing the study of relationships between individuals with shared material practices.

Current attempts to explain why the St. Lawrence Valley was depopulated in the sixteenth century have revolved heavily around external explanations favoring economic, environmental, or demographic pressures (Pendergast 1993; Warrick 2008:194). One of the most popular explanations has been that SLI acted as ‘middlemen’ in early engagements between

French and Indigenous traders and were eventually attacked and assimilated by their assailants who coveted access to European goods (Jamieson 1990; Pendergast 1993; Kuhn 2004). In these narratives, the nascent Huron-Wendat and Haudenosaunee confederacies are commonly viewed as the principle antagonists that would have possessed the strength necessary to carry out an assault of this magnitude (Englebrecht 1995; Englebrecht and Jamieson 2016). While there is certainly indirect and direct evidence for regional conflict at this time including palisading, perimortem skeletal trauma, and buffer zones (Birch et al. 2021), this explanation only addresses one aspect of depopulation—the why—and does little to tell us *how* SLI would have relocated into neighboring Wendat or Haudenosaunee communities.

Understanding how SLI groups relocated requires identifying the mechanisms that structured decisions about where, when, and in what ways SLI left or arrived. Under the current warfare explanation, these mechanisms are primarily restricted to two scenarios: 1) SLI were captives forcefully assimilated into adoptive Iroquoian lineages, and 2) SLI were refugees, forced to assimilate into lineages that had space to accept them. Both scenarios are based on the assumptions that SLI were not active participants in their own dispersal and through their absoluteness, prevent the teasing out of more complex, anthropological questions related to SLI-host dynamics. Questions such as, what incentives did SLI have for leaving behind their previous lifeways? How did SLI recreate elements of their previous lifeways in their new communities? And what benefits did incorporating SLI newcomers bring for Wendat and Haudenosaunee hosts?

Investigating the Organization, Scale, and Pace of Depopulation

I argue that answering these questions requires a solid understanding about the different dimensions characterizing St. Lawrence Iroquoian movements at multiple levels. Here, I focus

primarily on those dimensions outlined by Ortman and Cameron (2011) in their framework for controlled comparisons of ancient movements. In a previous publication (Micon and Birch forthcoming), I examined the timing and pace of St. Lawrence Iroquoian movements into seven distinct community sequences belonging to an ancestral Huron-Wendat and Haudenosaunee tradition. In this paper, I build on these established timelines within six of these seven sequences by exploring the organization, scale, and pace of SLI depopulation into each area.

Ortman and Cameron (2011:236) note that before any dimensions can be addressed, it is first necessary to demonstrate that movement has occurred in the archaeological record. Demonstrating evidence for movement through material remains has a long tradition in archaeology that has been at the center of numerous scholarly debates (e.g., Hegmon 1992; Plog 1978; Stark et al. 2008). Clark (2001) proposed one of the most favorable approaches to identifying movement through the tracking of materials deemed to possess low-messaging potential against materials with high-messaging potential. Ortman and Cameron (2011:239) caution, however, that items can, and frequently do, switch from low to high signaling potential depending on their situational context. This is particularly true in cases of long-distance movement when material practices that may be deemed as having low-signal potential in their original social environment are suddenly highly distinguishable from other local materials. This is not to say that 'atypical' materials cannot inform archaeologists about instances of population movement, but rather, as Ortman and Cameron note, it is important to "consider social context in addition to perceptual qualities of material culture in searching for continuities that betray population movement (Ortman and Cameron 2011:240)." This means that "the materials that betray movement will likely vary from case to case according to the social context" (Ortman and

Cameron 2011:239) and that archaeologists must pay special attention to other informative lines of evidence that help to situate atypical materials within a more accurate light.

In this study, I consider trends in the quantity, diversity, and distribution of SLI-associated materials to infer the organization, scale, and pace of SLI movements into six community sequences (See Table 5). In many cases of ancient movement, newcomers are integrated at the household level (Mills 2011:349). Among Iroquoian societies specifically, the household may represent a single nuclear family, a lineage, or even an entire sub-community clan segment. Referencing the Wendat, Jesuit Father Paul Le Jeune noted that they, "increase or decrease their number, however, by adopting other families, who join sometimes to some, other to others, or who sometimes withdraw to form their own band or nation [Thwaites 1896–1901:16:227]."

Regional and community distributions of SLI associated material culture are used to define which of these units is most visible through the material record. Each of these groupings may be accompanied by other nuclear families, lineages, or clan segments leading to differences in scales between sequences. Pottery percentages and diversity/quantity of SLI materials is used to better infer scale through the ratio of SLI newcomers to their hosts. Finally, the speed in which scale and organization change in each sequence may have impacted how SLI were incorporated by their hosts. Rates of change in pottery percentages and diversity/quantity of SLI materials are considered here to better determine the pace in which SLI movement occurred and how this pace relates to trends in scale and organization over time.

Methods

Radiocarbon Dating and Bayesian Modeling

Village date estimates for this study were collected from a series of recent publications that included 303 new radiocarbon assays from 44 Iroquoian villages in southern Ontario and central New York (Birch et al. 2021; Manning and Hart 2021, 2019; Manning et al. 2019). Information about the criteria for selecting these villages and sequences is discussed in Micon and Birch (forthcoming). Date estimates for each village were taken directly from models described and published in their associated studies (See Appendix A1). Because the historical contingencies within each sequence are distinct, models from each study used parameters that best fit current archaeological understandings of those local sequences.

Inferences about the occupational span of villages are based on Date estimates. Date estimates represent a hypothetical event, in this case the occupation of a village, describing the temporal extent of the Phase between its Start and End Boundaries (Manning et al. 2018). Considering that objects associated with SLI interactions might appear on ancestral Huron-Wendat or Haudenosaunee sites at any point during their occupation, the Date estimate provides an informative temporal framework for comparing when a site was occupied and thus when these items appear in each local sequence. This does not mean that the timing of village occupations did not diverge slightly from the presented estimates, but rather, that this variation is not enough to affect the primary interpretations regarding the scale, organization, and pace of SLI interactions.

Materials

Information on SLI materials were collected from a variety of primary and secondary sources, including publications, excavation field notes, and unpublished site reports. Material categories associated with SLI material traditions were selected based on categorization and investigations of SLI material culture by Chapdelaine (1983, 2015, 2019), Gates-St. Pierre

(2010, 2015), Jamieson (1990, 2016), Pendergast (1966, 1981, 1985, 1992), Wonderley (2005, Wonderley and Sempowski 2019), and Wright (2004). I focus my analysis on those materials that are generally agreed to have an SLI association based on their spatial and temporal distribution and occurrence. This includes pottery types, smoking pipes, bone, stone, and clay objects (Figure 6 and 7). Information on the percentage of SLI pottery out of the total ceramic assemblage was available for most sites and included in this study. Data was also available from most sites on the percentages of the three most common SLI pottery types (Durfee Underlined, Roebuck Low collared, and Roebuck Corn ear) as well as percentages of other SLI associated pottery from each site (Appendix A2).

Results

Scale (Ratio of Newcomers to Hosts)

The quantity and diversity of SLI materials was recorded for villages in each sequence to better understand the ratio of SLI newcomers to hosts at the sub-regional level. Across all six sequences, similarities and differences can be observed in the quantity and diversity of SLI materials over time. Collectively, early movements appear to have been relatively small in scale, with SLI making up only a small portion of the total sequence population. This is shown by the fact that all sites before 1500 possess less than five percent SLI pottery for their total ceramic assemblages and only a limited number of bone or stone SLI objects. After CE 1500, percentages of SLI pottery and the general quantity and diversity of SLI materials increased in all sequences (Figure 9; Appendix A3). This suggests a general outward movement from the St. Lawrence Valley into ancestral Huron-Wendat and Haudenosaunee communities during this period.

Along with similarities, there are notable differences in the degree to which SLI—host ratios increase after 1500. Most individuals seem to have chosen the Trent and Ononda'gega'

sequences as their favored destinations. SLI pottery reaches over fifteen percent of the total ceramic assemblage at certain sites in each sequence along with a wide array of SLI associated materials, including various bone, stone, and ceramic objects. This is despite the fact that both Trent and particularly Ononda'gega' sequences represent some of the smallest sample sizes included in this study.

In other sequences there are more moderate increases in SLI materials reflective potentially of fewer SLI. In the Humber, Don, West Duffins, and Kanien'keha:ka sequences, SLI pottery never reaches more than ten percent of the total ceramic assemblage at any site and other SLI objects, while more numerous after 1500, do not compose a large majority of the total material collection. One exception to this trend is the Draper site in the West Duffins sequence which contains a wide diversity of SLI objects and about five percent SLI pottery (Appendix A2; Appendix A3). Considering the size of the Draper village, however, and its complete excavation, this material likely indicates that SLI composed a moderate ratio of the local population.

Organization

When considering the organization of SLI movement into each sequence, distributions of SLI materials at the community level provide strong clues as to the social units in which SLI newcomers were organized. At sites dating before 1500, most SLI newcomers appear to have arrived as individual or small nuclear groups based on intra-site spatial distributions of SLI materials. The Smith-Pagerie and Joseph-Picard sites in the Kanien'keha:ka and West Duffins sequences provide the best evidence for this (Figure 8). At Smith-Pagerie, limited SLI materials are found in an extension added to the western end of a single household, House 1. These compartments would have been reserved for one or two nuclear families associated with the broader matrilineage. In contrast, at Joseph-Picard, limited SLI materials are found distributed

across the site. This pattern may indicate either indirect interactions with SLI groups or small-scale individual incorporation.

For sites dating after 1500, the social units in which SLI groups arrived varied greatly, but generally appear to be larger than the nuclear family. In the Trent and Ononda'gega' sequences, SLI material distributions suggest that SLI newcomers arrived in entire lineages or sub-clan segments. At the Kirche site (1525-1544) in the Trent sequence, the vast majority of SLI material, particularly pottery, originates in the vicinity of several longhouses located outside the main village palisade. This shows that the majority of individuals in these longhouses were familiar with SLI traditions. Considering that longhouses were occupied by members of a common matrilineage, it is reasonable to argue that this represents a SLI family re-establishing themselves in the Upper Trent Valley directly from the St. Lawrence Valley or indirectly via the north shore of Lake Ontario where other SLI were already incorporated.

In the Ononda'gega' sequence, SLI appear to have settled in a separate satellite community (Atwell) entirely separate from the primary village at Temperance House. This practice of incorporating social outsiders through satellite communities is well recorded among the seventeenth century Ononda'gega'. Local satellite communities are defined as smaller villages, usually no more than two hectares in size, located within twenty kilometers from the main, larger settlement (Jordan 2013:32). This close proximity gave newly integrated individuals many opportunities to form close social connections with their hosts while continuing to maintain previous traditions and identities (Hill 2006:11). This incorporative strategy may have developed a century earlier in the context of SLI incorporation as it provided an innovative solution to the question of how to incorporate large groups of outsiders within the span of a generation.

In sequences with evidence for smaller SLI-host ratios, material distributions suggest that SLI newcomers arrived in nuclear families or sub-lineage segments. At the Parsons site (1495-1523) in the Humber sequence, most SLI materials are located within extension compartments to Houses 8, 9, and 10 at the eastern end of the site (Figure 8). Ethnohistoric accounts of Iroquoian longhouses suggest that compartments were shared by two nuclear families residing on either end of the central hearth (Kapaches 1990; Trigger 1985). This partial area would not have contained enough space to shelter more than a few family groupings. Similar material patterns occur at the Klock (1499-1519) and Garoga (1521-1580) in the Kanien'keha:ka sequence where SLI pottery remains concentrated within a single household over time. This suggests that SLI newcomers never composed more than a single matrilineage within either community.

Pace

Lastly, this study considered the pace of SLI movement into each sequence. Two sequences—Humber and Ononda'gega'—show evidence for a sudden increase in the quantity and diversity of SLI materials after 1500 (Table 6). In both sequences, SLI pottery jumps from less than two percent of the total ceramic assemblage to over ten within the span of one or two decades. This occurs along with a notable increase in the general quantity and diversity of other SLI materials including bone, stone, and ceramic objects.

Among the four other sequences—Don, Trent, Kanien'keha:ka. and West Duffins—SLI movement appears to have been more gradual as the quantity and diversity of SLI materials steadily increases between 1470 and 1580. In the Don, Trent, and Kanien'keha:ka sequences, the earliest sites with evidence for SLI movement possess SLI pottery that is around two to three percent of the overall assemblage along with a variety of different SLI materials. In the Trent sequence, this trend continues to steadily increased while in the Don and Kanien'keha:ka

sequences it plateaus or ends entirely. Among West Duffins communities, SLI pottery steadily increased as a percentage of the total ceramic assemblage from less than one percent at Joseph-Picard (1441-1467) to over five percent at Draper (1528-1544).

After 1580, the diversity and abundance of SLI materials decreased across all sequences but did not disappear entirely. Considering that the St. Lawrence Valley is believed to have been depopulated by this point in time, this material trend likely reflects the gradual incorporation of distinct SLI traditions into local material assemblages rather than a steady decrease in movement into each area. A more robust time frame is needed for site occupations in the St. Lawrence River Valley to better understand depopulation and the pace and tempo of movement at the latter end of SLI dispersal.

Discussion: Warfare, Kinship, and Explaining Depopulation

The findings from this study show both similarities and differences in the organization, scale, and pace of SLI movements between each of the six community sequences. In this section, I argue that similarities in these dimensions reflect external pressures, such as warfare, that incentivized SLI to relocate in the first place. At the same time, differences between sequences reflect the kin-based relationships and linkages that ultimately structured these movements ‘on the ground’ and dictated where, when, and how SLI were incorporated by their hosts.

In reviewing each dimension of SLI movement, the 1500 to 1520 period appears to have been an important point in which the structure and underlying causes of SLI movement began to transition. After 1500, SLI-host ratios and SLI organizational social units increased across all sequences and in at least two regions—Humber and Ononda'gega'—local hosts appear to have experienced a sudden influx of SLI outsiders. This clearly represents a major outpouring of SLI groups from the St. Lawrence River Valley around this time, but what could explain people’s

changing rationale for leaving? Birch and colleagues (2021) show through robust radiocarbon timelines that evidence for conflict (i.e., palisading, perimortem skeletal trauma, regional buffering) began to extend eastward into the St. Lawrence River Valley from New York and southwestern Ontario around 1500. Some of the latest Iroquoian village sites in northern New York also show a growing concern for conflict after 1500 through increased palisading and village aggregation (Abel 2021). By 1520, northern New York was entirely depopulated as warfare, and potentially other external factors, became too much for local SLI communities to bear.

Still, even if warfare was the main "cause" of SLI dispersal, it certainly does not explain how depopulation occurred at the community level. Across all sequences, we see variations in the scale, organization, and pace of SLI movements that speak more to localized relationships between SLI newcomers and their hosts rather than a generally pervasive need for safety. Based on differences in the scale of movement, it is apparent that Iroquoians leaving the St. Lawrence Valley were following previously established social networks (Micon and Birch n.d.). These destinations do not conform to strictly ancestral Wendat or Haudenosaunee communities since both the Trent and Ononda'gega' sequences experienced high numbers of SLI newcomers. Gradual increases in SLI movement among the other four sequences may reflect a combination of spillover from Trent and Ononda'gega' sequences as well as direct movements from the St. Lawrence Valley.

Differences in the organizational units of SLI newcomers map surprisingly well onto patterns of scale in each sequence. The sequences with the greatest evidence for movement—Trent and Ononda'gega—SLI appear to have arrived in entire lineage or sub-clan segments. These are the only two sequences with clear evidence for separation between SLI newcomers

and their hosts, at least initially. It is possible that the sheer volume of SLI arrivals into each sequence and, in the case of the Ononda'gega, the sudden pace of movement into each sequence, made adopting SLI through previous kin-based mechanisms difficult for ancestral Wendat and Haudenosaunee hosts. This influx of outsiders may have required new adjustments and innovations in incorporative strategies as demonstrated among the Ononda'gega with the appearance of satellite communities.

In sequences with evidence for smaller scale movements—Don, West Duffins, Humber, and Kanien'keha:ka—SLI appear to have arrived as smaller, individual or nuclear family segments. This scale and organization seem to have been more manageable for local communities as SLI in these cases are often directly incorporated into ancestral Wendat or Haudenosaunee Households. In addition, with the exception of the Humber communities, these sequences appear to have undergone more steady increases in SLI newcomers over time. Some of these arrivals may have also been previously established among the Trent and Ononda'gega sequences and leveraged their inter-community clan ties to integrate themselves into other nearby communities.

In every sequence, kinship appears to have been an important mechanism through which SLI movements were structured and defined. These kinship ties would have helped to facilitate the transmission of SLI people and traditions into ancestral Wendat and Haudenosaunee communities as well as dictate the roles and responsibilities of SLI within their new communities. In exchange for their adoption, SLI newcomers may have brought important knowledge and skill sets that would have been extremely valuable for their Iroquoian hosts. This could have potentially included access to important St. Lawrence-based European trade routes (Chapdelaine 2016), knowledge of fishing and marine-resource practices (Plourde 2010), and an

increased population to help recoup losses due to conflict and disease. Among the Huron-Wendat, trade routes leading to the St. Lawrence River Valley were owned and facilitated by the Arendahronon Nation whose traditional communities lie in the Trent Valley (Pavlish et al. 2017). It is reasonable to suggest that along with skill sets, core identities and understandings of previous connections to the St. Lawrence Valley would have also transmitted through these kin-based institutions as well and passed down between generations (Richard 2016).

Conclusion

Using radiocarbon derived timelines and information on SLI associated material culture, this study investigated the scale, organization, and pace of SLI movements into six ancestral Huron-Wendat and Haudenosaunee sequences. It argues that changes in each dimension around 1500-1520 reflect common concerns over conflict and potentially other external pressures that collectively weighed on SLI decisions to leave. Differences in each of these dimensions show however that relationships at the community level between SLI newcomers and their hosts ultimately structured when, where, and how dispersal occurred. It is argued here that kinship was an integral institution in Iroquoian lifeways that largely shaped the nature of movement between Iroquoian communities. The results from this analysis have been interpreted using a kinship framework to better highlight the importance of considering social relationships in any narrative of regional depopulation.

Though this research focuses on one specific instance of depopulation among Iroquoian speaking societies, its findings are applicable to any instance where regional depopulation is evident in the material record. This is also true of contemporary social science studies focusing on scenarios of large-scale migration occurring from socio-political upheavals or natural disasters (Tsuda 2015). Learning about the ways in which human relationships structure these

regional movements can help to better develop strategies for managing the social, economic, and political outcomes of major demographic disruptions and can further inform reasonable policies geared at integrating newcomers into local host societies.

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TABLES

	Date Estimate C.E.		
Sub-Region/Site	**68.30%**	**95.40%**	**Source**
TRENT			
Jamieson	1504–1535	1485–1562	*Birch et al. 2021: Table 2:13*
Coulter	1515-1558	1509-1572	*Birch et al. 2021: Table 2:13*
Kirche	1525-1544	1517-1553	*Birch et al. 2021: Table 2:13*
Benson	1528-1556	1521-1568	*Birch et al. 2021: Table 2:13*
Sopher	1540–1567	1527–1582	*Birch et al. 2021: Table 2:13*
Dawn	1571-1604 (49.6%)	1552–1616 (65.4%)	*Birch et al. 2021: Table 2:13*
WEST DUFFINS/ LYNDE CREEK			
Joseph-Picard	1485–1562	1435–1505	*ASI 2016; Micon et al. 2021:Table 2:267*
Best	1504-1536	1472-1548	*Birch and Manning 2021*
Pugh	1505-1535	1483-1547	*Birch and Manning 2021*
Draper	1528-1544	1524-1555	*Birch and Manning 2021*
Spang	1548-1580	1539-1595	*Birch and Manning 2021*
Jean-Baptiste Lainé (Mantle)	1600-1613	1594-1618	*Birch and Manning 2021*
Aurora	1612-1629	1605-1638	*Birch and Manning 2021*
DON			
Baker	1476–1498	1462–1511 (95%)	*Birch et al. 2021: Table 2:13*
Walkington 2	1483–1504	1471–1519	*Birch et al. 2021: Table 2:13*
McNair	1488–1510	1474–1523	*Birch et al. 2021: Table 2:13*
Hope (North & South)	1480-1500	1469–1607	*Birch et al. 2021: Table 2:13*
Keffer	1527–1549	1519–1568 (93.9%)	*Birch et al. 2021: Table 2:13*
LOWER HUMBER			
Black Creek	1475–1614	1458–1622	*Birch et al. 2021: Table 2:13*
Parsons	1495–1523 (52.8%)	1480–1639	*Birch et al. 2021: Table 2:13*
UPPER HUMBER			
Seed-Barker	1506–1574	1494–1589	*Birch et al. 2021: Table 2:13*

McKenzie-Woodbridge	1522–1563	1507–1583	*Birch et al. 2021: Table 2:13*
Damiani (Core & Expansion)	1526-1553	1518-1569	*Birch et al. 2021: Table 2:13*
ONONDA'GEGA'			
Kelso	1399–1417	1390–1430	*Birch et al. 2021: Table 2:14*
Howlett Hill	1418–1437	1406–1444	*Birch et al. 2021: Table 2:14*
Schoff	1433–1451	1424–1460	*Birch et al. 2021: Table 2:14*
Bloody Hill	1463–1485	1452–1494	*Birch et al. 2021: Table 2:14*
Burke	1487–1504	1479–1511	*Birch et al. 2021: Table 2:14*
Christopher	1488–1506	1479–1513	*Birch et al. 2021: Table 2:14*
Cemetery	1508–1523	1499–1529	*Birch et al. 2021: Table 2:14*
Barnes	1524–1540	1517–1551	*Birch et al. 2021: Table 2:14*
Temperance House	1545–1568	1537–1580	*Birch et al. 2021: Table 2:14*
Atwell	1546–1569	1538–1581	*Birch et al. 2021: Table 2:14*
Chase	1574–1606	1556–1614	*Birch et al. 2021: Table 2:14*
Pompey Center	1619–1639	1570–1647	*Birch et al. 2021: Table 2:14*
KANIEN'KEH-A: KA			
Second Woods	1455–1475	1443–1490	*Manning et al. 2021:Table 2*
Getman	1456–1488	1441–1511	*Manning et al. 2021:Table 2*
Elwood	1460–1486	1448–1506 (92.7%)	*Manning et al. 2021:Table 2*
Smith-Pagerie	1479–1500	1470–1513	*Manning et al. 2021:Table 2*
Klock	1500–1521	1486–1532 (88.8%)	*Manning et al. 2021:Table 2*
Garoga	1550–1581	1512–1592 (91.0%)	*Manning et al. 2021:Table 2*
Cayadutta	1583–1622 (45.7%)	1565–1631 (59.1%)	*Manning et al. 2021:Table 2*
Otstungo	1586–1624 (44.6%)	1570–1631 (54.5%)	*Manning et al. 2021:Table 2*

Table 6. Bayesian modeled date estimates for village sites in each sequence.

Material Category	SLI Trait	References
Ceramic Pottery Types		
	Durfee Underlined	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:392*
	Roebuck Low-Collared	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:393*
	Roebuck Corn-ear	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:394*
Ceramic (Pipes)		
	Human-face effigy	*Pendergast 1992; Wonderley 2005*
	Horizontal bar motif	*Pendergast 1992*
	Incised stem	*Bradley 2005:63*
Ceramic (Misc.)		
	Ornamental bead (milled)	*Pendergast 1981; Jamieson 1990:392*
	Gaming disc	*Jamieson 1990:392*
Bone		
	Deer scapula pipe	*Jamieson 2016: 353*
	Incised awls	*Jamieson 1990:396*
	Fishhooks	*Jamieson 2016:346-7; Wright 2007:1249*
	Harpoon	*Jamieson 2016:346-7; Wright 2007:1249*
	Conical projectile point	*Gates-St. Pierre 2010; Jamieson 2016:335*
	Posterior ground deer phalanges	*Jamieson 2016: 355*
Stone		
	Perforated bead (steatite or red slate)	*Pendergast 1981*
	Red slate gaming disc	*Bradley 2005:221*
	Red slate	*Jamieson 1990:393*

Table 7. SLI associated materials incorporated in this study.

Organization	Scale (Ratio of Newcomers to Hosts)	Pace
No movement	No movement	No movement
Small-Group (Individual)	Low	Slow
Small-Group (Nuclear family)	Medium	Fast
Large-Group (Lineage, clan segment)	High	Punctuated

Table 8. Criteria for Scale, Pace, and Organization of SLI movements into ancestral Huron-Wendat and Haudenosaunee sequences in this study (Based on Ortman and Cameron 2011: Table 15.2).

Sequence	Organization	Scale (Ratio of Newcomers to Hosts)	Pace
Trent	Large-Group (Lineage)	High	Slow
Humber	Small-Group (Nuclear Family)	Medium	Fast
Don	Small-Group (Individual)	Low	Slow
West Duffins	Small-Group (Nuclear Family)	Medium	Slow
Ononda'gega'	Large-Group (Lineage or Clan segment)	High	Fast
Kanien'keha: ka	Small-Group (Nuclear Family)	Low	Slow

Table 9. Summary of organization, scale, and pace of SLI movement into each sequence.

FIGURES

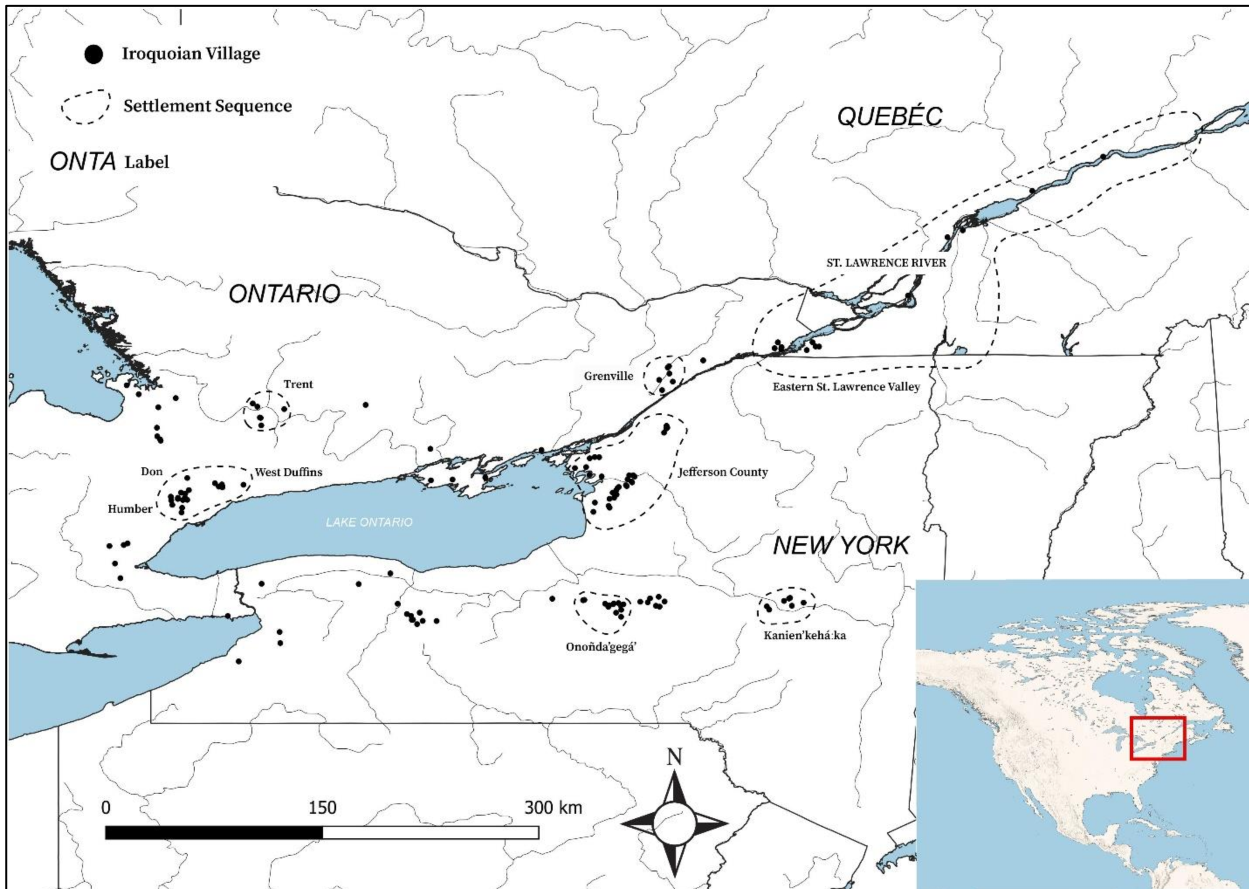


Figure 8. Map of Iroquoian village sites and sequences discussed in text.

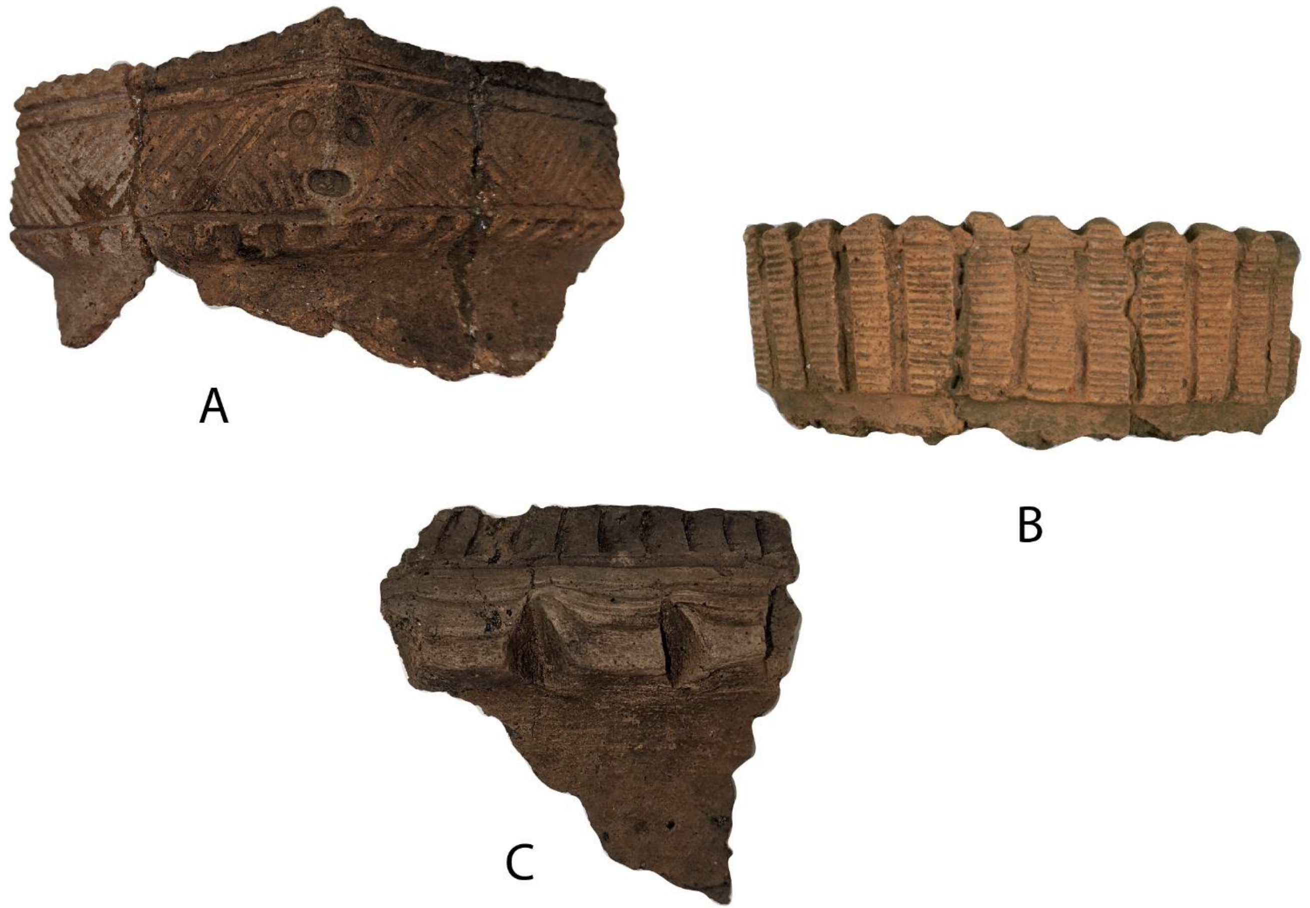


Figure 9. Examples of St. Lawrence Iroquoian pottery types. A) Durfee underlined with annular punctate face, B) Roebuck Corn-ear, C) Roebuck Low Collared. (Courtesy of New York State Museum and Canadian Museum of History). Not to scale.

Figure 10. Miscellaneous St. Lawrence Iroquoian objects. A) Ceramic gaming disc, B) Posteriorly grounded “Toggle” phalanges, C) Red slate gaming discs, D) Conical bone projectile point. (Courtesy of New York State Museum). Not to scale.

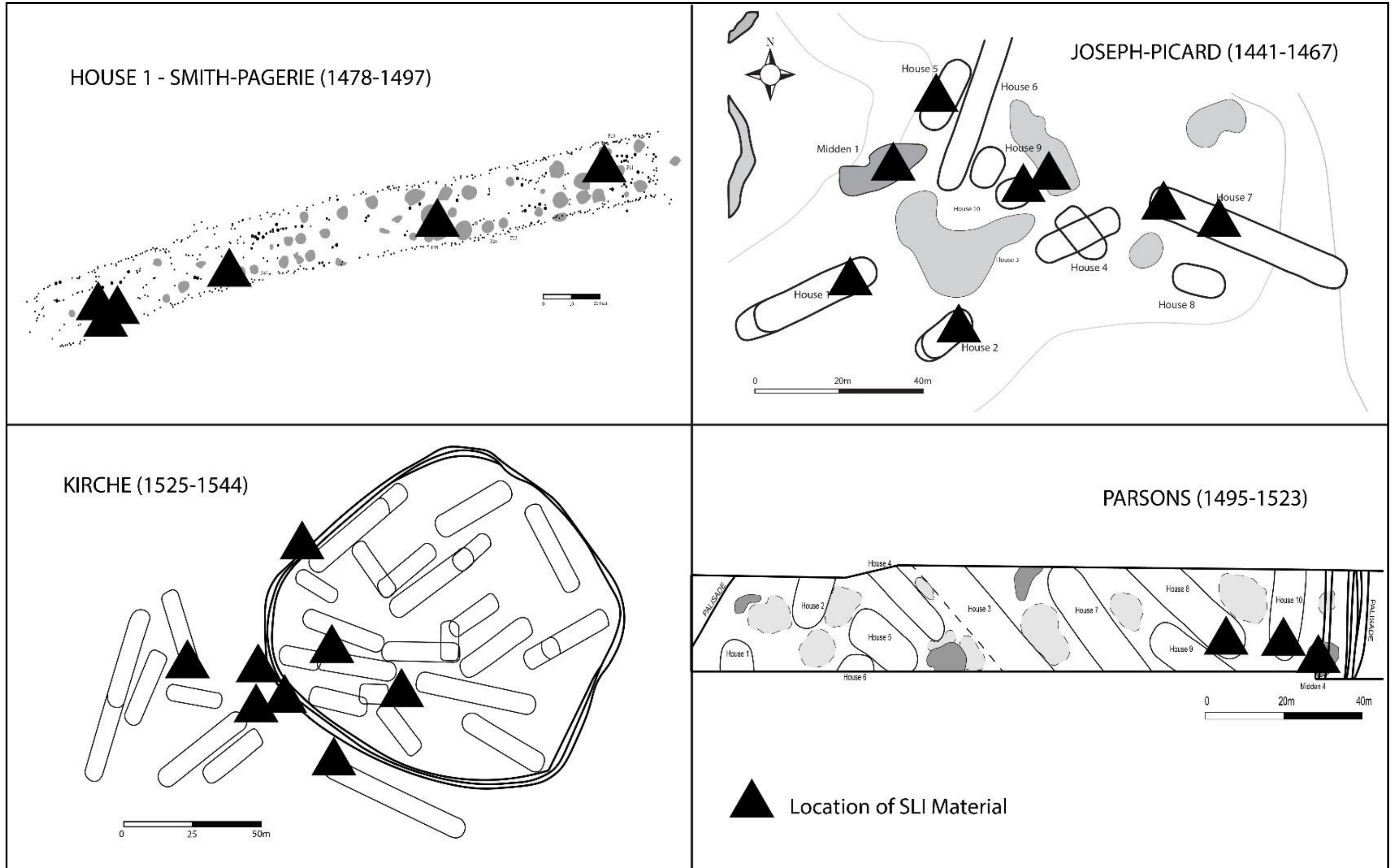
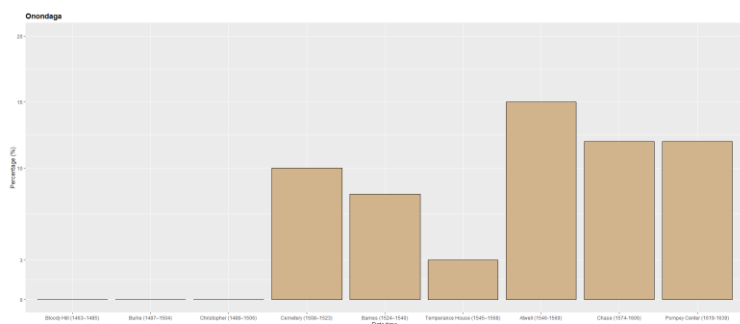


Figure 11. Distribution of SLI material culture on the Smith-Pagerie, Kirche, Joseph-Picard, and Parsons village sites.



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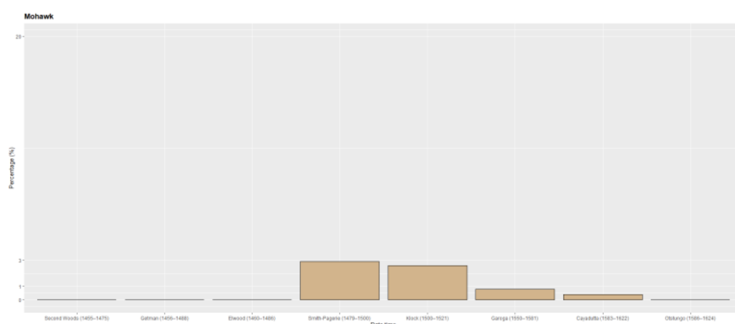

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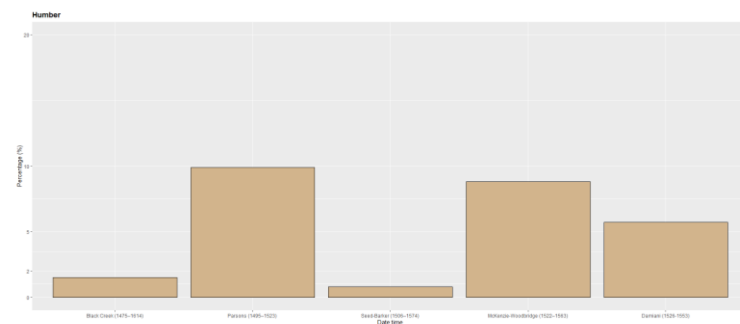
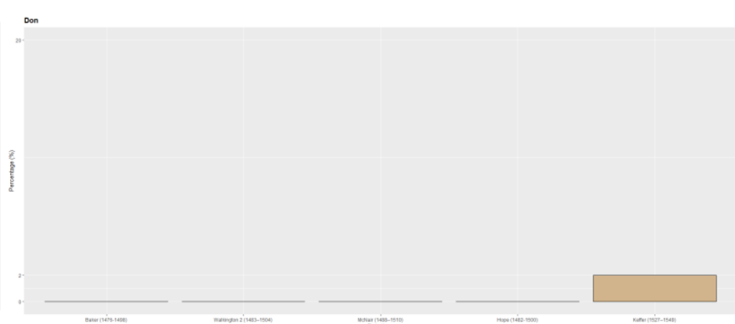
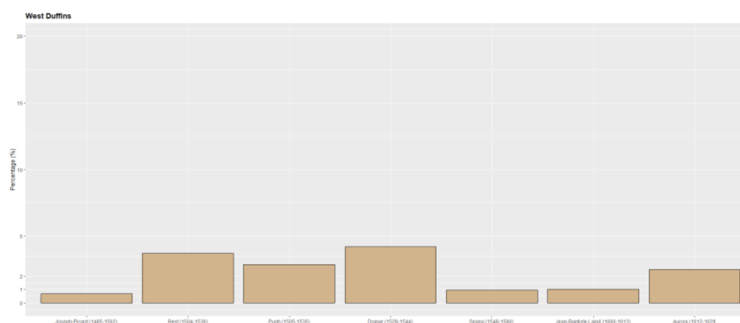


C



D



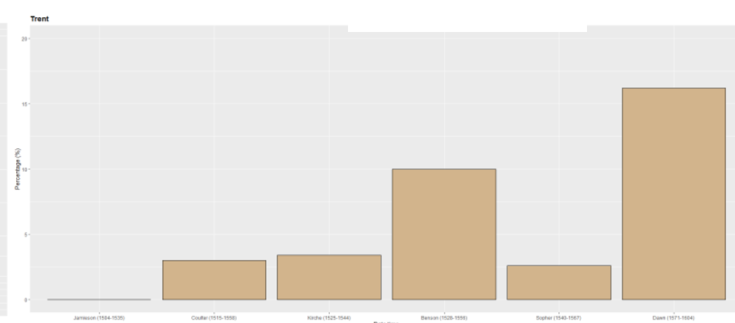


Figure 12. Percentages of SLI pottery in each sequence (Out of total ceramic assemblage). A) Onondaga, B) Mohawk, C) Humber, D) Don, E) West Duffins, F) Trent.

CHAPTER 4

BEYOND CAPTIVITY AND REFUGE: INVESTIGATNG THE INCORPORATION OF ST. LAWRENCE IROQUOIANS INTO THREE ANCESTRAL KANIEN'KEHA:KA COMMUNITIES[3]

[3] Micon. To be submitted to *Archaeology of Eastern North America*

Abstract

Archaeologists have long argued that members of the ancestral Kanien'kehá:ka (Mohawk) were at least partly responsible for the sixteenth century depopulation of the St. Lawrence River Valley. Remains of St. Lawrence Iroquoian (SLI) pottery and pipes in central New York are assumed by scholars to be vestiges of SLI captives or refugees assimilated into ancestral Kanien'kehá:ka communities. This perspective, while explanatory, inadvertently overlooks the dynamic nature of movement in Iroquoian lifeways and privileges themes of rupture and collapse over those of agency and continuity. In this study, I use data from longHouse post-density and feature-density estimates and St. Lawrence Iroquoian material culture to examine how St. Lawrence Iroquoians positioned themselves at the community level within three ancestral Kanien'kehá:ka villages between CE 1478 and 1581. I frame my results within a perspective that acknowledges the importance of highlighting inter-cultural dynamics within persistent Indigenous histories. Based on these findings, I conclude that St. Lawrence Iroquoians were active participants in their own incorporation, deliberately using material mediums to navigate new relationships with ancestral Kanien'kehá:ka while continuing to maintain important connections with previous cultural traditions.

"*My question is this: What happened to the St. Lawrence Frenchmen? Well, over the years they became Lower Canadians, Canadians and eventually Québécois. So Europeans can evolve but the [St. Lawrence] Iroquoians can't evolve into Mohawks? Indigenous people have to stay stuck in a glass bowl. There's a duplicity there that smacks of racism*."

- QCNA, Kenneth Deer, November 2021.

Introduction

The depopulation of the St. Lawrence River Valley remains one of the most enduring topics in Iroquoian archaeology (Abel 2017; Chapdelaine 2004, 2016; Englebrecht 1995; 2004; Gates-St. Pierre et al. 2021; Jamieson 1990a; Lenig 2013:89; Pendergast 1993; Trigger and Pendergast 1972; Warrick 2008; Wright 2007). Between CE 1450 and 1580, an estimated 8,000 - 10,000 Iroquoians dispersed and left the St. Lawrence River Valley to join neighboring villages in southern Ontario, southern Québec, and central New York (Clermont 1980; Warrick 2008). At least some St. Lawrence Iroquoians (SLI) joined villages in central New York that are ancestral to the contemporary Kanien'kehá:ka (Mohawk) Nation. Aside from when this occurred, archaeologists know fairly little about the exact nature of SLI incorporation and its effect on long-term ancestral Kanien'kehá:ka histories.

It is commonly argued that between CE 1500 and 1580, SLI and ancestral Kanien'kehá:ka were engaged in conflict. Proposed reasons for this aggression include access to European trade routes (Pendergast 1993), expanding resource buffer zones (Englebrecht and Jamieson 2016), and emerging political confederacies (Englebrecht 1995). Evidence for generalized conflict (e.g., human remains bearing signs of perimortem trauma, palisading, restricted access to resources) is often interpreted as archaeological proof for hostilities, as well as the occurrence of SLI pottery and smoking pipes on ancestral Kanien'kehá:ka sites deemed to be the work of SLI captives (Ramsden 1990; Trigger and Pendergast 1972; Wonderley 2019). Though these lines of evidence make for a compelling argument, they do not align with recent archaeological findings indicative of a more complicated relationship between both groups (Englebrecht 2004; Hart et al. 2017; Wonderley 2005, 2019). Instead, a more dynamic narrative is needed that explores SLI dispersal within current conceptual frameworks and that understands

how relationships between SLI and their hosts were constructed and mediated at the community and Household levels.

In this study, I employ post-mold and feature density estimates and information on SLI material culture to better understand the nature of SLI incorporation into three ancestral Kanien'kehá:ka communities—Smith-Pagerie, Klock, and Garoga. Using post-mold and feature density estimates, I reconstruct community level dynamics at each site through data on the quantity and intra-site distribution of materials associated with SLI traditions. With this information, I argue that long-distance population movement, sometimes referred to as 'migration,' was and continues to be an integral component of Kanien'kehá:ka cultural identity. Scenarios of captivity and refuge only serve to ignore the social elements involved in structuring Iroquoian interactions and actively downplay how SLI negotiated their positions and were received by their host societies once settled. Any accurate assessment of SLI population movement into ancestral Kanien'kehá:ka communities requires acknowledging both how SLI adapted to changing socio-political conditions as well as how these changes relate to a more long-term and dynamic Kanien'kehá:ka history.

Iroquoian Archaeology

The term Northern Iroquoian, or simply Iroquoian, refers to a cultural and linguistic tradition practiced by people whose territories lay in New York State, southern Ontario, southern Québec, and the Susquehanna River Valley. At the time of sustained European contact circa CE 1600, Iroquoians were organized into distinct clans, nations, and confederacies that shared many defining cultural characteristics. Most notable of these were a diet rich in maize, beans, and squash known as the "Three Sisters" which was supplemented by hunting, fishing, and gathering activities, a material tradition defined by robust assemblage of bone tools and globular ceramic

vessels, and the construction of bark-covered longhouses shared by members of the same matrilineage.

Beginning around the thirteenth century, Iroquoian societies in Ontario and New York gradually began to transition away from seasonal foraging strategies toward more permanent, year-round villages (Birch 2015:278-279). In New York, the largest villages (8—10 acres) date to the late-fifteenth and sixteenth centuries and are estimated to have sheltered as many as 2,000 individuals (Abel 2021:293; Bamann et al. 1992:450; Englebrecht 2003:89). Based on research from Iroquoian sites in Ontario, it is believed that villages during this period were resettled every 15 to 30 years before settling within a few kilometers of the original village location (Warrick 1988:51), although longer population movements also took place (Jordan 2013), as did population movement between villages (Birch and Hart 2021). This pattern, along with the assumption that few villages were never re-occupied, has allowed archaeologists to recreate community sequences that represent hundreds of years of activity by contiguous groups (Birch and Williamson 2013; Bradley 2005; Finlayson 1998; Pearce 1984; Snow 1995; Tuck 1971).

In this study, I focus my analysis on material remains ancestral to the Kanien'kehá:ka, or People of the Flint, also known as the Mohawk. The Kanien'kehá:ka are one of five, later six, members of the Haudenosaunee Confederacy whose traditional territories lay in upstate New York. Known as "Keepers of the eastern door," Kanien'kehá:ka were tasked with guarding and protecting over 500 kilometers of eastern New York State extending from the St. Lawrence River south to the Lower Hudson Valley (Figure 8) (Loran et al. 2015:15). While some scholars suggest that Kanien'kehá:ka came to occupy this territory through processes of expansionism and conquest, it is argued here that this view relates to a broader issue in North American archaeology concerning how researchers understand the role of population movement in

Indigenous societies and the material remains of those processes and dynamics. A new perspective is needed that recognizes the regularity by which Iroquoian people engaged in movements of all types, but particularly long-distance population movements, in maintaining cultural traditions.

Beyond A History of Captivity and Refuge: Reconsidering Iroquoian Population Movements

Movement is an important theme in North American Archaeology that has often been framed in various ways (e.g., population circulation, trade, residential mobility). In this study, I adopt a definition of movement as a one-way residential relocation of at least one or more individuals into a new social 'environment' (*sensu* Cabana and Clark 2011:5). This fits most closely with current uses of 'migration' in archaeology, but I refrain from using this latter term to avoid any inappropriate comparisons with ecological applications. Defining movement as a one-way residential relocation distinguishes it from smaller, more cyclical forms of movement that are difficult to discern in the archaeological record. In discussing SLI movements into ancestral Kanien'kehá:ka communities, I refer to an explicit type of long-distance settlement in which all members of the newcomer society ultimately relocated. This type of regional depopulation is notably distinct from other forms of population movement because it can have specific implications for how newcomers relate themselves to their previously occupied landscapes (McAnany and Lamoureux-St.-Hilaire 2020).

Recent archaeological studies on Iroquoian societies have brought together views highlighting the centrality of movement, both short and long-distance, in Iroquoian lifeways (Birch and Lesage 2020; Hart and Birch 2021; Micon et al. 2021). These studies underline the functionality of movement as a mechanism for preventing internal social conflicts within co-residential communities as well as bringing together people different backgrounds for various

purposes (See Sioui 1999:146-153). Despite these conceptual advances however, there are still few studies that fully investigate the mechanisms structuring these movements between different Iroquoian communities. This paucity of research has been exacerbated by cultural categorizations that promote ethnic divisions at the population level (i.e., Glen Meyer, Princess Point).

Still, evidence for movement is hard to ignore, particularly in regard to the appearance of non-local ceramic styles on most Iroquoian sites (Latta 1991). This has led to a number of studies employing generalized scenarios of captivity or refuge to write-off evidence for population movement in order to maintain conventional ethnic categories (i.e., cultural affiliation). While this study recognizes that captivity and refuge were real phenomena that have been thoroughly recorded in the ethnohistoric record for Iroquoian societies (Lynch 1985; Starna and Watkins 1991), it also acknowledges that these scenarios do little to help us understand other instances of complex relationships that facilitated movement in the archaeological record. Getting at these other sets of social relationships requires considering the archaeological context in which material evidence for movement appears on Iroquoian village sites and tracking its development across space and time. When combined with other lines of evidence, this approach can help to expand on more nuanced relationships that ultimately structured and shaped movements between communities and speak to more relational and long-term Indigenous histories.

St. Lawrence Iroquoians and ancestral Kanien'kehá:ka

During the sixteenth century CE, an estimated 8—10,000 Iroquoians left the St. Lawrence River Valley to join neighboring communities in southern Ontario, central New York, and southern Québec (Clermont 1980; Warrick 2008:196-197). These "St. Lawrence Iroquoians

(SLI)" shared many material traits that differed from their neighbors. Most notable were the elaborate incising and technical execution of pottery, smoking pipes bearing hyper-realistic face effigies, and robust bone tool industry (Abel 2017; Pendergast 1990b; Wright 2007). Aside from shared material traditions, there is little evidence that SLI ever formally organized beyond the community level (see Gates-St. Pierre et al. 2021; Gaudreau and Lesage 2016; Lesage and Williamson 2020). In this study, I distinguish between SLI and ancestral Kanien'kehá:ka materials to reflect differences in artifact genealogies or "communities of practice" (Wenger 1998) while at the same time recognizing that these distinctions may not represent meaningful social or political differences.

The dispersal of Iroquoians from the St. Lawrence River Valley continues to be one of the most popular yet least understood topics in Iroquoian archaeology (Jamieson 1990a; Pendergast 1993; Pendergast and Trigger 1972; Wright 2007; Gates-St. Pierre et al. 2021). Many attempts by scholars to explain this phenomenon have argued that ancestors of the contemporary Kanien'kehá:ka attacked and dispersed SLI groups in order to access European trade routes or resource zones along the St. Lawrence River (Englebrecht and Jamieson 2016; Jamieson 1990a; Kuhn 2004; Pendergast 1993; Warrick 2008:198; Wonderley 2019; Wright 2007). Evidence for generalized conflict in the form of human remains bearing signs of perimortem trauma, defensive palisading, and reduced inter-regional exchanges are often interpreted as evidence of hostilities perpetrated by Kanien'kehá:ka members (Englebrecht and Jamieson 2016; Jamieson 2011; Kuhn 2004). Moreover, at least some SLI survivors are believed to have been assimilated into ancestral Kanien'kehá:ka societies as captives after CE 1500. This is argued by the fact that 1—5% of all pottery on ancestral Kanien'kehá:ka sites from this period are decorated with SLI elements and

therefore, believed to have been produced by SLI captives (Funk and Kuhn 2003:157; Kuhn 2004; Lenig 2013:82; Pendergast 1993; Tremblay 2006:124; Wonderley 2019:167-168).

While compelling, this narrative largely reduces engagements between SLI and ancestral Kanien'kehá:ka into a single explanatory scenario and overlooks more recent findings that reflect a complicated and enduring relationship between both groups. For example, Wonderley (2005, 2019) reports that decorative smoking pipes recovered from the St. Lawrence Valley and central New York share many stylistic expressions that are emblematic of close, political alliances. In addition, a number of scholars have noted variations in SLI pottery and bone tool traditions on eastern Haudenosaunee sites dating to as early as CE 1450 (Abel 2001; Englebrecht 1995, 2004; Hart and Englebrecht 2007; Hart et al. 2017; Lenig 2013: 82, 89; Vavrasek 2020). These material patterns cannot be explained as simply the work of captives but require a complex quiltwork of interactions that would have differed across regions, communities, and even Households. Through a regional analysis of ceramic collar decorations, Hart and colleagues (2017) show that Iroquoians living in the western portion of the St. Lawrence Valley would have been strategically positioned to take advantage of these multi-connections as cultural brokers but may have been increasingly under pressure by the growing regional alliances developing around them.

This is all to say that archaeologists are in need of a new narrative for SLI dispersal that deconstructs previous concepts of assimilation and gives past Iroquoians the ability to modify their situations while maintaining connections to ancestral landscapes. Doing this involves highlighting both changes and continuities in material traditions before, during, and after periods of incorporation. By combining these different elements across time and space archaeologists can begin to reconstruct the social and historical contingencies that allowed people to come

together into new communities, and subsequently, discover how these contingencies fit within a broader history of Iroquoian development.

Investigating the Incorporation of St. Lawrence Iroquoians into Three Ancestral Kanien’kehá꞉ka Communities

In this study, I combine Household settlement data with information on SLI associated material culture to investigate the developing nature of SLI incorporation into three ancestral Kanien’kehá꞉ka communities. Together, this information provides a detailed portrait of SLI population movements into central New York. To better operationalize my analysis, I focus on two main questions: 1) What were the internal mechanisms responsible for SLI incorporation into Kanien’kehá꞉ka societies? And 2) how, if at all, did SLI newcomers continue to maintain linkages with the St. Lawrence Valley and other SLI communities?

Longhouse Construction and Repair

Post-mold and feature density estimates for Iroquoian longhouses can provide useful information about the intra-community dynamics that are responsible for integrating newcomers into existing institutions. Studies of Household and community dynamics in archaeology have shown that meaningful cultural interactions occur at the smallest analytical levels (Birch and Williamson 2013; Canuto and Yaeger 2000; Gerritsen 2004) and that these interactions are often shaped by circumstances particular to an individual or Household (Cook and Schurr 2009; Deagan 2013; Lyons and Clark 2012). For Iroquoian societies, the longHouse represents the most meaningful component below the community level where domestic and political activities were organized and enacted. Longhouses would have been segmented into multiple compartments, each inhabited by one or two nuclear families. Residents in longhouses were

theoretically related through a fictive ancestor on the mother's side (Kapaches 1990), however exceptions to this rule are known to have occurred (Trigger 1978)

As a result of these kin-based relations, the construction and repairment of longhouses required intricate negotiations of both local and regional identities (Creese 2016a). These negotiations can be observed archaeologically through the numbers and densities of post-molds and domestic features within and between longhouses. Longhouses with higher numbers of post-molds or features are likely to have experienced more episodes of repair and reconfiguration, suggesting long or complex occupational histories. In many cases, we can actually see where an original House ended and an extension was added (e.g., Finlayson 1985; Ramsden 2009) or where two formerly separate Houses were joined by adding walls connecting them (Burgar 1993; Williamson 1998). When evidence for such behaviors is inferred through post-mold remnants, they can illustrate a dynamic pattern of shifting relationships between people that helps to reconstruct the mechanisms responsible for integrating newcomers into Iroquoian lifeways.

SLI Material Interactions

For much of the twentieth century, archaeological approaches to the study of 'migration'—strictly defined—required identifying non-local material practices outside of their assigned social and cultural context. This technique was founded on the premise that material styles served as ethnic markers for Iroquoian artisans and could thereby inform researchers about the presence of social outsiders in the archaeological record (e.g., Childe 1951). While this type of thinking has been justly criticized on the grounds that material styles result from a myriad of human behaviors (Hegmon 1992, Stark et al. 2008; Trabert 2020), 'atypical' materials, or materials that stand out from the 'typical' material assemblage (Jordan 2018), should not be

entirely dismissed. Many scholars have noted that when atypical items are considered within their proper archaeological and historical context, they can provide useful information about differences in social practices and power dynamics within a community (Ehrhardt 2013; Deagan 2013:264; Jordan 2018:8). The key here is to understand that these objects need not to have originated outside the community where they appear, and that once introduced, anyone could have emulated these practices.

With this knowledge in mind, there are many lines of evidence to suggest that SLI items found on ancestral Kanien'kehá:ka sites were introduced by individuals arriving from the St. Lawrence Valley. Sourcing analyses of SLI pottery from Iroquoian sites in Ontario and New York have shown that in most cases these specimens were made using local clays rather than introduced through exchange or raiding (Hawkins et al. 2021; Kuhn 1985, 2004; Trigger et al. 1980). It is also notable that SLI materials first appear in the Mohawk Valley around the same time as depopulation begins in the St. Lawrence Valley (Kuhn 2004:149). This does not mean to say that SLI individuals used or even made SLI items once they were introduced into ancestral Kanien'kehá:ka communities, but rather that their distribution is not random and conveys important insights about interactions between residents (Duff 1993; Herr 2001:72).

It should also be noted that the presence of SLI traits among ancestral Kanien'kehá:ka assemblages seem to contradict the notion that SLI were living among ancestral Kanien'kehá:ka as captives. Warrick (2008:202) notes that in seventeenth-century Iroquois society, "[g]ood captives were expected to abandon old ways and were rewarded for such behavior [Delage 1993:225-228; Trigger 1976:826-831]." Warrick (2008:202) goes on to observe that seventeenth century Wendat and Haudenosaunee sites contain a "conspicuous absence of each other's wares" during documented hostilities between the two groups. Lynch (1985:87) adds to this in saying

that individuals incorporated into Haudenosaunee families through assimilative means were forced to "[c]arry out the obligations associated with his or her new identity." Thus, the simple fact that distinct SLI objects appear on ancestral Kanien'kehá:ka sites seem to reflect a more dynamic relationship between SLI and their hosts than can be accurately conveyed using simple captive-refugee dichotomies.

The Villages

The three ancestral Kanien'kehá:ka villages at the center of this study—Smith-Pagerie, Klock, and Garoga—are located along the Caroga Creek drainage of the Mohawk River basin in Fulton County, New York (Figure 9). Intensive excavations by Bob Funk and the New York State Museum in the 1960s found that each village comprised an area of roughly 2—5 acres located on easily defensible ground overlooking Caroga Creek. At each site, three sides are protected by a steep incline while the fourth is defended via a one or two-row palisade. Funk and Kuhn (2003:151) estimate that as many as 1,000 to 2,000 individuals may have lived within each community.

Along with settlement data, the material collections at Smith-Pagerie, Klock, and Garoga speak directly to domestic activities practiced by ancestral Kanien'kehá:ka in the fifteenth and sixteenth centuries (Funk and Kuhn 2003:155-158). Among these materials are a minority of objects considered to have associations with SLI traditions (Funk and Kuhn 2003:157; Kuhn et al. 1993). These SLI materials stand out clearly against a backdrop of otherwise 'typical' ancestral Kanien'kehá:ka assemblages making them useful for identifying trends in the nature of SLI incorporation at the community level.

A fairly recent set of findings related to the Smith-Pagerie, Klock, and Garoga sites involves their social and temporal relationships. Based on similarities in settlement patterning

and materials, archaeologists often assumed that these sites represent a single community sequence extending across CE 1500 and 1600. The order of this sequence is believed to have originated with Garoga followed later by Klock and Smith-Pagerie (Funk and Kuhn 2003:133). More recent radiocarbon dating however using Bayesian constructed models has challenged this prior sequence. Radiocarbon dates acquired from short-lived botanical samples and wiggle-matching techniques using contextual cultural information provide strong evidence that the traditional chronology for these sites is actually reversed, and that Smith-Pagerie in fact predates Klock and Garoga by several decades (Manning and Hart 2019; Manning et al. 2021). Date estimates for Smith-Pagerie from Manning and colleagues (Manning and Hart 2019; Manning et al. 2021) place its occupation squarely in the late-fifteenth century (*1478-1497*, 68.3% hpd) making it the earliest site in central New York with both SLI pottery as well as European copper (Manning et al. 2021:28). The authors show that Garoga, in contrast, returned a much later date estimate, placing it in the late-sixteenth century (*1560-1581*, 68.3% hpd). This makes Garoga potentially one of the last ancestral Kanien'kehá:ka communities to have welcomed SLI newcomers before the complete depopulation of the St. Lawrence Valley around 1580.

Along with chronology, recent studies have also challenged the notion that Smith-Pagerie, Klock, and Garoga represent a bounded community sequence. Social network analyses of ceramic pottery decoration by Hart (2021) indicate that Caroga sites had strong network ties that linked them to communities outside the Caroga Creek drainage, as opposed to each site being more closely linked to those within the same purported sequence. Hart's findings correspond with other studies in Iroquoian archaeology that speak to the dynamic nature of Iroquoian settlement strategies before and after European colonization and that highlight the frequency with which Iroquoian individuals and households moved and re-established

themselves between communities and regions (Birch and Hart 2021; Birch and Lesage 2020: Pfeiffer et al. 2020).

Methods

In this study, information on SLI objects from Smith-Pagerie, Klock, and Garoga were acquired using material and document collections from the New York State Museum in Albany, New York. Material traits considered to reflect an SLI tradition are those that are restricted largely to Iroquoian village contexts in the St. Lawrence Valley (See Table 9). These traits are visibly distinguishable from 'typical' Kanien'kehá:ka traditions that appear in Iroquoian contexts in the Mohawk valley. The nature of SLI material culture is discussed in detail by Chapdelaine (2004), Jamieson (1990b), Kuhn and colleagues (1993), Pendergast (1981, 1992), and Wright (2007). In general, SLI material culture includes pottery decorated with elements not found in fifteenth or sixteenth century Kanien'kehá:ka assemblages, such as annular punctates, corn-ear motifs, or low-collar horizontal incising (i.e., Durfee Underlining). It also includes distinct bone, stone, and ceramic elements that only begin to appear on Kanien'kehá:ka sites in association with other SLI materials, such as deer scapula pipes, decorative slate, steatite, and ceramic beads, and discoidal ceramic gaming discs. At the Smith-Pagerie site, there is also a small number of items manufactured from LeRay, or Black River, chert. LeRay chert is a source material most commonly found in the western St. Lawrence Valley and appears in small quantities on several SLI villages (Abel 2001).

Quantities of SLI materials for each site were standardized using two criteria – total features excavated per site and total area excavated per site (Table 10). This study also tested for sampling biases using a linear regression comparing quantity of features excavated per

Household and quantity of SLI pottery per Household. This regression indicates a relationship between these two variables (R=0.78) however this relationship is not deemed to have affected the overall interpretations of this analysis except where explicitly stated. Post-mold and feature density estimates were provided by Robert Kuhn (Kuhn personal communication, Kuhn 2021) based on site excavation floor plans (Table 12). These estimates were calculated using the density of exterior wall posts per linear meter and the density of interior House features per ten square meters for each longHouse. In certain cases, post-mold and feature density estimates differ significantly for a single Household, however in most cases, both units of measure relate enough to provide a general understanding of construction patterning at each site.

Results

Smith-Pagerie

Post-mold and feature density data from Smith-Pagerie indicate that Houses 1, 2, and 3 were regularly reconstructed during their occupation (Figure 12). Based on their central location in the village, these houses most likely represent some of the earliest structures established in the community. Among them, House 1 appears to have been extended at least once. Funk and Kuhn (2003:52) note in their report that, "It is clear that after the construction of an original structure [House 1], 173 feet long, an extension 57 feet long was added to the west end." A limited number of features within this western extension suggest that it was added later to House 1. It is this extension that gives House 1 its irregular form (Figure 13Figure *18*).

Along with its distinct construction history, House 1 also appears to be the only structure at Smith-Pagerie that contains any items associated with an SLI tradition. Pottery bearing SLI decorative motifs are found on both the western and eastern ends of the structure. Other SLI items, including two lithic tools made from LeRay chert, appear in House 1 within central

compartments. Two carinated shoulder sherds decorated with annular punctates were recovered from feature 54 in the western extension area along with a perforated shale bead and a pipe bowl featuring a human face effigy. These items strongly suggest that whoever occupied the western compartment of House 1 had considerable knowledge of SLI materials and extended this knowledge, or the materials themselves, to other House inhabitants.

Though pottery composes the majority of SLI objects at Smith-Pagerie, the appearance of other items indicate that these pots were not solely the remains of a few captives or refugees. Items made from LeRay chert reveal that lithic tools, or at least their raw sources, were exchanged between the St. Lawrence and Mohawk River valleys during the late-fifteenth century. These exchanges would have required the use of long-distance information pathways established prior to the occupation of House 1. One small copper bead of European origin was also found in House 1 in feature 23 near a LeRay chert projectile point (Manning and Hart 2019: Table 1). This bead represents one of the earliest European-manufactured materials on any Iroquoian site in the northeast and, along with the LeRay chert items, highlight potential connections by the inhabitants of House 1 to European trade networks or down-the-line acquisition through people in the eastern St. Lawrence Valley.

Overall, the limited number of SLI items at Smith-Pagerie indicate that there were likely never more than a few SLI ever permanently residing at the site (see Micon et al. 2021). Still, the context of these items within House 1, a structure that was extended at least once to accommodate newcomers, reveals that these SLI were incorporated into a family with valuable external networks. The distribution of SLI items across House 1 also suggests that resources and knowledge where freely shared between SLI newcomers and their hosts, underscoring the fact that SLI traits were openly accepted by at least some ancestral Kanien’kehá:ka residents and that

they would have been important reminders of the process through which opposing Household were metaphorically as well as literally brought together.

Klock

Early excavations at Klock focused primarily on structures within the central portion of the village and outer palisade. In contrast to Smith-Pagerie, structures at Klock are collectively aligned southeast-to-northwest indicating that the original village was laid out in advance of its initial construction (Figure 14). Intra-community dynamics within Klock are difficult to assess based on post-mold and feature density estimates alone, however House 1, centrally located in the village and among the longest of those excavated, appears to have been an important structure within the community. To the north of House 1, Houses 3 and 5 represent shorter structures that may have served as special purpose buildings rather than as residential Households (Funk and Kuhn 2003:16).

The general quantity and diversity of SLI materials increase notably between Smith-Pagerie and Klock (Tables 12 and 13), almost doubling as a proportion of the total assemblage. Most pottery is restricted to one structure—House 1—and composes about 2% of the total pottery assemblage. Worked slate from House 1 indicates that its inhabitants benefited from at least some connections to northern New York or had access to resources from the region. Unlike Smith-Pagerie; however, new SLI decorative motifs appear for the first time with existing motifs. These include two Roebuck Corn-ear vessels, a Durfee Underlined rim, and a small rim sherd with cross-hatching incisions. All three pottery motifs, along with the increased quantity of SLI objects, may reflect a gradual increase in the scale of SLI movement into the Mohawk Valley after A.D. 1500.

While most SLI pottery at Klock is associated with House 1, other SLI items are found randomly across the site. Ceramic gaming discs, clay/stone beads, and a bone harpoon were located to the north, east, and south of House 1. One clay bead discovered in the southeastern portion of the site exhibits fingernail imprints around its circumference, a style known as milling (Figure 11A). Milled beads are common on SLI sites and an identical specimen to this has been found on the Dawson site in Montréal (Pendergast 1981). A ceramic gaming disc and bone harpoon were also found together in feature 35 at the far eastern end of the site.

The information presented here shows that SLI movements into the Mohawk Valley after 1500 were more dynamic than previous decades, yet it is difficult to extrapolate more on the nature of these movements without additional evidence. Considering that pottery production was most likely organized by women related through a common matrilineage, the distribution of SLI pots in and around House 1 might reflect the incorporation of SLI women into a single-family lineage. Moreover, the random distribution of other SLI objects at Klock, such as beads, discs, and a bone harpoon, imply that at least some SLI individuals were interacting with, and potentially marrying into, adjacent Kanien'kehá:ka Households. These all reflect more engaging forms of movement than narratives of captivity or refuge might suggest. A more extensive definition of movement allows for multiple scenarios in which SLI persons at Klock were each engaging in their own incorporative strategies, or being differentially incorporated by residents, resulting in the various material patterns observed here.

Garoga

Garoga represents a late-sixteenth century site that appears to have been constructed in three or four separate phases (see Kuhn n.d.). The earliest of these phases witnessed the formation of Houses 1, 8, 9, and 11 near the center of the site. Houses 12 and 13 may have been

constructed during this period as well, before being deconstructed to make space for the village's southern palisade (Figure 15). Later, Houses 2, 3, and 7 were constructed perpendicular to the original structures, followed by Houses 4, 5, 6, and 10. Some archaeologists have speculated that aligned groups of longhouses on Iroquoian sites correspond with similar group or clan segments (Trigger 1985:92). Birch (2008:2020-206) suggests that these longhouse alignments may represent new lineages that joined fellow clan members from outside the community. If this were the case at Garoga, then SLI materials would be associated with some of the earliest lineages to settle at the site.

Despite having been constructed almost fifty years later, SLI influences at Garoga are notably similar to those at Klock. About one percent of all pottery at Garoga exhibits SLI decorative elements. Pottery vessels with feature provenience are known to have originated from House 9, one of the original structures at the site and one of several that were expanded to incorporate new arrivals (Kuhn 2020:226). One marine shell valve from feature 33 in House 9 (Snow 1995:161, Figure 4.28) also reveals that the occupants of this lineage possessed at least some access to outside networks. Thus, while SLI may have been strategically positioning themselves within House 9, it is possible that in return, SLI newcomers brought with them important connections to outside networks that were valued by ancestral Kanien'kehá:ka seeking to expand their own influences abroad.

Other SLI items at Garoga include worked bone tools and an SLI smoking pipe recovered from the activity area between Houses 1, 7, and 9. A private collection (Frey) donated to the New York State Museum contains SLI items from Garoga without provenience. Most notable from this collection are a decorated ceramic gaming disc, a perforated steatite bead, and a deer scapula smoking pipe. A full figure effigy is also associated with this collection that was

originally applied underneath a pottery castellation and may have SLI associations (Lenig 2013:85).

Overall, the quantity and diversity of SLI materials at Garoga are slightly less than either Klock or Smith-Pagerie. This suggests that the scale of SLI movements into the Mohawk Valley had diminished by the latter half of the sixteenth century. Much like other sites in this study, SLI pottery originates from a single Household—House 9—while non-pottery SLI items are dispersed randomly across the site. Assuming that pottery in Iroquoian societies was organized and produced by women within sub-clan segments (Allen 1992:142), it is strongly suggested that this pattern reflects a matrilineage where male members married into adjacent Kanien'kehá:ka households over time, introducing their bone and stone tool traditions as they integrated into different sub-community groupings (see Micon et al. 2021; Ramsden 2016a for similar Huron-Wendat case). The extension of this House, as well as Houses 1 and 7, testify to the processes of incorporation and social re-alignment that defined the entirety of occupation at Garoga.

Discussion: A Dynamic and Enduring Incorporation

Findings from this study show that the ways in which SLI incorporated themselves into ancestral Kanien'kehá:ka communities were dynamic and continually changing. While much evidence suggests that the scale of SLI movement was relatively small (i.e., a few nuclear families), terms such as "captive" and "refugee" do not accurately convey the strategic means by which these families adopted from and introduced new traditions into ancestral Kanien'kehá:ka lifeways. In this section, I return to the two questions posed at the beginning of this study: 1) How did SLI choose to engage with ancestral Kanien'kehá:ka lifeways between CE 1478 and

1581? And 2) How, if at all, did SLI newcomers continue to maintain linkages with the St. Lawrence Valley and other SLI communities?

Engaging New Connections

To understand how SLI engaged with ancestral Kanien'kehá:ka at the community level, it is important to first situate their engagements within a broader Iroquoian context. During the period of SLI dispersal in the late-fifteenth and early sixteenth centuries, many SLI were positioned within a changing geopolitical landscape. Increasing conflict in central New York and southwestern Ontario transformed the St. Lawrence Valley from a thriving cultural center into a perilous borderland between two emerging confederacies vying to expand their territorial influence (Birch et al. 2021; Englebrecht 1995; Hart et al. 2017). Studies in the American Southwest have shown that in such times of stress, people will often respond to increasing societal pressures through the strengthening of external networks (Brock et al. 2015; Hegmon et al. 2008). This pattern is most visible among the SLI through a sudden sharing of material elements with neighboring groups around CE 1450, almost a century before the St. Lawrence Valley was ever fully depopulated (Englebrecht 2004; Hart et al. 2017; Lenig 2013:82, 89).

The Smith-Pagerie site provides one of the earliest glimpses into how SLI engaged with one of these groups at the community level. Sometime after 1478 (Manning et al. 2021), SLI at Smith-Pagerie had established themselves adjacent to, but separate from, the residents of House 1. By all indications, occupants of House 1 appear to have been well positioned within their local communities where they openly participated in outside networks. This is indicated by the fact that House 1 is among the most reconstructed and central structures in the village, possessing many items that are found outside central New York (e.g., red slate, LeRay chert, European copper). All of these items could potentially have been acquired via connections with SLI

newcomers and would have added an additional incentive for House 1 residents to incorporate SLI newcomers as kin. Potentially due to the importance of these connections, House 1 was expanded to incorporate new arrivals halfway through its occupation. This shows that the relationship between the two Households had been negotiated and redefined, a practice that does not appear to have occurred with SLI at any other Household at Smith-Pagerie.

As more SLI began to follow their predecessors into the Mohawk River Valley after 1500, material patterns from Klock (1499-1519) and Garoga (1560-1581) indicate that SLI arrivals strategically positioned themselves within other households, and by extension, other lineages. At Klock, stone and clay beads associated with an SLI tradition are found distributed across the site. In the following century, European observers would note that these decorative beads were an integral medium through which Iroquoians defined and maintained interpersonal relationships between community members, particularly in instances of marriage (Wrong 1939:122). In a similar sense, these beads may have provided SLI with a useful medium through which to leverage themselves against various factions in the Klock community and in which they could visibly remind their hosts of their shared cultural connections.

Along with beads, pottery would have offered an additional medium through which SLI could have engaged with ancestral Kanien'kehá:ka. Almost no SLI pottery in this study is manufactured using exclusively SLI elements. Rather, the vast majority of SLI vessels on ancestral Kanien'kehá:ka sites represent traditional Kanien'kehá:ka attributes (i.e., alternating linear incisions, tall collars, deep basal notches) bearing SLI designs (i.e., annular punctates and tri-punctate effigies). Durfee Underlining appears in one case at Klock, however Kuhn and colleagues (1993:80) mention that Durfee Underlining was common on vessels in the Mohawk Valley prior to SLI dispersal and may represent a revival of earlier material connections between

the two groups. These ceramic patterns would have been most visible within the longhouses where they offered an important medium through which kin-based relationships could be negotiated and better defined. This may represent a similar situation to the Huron-Wendat Benson site investigated by Ramsden (2016a) where SLI and Wendat women actively signaled mixed designs within longhouses to help navigate potential differences that may have been perceived as highly political or contentious.

Persistent SLI Traditions

While SLI were actively using materials to incorporate themselves into ancestral Kanien'kehá:ka communities, this study also shows that materials were an important component by which SLI maintained connections with the St. Lawrence Valley, its occupants, and its associated cultural identities. This is most apparent via the distribution of SLI pottery across all three sites. In each village, SLI pots are restricted to a single household. While it is possible that this pattern results from sampling biases associated with the number of features excavated per household (R=0.78; see Table 12), the random distribution of other SLI materials across each site (i.e., beads, bone tools, gaming discs) appears to support the conclusion that SLI pottery was concentrated within a single lineage over time. This has significant implications if true, implying that SLI women remained together and continued to transmit SLI traditions to younger generations while SLI men married into adjacent households. Through this scenario, kinship would prove to have been an integral mechanism that structured the incorporation of SLI and the transmission of SLI material elements into Kanien'kehá:ka lifestyles.

Aside from pottery, SLI arrivals also maintained important connections with the St. Lawrence Valley through the continued use of traditional lithic sources and decorative materials. At least two objects at Smith-Pagerie—a projectile point and a knife—are made from LeRay, or

Black River, chert, a source material commonly found in the western St. Lawrence Valley (Abel 2001:66). Some archaeologists have suggested that ancestral Kanien'kehá:ka acquired these LeRay items in raids against SLI communities (Kuhn et al. 1993:84), however given that these tools were both found in House 1 in association with other SLI elements, it is most likely that this source material was continuing to be used by individuals who had pre-existing access to LeRay chert sources and who knew of its technological properties.

Connections to the St. Lawrence Valley were also manifested by SLI through publicly shared items. At Smith-Pagerie, a pipe bearing a detailed human face effigy was found alongside an SLI vessel in Feature 54 of House 1. Human face effigy pipes are common on many earlier SLI sites (Abel 2017) but only begin to appear in the Mohawk Valley after this period. In House 9 at Garoga, a pipe bearing annular punctate motifs, an incised stem, and a distinct "tri-punctate" face effigy was found broken across features 22 and 23 in House 9, again in association with SLI pottery (Figure 10). Many archaeologists have attempted to weigh in on the significance of smoking pipes in Iroquoian culture and the meanings associated with their distribution (Braun 2012; Creese 2016b; Wonderley 2005, 2019). Most agree that smoking represented both a leisurely activity as well as a ritual activity shared by members of the same community. Portraying elements of SLI identity in this context, either by SLI individuals themselves or by ancestral Kanien'kehá:ka, would have been a public attempt to express SLI cultural elements openly (Jordan 2018; Ramsden 2016).

Alongside smoking pipes, decorative SLI beads, while useful for building relationships with ancestral Kanien'kehá:ka, would have also served to publicly re-enforce SLI traditions among ancestral Kanien'kehá:ka. The random distribution of SLI beads across several households at Klock attests to the extent in which these symbols were adopted throughout the

community or potentially given as gifts. When considered with the persistent use of SLI elements on smoking pipes, it is evident that SLI traits were not suppressed or downplayed in a way that would correlate with instances of involuntary adoption. Rather, these items reflect a blending of previous cultural elements from both groups. Selecting which specific elements to maintain and which to forget would have been an ongoing negotiation between SLI and ancestral Kanien'kehá:ka that involved re-enforcing valued SLI network connections through physical material reminders while at the same time emphasizing shared attachments to collective memories and landscapes via the St. Lawrence Valley (Schneider 2015:697).

Conclusion

Findings from this study show that archaeological frameworks explaining SLI dispersal, and Iroquoian movements more generally, need major rethinking. While phenomena such as captive-taking and refuge certainly existed among Iroquoian societies, reducing every engagement to these categories ignores the dynamic and historically contingent experiences of those who moved between communities and how their movements relate to broader societal changes. More importantly, these labels promote a rigid understanding of collapse and cultural boundedness that prevent Indigenous people from responding to new social or environmental situations while still maintaining traditional connections to historic landscapes and ethnic groups.

In the case of SLI dispersal, framing Iroquoian transplants within a captive/refugee dichotomy has resulted in the implicit assumption that these people lacked personal agency and failed to impact the norms of their adopted communities. This thinking has important implications in regard to aspects of land tenure and cultural patrimony among contemporary First and Tribal Nations today and prevents archaeologists from asking more insightful questions

regarding movement and its effect on history. Using three ancestral Kanien’kehá:ka examples, this study has shown that dispersal and movement were active decisions made by SLI individuals in order to maintain longstanding connections with the St. Lawrence Valley. In doing this, SLI newcomers and their ancestral Kanien’kehá:ka hosts strategically negotiated a mutually beneficial identity using materials that symbolized the process of becoming. This version of SLI dispersal is more in-line with recent understandings of Indigenous movements in archaeology and is an important first-step in correcting past narratives that rely on scenarios of conquest and assimilation.

Outside of SLI research, this study has also demonstrated the usefulness of considering how people in the past moved “on the ground” and outside of conventional definitions. A hyper fixation by Iroquoian archaeologists on large-scale migration has resulted in a scarcity of studies discussing the conditions that shape people’s experiences with movement at smaller scales, such as individual households. Future studies of SLI dispersal should continue to emphasize processes of incorporation within basic community settings in order to highlight differences in how SLI engaged with host communities in separate contexts and to illustrate the lived experiences of SLI individuals during periods before and after dispersal. Doing this will help scholars move away from rigid explanatory categories and toward frameworks that emphasize the complex and often contradictory realities which define Indigenous legacies in North America.

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TABLES

Material Category	SLI Trait	References
Ceramic Pottery Types		
	Durfee Underlined	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:392*
	Roebuck Low-Collared	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:393*
	Roebuck Corn-ear	*Chapdelaine 2004; Kuhn et al. 1993; Jamieson 1990:394*
Ceramic (Pipes)		
	Human-face effigy	*Pendergast 1992; Wonderley 2005*
	Horizontal bar motif	*Pendergast 1992*
	Incised stem	*Bradley 2005:63*
Ceramic (Misc.)		
	Ornamental bead (milled)	*Pendergast 1981; Jamieson 1990:392*
	Gaming disc	*Jamieson 1990:392*
Bone		
	Deer scapula pipe	*Jamieson 2016: 353*
	Incised awls	*Jamieson 1990:396*
	Fishhooks	*Jamieson 2016:346-7; Wright 2007:1249*
	Harpoon	*Jamieson 2016:346-7; Wright 2007:1249*
	Conical projectile point	*Gates-St. Pierre 2010; Jamieson 2016:335*
	Posterior ground deer phalanges	*Jamieson 2016: 355*
Stone		
	Perforated bead (steatite or red slate)	*Pendergast 1981*
	Red slate gaming disc	*Bradley 2005:221*
	Red slate	*Jamieson 1990:393*

Table 10. List of SLI traits and associated references.

Site	Estimated Date (68.3% hpd)	% SLI Pottery	No. of SLI Objects	No. of Excavated Features	SLI Objects Per Feature	Area excavated (sq. m.)	No. of SLI objects per 100 square meters
Smith-Pagerie	1478-1497	2.1	11	81	0.136	2,099.60	0.524
Klock	1499-1519	1.9	15	79	0.190	1,950.96	0.769
Garoga	1560-1581	0.8	15	89	0.168	6,070.28	0.247

Table 11. Quantity of SLI material at each site per number of excavated features and area excavated.

House	Site	Excavated Features	No. of SLI items
1	Smith-Pagerie	39	11
3	Smith-Pagerie	16	0
2	Smith-Pagerie	6	0
4	Smith-Pagerie	5	0
5	Smith-Pagerie	3	0
8	Smith-Pagerie	2	0
1	Klock	24	8
2	Klock	2	0
3	Klock	2	1
4	Klock	5	1
5	Klock	1	0
6	Klock	3	0
7	Klock	9	1
8	Klock	2	0
1	Garoga	11	2
2	Garoga	1	0
3	Garoga	2	0
5	Garoga	1	0
7	Garoga	2	2
8	Garoga	4	0
9	Garoga	22	6
11	Garoga	1	0
12	Garoga	1	0
13	Garoga	1	0

Table 12. Features excavated per structure compared to quantity of SLI pottery per structure.

House	Site	Post-molds Per Meter	Features per 10 Square Meters
1 (Total)	Smith-Pagerie	2.7	1.1
1 (East End)	Smith-Pagerie	3.5	1.3
2	Smith-Pagerie	2.7	1.5
3	Smith-Pagerie	4.4	1.7
4	Smith-Pagerie	2.1	1.6
5	Smith-Pagerie	2.5	1
8	Smith-Pagerie	2.9	0.3
9	Smith-Pagerie	4.2	0.4
12	Smith-Pagerie	4.2	0.4
1	Klock	2.9	1.6
3	Klock	1.9	2.9
4	Klock	3.8	0.8
5	Klock	1.5	0.6
6	Klock	2.6	1.1
7	Klock	1.8	2.2
8	Klock	3.2	0.7
1	Garoga	5.3	2.9
2	Garoga	4.1	1.7
3	Garoga	3.5	2.3
4	Garoga	3.7	1.1
5	Garoga	3	2.2
6	Garoga	3.6	1
7	Garoga	4.5	1.3
8	Garoga	7.6	3.6
9	Garoga	6.3	3.5
10	Garoga	X	1.4
11	Garoga	4.2	2.1
12	Garoga	3.1	1.2
13	Garoga	5.1	2.4

Table 13. Post-mold and Feature Density for Houses at each site. (Courtesy of Robert Kuhn).

Material	Object Description	Feature	Unit	Associated House
Smith-Pagerie (n=11)				
Ceramic	Rim sherd with annular punctates	10	E20S40	1
Ceramic	Thin neck sherd with annular punctates	n/a	W150S90	1
Ceramic	Carinated shoulder sherd with rows of annular punctates	54	W160S100	1
Ceramic	Roebuck Low Rim Sherd (1/2)	35	W50S70	1
Ceramic	Roebuck Low Rim Sherd (2/2)	20	n/a	1?
Ceramic	Collar sherd with human face effigy	11	E20S50	1
Ceramic	Smoking pipe bowl with human face effigy	54	W160S100	1
Lithic	LeRay chert knife	47	W110S80	1
Lithic	LeRay chert projectile point	24	W20S70	1
Lithic	Perforated shale bead	54	W160S100	1
Copper	European copper bead	23	W20S70	1
Klock (n=15)				
Ceramic	Collar sherd with tri-punctate face effigy	31	n/a	1?
Ceramic	4 Decorated rim sherds with annular punctates (Same vessel)	60	W80S10	1
Ceramic	2 Roebuck cornear sherds (Same vessel)	94	W160S20	1
Ceramic	Possible cornear sherd	6	E80N0	East of 1
Ceramic	Durfee underlined rim sherd	55	W80S10	1
Ceramic	Scalloped lip rim sherd	24	E90N0	East of 1
Ceramic	Carinated shoulder sherd	106	W160S40	7
Ceramic	Rim sherd with cross-hatching incisions	n/a	n/a	n/a
Ceramic	Milled and perforated clay bead	74	Test Trench	Eastern end of site
Ceramic	Pottery gaming disc 1	35	E170N10	Eastern end of site
Ceramic	Pottery gaming disc 2	139	W130N50	3
Lithic	Polished slate object 1	121	W170S20	1
Lithic	Polished slate object 2	5	E10S10	1
Lithic	Steatite bead polished and perforated twice	33	E30N10	East of 4
Worked Bone	Antler harpoon	35	E170N10	Eastern end of site
Garoga (n=15)				
Ceramic	Rim sherd with annular punctates	n/a	n/a	n/a
Ceramic	Rim sherd with oblique punctates	8	W30N40	9
Ceramic	4 rim sherds with annular punctates (Same vessel)	11	W30N30	9
Ceramic	Rim sherd with annular punctates	42	W70N30	9
Ceramic	Pottery gaming disc with vertical incisions	n/a	n/a	n/a
Ceramic	Pipe stem with trip-punctate face-effigy (1/2)	22?	W80N10	9
Ceramic	Pipe bowl with annular punctates (2/2)	22	W80N10	9
Ceramic	Pipe stem with ringed incision	23	W80N10	9
Lithic	Perforated stone disc/bead	n/a	n/a	n/a
Lithic	Perforated steatite bead	n/a	n/a	n/a
Lithic	Piece of worked slate	187	E20N10	7
Worked Bone	Deer scapula smoking pipe	n/a	n/a	n/a
Worked Bone	Bone awl with chevron incision	?	E10S10	1
Worked Bone	Bone projectile point with concave base	185	E20N10	7
Worked Bone	Bone harpoon	115	W50S10	1

Table 14. Complete list of SLI associated items at each site and provenience.

FIGURES

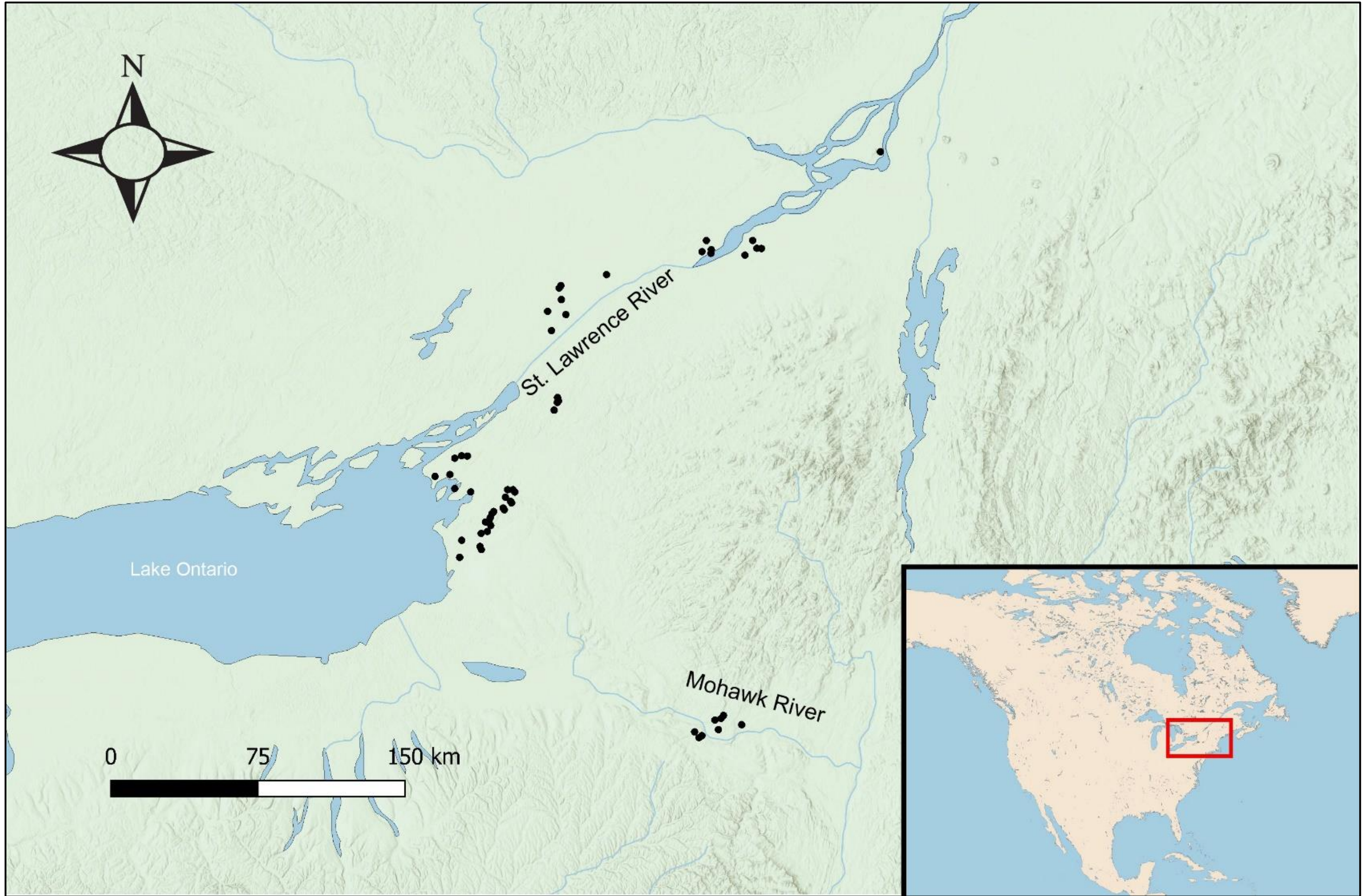

Figure 13. Locations of Fifteenth and Sixteenth Century Iroquoian village sites in St. Lawrence and Mohawk River Valleys.

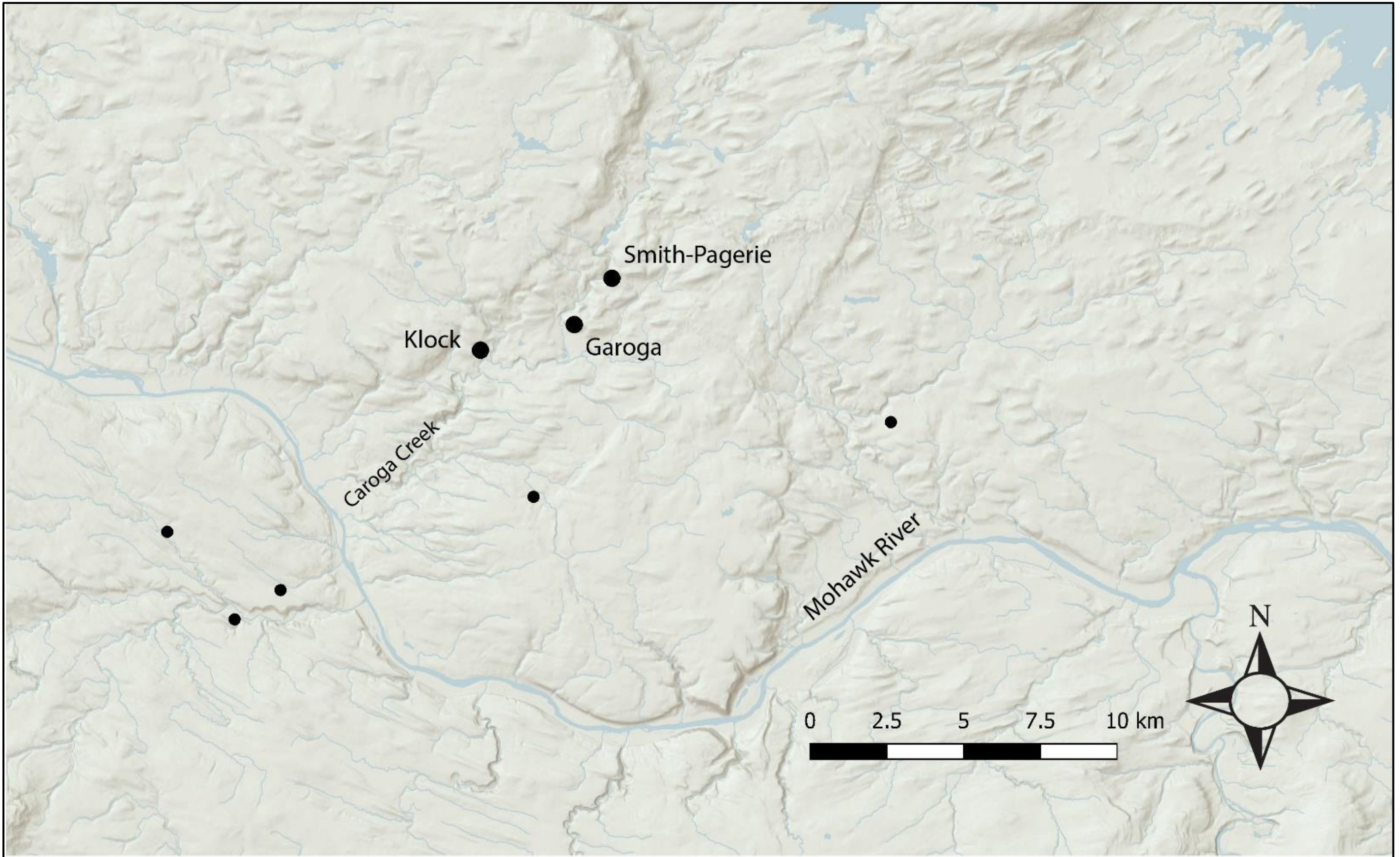

Figure 14. Locations of Smith-Pagerie, Klock, Garoga and other fifteenth/sixteenth century ancestral Kanien'kehá:ka village sites.

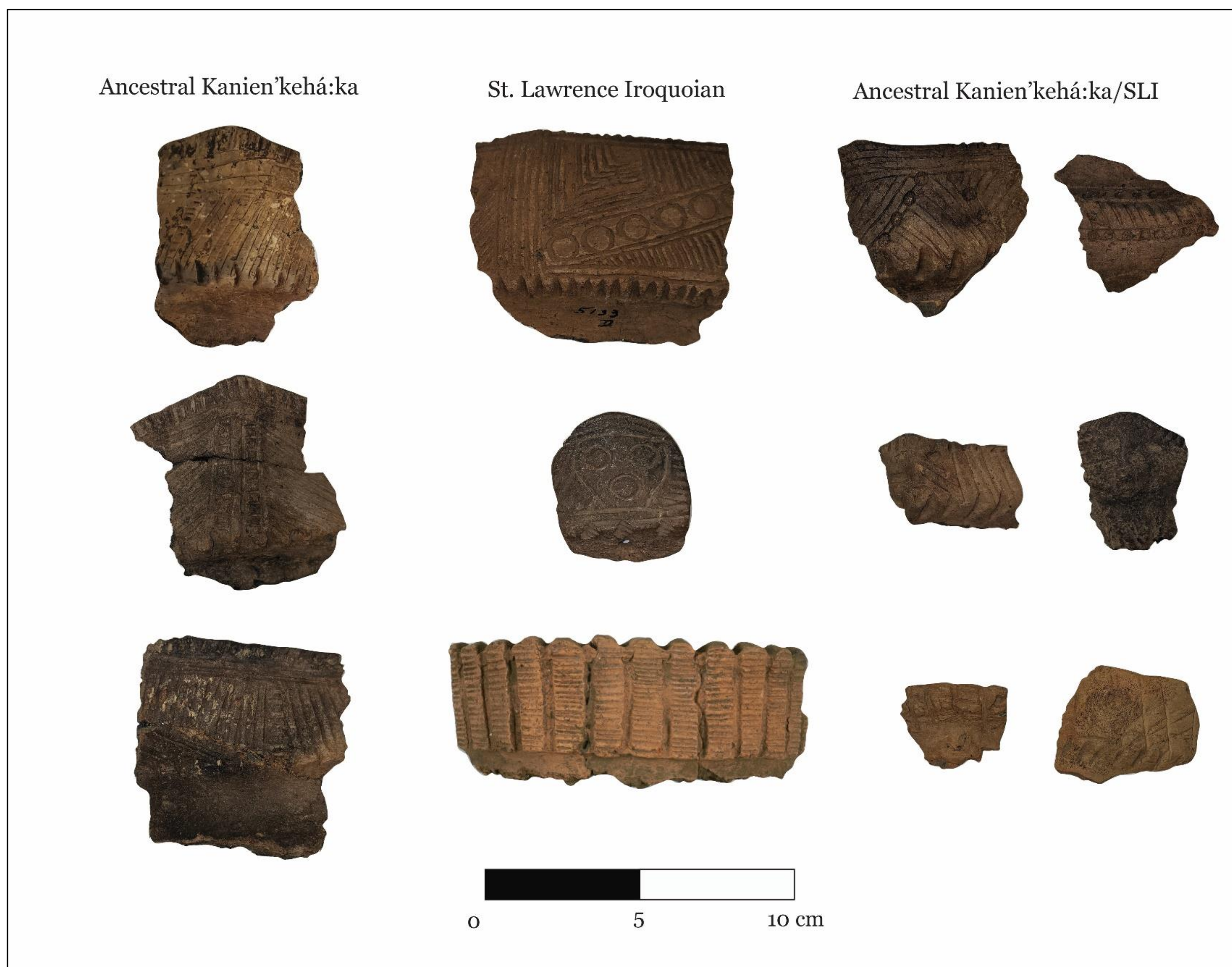

Figure 15. Examples of Ancestral Kanien'kehá:ka, St. Lawrence Iroquoian, and blended pottery elements. (Top) Annular Punctate Rows, (Middle) 'Tri-punctate' face effigy, (Bottom) Roebuck Cornear motif. (Courtesy of New York State Museum and Canadian Museum of History.

Figure 16. St. Lawrence Iroquoian traditions on Caroga Creek sites. A) Perforated Clay/Steatite beads and decorated clay gaming disc, B) Projectile point and knife made from LeRay Chert, C) Smoking pipe with annular punctates, tri-punctate face motif, and incised stem; Smoking pipe manufactured from deer scapula (Courtesy of New York State Museum).

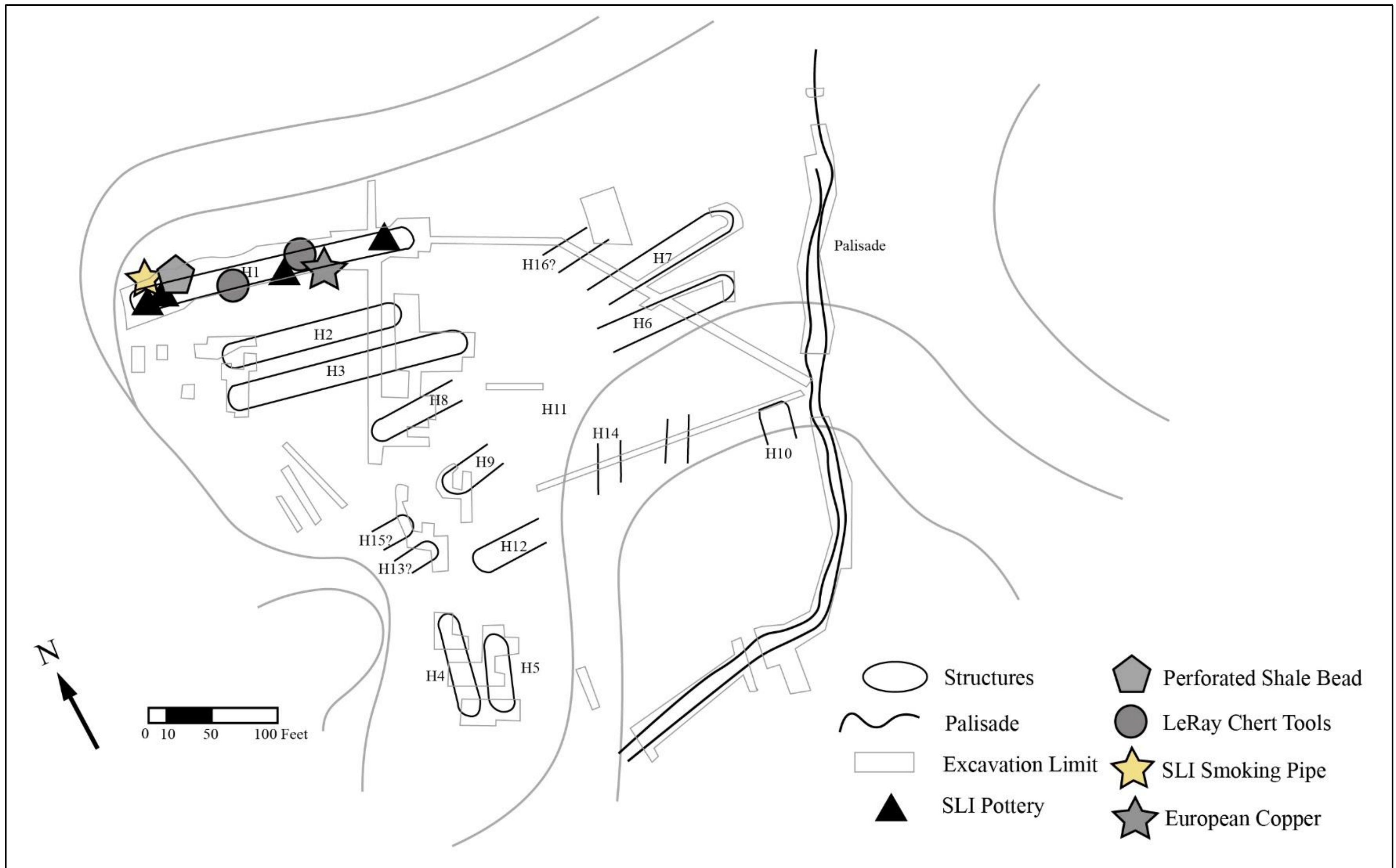

Figure 17. Plan of Smith-Pagerie site with SLI material distribution (Adapted from Funk and Kuhn 2003: Figure 26).

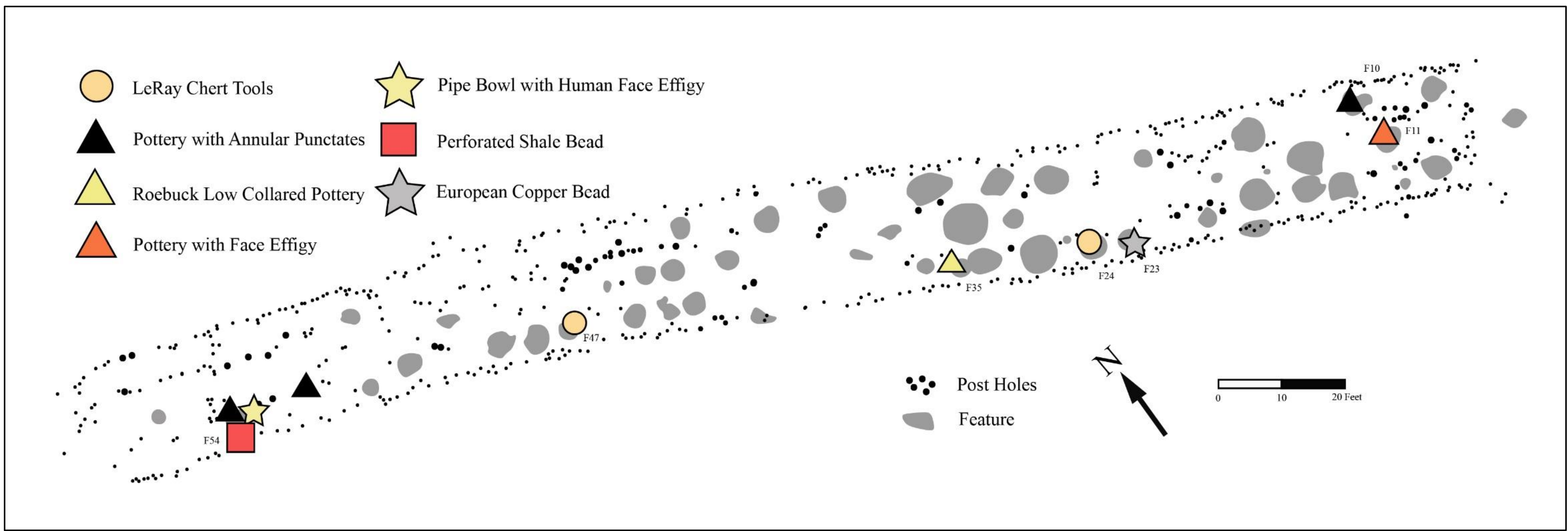

Figure 18. Plan of House 1 at Smith-Pagerie. Notice the northwestern structure containing Feature 54. (Adapted from Funk and Kuhn 2003: Figures 28 & 29).

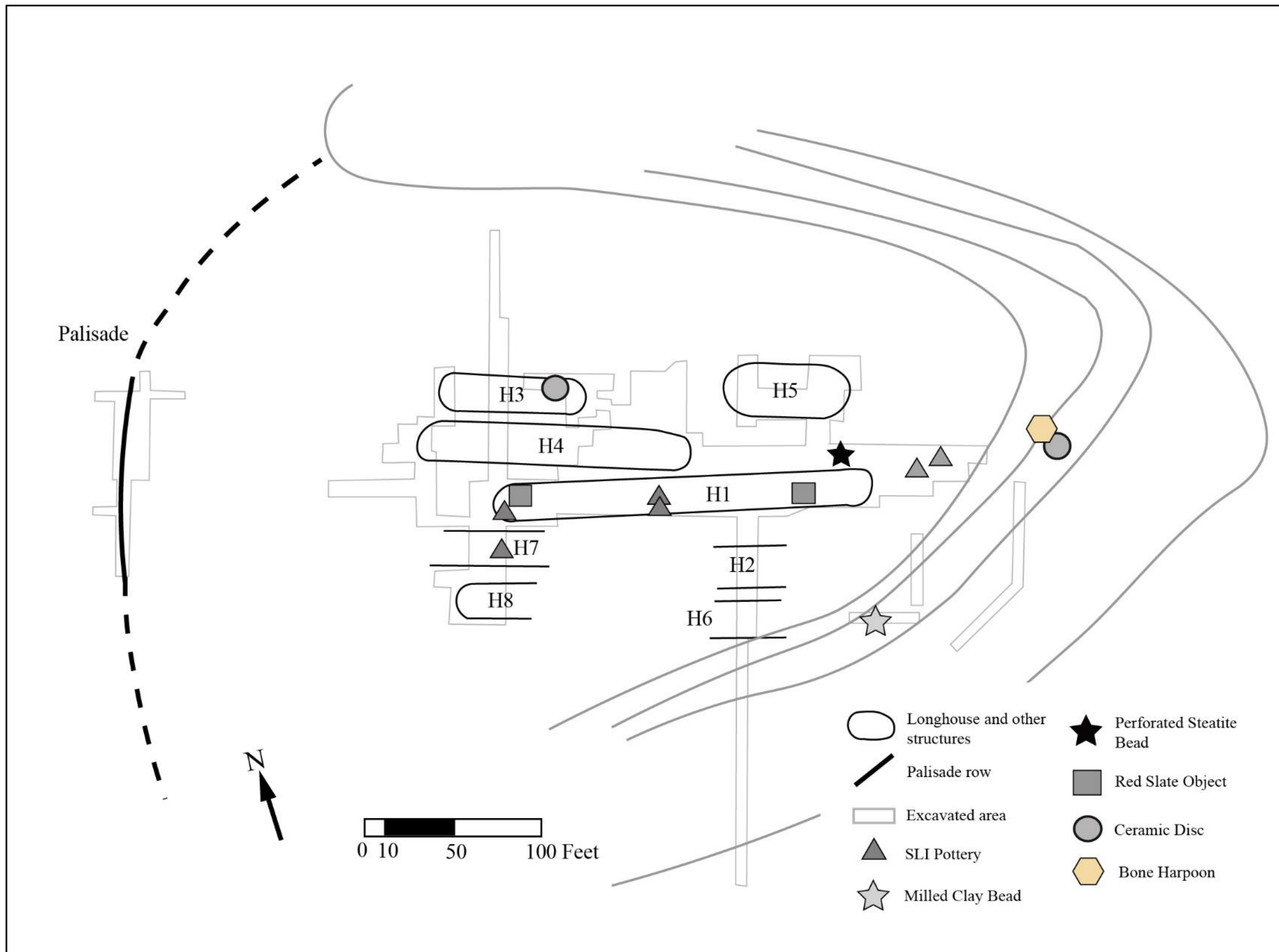

Figure 19. Plan of Klock with SLI material distribution (Adapted from Funk and Kuhn 2003: Figure 5).

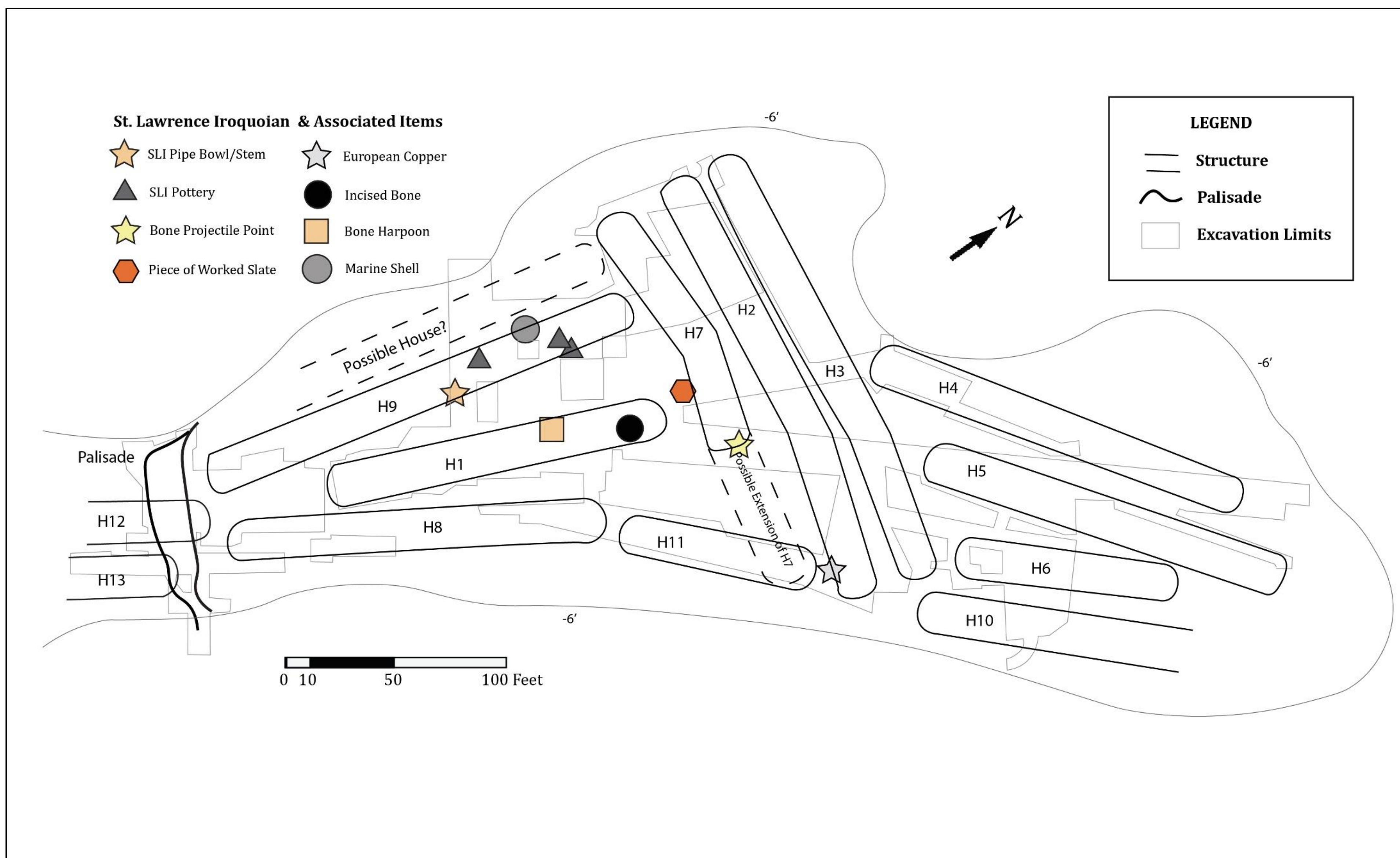

Figure 20. Plan of Garoga with SLI material distribution. (Adapted from Funk and Kuhn 2003: Figure 43).

CHAPTER 5

CONCLUSION

Introduction

This dissertation research investigated the question: **How can archaeologists reframe depopulation as a dynamic and intentional strategy rather than a passive response to external pressures?** To do this, I argued that archaeologists need to develop a detailed understanding of the dimensions that structure population movement at different levels. Specifically, it focused on three of these dimensions that were deemed most important—timing, scale, and connectivity (Ortman and Cameron 2011). It explored these dimensions of St. Lawrence Iroquoian movement within and across seven distinct community sequences in southern Ontario and central New York between CE 1450 and 1580 to understand how these dimensions developed before, during, and after depopulation and tested them against expectations based on the assumption that SLI dispersal was driven primarily by material concerns.

My first research goal was to determine when evidence of SLI movement initially appeared within each of these seven community sequences. Next, I investigated how the scale and pace of these movements developed in each sequence and how these trends reflect changes in the opportunities and pressures faced by SLI. Finally, my third goal was to explore the local mechanisms for SLI incorporation and the ways in which SLI and their hosts navigated new collective identities using material mediums. To achieve these goals, I assembled published Bayesian models of radiocarbon dates and created a database of SLI material traits from forty-

four Iroquoian village sites across southern Ontario and central New York. Twelve of these represent new radiocarbon dates from three Iroquoian village sites in southeastern Ontario that were incorporated to highlight population movements occurring within the St. Lawrence Valley.

Results from this study found that while all SLI individuals had relocated away from the St. Lawrence River Valley by CE 1580, the ways in which they left were dynamic and shaped in many ways by their personal relationships to their destination communities as well as larger, external pressures. While there are general patterns in the timing/duration, scale/organization/pace, and connectivity of population movement across all seven sequences, local variations in these patterns reflect people's personal responses to larger, more shared pressures. In certain sequences, evidence for SLI movement appears as early as the mid-to-late fifteenth century, while in others, movement is only visible after CE 1500. Among other findings, the intensity of movement reached its peak in all sequences during the early sixteenth century, yet intensity of these movements in each sequence varied. SLI seem to have mainly relocated as individuals or Household-scale groups though certain cases may reflect the arrival of larger sub-community groups such as clan segments or multiple Households. Once incorporated, SLI individuals positioned themselves within ancestral Huron-Wendat and Haudenosaunee Households through material mediums. Together, these diverse patterns underscore the dynamic yet persistent relationships that existed between SLI and their neighbors and the importance of these relationships in structuring the mechanisms and outcomes of dispersal.

Summary of Findings

Q1-Timing/Duration: When do materials associated with SLI movement first emerge in each sequence?

Chapter two in this dissertation investigated the timing and nature of early SLI movements into seven distinct Iroquoian sequences. In all sequences, SLI movement begins prior

to the onset of depopulation in 1520 and well before the final depopulation of the St. Lawrence Valley in 1580. This result challenges the notion that SLI depopulation occurred as a sudden, unforeseen response to external pressures and indicates, rather, that SLI were actively engaging in new relationships with ancestral Wendat and Haudenosaunee communities as early as the late-fifteenth century. I argue that these early connections helped to inform and later structure the movements of SLI from the St. Lawrence Valley after 1500.

This study also found that among the earliest SLI objects found in each sequence are those that are associated with exchange/diplomacy (e.g., beads and pipes) or hunting/fishing activities (e.g., bone harpoons, projectile points). Considering that these would have been within the realm of male activities among Iroquoian societies, this study argues that such materials likely reflect early engagements between SLI men and neighboring ancestral Wendat and Haudenosaunee communities. Anthony (1990:905) notes that in cases of population movement, early pioneers who are disproportionately young and male enter new communities seeking new opportunities. These men then relay information about their new destinations back to friends and family at home who may later follow and relocate. Given the close relationship between social, economic, and diplomatic spheres in Iroquoian societies and the nature of exogamous and matrilocal marriage practices, I argue these material engagements reflect more than simply acts of trade or diplomacy, but rather, reflect the early construction and continued maintenance of important long-distance kin-based relationships.

Q2-Scale/Pace: How does the quantity and diversity of materials associated with SLI movement progress in each sequence?

Chapter three in this dissertation used radiocarbon chronologies and materials associated with SLI movement to examine the scale, organization, and pace of SLI dispersal into six

community sequences. Across all sequences, there is a consistent shift in scale, organization, and pace between 1500 and 1520. This suggests a major shift in the motivations for dispersal and a large-scale movement of SLI at this time. Tsuda (2015) notes that as more individuals begin to leave a region, local institutions can begin to break down creating a culture of movement that becomes self-perpetuating. In this way, the benefits of leaving may have begun to outweigh those for staying among most SLI by 1520.

Variations in the scale, organization, and pace of SLI movement in each sequence reflect more the nature of interpersonal relationships between SLI and hosts at the local level. Sequences with evidence for large scale movements, such as Trent and Ononda'gega', appear to have composed larger family lineages and/or clan segments. This organization may have contributed to a period of initial separation as local kin-based mechanisms were re-innovated to account for the numbers of those incorporated. In other sequences where fewer SLI appear to have relocated, SLI newcomers seem to have been organized into smaller, nuclear family groups which allowed for the direct incorporation of SLI into existing Household lineages. I argue that kinship was a critical factor in structuring these movements and defining the nature of incorporation in each sequence.

Q3-Connectivity: How are SLI-Host relationships conveyed through intra-community distributions of SLI material?

For Chapter four, I investigated the spatial distribution of SLI materials associated with movement at the intra-community level to better understand how SLI and their hosts negotiated incorporation through material mediums. The results from this analysis seem to disprove the notion that SLI were incorporated as captives or refugees, as has been suggested (Kuhn 2004; Wonderley 2019) and reflects, rather, a more complex social engagement facilitated in part by

kin-based systems of affiliation. Across all three Kanien’kehá꞉ka village sites included in this study; pottery decorated using SLI traditional elements appear in a single centrally located Household. At the Smith-Pagerie site, a separate structure associated with this pottery type was later joined with a local Kanien’kehá꞉ka Household. Considering that incorporation into a longHouse was an intricate process reliant upon the negotiation of kin-based identities (Creese 2016), it would be wrong to simply label these newcomers as captives or refugees. At the later Klock and Garoga sites, we continue to see SLI pottery restricted to a single Household while other material types are distributed randomly across the site. Based on well-known understandings of Iroquoian matrilocal practices, I interpret these patterns as men knowledgeable in SLI material traditions marrying into adjacent Kanien’kehá꞉ka Households. In this sense, kinship appears to have been a driving factor in the movement and integration of SLI into Kanien’kehá꞉ka Households who may have been valued for their attachments to networks further east (Ramsden 2009).

How Can Archaeologists Reframe Depopulation as a Dynamic and Intentional Strategy Rather than a Passive Response to External Pressures?

The focus of this research centered around constructing a new narrative for the depopulation of the St. Lawrence Valley that included Iroquoian people as agents engaged in active and strategic decisions about relocation. Using the three dimensions of timing/duration, scale/pace, and connectivity outlined by Ortman and Cameron (2011), it shows that externally focused explanations for regional depopulation are not enough to explain why and most importantly, how, SLI relocated into neighboring social groups. In each of the Chapters, this study demonstrates that patterns in SLI population movement defy simple Malthusian causes,

particularly explanations involving conflict, and that social relationships were just as important, if not more important, in explaining people's reasons for leaving 'on the ground'.

In Chapter 2, this study showed that at least some SLI began to relocate away from the St. Lawrence Valley prior to evidence for conflict and that these timelines differed between sequences. In addition, we see some of the earliest SLI movements occur into regions where there is ongoing evidence for conflict even before it appears in the St. Lawrence Valley around 1500. In Chapter 3, although there is a large spike in SLI movement around 1520, concurrent with an increase in conflict in the valley, differences in the scale and nature of SLI materials associated with movement across sequences suggests that these movements were not sporadic, but followed clear, previously established pathways. Lastly, in Chapter 4, local spatial distributions of SLI materials reflected a process of active negotiation between SLI newcomers and their hosts that was facilitated by institutions of kinship as well as the connections and skills provided by SLI. This contradicts what might be expected in instances of strictly captivity or refuge.

By acknowledging the importance of social relationships in structuring SLI dispersal, archaeologists can begin to construct narratives of depopulation that are framed as dynamic long-term strategies occurring in response to changing social or environmental circumstances rather than as sudden and catastrophic collapses. In this way, people's actions are seen as integral to shaping broader scale processes rather than the other way around. Today, many contemporary Iroquoian societies share a collective attachment to the St. Lawrence Valley as a result of the relationships established by their ancestors across space and time (Kawennotakie Benedict 2004; Lesage and Williamson 2020) Still, the differing elements of these histories reflect the distinct sets of relationships that formed and developed with the original occupants of the St. Lawrence

Valley over time. While it is important to acknowledge the larger pressures that past Indigenous groups were ultimately forced to deal with, such as conflict, we can never ignore the ways in which these groups actively responded to these challenges and the effect of their responses in shaping and preserving long-term cultural traditions.

Contributions to Iroquoian Archaeology

The present research builds on conventional narratives of SLI population movement by reframing these narratives within a relational and agent-based framework. Previous approaches to SLI dispersal have typically favored material explanations that underscore external pressures related to economics (Innis 1939, Pendergast 1993), environment (Martijn 1969), or demographics (Fenton 1940:175; Lesage and Williamson 2020:41-42) at the expense of more historically driven factors. As information from this study shows, external factors were certainly important for at least initiating regional populations and there are clear patterns in SLI movements at the macro level that align with patterns of evidence for endemic conflict (See Chapters 2 and 3), however, when high-resolution timelines are paired with SLI material data at more fine-grain levels, it becomes apparent that circumstances 'on the ground' were just as important, if not more so, in structuring these movements. Viewing SLI depopulation in this manner helps archaeologists to move beyond simple cause-and-effect models that tell only part of the story and can better articulate the various, sometimes conflicting, Indigenous histories that today connect multiple descendant communities with the St. Lawrence River Valley (Beauchamp 1892:5; Gates-St. Pierre et al. 2021; Richard 2016; Warrick and Lesage 2016). Indeed, this dissertation shows that movement was as integral to the creation and transformation of Iroquoian identities in the past as it was for Euro-Canadian or Euro-American identities. While this dissertation acknowledges the importance of considering broader processes in histories of

Iroquoian cultural change, it also challenges archaeologists to take human relationships in these histories as seriously as Iroquoian people themselves (See Birch and Lesage 2020; Kawennotakie Benedict 2004).

Contributions to Archaeology

This dissertation research contributes most readily to the field of anthropological archaeology in the following two ways: 1) It highlights a specific instance of regional depopulation involving middle-range horticultural societies within the context of processes such as conflict, European colonialism, and confederacy-formation, and 2) it provides a relational framework capable of building on earlier migrationist models using legacy collections and published material data.

Over the past thirty years, there have emerged a wave of new archaeological studies investigating the causes and outcomes of regional population movement (Cabana and Clark 2011; Burmeister 2016; Hackenbeck 2008; Pluckhahn et al. 2020). These studies have focused primarily, but not exclusively, on cases from the pre-contact American southwest and Neolithic Europe which, like St. Lawrence depopulation, involved middle-ranged horticulturalists that were engaged in regional conflict. Few, if any, of these studies, however, examine movements within the context of regional polity formation or early colonialism. In the case of SLI dispersal, understandings about the causes and outcomes of movement cannot be separated from the formation of the Wendat and Haudenosaunee confederacies, or the early spread of European trade and disease into the continental interior (Englebrecht 1995). These various processes make for a distinct case study that can provide important information about the ways in which socio-political re-alignments cause, and are in turn shaped by, local level movements of people.

Another major contribution of this research is that it provides a relational framework in which to consider previous migrationist models in archaeology using legacy collections and

published material datasets. Issues of population movement have re-emerged across archaeology in the past thirty years as new methodologies and conceptual framings re-assert its importance in shaping long-term social histories (Anthony 1990; Burmeister 2016; Cabana and Clark 2015). Many of these studies have come to realize that social networks and people's immediate relationships to one another are what ultimately structure and define the causes and outcomes of population movement (Pluckhahn et al. 2020; Ritchison 2018; Skousen 2016). At the same time, a significant number of studies also continue to stress earlier migrationist perspectives that employ categorized analyses of large-scale phenomena within strict material-based chronologies. This study offers an important framework that can be used to repurpose material data from earlier migrationist studies and reframe it within a more dynamic and persistent Indigenous history. It also promotes a more thorough understanding of the basic mechanisms that structure population movements and in turn, the exchange of materials, people, and ideas.

Study Limitations and Future Directions

There are three main limitations to the present study that may be addressed in future work. First is that the conceptual application of theories related to technological style were not given as much consideration here as they required. Second is that much of this work highlights outward population movements into receiving societies but, with the exception of the Grenville cluster, ignores dynamics within the St. Lawrence Valley. Third is that this research explicitly highlights SLI movement into seven Iroquoian community sequences but can be extended in the future to include other instances of SLI movement into Indigenous communities with published material data.

A major portion of this research relied on material justifications for population movement in the archaeological record. While this study effectively used concepts proposed by Cameron

and Ortman (2011), Clark (2001), and others (e.g., Carr 1995; Hegmon 1998) to suggest how material patterns, when combined with social and archaeological contextual information, can provide important insights into the timing, scale, and connectivity of population movements, it also failed to expand on these concepts in more depth. This became an issue particularly in chapter 4 when dealing with smaller sample sizes to infer on intra-settlement social dynamics. Future studies involving these datasets will work to strengthen and expand on contemporary concepts relating population movements with their material signatures.

An important limitation of this study was that it necessarily focused on the dimensions of SLI movement into receiving communities while overlooking contemporary developments within the St. Lawrence Valley, particularly before and during depopulation. Future studies should focus on building understandings of the dynamics within the St. Lawrence Valley and through this information, help to contribute to a more holistic view of the social factors and relationships that incentivized movement "at home". I want to explicitly focus my attention on intra-community dynamics within the Grenville cluster to get at the complex social dimensions involved in leaving and better understand why this community sequence selected to remain in the western valley until at least 1560.

A second shortcoming of this research is its exclusive dealing with Iroquoian instances of SLI movement. A number of studies over the past few decades have highlighted growing evidence for SLI incorporation into communities belonging to an Eastern Algonquian linguistic and cultural family (Fox and Pilon 2016; Petersen 2004; Plourde 2016). These latter sites have not been investigated to the extent of many Iroquoian cases and would not have been appropriate to consider within Iroquoian ethnohistoric and cultural contexts. With this being said, there are many opportunities for future research to expand on the findings presented here and investigate

more fully the experiences of SLI moving into sixteenth century Abenaki and Anishinaabeg communities. This is particularly true in the eastern portion of the St. Lawrence Valley where SLI communities appear to have possessed closer affiliations with neighboring groups in Québec and northern New England (Petersen 2004; Plourde 2016).

Concluding Remarks

In this study, I investigated the timing, scale, and connectivity of SLI movements into southern Ontario and central New York between CE 1450 and 1580. I combined radiocarbon timelines with information on SLI material culture to assess the local opportunities and pressures that defined SLI decisions about when, where, and how to relocate. These local contingencies speak directly to the lived experiences and relationships that ultimately shaped how SLI and their traditions were incorporated into ancestral Huron-Wendat and Haudenosaunee societies. Most importantly, this research has provided a necessary first step in re-writing conventional histories about SLI dispersal and the depopulation of the St. Lawrence River Valley. By illustrating the active and strategic involvement of SLI in their own dispersal, this work has extended beyond conventional culture histories to emphasize the various ways in which SLI movements translated into multifaceted connections to place. Today, the St. Lawrence River Valley continues to be a cultural borderland inhabited by several Indigenous communities, both Iroquoian and not. Each community shares their own specific relationship to this landscape reflective of the many dynamic social histories and collective identities that have emerged over time. These histories speak to a persistent, if maybe complicated, relationship that can challenge western understandings of ownership, boundaries, and movement in the past. By re-assessing these assumptions and dealing with them directly in the archaeological record, archaeologists can begin to influence broader perceptions of Indigenous identity and autonomy in the public sphere.

Only by doing this can we fully realize the human dimensions of movement in the past and its effects on contemporary policies, identities, and interpersonal relationships.

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APPENDIX

A1. Table of Radiocarbon Date Estimates and Bayesian Model Sources

Site	Date Estimate (68.3%)*	Date Estimate (95%)*	No. AMS Dates	Model Source
Grenville				
Roebuck	1551-1598 (52.5%)	1508-1595 (83.8%)	4	*This Study*
Maynard-McKeown	1558-1594 (53.2%)	1547-1635 (73.1%)	4	*This Study*
McIvor	1560-1597 (52.5%)	1551-1633 (72.7%)	4	*This Study*
Trent				
Jamieson	1504–1535	1485–1562	4	*Birch et al. 2021: Table 2:13*
Kirche	1525-1544	1517-1553	4	*Birch et al. 2021: Table 2:13*
Coulter	1515-1558	1509-1572	16	*Birch et al. 2021: Table 2:13*
Benson	1528-1556	1521-1568	11	*Birch et al. 2021: Table 2:13*
Sopher	1540–1567	1527–1582	5	*Birch et al. 2021: Table 2:13*
Dawn	1571-1604	1552-1616	4	*Birch et al. 2021: Table 2:13*
Humber				
Black Creek	1476-1503	1458-1517	2	*Birch et al. 2021: Table 2:13*
Parsons	1495-1523	1480-1539	4	*Birch et al. 2021: Table 2:13*
Seed-Barker	1506-1574	1494-1589	5	*Birch et al. 2021: Table 2:13*
McKenzie-Woodbridge	1522-1563	1507-1583	4	*Birch et al. 2021: Table 2:13*
Damiani	1526-1553	1518-1569	7	*Birch et al. 2021: Table 2:13*
Don				
Baker	1476–1498	1462–1511	4	*Birch et al. 2021: Table 2:13*
Walkington 2	1483–1504	1471–1519	4	*Birch et al. 2021: Table 2:13*
McNair	1488–1510	1474–1523	4	*Birch et al. 2021: Table 2:13*
Hope (North & South)	1480-1500	1469–1607	8	*Birch et al. 2021: Table 2:13*
Keffer	1527-1549	1519-1568	7	*Birch et al. 2021: Table 2:13*
West Duffins				
Joseph-Picard	1441-1467	1435-1505	4	*Micon et al. 2021:Table 2:267*
Best	1504-1537	1465-1550	1	*Birch and Hart 2021:Table 2*
Pugh	1506-1536	1478-1549	1	*Birch and Hart 2021:Table 2*
Draper	1528-1544	1524-1556	21	*Birch and Hart 2021:Table 2*
Spang	1546-1575	1537-1593	8	*Birch and Hart 2021:Table 2*
Jean-Baptiste Lainé (Mantle)	1599-1612	1589-1620	41	*Birch and Hart 2021:Table 2*

Aurora	1612-1629-	1604-1638	2	*Birch and Hart 2021:Table 2*
Ononda'gega'				
Kelso	1399–1417	1390–1430	3	*Birch et al. 2021: Table 2:14*
Howlett Hill	1418–1437	1406–1444	1	*Birch et al. 2021: Table 2:14*
Schoff	1433–1451	1424–1460	1	*Birch et al. 2021: Table 2:14*
Bloody Hill	1463–1485	1452–1494	2	*Birch et al. 2021: Table 2:14*
Burke	1487–1504	1479–1511	3	*Birch et al. 2021: Table 2:14*
Christopher	1488–1506	1479–1513	1	*Birch et al. 2021: Table 2:14*
Cemetery	1508-1523	1499-1529	3	*Birch et al. 2021: Table 2:14*
Barnes	1525-1540	1517-1551	1	*Birch et al. 2021: Table 2:14*
Temperance House	1545-1568	1537-1580	2	*Birch et al. 2021: Table 2:14*
Atwell	1546-1569	1538-1581	2	*Birch et al. 2021: Table 2:14*
Chase	1574-1606	1556-1614	3	*Birch et al. 2021: Table 2:14*
Pompey Center	1619-1639	1570-1647	3	*Birch et al. 2021: Table 2:14*
Kanien'keh-a:ka				
Second Woods	1455–1475	1443–1490	4	*Manning et al. 2021:Table 2*
Getman	1456–1488	1441–1511	10	*Manning et al. 2021:Table 2*
Elwood	1460–1486	1448–1506 (92.7%)	6	*Manning et al. 2021:Table 2*
Smith-Pagerie	1478-1497	1469-1509	17	*Manning et al. 2021:Table 2*
Klock	1499-1519	1446-1568	20	*Manning et al. 2021:Table 2*
Garoga	1521-1580	1514-1593	17	*Manning et al. 2021:Table 2*
Otstungo	1583–1622 (45.7%)	1565–1631 (59.1%)	13	*Manning et al. 2021:Table 2*
Cayadutta	1586–1624 (44.6%)	1570–1631 (54.5%)	8	*Manning et al. 2021:Table 2*
TOTAL			**303**	

Table 15. Table of Radiocarbon Date Estimates and Bayesian Model Sources.

*= Based on high-posterior density using Date Function in OxCal (All parameters and versions discussed further in associated publications)

A2. Table of St. Lawrence Iroquoian Pottery and Sources

	St. Lawrence Iroquoian Pottery Percentages					
Site	**% Durfee Underlined**	**% Roebuck Low-Collared**	**% Roebuck Cornear**	**% Other SLI**	**Total %**	**Sources**
Trent						
Jamieson	0%	0%	0%	0.0%	0%	Ramsden 2016:Table 9.1
Kirche	1.5%	P	P	1.9%	3.3%	Ramsden 2016:Table 9.1
Coulter	1.0%	P	P	2.0%	3%	Ramsden 2016:Table 9.1
Benson	5.2%	P	P	4.8%	10%	Ramsden 2016:Table 9.1
Sopher	2.5%	0.10%	0%	0.1%	2.7%	Noble 1968
Dawn	n/a	n/a	n/a	n/a	16%	Warrick 2008:197
Humber						
Black Creek	P	P	P	n/a	1.5%	Warrick 2008:197
Parsons	0.9%	5.30%	1.70%	2%	9.9%	Birch et al. 2017:Table 4.2
Seed-Barker	0.8%	0%	0%	0.03%	0.83%	Birch et al. 2017:Table 4.2
McKenzie-Woodbridge	2%	1%	1%	0%	4%	Birch et al. 2017:Table 4.2
Damiani	0.9%	3.05%	0.55%	0%	4.5%	Birch et al. 2017:Table 4.2
Don						
Baker	0%	0%	0%	0%	0%	ASI 2016a
Walkington 2	0%	0%	0%	0%	0%	ASI 2011a
McNair	0%	0%	0%	0%	0%	ASI 2012
Hope (North & South)	0%	0%	0%	0%	0%	ASI 2011b
Keffer	0%	1.7%	0.80%	0%	2.5%	Warrick 2008:193
West Duffins						
Joseph-Picard	0%	0.3%	0.3%	0%	0.6%	ASI 2016b
Best	0%	0.52%	3.1%	0%	3.7%	Birch et al. 2017: Table 4.1
Pugh	0%	0%	2.9%	0%	2.9%	Birch et al. 2017: Table 4.1
Draper	0.1%	1.7%	0.8%	1.7%	4.3%	Birch et al. 2017: Table 4.1
Spang	0%	0.36%	0.36%	0%	0.82%	Birch et al. 2017: Table 4.1
Jean-Baptiste Lainé (Mantle)	0.84%	0.05%	0.84%	0%	1.73%	Birch et al. 2017: Table 4.1
Aurora	2.5%	0%	0%	0%	2.5%	Birch et al. 2017: Table 4.1
Ononda'gega'						
Howlett Hill	0%	0%	0%	0%	0%	Tuck 1971:77
Schoff	0%	0%	0%	0%	0%	Tuck 1971:94
Bloody Hill	0%	0%	0%	0%	0%	Tuck 1971:104
Burke	0%	0%	0%	0%	0%	Tuck 1971:125

Cemetery	0%	7%	4%	0%	10%	Englebrecht 2004: Appendix A
Barnes	0%	2%	0%	2.1%	4.1%	Englebrecht 2004: Appendix A
Temperance House	0%	0%	0%	0.8%	0.8%	Englebrecht 2004: Appendix A
Atwell	0%	2%	2%	7.5%	11.5%	Englebrecht 2004: Appendix A
Chase	0%	0%	6%	Mixed	Mixed	Englebrecht 2004: Appendix A
Pompey Center	0%	P	P	Mixed	Mixed	Bradley 1979
Kanien'keha: ka						
Second Woods	0%	0%	0%	0%	0%	Kuhn 2004:Figure 8.1
Getman	0%	0%	0%	0%	0%	Kuhn 2004:Figure 8.1
Elwood	0%	0%	0%	0%	0%	Kuhn 2004:Figure 8.1
Smith-Pagerie	0%	0%	0%	2.1%	2.1%	Kuhn et al. 1993: Table 1
Klock	0%	0.01%	0%	1.7%	1.8%	Kuhn et al. 1993: Table 1
Garoga	0%	0%	0%	1%	1%	Kuhn et al. 1993: Table 1
Cayadutta	0%	0.01%	0%	0.3%	0.4%	Kuhn 2004:Figure 8.1
Otstungo	0%	0%	0%	0%	0%	Kuhn 2004:Figure 8.1

Table 16. Table of St. Lawrence Iroquoian Pottery and Sources.

P=Present

A3. Table of St. Lawrence Iroquoian Materials and Sources

Site	Other (Non-Pottery) St. Lawrence Iroquoian Associated Materials	Sources	Comments
Trent			
Jamieson	0	Ramsden 2016a; Ramsden Personal Communication	
Kirche	23 Toggle phalanges; 1 Conical bone projectile point; 1 Deer scapula pipe; 60 Ceramic discs; Owl effigy pipe with barred motif; Several barred trumpet pipes and pipes with annular punctates; 5 Ceramic beads (2 complete, 2 frags) (1 discoidal bead with a line encircling central hole similar to item at Roebuck).	Nasmith 2008; Ramsden 2016b; Ramsden Personal Communication	
Coulter	n/a	n/a	
Benson	21 toggle phalanges; 50 ceramic discs (Some made from Roebuck corn-ear pottery); 20 Stone discs; 1 Bone harpoon; 1 Conical bone projectile point; Some smoking pipes with barred motif)	Ramsden 2016: Table 9.1; Emerson 1954	
Sopher	21 Toggle phalanges; 1 Conical bone projectile point; 41 Ceramic gaming discs; 9 Ceramic beads; 3 Stone beads (2 Limestone and 1 Dolomite);	Noble 1968	
Dawn	n/a	n/a	
Humber			
Black Creek	2 Bone harpoons; 2 Conical bone projectile points; 1 Toggle phalanx; 2 discoidal steatite beads	Emerson 1954	
Parsons	1 Antler harpoon; 1 bone projectile point; 1 Bone harpoon sharpened by whittling; 1 Roebuck effigy smoking pipe; 1 Perforated human skull gorget	Williamson and Prowis 1998	
Seed-Barker	At least 1 toggle phalanx	Burgar 1989; Williamson 2016b: Table 10.1	

McKenzie-Woodbridge	1 Bone fishhook; At least 1 toggle phalanx; 1 Perforated human skull gorget; 2 Discoidal stone beads	Emerson 1954:147-150	
Damiani	1 Bone projectile point; 9 Toggle phalanges; 4 Discoidal limestone beads	ASI 2015; Williamson 2016b: Table 10.1	
Don			
Baker	5 Discoidal stone beads (4 are steatite); 1 Steatite smoking pipe	ASI 2016a; Williamson 2016b: Table 10.1	Steatite sourced from SLV (See Jones et al. 2018)
Walkington 2	1 Steatite bead	ASI 2011a: Williamson 2016b: Table 10.1	Steatite sourced from SLV (See Jones et al. 2018)
McNair	0	ASI 2012; Williamson 2016b: Table 10.1	
Hope (North & South)	0	ASI 2011b; Williamson 2016b: Table 10.1	
Keffer	35 Bone projectile points (17 conical); 58 toggle phalanges; 2 Deer scapula pipes	Jamieson 2016: Table 5.1	
West Duffins			
Joseph-Picard	2 Ivory disc pendants; 16 Toggle phalanges; 1 Steatite pipe bowl; 25 Steatite beads (20 discoidal)	ASI 2016b Williamson 2016b: Table 10.1	Steatite sourced from SLV (See Jones et al. 2018)
Best	n/a	n/a	
Pugh	n/a	n/a	
Draper	8 Husking pins, 49 conical projectile points; 661 toggle phalanges; 17 Perforated human skull gorgets; 91 Ceramic gaming discs; 60 Ceramic beads (25 discoidal); 1 Vasiform pipe identical to type found at Dawson site; 23 Stone beads (19 discoidal); 37 Potential stone gaming discs	Finlayson 2020:86, 91, 100; Jamieson 2016: Table 5.1	
Spang	n/a	n/a	
Jean-Baptiste Lainé (Mantle)	14 Toggle phalanges; Several awls with incised chevrons; 27 Ceramic gaming discs; 1 Vasiform steatite pipe; 25 Stone beads (2 Steatite)	ASI 2012: Plate 99; Birch and Williamson 2013	
Aurora	1 Toggle phalanx; 1 Ceramic gaming disc; 2 Stone gaming discs (1 perforated); 1 Discoidal stone bead	Emerson 1954: 169-175	
Ononda'gega'			

Howlett Hill	2 steatite beads	Tuck 1971:77	
Schoff	0	Tuck 1971:94	Tuck 1971:115 Notes hollow reed punctates on this and the earlier Schoff site- Plate 22
Bloody Hill	1 Conical bone projectile point	Tuck 1971:104	
Burke	1 Figure-in-crescent pipe	Tuck 1971:125; Wonderley 2005	
Cemetery	n/a	n/a	
Barnes	3 Spatulate chisels; 1 Antler disc; 30 Discoidal shale beads; 14 Smoking pipes with incised rings	Bradley 1979, 2005	
Temperance House	1 Bone harpoon with chevron incisions; 3 Smoking pipes with incised rings	Bradley 1979, 2005	
Atwell	1 Incised walrus ivory dagger decorated with chevron; 1 carved piece of shale, 1 antler gaming disc; Several human effigy smoking pipes including multi-headed 'Janus' pipe; 3 Smoking pipes with incised rings	Bradley 1979, 2005	
Chase	1 Antler conical projectile point	Bradley 1979, 2005	
Pompey Center	1 Bone fishhook; 3 Bone harpoons	Bradley 1979, 2005	
Kanien'keha: ka			
Second Woods	0	Snow 1995:94	
Getman	1 Chevron incised bone awl; 2 Figure-in-arch effigy pipes	Ritchie and Funk 1973: Table 2; Snow 1995:108	
Elwood	1 Figure-in-arch pipe	Snow 1995:98; Wonderley 2005	
Smith-Pagerie	2 LeRay chert tools (1 Projectile and 1 Knife); 1 Smoking pipe with tri-punctate motif; 1 Perforate shale bead	Kuhn and Funk 2003; Kuhn et al. 1993; This Study	
Klock	1 Antler harpoon; 2 ceramic discs; 1 Milled ceramic bead; 1 Steatite bead perforated twice	Kuhn and Funk 2003; Kuhn et al. 1993; This Study	
Garoga	2 Ceramic gaming discs; 1 Deer scapula pipe; 1 Bone awl with chevron incision; 1 Bone projectile point with concave base; 1 Figure-in-arch effigy pipe; 1 Ceramic pipe with a tri-punctate motif on stem	Kuhn and Funk 2003; Kuhn et al. 1993; This Study	

Cayadutta	1 Incised bone awl with chevron motifs; 1 Bone harpoon	Kuhn 2004: Figure 8.1; Snow 1995	
Otstungo	1 Bone projectile point; 1 Figure-in-arch pipe	Snow 1995 :133; Kuhn 2004	

Table 17. Table of St. Lawrence Iroquoian Materials and Sources.

n/a = Information not available

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