Ontario Archaeology

Journal of The Ontario Archaeological Society

Articles

From Grey to Print

Number 94, 2014

Ontario Archaeology
Journal of The Ontario Archaeological Society

Published by
The Ontario Archaeological Society, Inc.
Victoria Terrace Post Office
Toronto, Ontario, Canada M4A 2W1
Telephone: 416-406-5959
Email: oasociety@ontarioarchaeology.on.ca
Website: www.ontarioarchaeology.on.ca

ISSN 0078-4672

Printed in Canada by Marquis

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The Archaeological History of the Wendat to A.D. 1651: An Overview

Ronald F. Williamson

The foundations for modern scholarship concerning Wendat history and archaeology were laid in the late nineteenth and early twentieth centuries by researchers, such as Andrew Hunter and Arthur Jones, investigating hundreds of sites and ossuaries that had been reported to provincial authorities. The focus of their work and of the work of many of those who followed was the search for places that could be related to villages and missions mentioned in early documentary accounts. Avocational, academic, and government agency archaeologists working in the mid-twentieth century had only these early archaeological studies to inform their investigations of Wendat sites. During the past 30 years, however, a revolution in archaeological data collection has occurred. Some of these data are published and thus accessible to current researchers, but much of it remains unpublished and some of it has not even been reported on. This paper is an overview of most of this work, especially of those sites where substantial excavations have occurred. It is intended to provide a guide for those who wish to use these studies to delve deeper into various aspects of the history of historic-period or ancestral Wendat communities.

Introduction

This paper is intended to provide an up-to-date summary of archaeological research on Wendat sites in Ontario to A.D. 1651. It relies on archaeological evidence for the period prior to contact with Europeans and on both the archaeological and documentary records for the subsequent years. The Wendat are Iroquoian, a term that refers to both a cultural pattern and a linguistic family, the latter of which includes the languages spoken by the Northern Iroquoians of the Great Lakes region as well as Cherokee, spoken in the southern Appalachians, and Tuscarora, spoken near the mid-Atlantic coast. The term Iroquoian, therefore, should not be confused with "Iroquois," a word adopted by Europeans to refer to the Haudenosaunee, or Five Nations Confederacy (see also Williamson and MacDonald 2015:103-104).

While the exact timing and catalyst for the introduction of Iroquoian speakers into the Great Lakes region are unknown, the region had clearly been occupied for thousands of years by proto-Algonquian speakers and their ancestors (see Iroquoian Origins below). Once Iroquoian-speaking peoples appeared, some local populations adopted their language and aspects of their ways of life. There is now agreement that the full expression of Iroquoian culture—the essential elements of which were a primary reliance on horticulture for subsistence; habitation in often-fortified villages containing bark-covered longhouses shared usually by matrilineally related extended families; clan membership extending beyond each village to other communities, thereby integrating villages within tribes and confederacies; a set of shared governance structures and religious beliefs and practices; and participation in ritualized warfare, trophy taking, and prisoner sacrifice (Trigger 1976:91-104)—is not recognizable archaeologically until the turn of the fourteenth century (e.g., Engelbrecht 2003; Warrick 2000, 2008).

The Huron, or Wendat, were the northernmost of the Iroquoians, who, in the seventeenth century, inhabited the area between Lake Simcoe and Georgian Bay known historically as Wendake (Figure 1). Their confederacy consisted of four allied nations: the Attignawantan (Bear), Attigneenongnahac (Cord), Arendarhonon (Rock), and Tahontaenrat (Deer). Another population, known as the Ataronchronon (Bog), does not appear to have been an independent member of the confederacy and was instead a division of the Attignawantan (Trigger 1976:30). Their name for themselves, Wendat, has been interpreted as meaning "islanders" or "dwellers on a peninsula" (Heidenreich 1971:300-301; Trigger 1969:9) and may only have come into common use to refer to the Wendat confederacy in the seventeenth century (Steckley 2007:25; Thwaites 1896-1901, 5:278).

The Tionontaté lived immediately southwest of the Wendat. Their confederacy included two separate groups, the Wolf and Deer (Thwaites 1896-1901, 33:143, 20:43). At the time the Jesuits arrived in Huronia, the Wendat-Tionontaté were allied against common Iroquois enemies, although this had not always been the case. Their combined population prior to the spread of European epidemics in the 1630s has been estimated to have been 30,000 (Warrick 2008:204).

Their more distant Iroquoian-speaking neighbours included the Neutral Confederacy (Attiwandaron), who lived farther south, on the peninsula separating Lakes Erie and Ontario and extending west and, for a brief period, east of the Niagara River; the Erie, who inhabited the territory south of Lake Erie; the Wenro (Oneronon), another group living south of the Great Lakes and associated with the Neutral; and the Iroquois Confederacy (Haudenosaunee), who lived in clustered tribal groupings across what is now central New York State. The Haudenosaunee included (from west to east) the Seneca, Cayuga, Onondaga, Oneida, and Mohawk, all of whom had unique cultural traits and histories owing to their geographic separation and development in distinct tribal territories, which they continued to occupy into the contact period. These differences are reflected in their language and material culture, as well as their clan organization, kinship terms, and mortuary practices. The Susquehannock (also Andastoerhonon) were another Iroquoian population, situated southeast of the Iroquois in central and eastern Pennsylvania and northern Maryland.

There were also Iroquoian-speaking communities living in the St. Lawrence valley west of Quebec City in the sixteenth century. Encountered by Jacques Cartier in his 1534 and 1535 visits to eastern Canada, they had moved elsewhere by the time of Samuel de Champlain's visit of 1603. Although their absence 70 years later was at one time considered a mystery, we now know that relocations of that nature were a long-standing option for Iroquoian decision makers when faced with newly emerging social and political challenges.

The Algonquian-speaking neighbours of the Wendat included the Odawa, who lived in the Bruce Peninsula area, next to the Tionontaté, and beyond; the Nipissing, who lived near the lake of the same name; and a number of small bands on the eastern and northern shores of Georgian Bay and along the Ottawa River.

These groups defined the geopolitical landscape of the lower Great Lakes at the time of sustained European contact. From A.D. 1300 to 1600, however, many of the ancestral communities of the Wendat were situated not only in their historic territory but also along the rivers that drain into the north shore of Lake Ontario between the Credit River and Prince Edward County (Figure 1). These communities eventually merged with others in historic Wendake and Tionontaté country, after which it was only a few decades until the consequences of European presence altered Indigenous lives forever. Epidemic diseases and famine reduced their populations by more than 50 percent between 1634 and 1640 (Warrick 2008:222-236). Eventually, by the mid-seventeenth century, traditional conflicts between the Wendat-Tionontaté, Attiwandaron, and Haudenosaunee, exacerbated by European agendas, resulted in the dispersal of the three Ontario confederacies and some of their Algonquian-speaking allies.

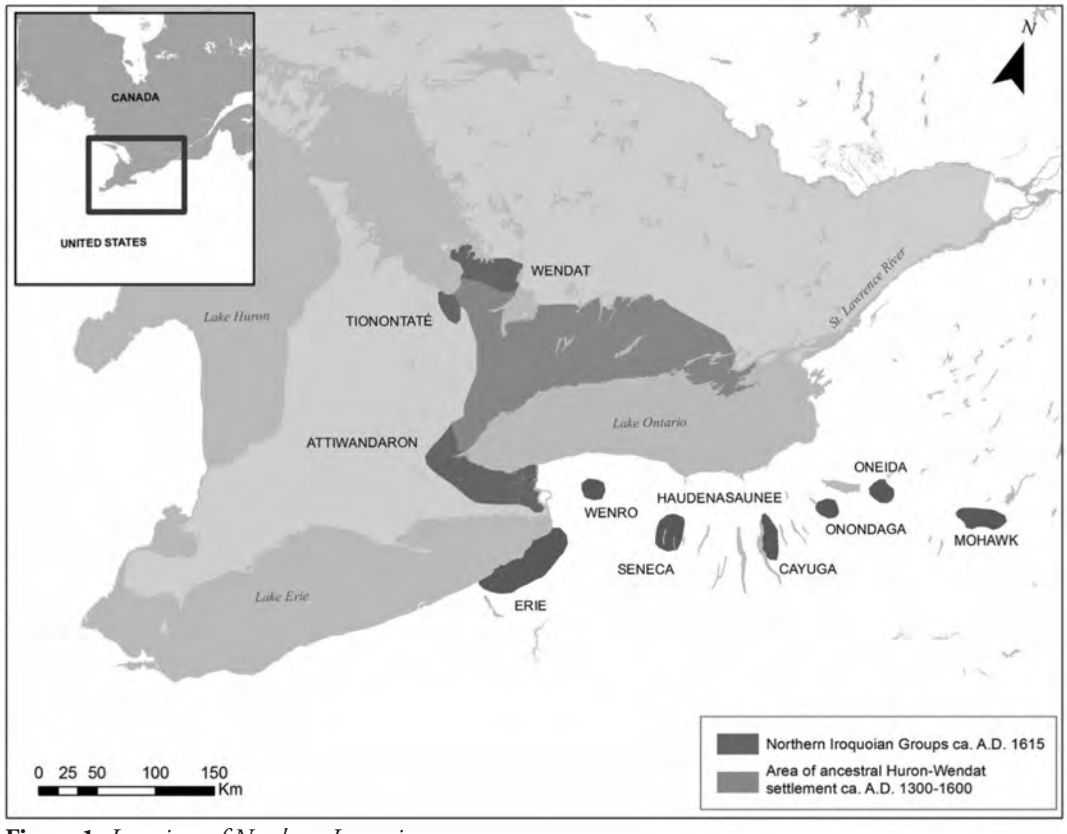

Figure 1. *Locations of Northern Iroquoian groups.*

Scholars of this period are fortunate to have available to them the rich seventeenth-century documentary record of the lives of Northern Iroquoians. The three principal sources are Champlain, Sagard, and the Jesuits. The works of Samuel de Champlain, an experienced soldier and explorer, recorded his observations of Wendat (and Tionontaté) life (in particular, on clothing, settlements, military aspects, and hunting tactics) and their economy and interpersonal relations during a winter spent among them in 1615–16 (Biggar 1922-1936). The detailed account of Gabriel Sagard, a Récollet friar who spent the winter of 1623–24 with the Wendat (Sagard 1939), can be considered one of the world's first substantial ethnographies (Trigger 1969:4). Sagard also compiled a phrasebook and comprehensive dictionary of the Wendat language (Sagard 2010). The annual accounts of the Jesuit priests who lived among the Wendat from 1634 until 1650 and among the Iroquois from 1654 to 1667 (Thwaites 1896–1901) are filled with descriptions of Wendat life and society. All three sources must be employed with caution, however, as they were written by outsiders with their own agendas (Trigger 1976).

These primary historical sources, as well as other informative accounts, were synthesized by Elizabeth Tooker (1964) to provide a thorough source for ethnographic references to most aspects of Wendat life between 1615 and 1649. A major secondary summary of the lives of Wendat peoples can be found in Trigger's *The Children of Aataentsic* (1976), which masterfully combines history, ethnography, and archaeology to give Wendat peoples their own voices in their interactions with their neighbours and the European colonial enterprise.

Conrad Heidenreich (1971) had earlier provided a detailed geographic analysis of historic

Wendake and Wendat life, with an attempt to identify the locations of historic village locations in Wendake as recorded in documentary accounts (see also, for example, Fox 1941; Heidenreich 1966, 1968, 2014; Jones 1908; Jury 1976; Latta 1985a, 1988). Stephen Monckton (1992) examined the plant remains from four historic Wendat settlements as well as those from Sainte-Marie I, providing insight into both dependence on local plant food resources and Wendat food production (for an interesting article on documented corn hills near Creemore, see Heidenreich 1974). Georges Sioui (1999) added a contemporary Wendat voice to the history of his people. More recently, Gary Warrick (2008) produced an insightful demographic history of the Wendat-Tionontaté; John Steckley (2007, 2010) provided major ethno-linguistic analyses of the Wendat language; and Jennifer Birch and Ron Williamson (2013a) offered a contextual analysis of the archaeological history of a single community, moving through time in ancestral Wendat territory along the north shore of Lake Ontario and living at the site called Mantle (Jean-Baptiste Laíné) in the period 1500–30. Charles Garrad (2014) has summarized previous work and his own long research into the history and archaeology of the Tionontaté in a comprehensive volume, and Kathryn Labelle (2013) has produced an analysis of post-dispersal Wendat-Wyandot history.

Late nineteenth- and early twentieth-century work that laid the foundations for modern research includes, most notably, that by Andrew Hunter (e.g., 1889, 1899, 1900-1904, 1907) and Arthur Jones (1908). Their work included efforts to track the locations of historic Wendat villages mentioned in ethnographic accounts, while also investigating sites and ossuaries reported to provincial authorities. The search for sites and ossuaries was often based on archaeological features reported by farmers to provincial authorities, or on investigations carried out either by physicians of the period looking for anatomical collections or by archaeological enthusiasts looking for relics as part of their leisure activities. These reports allowed A.F. Hunter, for example, to document 400 Wendat sites and ossuaries, many of which were summarized by township in the Annual Archaeological Reports of Ontario during the period (see also Fleming n.d.). George Laidlaw (1912) undertook the first archaeological survey of Victoria County, by horse and buggy, documenting the Hardrock and Benson sites, from which he collected artifacts (Noble 2006:73-75). Robert Popham (1950), Richard McNeish (1952), Norman Emerson (1954), J.V. Wright (1966), Frank Ridley (1966-1975), Marti Latta (1973, 1976), Roberta O'Brien (1974, 1975), and Jamie Hunter (1976, 1977) all used these early studies in their mid- to late twentieth-century investigations of Wendat sites. Frank Ridley, in particular, employed A. Hunter's survey data to carry out his extensive survey and his test excavations at Hunter's sites, thereby evaluating their chronological placement in Wendat history. Wilf and Elsie Jury contributed substantially to the history and archaeology of Huronia from the 1940s through the 1960s. For a summary of their lives and accomplishments, see Pearce (2003).

The following sections summarize how some of these and other early researchers began to frame Wendat history in light of emerging archaeological data.

Iroquoian Origins

Perhaps one of the most interesting features of Northern Iroquoians is that they are entirely surrounded by Algonquian speakers. Their origins and development in the lower Great Lakes region, therefore, have always been of interest to anthropologists, but they are also of critical concern for Northern Iroquoian descendant communities in regard to still-contested lands and rights in eastern Canada and the northeastern United States. The ability of anthropologists to recognize ethnicity in the archaeological record and to outline their histories and those of their neighbours is now evaluated regularly in the courts, as was evidenced recently when the Wendat defended their right to speak for ancestral communities on the Seaton lands east of Toronto (Hiawatha et al. v. R. 2007).

Early anthropological accounts of Iroquoian origins focused on migration (Parker 1916; Griffin 1944), therefore precluding examination of

significant economic and socio-political evolution in Iroquoian society. Later researchers supported an *in situ* theory of Iroquoian cultural development and described the transition from the previous hunting and gathering pattern to the Iroquoian horticultural one as rapid and essentially complete by the end of the first millennium A.D. (MacNeish 1952; Ritchie 1944). William Ritchie (1969) and J.V. Wright (1966) later traced Iroquoian cultural development through several phases, recognizing two discrete centres for Iroquoian development, one in upper New York State and the other in Ontario.

Dean Snow (1995, 1996) subsequently reintroduced a migrationist hypothesis, suggesting that Iroquoians entered the lower Great Lakes region in the first millennium A.D. bringing with them maize agriculture, palisaded settlements with longhouses, matrilineal descent, matrilocal residence patterns, and technologically more sophisticated ceramic vessel manufacturing traditions. This hypothesis was rejected by most Great Lakes archaeologists (e.g., Crawford et al. 1997; Engelbrecht 2003; Ferris 1999; Hart 2001; Warrick 2000, 2008). Not only is the full expression of the Iroquoian cultural pattern not apparent until around the turn of the fourteenth century, but it is now clear that maize was introduced centuries before that hypothesized migration. In New York State, for example, John Hart and his colleagues have employed microscopic phytolith analysis and AMS dating of carbonized food remains to demonstrate that maize was being cooked in central New York by about 2,000 years ago (Hart et al. 2003), well before the Iroquoian cultural pattern crystallized, and perhaps even prior to introduction of a proto-Iroquoian language to the region.

There is, however, linguistic evidence for the migration of an Iroquoian-speaking population into the lower Great Lakes region. Stuart Fiedel (1999), for example, has argued that a proto-Algonquian language emerged in the Great Lakes region by 1200 B.C. (following Siebert 1967), after which there was an expansion and divergence of proto-Algonquian languages during the period between 500 B.C. and A.D. 900. Because the Iroquoian language family is dissimilar to Algonquian languages in vocabulary, phonology, and grammar, Fiedel suggested that the two language families were relatively recent neighbours in the region, the Iroquoian presence having resulted from a more recent migration, c. A.D. 500–1000. He suggested that the divergence of the individual Iroquoian languages occurred during this period as well.

This general outline for the antiquity of Algonquian populations in the region has been underscored by recent genetic research in which mtDNA from the skeletal remains of a number of northeastern pre-contact sites was compared with that of several contemporary, potentially descendant Native Americans, including Algonquian and Iroquoian speakers (Pfeiffer et al. 2014; Shook and Smith 2008). These studies have demonstrated that there was genetic homogeneity across language barriers as well as close similarity between ancient populations in the Mississippi drainage and southern Ontario. This suggests there was sufficient gene flow among geographically distant populations to maintain regional continuities in populations for at least 3,000 years. The researchers suggest that populations were expanding between 2,000 and 4,000 years ago, perhaps associated with expansion of proto-Algonquian languages or introduction of maize horticulture into the region. Derived mutations in several samples assigned to certain haplogroups in the latter study potentially link some individuals in ancestral Iroquoian populations with much earlier Algonquian populations (Pfeiffer et al. 2014:339-340). Although studies with much larger samples are necessary to fully explore these relationships, these data suggest that the Iroquoian cultural pattern was adopted by local populations without their having been replaced or dispersed.

It is likely, therefore, that a small number of Iroquoian speakers introduced the language to resident Algonquian-speaking Great Lakes populations, after which the language, perhaps in association with maize subsistence technology, gradually gained widespread acceptance. Engelbrecht (2003:112-114) argued for an "ethnogenetic" perspective on Iroquoian origins

because it can accommodate population movements, acculturation, diffusion of ideas, and continuity, resulting in a more realistic and complex view of Iroquoian development than is possible using simplistic arguments set in a migrationist or diffusionist framework. Peter Ramsden (2006) has proposed that eastern Iroquoians, consisting of St. Lawrence Iroquoians, the Mohawk, the Onondaga, and those Wendat who originate in the eastern part of their territory, have in situ origins that differ from western Iroquoian groups, who were influenced by more recent arrivals, perhaps from the Mississippi valley. Ramsden argues that the western groups brought the Iroquoian language to their eastern neighbours. These notions are consistent with the most recent genetic research described above.

The Transition to Agriculture and Village Life

Regardless of the chronology and manner by which the Iroquoian language came to the region, the introduction of maize ultimately played the leading role in initiating the transition to food production and reducing traditional reliance on naturally occurring resources. Hart and Lovis (2013) argue that the adoption of an agricultural way of life was a gradual transition occurring over generations (see also Williamson 1985, 1990). It was multi-lineal and involved early farmers participating in broad networks sharing plant seeds and knowledge about agricultural technologies, and doing so in different natural and social environments. The breadth of those networks is reflected in the agricultural complex of Iroquoians, especially in the role of bloodshed in promoting agricultural fertility, and specifically in similarities to the ritual systems of Mesoamerica and the Mississippi valley. Specific shared ceremonies include the Arrow Sacrifice ceremony, dog sacrifice, platform torture and sacrifice of victims to the sun, decapitation, and scalping of prisoners (Engelbrecht 2003:37-46; Trigger 1976:73-75).

While there is phytolith evidence of maize being used more than 2000 years ago in New York (Thompson et al. 2004), the earliest evidence for maize in Ontario (in the form of carbonized plant macroremains) comes from 1400-year-old sites in the Grand River valley (Crawford et al. 1997). Recent AMS dating of maize residues on ceramic vessels from Middle Woodland period (c. 200 B.C. to A.D. 500) sites in the westernmost St. Lawrence valley (Hart et al. 2003) suggests maize may have been used by contemporaneous populations in southeastern Ontario.

The introduction of corn into the subsistence systems of local populations initially supplemented rather than dramatically altered traditional Middle Woodland hunting, fishing, and gathering patterns. Indeed, isotopic analyses of bone collagen and carbonate from sites in southern Ontario suggest that maize did not become a nutritional staple until at least A.D. 1000 (Harrison and Katzenberg 2003:241). Over time, it would have been increasingly favoured, because it was less prone to variability in productivity and could be grown and harvested close to the village and then stored (Trigger 1985:85), thereby reducing the need for seasonal macroband dispersal and initiating the development of semi-sedentary settlements (Trigger 1978:59-61; 1985:87) in southern Ontario. It is clear there was not a simple cause-and-effect relationship between the incorporation of maize into early pre-contact economies and the shift to a more sedentary lifestyle; instead, these processes unfolded at different rates and times in different parts of the Lower Great Lakes region (Hart and Brumbach 2003; Pihl et al. 2008).

In southern Ontario, settlements with evidence for maize and semi-sedentary habitation (c. A.D. 500–1000) have been characterized as transitional between the preceding Middle Woodland and subsequent Late Woodland communities of the region (Fox 1990; Ferris and Spence 1995; Crawford et al. 1997). The best known examples of these sites, which occur primarily in floodplain environments, include the Auda (Kapches 1987), Holmedale (Pihl et al. 2008), and Porteous sites (Stothers 1977). These "base camps" featured small, poorly defined circular or elliptical house structures containing clusters of hearths and pits. The latter two sites were encircled by one or two rows of palisade or fencing, perhaps serving as windbreaks. The

discovery of large, deep pits, probably used for storing crops, and the ubiquitous presence of maize on these sites suggest that maize contributed considerably to the diet.

A constantly evolving and remarkably complete record of village life between 1000 and 700 years ago has survived in southern Ontario. That record consists of geographically discrete, regional clusters of semi-permanent settlements, together with smaller camps and special purpose sites (Williamson 1990), each representing two or more contemporary communities that may have shared a hunting territory and a common resource base (Timmins 1997:228). There is enough internal differentiation among these site clusters that Early Iroquoian development should be viewed as a multi-linear process, with differential adoption of settlement and subsistence strategies and with social, political, and economic developments occurring at slightly different times (Williamson 1990). This pattern has also been suggested for contemporary ancestral Iroquois populations in New York State (Hart and Brumbach 2003).

While limited quantities of material culture related to societies to the south and west have been recovered from Early Iroquoian sites (Fox 2008:13), it seems likely that inter-group communication and interaction was more frequent within these regional clusters than with groups farther afield (Williamson and Robertson 1994).

Villages of this period are generally small in size, covering approximately one acre, or 0.4 ha (Williamson 1990), and encompass multiple structures, averaging 10 to 20 m in length and 7 m in width (Dodd 1984; Warrick 1996). They are sometimes surrounded by a single row of posts, which have been interpreted as fences or enclosures as opposed to defensive palisades, owing to their relatively insubstantial construction. Populations based on site size and hearth counts indicate that the earliest Iroquoian communities comprised approximately 75–150 people (Timmins 1997:199), suggesting that they were derived from late Middle and Transitional Woodland yearly territorial band aggregations of 50–150 people (Trigger 1976:134, 1985:86).

Occupied over a longer period of time than later villages, these earlier villages first appeared to archaeologists as somewhat disordered. We now know that they reflect multiple episodes of rebuilding involving multiple re-occupations over many decades, sometimes for a 100 years or more. Peter Timmins (1997) has reconstructed the occupational history of the Calvert site, a village in southwestern Ontario, showing how it developed from a seasonal hunting camp into a semi-permanently occupied village between A.D. 1150 and 1250.

There is no evidence that the appearance of these villages marked the incorporation of matrilineal descent and residence patterns or of formal village political organization (Hart 2001; Williamson 1990). Their patterning and small size suggests that households were autonomous and that leadership remained informal, perhaps limited to an individual who acted as an intermediary in dealings with neighbouring groups (Trigger 1981:24).

An increasing reliance on maize as a dietary staple is suggested by isotopic data, though it likely comprised less than 20 percent of the diet until the end of the thirteenth century (Harrison and Katzenberg 2003:241; Katzenberg et al. 1995; Schwartz et al. 1985; but see van der Merwe et al. 2003). During most of the period, corn clearly augmented a diverse and regionally differentiated subsistence economy in which populations chose to reduce the risk of crop failure through the continued exploitation of naturally occurring resources (Williamson 1990).

The Transformation to an Iroquoian Cultural Pattern

The turn of the fourteenth century marked a transformational point in Iroquoian cultural evolution. Large, year-round occupied agricultural villages with new socially integrative mechanisms such as semi-subterranean sweat lodges, along with a distinct material culture, are all for the first time recognizably "Iroquoian"—that is, they match the descriptions in early European accounts. While previous interpretations of Iroquoian life during the fourteenth century

concluded that this was a period of widespread cultural homogenization, with similar settlement patterns, subsistence strategies, material culture, and socio-economic networks being adopted throughout southern Ontario (Dodd et al. 1990; Wright 1966), data resulting from multiple complete ancestral Wendat village excavations over the past few decades suggest that life in Iroquoian communities was in fact much more variable than was previously thought. Individual communities underwent a series of transitions in different ways and at different times, depending on local contingencies and the structure of the social and economic networks of which they were a part (Williamson and Robertson 1994).

There was also a northward expansion of Wendat settlement at this time. There is as yet no evidence for Wendat villages in the Simcoe Uplands immediately south of Georgian Bay prior to the late thirteenth century. But soon after there is evidence for multiple agricultural communities migrating into the region (MacDonald 2002; Sutton 1999). While a number of hypotheses have been advanced for the reasons behind the colonization of the Simcoe Uplands (MacDonald 2002; Sutton 1999; Warrick 2008:177-180), population pressure and increased opportunities to trade with Algonquians, along with ecological considerations, provide the most likely explanations for these early thirteenth-century migrations. The establishment of new villages no doubt involved significant communication and negotiations between the Iroquoians on the north shore of Lake Ontario and Algonquians from the surrounding area, broadening the base for future socio-political interaction (see below; Fox and Garrard 2004).

The other major development at the turn of the fourteenth century was the amalgamation of small communities to form larger communities (e.g., Williamson 1998; Wright 1986), apparently resulting in changes in socio-political and economic organization and interaction, both within communities and throughout the region in which they were located.

Intensified horticultural production to accommodate larger populations was one significant change. For example, isotopic analyses of human remains from the ancestral Wendat Moatfield ossuary, located approximately 5 km north of Lake Ontario in the city of Toronto and dating to the turn of the fourteenth century, indicate that maize comprised at least half if not more of the diet (van der Merwe et al. 2003). Such horticultural intensification may have been a necessary response to the subsistence needs of a larger, aggregated population.

This coalescence of populations occurred across much of southern Ontario, with ancestral Wendat settlements occurring primarily east of the Credit River and ancestral Neutral sites to the west of the Niagara Escarpment—the area between perhaps functioning as a transitional boundary zone.

The balance of this paper will focus only on subsequent developments among ancestral Wendat communities.

These now larger villages averaged 1.5 ha in extent, or twice the size of the earlier base settlements, and they appear to have been occupied for approximately 20 to 30 years. They contained longer houses, some reaching lengths over 100 m, and featured less rebuilding and structural change than did communities of the previous period (Dodd et al. 1990; Warrick 2008:135; Williamson and Ramsden 1998:201). Villages were not palisaded, although some included internal fences that seem to have represented visual barriers separating house clusters or segments of a community, perhaps both symbolically and physically, such as those at the Alexandra site (ASI 2008a).

There was also considerable variability in the size and structure of fourteenth- and early fifteenth-century settlements, perhaps resulting from village lineage–based segments choosing to depart subsequent to a period of initial aggregation. Some sites are comprised of single clusters of three or four aligned longhouses or of less structured groups of houses, with estimated populations of approximately 250–350 persons. Other sites contained two or more clusters of aligned houses and would have supported larger populations of up to 500–600 persons. Gary Warrick (2008:141-142, 182) has suggested that a "population explosion" occurred between A.D.

1330 and A.D. 1420, when the population of south-central Ontario increased from 10,000 to 24,000 ancestral Wendat persons, reinforcing settlement in larger villages and movement into previously occupied territories. These levels exceed the social and political capabilities of band-level social institutions (Trigger 1985:93) and would have necessitated the development of more elaborate means for social integration, conflict resolution, and decision making, as well as for facilitating ties among communities in the lower Great Lakes and beyond.

One of the most visible archaeological integrative mechanisms that appear on both Wendat and Neutral villages for the first time in the late thirteenth century are semi-subterranean sweat lodges. They are shallow, keyhole-shaped pits within or attached to longhouses that were likely used for ritual, curative, and/or socio-political purposes, especially for solidifying relationships among men both within and beyond the community (MacDonald and Williamson 2001:66-67). They virtually disappear from the archaeological record on sites dating to after A.D. 1450, suggesting the practice of using semi-subterranean sweat lodges fell out of use and was replaced by one of using above-ground sweat lodges that accommodated far fewer people.

The most visible integrative mechanism of the period is ossuary burial, adopted in particular by the ancestral Wendat (Williamson and Steiss 2003; see Seeman 2011 for an exploration of ossuary burial from a Wendat ideological perspective; also Forrest 2012). Ossuaries are large pit features containing the disarticulated but commingled remains of hundreds of individuals who were buried in a ceremony called the "Feast of the Dead," one of which was witnessed in 1636 by Jean de Brébeuf in historic Wendake (Thwaites 1896-1901, 10:279-303). At the time of village relocation, the remains of those who had died during the tenure of the village and had been given primary burials in the ground, on scaffolds, or in bark huts, were disinterred and re-deposited in one or two mass graves. More than 100 ossuaries of the fifteenth through seventeenth centuries are known in Simcoe County alone (Hunter 1889:44; Fleming n.d.:8), most based on late nineteenth and early twentieth-century accounts of their rather frequent looting for anatomical collections and race-based research. While few of these have been investigated in detail, at least 50 are thought to date to the contact period based on the presence of European trade goods (Hunter 1889:44). There are almost two dozen well-documented ancestral Wendat ossuaries both in historic Wendake and along the north shore of Lake Ontario (Table 1). Given the number of known ancestral and contact period villages, it seems many ossuaries are yet to be found.

The appearance of semi-subterranean sweat lodges and ossuary burial on early fourteenth-century ancestral Wendat sites suggests that there was an increasing commitment to community building, both within individual settlements and beyond, to nearby, closely related communities and to far-distant communities.

Fifteenth-Century Coalescence and Conflict

Beginning in the mid-fifteenth century, rapid and comprehensive change occurred within and beyond south-central Ontario. It included widespread violent conflict and the coalescence of multiple small communities into villages of unprecedented size, the latter perhaps representing the initial development of "tribal nations" (Birch and Williamson 2013a:21-23).

By the mid-fifteenth century, the population had stabilized at about 30,000 persons (Warrick 2008:185). It is possible that population pressure strained previous territorial agreements concerning resource harvesting thereby contributing to an increasing pattern of violent conflict. Aggregation was a strategy adopted by later Wendat groups when threatened. When five villages of the northern Bear nation faced a potential Iroquois attack in 1635, for example, their leaders discussed coalescing into a single, well-defended village, a plan that was later abandoned when the threat of attack diminished (Trigger 1969:17).

Dramatic evidence for conflict on coalescent sites dating to the mid- to late fifteenth century includes the recovery of hundreds of cut, charred, and carnivore-chewed human skeletal elements in middens (e.g., Draper, Parsons, Keffer, Damiani—

Table 1. *Ontario Wendat ossuaries.*

Site	Time Period	Region or City	Size of Burial Feature(s)	MNI	
A.D. 900–1300					
Serpent Pits	11th–13th centuries	Rice Lake	3 features averaged 1.2–1.5 m × 0.6 m deep	69	
Staines	A.D. 1250–1300	York	n.a.	308	
Fairty	A.D. 1365-1385	Markham	3.4 m × 1.8 m deep	512	
Moatfield	A.D. 1280–1330	Toronto	2.4 × 2.0 × 1.95 m	87	
A.D. 1300 –1400					
Tabor Hill	A.D. 1300–1350	York	4 × 3 × 1 m; 2.7 × 1.8 × 1.2 m	523	
Garland	A.D. 1300–1500	York	3 m × 1.5 m deep	198	
Weston	A.D. 1300–1450	Toronto	approx. 0.6 m deep	at least 30 crania	
A.D. 1400–1550					
Syers	A.D. 1400–1500	Durham	5.5 m × 1.8 m deep	300	
Keffer	A.D. 1450–1500	York	approx. 4.6 m × 1.8 m deep	unknown; 50+ crania	
Uxbridge	A.D. 1450–1500	Durham	4.9 × 4.0 × 2.1 m	457	
Turnbull	A.D. 1400–1500	Simcoe	2 m	300+	
Little Lake Park	A.D. 1400–1500	Simcoe	3.2 m × > 1 m deep	300+	
Teston Road	c. A.D. 1450	York	2.8 m long × 1.9 m deep	300+	
Poole-Rose	c. A.D. 1500	Cobourg	2.5 m × 1.5 m deep	300+	
A.D. 1550–1650					
Sopher	c. A.D. 1550	Simcoe	5 m × 1.8 m deep	96–105	
Kleinburg	A.D. 1580–1610	York	4.2 m × 1 m deep	561	
Houghton	A.D. 1620–1650	Simcoe	6.1 m ; 3 m	1000	
Warminster/Cahiagué	c. A.D. 1620	Simcoe	approx. 5.5 m × 1.8 m deep	250+	
Maurice	A.D. 1620–1640	Simcoe	6.5 m × 1.2 m deep	132	
Tequenonquiaye/Ossossané	A.D. 1636	Simcoe	7.3 m × 1.8 m deep	419	
Christian Island	A.D. 1650	Simcoe	5 m × 2 m deep; 3 m × 2 m deep; others much smaller	113 in total	

	Comments	Major Reference(s)
	3 features with 15, 29, and 25 individuals, respectively; not contemporaneous; no articulations; some bundled remains	Johnston 1968,1979; Anderson 1968
	disturbed secondary deposit of an ossuary	ASI 2001
	commingled remains; now destroyed	Anderson 1963; Jackes 1986; Gruspier 1999
	commingled and bundled remains	Williamson and Pfeiffer 2003
	two burial pits; some articulated bundled remains	Churcher and Kenyon 1960
	n/a	Webb 1969
	commingled remains; 1 ossuary feature	ASI 1991
	perhaps 1 pit; commingled remains and bundled remains of limb bones	Boyle 1896:41-42; Ramsden 1977; Webb 1972
	no artifacts	Boyle 1889-90:20, 1908:16; Webb 1972; Finlayson et al. 1985
	commingled remains; underlying layer of burned bone	Cook 1977; Pfeiffer 1983, 1986, 1991
	minimally disturbed by construction activities; not excavated	ASI 2013
	commingled remains; minimally disturbed by construction activities; not excavated	ARA 2003
	commingled remains; minimally disturbed by construction activities; not excavated;	MPP 1989; ASI 2005
	commingled remains; primary burials present as well	McKillop and Jackson 1991
	1 main ossuary pit with 2 other pits; mainly commingled remains; cremations and bundled remains in main pit	Noble 1968; Warrick 2008:116-117
	commingled and bundled remains; circular, layered pit with relatively vertical sides	Pfeiffer 1980a,b, 1985; Saunders and Melby 1990
	2 pits; crania arrayed in rows in larger of the pits	ASI 1990
	commingled; some primary burials and bundled remains	McIlwraith 1946, 1947; Harris 1949; Mullen 1990
	5 sub-types of burials; bone groupings in ossuary	Jerkic 1969, 1975; Molto 1983
	commingled and bundled remains	Kidd 1953; Jackes 1986; Heidenreich 2014
	5 pits; largest pit had 74 primary burials; next largest pit had 32; remaining three pits had 1, 3, and 4 individuals, respectively	Hartney 1978

see below); the recovery of buried individuals who had been subject to personal violence; as well as a notable increase in the recovery of human bone artifacts, in particular skull rattles (or gorgets) (Jenkins 2015; Williamson 2007). These phenomena are clearly related to prisoner sacrifice, trophy taking, the manufacture of objects made of human bone for use in ritual performances, and the siting of these and later villages in easily defended locations on top of slopes and away from navigable water. The construction of palisade and earthwork complexes at this time also indicates an ongoing concern for communal defence. These data should serve to caution those who hypothesize that scattered bone is predominantly a result of secondary burial preparation (e.g., Fontaine 2004). If that were true, altered bone would be scattered about sites in the same frequencies before and after the mid- to late fifteenth century. But it is, in fact, absent on pre-coalescent villages.

There was, however, variation among communities in how they interacted with others. At the beginning of this period of hostility and also after it had ended, some ancestral Wendat communities seem to have acquired various materials through exchange along the north shore of Lake Ontario, some of which may have originated in the Gulf of St. Lawrence region (and Chesapeake Bay), including European metal artifacts, marine shell, and walrus ivory. The varying frequencies of these commodities as well as of steatite among contemporaneous communities underscore the importance of considering each community to be unique in its interactions. Indeed, this uniqueness is also reflected in the different southern, western, and eastern influences in their ceramic assemblages (Birch et al. 2015).

Evidence from the Parsons site suggests that the violence occurred not only between far-distant communities but also between neighbouring communities (Dupras and Pratte 1998; Robertson and Williamson 1998), consistent with the likelihood that alliance formation and conflict between individual or groups of communities was both dynamic and occurring at a broad range of scales. The inevitability of such conflict was probably underscored by the fact that prowess in warfare was the most important way in which young warriors gained status (Trigger 1969:50-52). The formation of coalescent communities was also concomitant with the apparent initial mid-fifteenth century confederation of Wendat populations living in Simcoe County to the north.

This coalescence of multiple households and communities no doubt occasioned far more complex domestic settings than before and would have required more formal structures for decision making, especially at a time when the social segments that contributed to these new communities appeared to maintain their cohesiveness in their new social settings (see Birch 2012; Birch and Williamson 2013a:79-80; and Birch and Williamson 2013b for a discussion of this phenomenon). Within a few decades, however, the stresses caused by warfare and requirements for resources led to far more integrated communities.

Sixteenth-Century Consolidation and the Formation of the Wendat Confederacy

By the early sixteenth century, it would seem that populations had consolidated into large, well-planned and integrated villages (Birch 2012; Birch and Williamson 2013a). There were now far fewer settlements across the north shore of Lake Ontario, the Trent River valley, and historic Wendake. Village planning and especially the organization of production would no longer have been undertaken by the various social segments alone, but by village-wide planning councils, one for domestic work and one for foreign affairs (see Birch and Williamson 2013b). Structuring social relations through village councils and the clan system rather than households would no doubt have helped with social integration within coalescent communities, and identities based on clan membership may have become as significant as those based on lineages (Birch 2008). At the same time, there appear to have been increasing differences between communities and their interaction with or incorporation of ideas or people from other far-distant groups, suggesting that the formation of locally based identities, interaction among communities, the movement of people, and the reorganization of interregional

networks was all happening concomitantly. It seems, however, that by the early sixteenth century, the violence of the previous half-century had declined. The Mantle site, for example, while heavily palisaded and earthworked, yielded only a small amount of modified human bone in non-burial contexts, and not a single artifact made of human bone was recovered.

The presence of two European-derived copper beads at both the Seed-Barker and Mantle villages and a single iron object in a secure context at Mantle (see Birch and Williamson 2013a:149-152) suggest that some early sixteenth-century populations were also obtaining European goods through indirect contact, as suggested by Ramsden almost 40 years ago (Ramsden 1978). After c. A.D. 1550, European metals become relatively common on Iroquoian sites, and copper, brass, and iron objects predominate. Nearly all late sixteenth- and seventeenth-century Wendat sites contain European materials (Fitzgerald 1990; Fox et al. 1995; Warrick 2008:116-117).

There is also evidence of the formation of large, amalgamated villages in the mid-sixteenth century on the lower St. Lawrence River. By the late sixteenth century, the lower St. Lawrence valley was abandoned entirely, and the populations who had been living there were apparently incorporated into communities and site clusters in the Trent valley and perhaps elsewhere among the Onondaga and Oneida (Timothy Abel, personal communication 2015; Birch 2015; Jamieson 1990:403; Ramsden 1990a:383, 1990b; Warrick 2000:454-457); some of these populations were certainly incorporated into Wendat communities beyond the Trent valley along the north shore of Lake Ontario a century earlier.

The final political alliances that led to the formation of the confederacy occurred in the late sixteenth and early seventeenth centuries. For ancestral Wendat populations, the northward migration that had begun in the thirteenth century was completed by around the turn of the seventeenth century, as groups coalesced in the northern uplands of Simcoe County—historic Wendake. The Tionnontaté nation similarly confederated in the Nottawasaga Highlands, to the west of Wendake.

At least two of the allied nations of the Wendat confederacy were derived from populations living on the north shore of Lake Ontario and in the Trent valley, while the balance developed in historic Wendake subsequent to their late thirteenth-century migration there. The balance of this paper will present a review of the history and archaeology of these local communities as well as a summary of communities that developed in Wendake after their establishment there. This allows for the recognition of distinct local traditions and contingencies at the level of individual communities, as situated in broader historical patterns of social and cultural variability at the regional level, and it reinforces our awareness that the Wendat actually consisted of not only a number of nations, but also of a number of communities that contributed to the formation of those nations. This is why there were subtle linguistic and cultural differences (e.g., dialects, burial patterns, and trade routes) among the various nations of the Wendat—differences that were introduced into the confederacy with the inbound communities.

Summaries of Wendat Community Sequences

Before I summarize the community sequences, I should note that I have excluded from discussion in the remainder of this paper many of the sites at which early researchers such as Andrew Hunter tested middens, resulting in the recovery and description of ceramic assemblages. Many of those collections have been used in various studies attempting to delineate sequences of Wendat communities using ceramic seriation (e.g., Bursey 1993; Ramsden 1977; Wright 1966). Indeed, ceramic analysis was the backbone of ancestral and historic Wendat archaeology for decades in the twentieth century as archaeologists employed attribute and typological approaches to place sites chronologically and to assess the networks in which communities participated. Recent studies, however, have suggested the need for more sophisticated analyses of ceramic production and use.

Holly Martelle (2002), for example, examined samples from three historic Wendat sites using a multi-component, multi-scalar approach and concluded that the craft was far more complex than previously considered. Recent research shows the same was true for north shore communities. Compositional analysis of 62 vessels from the early sixteenth-century Mantle site, carried out by Linda Howie (2012), identified five ceramic fabric types that are geologically compatible with local clay resources, all highly variable and with significant differences in paste, forming technique, and firing, and six ceramic fabric types that are geologically inconsistent with local clay resources and that are based on geologically distinct raw material ingredients or paste recipes. (For a similar analysis of pipes on another ancestral Wendat site, see Braun 2012.) Moreover, comparison of the frequencies of non-local types of ceramics from early sixteenth-century Wendat communities along the north shore indicates that each community was participating in uniquely constituted interaction networks (e.g., Birch and Williamson 2013a:139-140; Birch et al. 2015).

Other ceramic trends in the historic period have been examined. The decrease in ceramic variation with time has led Holly Martelle (2004) to argue that with the formation of larger villages and the need to produce large agricultural surpluses for both crop failures and trade with Algonquians, which engaged women in the agricultural economy for ever-increasing amounts of time, specialization in ceramic manufacture may have resulted. Martelle also noted a decline in the quality of ceramic vessels at the latest site in her analyses and attributed this to the premature deaths of experienced potters due to European-introduced diseases, which precluded them from passing on their craft knowledge to student potters.

Recent work by Hart and Engelbrecht (2012) has also challenged the assumption that archaeologists can track ethnic traditions or territories on the basis of ceramic design sequences. Employing social network analysis, they examined decorative attributes on the rims of ceramic vessels from 116 archaeological sites across Iroquoia and demonstrated convincingly that it is not possible to discern ethnic or national territories in the distant past, and that the historic period ethnic landscape evolved from less regionally structured landscapes (Hart and Engelbrecht 2012:345), a finding consistent with communities participating in uniquely constituted interaction networks. Other ceramic analyses have focused on innovation expressed in the production of juvenile vessels (Smith 2006) and social relationships as reflected in the vessels from two historic sites (Curtis and Latta 2000).

Being mindful of the pitfalls of earlier ceramic research that have been highlighted by this more recent research, I have not summarized the many multiple-site ceramic analyses undertaken in the twentieth century that resulted in proposed site sequences. I have focused instead on those site investigations that involved substantial excavations resulting in the recovery of settlement pattern data in addition to representative samples of material culture.

I also have not summarized all of those sites, especially small camps or special purpose sites, for which Stage 2 and/or 3 investigations alone have been undertaken. This decision is not intended to undervalue the importance of these works but to focus in limited space on sites that have yielded the most information. I have allotted more space, however, to those major (and some minor) excavation projects for which the results have not yet been published.

In the sections that follow, mid- to late sixteenth- through seventeenth-century sites are often dated based on how the beads found at the site fit into the glass trade bead sequence. Glass trade beads were manufactured in Europe and traded to Indigenous populations in the Great Lakes area. They are typically divided into three periods: Period I, Period II, and Period III. Period I dates from 1580–1600 and is characterized by a set of beads quite diverse in shape, size, and colour, including frit core beads. Period II dates to c. 1615 and is dominated by oval and tubular beads of white and dark blue glass. Period III is dominated by turquoise round, red round, and red tubular beads and dates from 1615–50. Period III is further divided into two subperiods: Period IIIa (1620s and 1630s) and Period IIIb (1640s). For

the best detailed discussions of the classification and chronology, see Kidd and Kidd (1970) and Kenyon and Kenyon (1983).

Rouge River, West Duffins Creek, and Highland Creek

Among the best documented Wendat community sequences are those in the Rouge River, West Duffins Creek, and Highland Creek watersheds (Figure 2) (for a detailed analysis of the Draper, Spang, and Mantle transition, see Birch 2012 and Birch and Williamson 2013a). There is evidence of a long, largely unbroken sequence of occupation beginning with early agricultural base settlements on the broad sand plain north of the now-urbanized lands along Lake Ontario, through to coalescent villages 30 km north of the lakeshore, a pattern that is repeated along other drainages along the north shore of Lake Ontario. One of the first significant analyses of this history, focusing on fourteenth-century villages, was that of Mima Kapches (1981).

At least nine twelfth- and thirteenth-century villages, encompassing areas of 0.5 to 1 ha, along with a number of ancillary sites, have been documented in the lower reaches of the Rouge River and West Duffins Creek. The best known of these are the Miller site (Kenyon 1968), a palisaded late twelfth-century village consisting of six longhouses, and the twelfth-century Boys site, at which limited excavations revealed portions of two longhouses and a single-row palisade, along with several adjacent ravine middens (Reid 1975).

Several poorly known fourteenth-century sites on Duffins Creek (Poulton 1979) were documented as a result of the 1970s investigations associated with the New Toronto International Airport project. These and the recently tested Wonowin (ASI 2011a), Sebastien (ASI 2011b), and Miindamiin (now Ludger Gros-Louis) (URS

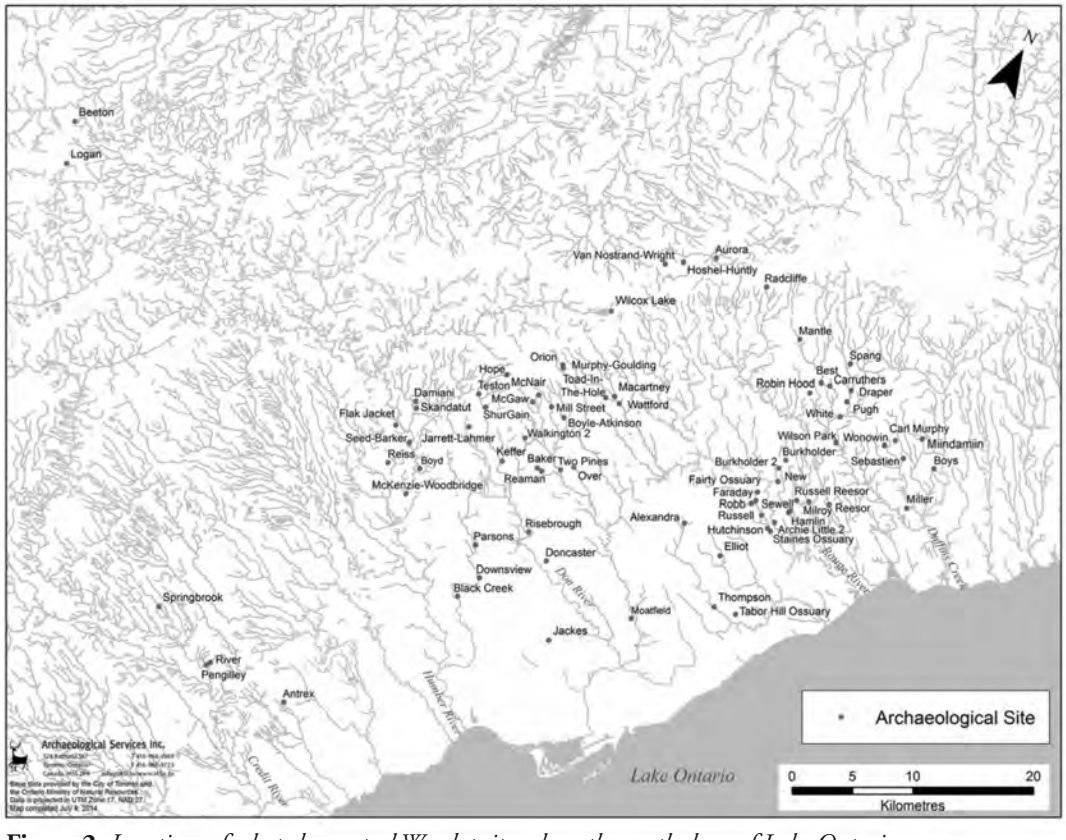

Figure 2. *Locations of selected ancestral Wendat sites along the north shore of Lake Ontario.*

2011) sites, investigated as part of the large Central Pickering Development Area (Seaton), form another early fourteenth-century sequential cluster of sites, 2–3 km to the east. The nearby mid- to late fourteenth-century, 2 ha Carl Murphy site was occupied subsequently by one or two of these communities (ASI 2012a). The substantial number of roughly contemporaneous sites suggests that there were at least three separate communities occupying the region in the fourteenth century. One fourteenth-century agricultural cabin site, called Salgo, which consisted of a single house structure, some external features, and a shallow midden deposit, was also found amid these villages (AMA 1998; also ASI 2014e). Similar small cabin sites were documented within the Seaton lands. These include the Spruce Ridge sites, a number of which yielded evidence of one or two small sparsely occupied longhouses (e.g., AAL 2009), and several other small camps that yielded only a few features and posts. The Garland ossuary, also situated on the north side of a tributary of West Duffins Creek on a hilltop within the Seaton lands, was investigated and reported to have consisted of a burial pit containing the skeletal material from 198 individuals. It was excavated in 1958 by a group of science students from St. Michael's College, University of Toronto, under the direction of Father Arnold Megan. The ossuary was 4 feet 8 inches (1.4 m) deep at its deepest and 10 feet (3 m) in diameter (Webb 1969). Two shell artifacts and one projectile point are the only artifacts reported to have been found with the remains, suggesting a date in the fourteenth or fifteenth centuries. While Molto (1983:92-93) reports, based on a second-hand account, that a glass bead had been found with the remains many years later, it is very unlikely that the bead originated with the ossuary because no mid-sixteenth century sites have been found within almost 30 km from this ossuary despite extensive survey throughout this and adjacent drainages.

Fourteenth- and early fifteenth-century sites were also located on southern portions of the Rouge River and Highland Creek, which, because of their proximity, were likely related both to each other and to the fourteenth-century communities on Duffins Creek. The descendants of these groups relocated northward and eastward, contributing to the populations that eventually came together at the Draper site and later formed the Mantle community (Birch and Williamson 2013a).

Several of these sites have been subject to complete mitigative excavations, including the early fourteenth-century New site (ASI 2006a). It covered 1.2 ha and consisted of six houses, four of which were arranged in pairs, and not all of which were necessarily contemporary. There was no palisade.

The mid- to late fourteenth-century Robb site was a roughly 2 ha unpalisaded village consisting of nine widely spaced longhouses and an extensive midden on a slope above Milliken Creek, a tributary of the Rouge River (ASI 2010a; Kapches 1981:110-131). Two new AMS radiocarbon dates taken on separate maize samples yielded dates of 570±30 and 590±30 B.P. These calibrate to A.D. 1305–1365 and A.D. 1385–1420 (2-sigma standard error) for the first date and A.D. 1295–1370 and A.D. 1380–1415 (2 sigma) for the second. A small quantity of scattered human bone was recovered, including a burned mastoid fragment as well as three modified human cranial fragments, one of which is a fragment of a highly polished human skull rattle and the other two of which had been subjected to cutting and drilling. This suggests the site was occupied during a period of low-level hostility in the fourteenth century.

The nearby Fairty ossuary is thought to have been associated with Robb (Wright 1966); it was excavated in the 1950s and found to contain the remains of 512 individuals (Gruspier 1999). The large number of deceased suggests it served as an ossuary for more than one community, perhaps also the nearby Faraday site (Kapches 1981). A new AMS radiocarbon date taken on a sample of human tooth (collagen) yielded a result of 470±30 B.P., which calibrates to A.D. 1270–1305 and A.D. 1365–1385 (2 sigma). Because there are no late-thirteenth century sites within 5 km of Fairty and the area has been thoroughly surveyed, the later date is preferred. Moreover, since the frequency of dental caries increases as people rely

more on maize, the fact that the incidence of caries for the turn-of-the-fourteenth-century Moatfield and Fairty sites show significant differences supports a later chronological placement for Fairty (Susan Pfeiffer, personal communication 2014).

Located nearby on a tributary of the Rouge River, the early fourteenth-century Hutchinson site (Robertson 2004) featured two house structures, which may have been occupied simultaneously or at different times. The site appears to have functioned as a place to prepare deceased individuals for ossuary burial, perhaps in the nearby Staines ossuary (ASI 2001a) and highlights a little known aspect of ancestral Wendat mortuary patterns.

The Alexandra site (ASI 2008a) was located adjacent to a minor tributary of West Highland Creek and consisted of a 2.5 ha unpalisaded village with 17 house structures. Of these, 15 represented permanent or year-round dwellings. The village had two overlapping phases of occupation, including eight houses in the southern portion of the site and nine in the northern segment. If at some point they were all occupied simultaneously, this site may be a reflection of an early aggregation of two communities. The 29 semi-subterranean sweat lodges distributed among houses at the site suggest a focus on integration of the site inhabitants. While the site was originally attributed by means of ceramic seriation to the late fourteenth century, perhaps into the early fifteenth century, two new AMS radiocarbon dates taken on separate maize samples from a semi-subterranean sweat lodge in the northernmost house at the site yielded dates of 460±30 and 480±30 B.P., respectively. These calibrate to A.D. 1415–1455 (2 sigma) for the first date and A.D. 1410–1450 (2 sigma) for the second and indicate the site was occupied slightly later, into the first half of the fifteenth century.

The fourteenth-century Burkholder 2 site was a 1 ha unpalisaded village consisting of four parallel, contemporary longhouses situated on a high point of land between two tributaries of the Rouge River (ASI 2005a). Limited investigations of the Burkholder 1 site, located less than 1 km to the north, revealed evidence of a palisaded village, also approximately 1 ha in extent, likely post-dating Burkholder 2 (ASI 2004a); unfortunately it appears to have been destroyed prior to its proper documentation. The Milroy site, a roughly 3.5 ha village located on a tributary of the Little Rouge River, has been subject to Stage 3 test excavations. It dates to the early fifteenth century (Kapches 1981:71; 189; ASI 2001b) as does the .8 ha Cornell site, an early fifteenth-century village situated on a tributary of the Rouge River. That village featured an unusual one-row palisade that surrounded three longhouses and associated middens (AAL 2012).

The poorly documented Thompson, Woodland Park, and Elliot sites date to the fourteenth century and are located on tributaries of Highland Creek (Donaldson 1965; Kapches 1981; Konrad and Ross 1974). The Thompson site was located approximately 2 km from the Tabor Hill ossuary, with which it was provisionally associated. This ossuary was comprised of two ossuary pits which together contained the remains of more than 500 burials (Churcher and Kenyon 1960), perhaps representing the collective dead of two communities (Williamson and Steiss 2003:102). Mid-twentieth century subdivision development in the immediate area, however, destroyed evidence of any other contemporary settlements.

Additional, poorly known late fourteenth-century villages in the lower Rouge River include the Hamlin (MPP 1988), Faraday (Kapches 1981), Russell Reesor (Konrad and Ross 1974), Sewell (Berg 1976), and Archie Little 2 sites (ASI 2002). There are no sites that post-date the early fifteenth century on the southern portions of the Rouge River and Highland Creek, the communities having likely relocated east, to the Duffins Creek drainage.

A number of fourteenth century villages (e.g., Pearse, Peter Webb 1, Peter Web 2, and Hoar) as well as early to mid-fifteenth-century communities (e.g., Gostick, Dent Brown, Pugh, Best, White, and Robin Hood) that have been documented in an area of 25 km^2 on the Duffins drainage system are known primarily from limited surface investigations related to the New Toronto International Airport (NTIA) survey (Poulton 1979). By the late fifteenth century, it is thought

that all of these village sites were abandoned, their populations presumably amalgamating to form the large, heavily fortified Draper site (Hayden 1979; Finlayson 1985; Ramsden 1968). A number of small camps were also documented, along with two ossuaries, Pennock 1 and Pearse, the latter of which was documented with the village.

Among the largest village sites in this cluster are the Pugh and Best sites which are 2.8 and 1.8 ha in area, respectively. The 2 ha Wilson Park site lies just outside the boundaries of the NTIA survey area and has been subject to detailed test excavations to define its extent (ASI 2012b).

Better known are the unpalisaded 0.5 ha Robin Hood and White sites, both of which were subject to comprehensive excavations. The Robin Hood site, comprised of two loci separated by a small stream, was partially excavated in 1979, revealing four house structures on one of the loci (Williamson 1983). While originally thought to be a special-purpose site, subsequent excavations in the region, described above, have revealed that the early to mid-fifteenth-century occupation of the area included numerous sites that contained four to five houses. The White site encompassed two terraces, each with a cluster of longhouses (Tripp 1978), which were interpreted to represent separate components, possibly concurrently occupied at some point. These and the other sites were all abandoned during the mid- to late fifteenth century, their populations likely coming together at the Draper site.

The Draper site is situated on an open, flat terrace overlooking a steep western bank of West Duffins Creek. The site covers a total of 4.2 ha, and ceramic seriation and three radiocarbon dates place its occupation in the mid- to late fifteenth century (Finlayson 1985). A defining characteristic of the village is the clear evidence of coalescence—the main village palisade was expanded five times to incorporate new groups of aligned longhouses, consisting of four to six longhouses each, apparently a number of the communities described above (see Birch and Williamson 2013a:33 for an illustration of settlement plans from pre-coalescent through coalescent to post-coalescent communities). The three-row palisade; an in-house burial of a male who had been shot in the leg (projectile tip still present), speared in the chest, and scalped; and the presence of hundreds of fragments of butchered and burnt human bone scattered in the village middens indicate that the site inhabitants were involved in significant violent conflict with other communities during its occupation (see Cooper 1984; Forrest 2010; Williamson 1978, 2007).

The 3.4 ha Spang site is a largely undisturbed village. Little is known about its internal settlement pattern, although preliminary excavations revealed the presence of middens and five rows of palisade posts adjacent to the steep break-in-slope along the site's eastern edge (Carter 1981). Based on analyses of the Spang site ceramics (Birch et al. 2015), it seems most likely that the site immediately predates the early sixteenth century. Twelve students from the Huron-Wendat community in modern Wendake, Quebec, participated in the test excavations of the site in 1978 and 1979.

The post-coalescent early sixteenth-century Mantle village was located within the West Duffins Creek system in the Town of Whitchurch-Stouffville (ASI 2014a; Birch 2012; Birch and Williamson 2013a). This large, 3 ha village yielded more than 18,000 artifacts from the initial controlled surface collection alone, and its subsequent almost complete excavation, undertaken over a three-year period, yielded evidence of eight rows of palisade and an earthwork representing various re-building sequences, as well as 98 longhouses. In addition to these structural features, a rich hillside midden and extensive refuse deposits in the earthwork borrow trench, as well as over 1,500 pit features, together yielded tens of thousands of artifacts. At its zenith, the site housed more than 1,800 people. While the ossuary for the site has not yet been found, a small cemetery adjacent to the site contained the mostly individual interments of 34 people.

Mantle represents a community comprised of the people from several villages that had previously joined together in the late fifteenth century at the Draper site, perhaps for defensive purposes (Birch 2012; Birch and Williamson 2013a). The site does

not appear to have been occupied by ancestral Wendat alone, however, as numerous ceramic vessels have been recovered that bear striking resemblances to pottery found on Oneida and Onondaga sites in New York state. Also discovered at the site was a piece of European iron, likely Basque in origin, as well as two European copper beads. There are at least four likely descendant villages north of Mantle, one in the upper Rouge and the others north of the Oak Ridges Moraine in the East Holland River watershed (Birch and Williamson 2013a:157-158). One of these is Aurora (Old Indian Fort), a 3.4 ha earthworked village subject to a decade of field school investigations by the University of Toronto, beginning in 1947 with a class of first-year premedical students and involving 250 students in 1957. Approximately 70 years after their occupation of Mantle, this community abandoned their ancestral homeland, joining with others to form one of the Huron tribes in historic Wendake.

The two drainages to the west of the Rouge–Duffins watershed are the Don and Humber, both of which also supported large ancestral Wendat communities, all of which have been subject to considerable investigation.

Don River

The Don River drainage is located immediately west of the Rouge–Duffins drainage. Only two village sites have been identified in the lower Don valley (Moatfield and Jackes). Most of the Don River sites are situated well away from the lakeshore and date to the fifteenth century. The absence of many earlier sites is the result of destruction relating to the nineteenth-century development of what is now the City of Toronto (Figure 2).

The earliest documented village is the turn-of-the-fourteenth-century Moatfield site. While the almost 1 ha village itself has only been subject to test excavation, the associated ossuary, located on the perimeter of the site, was subject to detailed excavation (Williamson and Pfeiffer eds. 2003). Containing the commingled remains of 87 people, this is the earliest ancestral Wendat community ossuary excavated; the remains have since been reinterred elsewhere. The mapping and removal of each bone in the ossuary afforded a rare opportunity to document the structure of an early Wendat ossuary and to evaluate the health and diet of a population at that time.

Much less is known about the Jackes site (Noble 1974), as it was largely lost to urban development. Jackes, as well as the poorly known Doncaster 1 and East Don sites in the middle drainage, have been provisionally dated to the late fourteenth century (Konrad 1973; MPP 1986), although the presence of St. Lawrence Iroquoian (e.g., Roebuck Corn-eared) and southern (Otstungo Incised, Dutch Hollow Notched, etc.) ceramic vessel types at Jackes suggest it may date to the early to mid-fifteenth century.

Early to mid-fifteenth-century sites include the unpalisaded Mill Street (ASI 2006b), Baker (ASI 2006c), and Walkington 2 (ASI 2010b) sites, all of which featured single clusters of three to four longhouses, with one longhouse significantly longer than the others, perhaps representing the socio-political cores of the villages. The Two-Pine site, situated several hundred metres southeast of Baker, consisted of two loci, only one of which had a longhouse. This single longhouse had considerable interior house activity, including semi-subterranean sweat lodges (M.M. Dillon 1996). The nature of the house and the frequently wide separation of houses at this period suggest there may have been additional houses present between the loci.

Mid-fifteenth century Don River drainage sites include the Over (DPA 1996) and Watford (Pearce 1997b) sites. Over was comprised of two aligned clusters of longhouses, one with three houses and the other with four, both of which had one longhouse that was significantly longer than the others. The Watford site consisted of six houses surrounded by a single-row palisade and a seventh house located north-east of the palisaded enclosure. Within the palisade, four houses formed one aligned group in the eastern portion of the site (two of these houses overlap and could not have been occupied concurrently) and the two western houses form another aligned pair. Palisades are rare on early to mid-fifteenth-century sites, and the insubstantial nature of this palisade suggests that it may not have served a defensive function.

The McNair site (ASI 2012c) was another 1.0 ha village occupied during the middle of the fifteenth century. It was organized into two discrete loci separated by a large open area. The south locus consisted of three spatially separated and lightly constructed houses, perhaps occupied seasonally or for special purposes, while the other locus comprised five houses and two middens. No evidence of a palisade was detected. The four modified human cranial fragments that were recovered likely represent fragments of a human skull rattle. The absence of scattered human bone and palisading on the site suggest this modified piece of human bone is distinctive.

The McGaw site (ASI 2003; Pihl 2002) is a relatively undisturbed, early to mid-fifteenth-century village measuring 1 ha. Limited test excavations have revealed 17 mounded middens and densely occupied longhouses.

Teston is a 1 ha village dating to the fifteenth century that has been subject to limited Stage 4 excavations, resulting in the discovery of five widely spaced houses in the south sector of the site. No palisade was detected. The associated ossuary was discovered during roadwork and contained several hundred individuals (ASI 2005b). The Huron-Wendat Nation was involved in the decision to preserve and commemorate the ossuary.

The Boyle-Atkinson site was also thought to have been approximately 1 ha in size. Portions of 11 houses with various orientations were documented (MPP 1987).

The Macartney and Toad-in-the-Hole sites, although they are situated on a tributary of the west branch of the Rouge River, are clearly associated with the Don River cluster of sites, and are therefore included in this section. Macartney yielded one longhouse associated with shallow refuse deposits (Pearce 1998), while excavations at the Toad-in-the-Hole site revealed at least two well defined longhouses and two associated middens, also likely dating to the early fifteenth century (Pearce 1997a). Both of these sites may have functioned as special purpose agricultural cabin sites, although the houses were well formed and there was room to the north of the excavated area at Toad-in-the-Hole for additional houses. The Somme site, also associated with this cluster of sites, consisted of a lightly constructed small cabin (ASI 2005c).

The mid- to late fifteenth-century ShurGain and Jarrett-Lahmer sites were both situated defensively and feature palisades. At the Jarrett-Lahmer site, two extrapolated palisade lines located 10 m apart suggest the village may have been expanded from its original size. Test excavations in the midden on the western slope of the site yielded 64 human elements, suggesting significant engagement in conflict and prisoner sacrifice (ASI 2001c; DPA 2003).

The sites that seem to have been occupied into the mid-fifteenth century (Over, Watford, McNair, McGaw, ShurGain, and Jarrett-Lahmer) would appear to be early stage amalgamations of groups of the size and composition of the Baker and Walkington 2 sites described above, and may represent the beginning of a settlement trend, which set a cultural precedent for the large-scale amalgamations that occurred in the next generation.

The early to mid-fifteenth-century Hope site (ASI 2011c) was both distinctive and complex in that rather than being composed of closely spaced pairs of aligned longhouses, it featured adjacent, likely contemporaneous clusters of longhouses, separated by a 70 m wide tract of land and stream. Each locus was approximately 1.5 ha in extent, the northern one contained six paired and similarly oriented houses, while the southern one contained seven houses, two of which were small and contained within a semi-circular fence. Of the easternmost houses in the southern locus, two seem to have been occupied intensively though not concurrently, as they overlap. Although there are no artifact mends between the two loci, the similarities in the ceramic assemblages suggest that, although the groups may have retained political autonomy, they may represent an early form of small-scale coalescence prior to the larger-scale amalgamations of the latter part of the century—amalgamations such as those seen at the Orion–Murphy Goulding and Keffer sites.

The Orion–Murphy Goulding site was actually situated on a branch of the upper Rouge River headwaters, in close proximity to the Don

River drainage and its group of sites. Like Macartney and Toad-in-the-Hole, it is here considered part of the Don River sites. It comprises two clusters of six and four houses, respectively, separated by 200 m of unexcavated land. The close similarities in settlement patterns and artifact assemblages suggest that they likely constitute the northern and southern extremes of a single village (ASI 1998, 2008b). While it is perhaps an early coalescent village, the site was not palisaded and lacks the compact village layouts of later coalescent sites, such as Keffer.

The Keffer site was 2.5 ha in extent and has yielded the clearest evidence for significant levels of violence and village expansion among all of the sites in the Don watershed. Dating to the late fifteenth century (Finlayson et al. 1987), the initial village was composed of two clusters of aligned houses. This initial village was then expanded to accommodate three, possibly four, new longhouses, arranged more or less parallel to the palisade. Houses were simultaneously added and lengthened in the original core area, and the palisade was strengthened from one row to two. Significant amounts of cut and modified human bone were recovered from midden deposits at Keffer—more than a thousand pieces in total (Rainey 2002; Williamson 2007:200, 205). Many of these were modified cranial components (Williamson 2007:205).

While the Keffer site is certainly smaller than other, contemporaneous coalescent sites (e.g., Draper), the alignment of its structures suggests it was composed of three or four of the smaller fifteenth-century communities that had previously occupied the drainage. With the abandonment of Keffer near the turn of the sixteenth century, the Don drainage was abandoned, concurrent with the main period of occupation at the Mantle site. It is not yet known to where the Keffer population relocated.

Another late fifteenth-century site in the upper Don, the Hidden Spring site, featured two overlapping longhouses, each with a substantial midden, and several exterior activity areas. This site has been interpreted as a special purpose site perhaps associated with Keffer (ASI 2010c).

Humber River

Century-long settlement sequences have been reconstructed for at least two communities in the Humber River watershed (Ramsden 1977; Williamson et al.1998), one spanning the fifteenth century in the middle Humber River–Black Creek area and the other in the headwaters, spanning the mid-fifteenth to late sixteenth centuries (Figure 2). Each appears to have had a discrete ceramic manufacturing tradition in place for at least 100 years (Robertson and Williamson 1998:149).

It appears that a number of small communities came together in the mid-fifteenth century to form a large, palisaded village aggregate at the Parsons site, in the middle Humber River–Black Creek area (Williamson and Robertson [eds.] 1998). Our knowledge of the site sequence that led to the formation of the Parsons community begins with the late fourteenth-century Black Creek site. Limited excavations in the 1950s revealed an unusual double palisade straddling two terraces adjacent to Black Creek, the tributary of the Humber River for which the site was named (Emerson 1954:123, 142). It is possible that, upon the site's abandonment, the community relocated 2 km upstream to the Downsview site, occupied during the late fourteenth to early fifteenth centuries (Emerson 1954:101-102; Wright 1966:101) and from there to the Parsons site, occupied in the mid-fifteenth century.

The nearby Riseborough site, encompassing an area of approximately 1 ha, is also a possible contributor to the Parsons community as is the Emery site, a poorly known village located approximately 4 km west of Parsons (Williamson, Cooper, and Robertson 1998:9).

The mid-fifteenth-century Parsons site is the largest (3.2. ha) and best-documented of those in the middle Humber River sequence (Williamson and Robertson [eds.] 1998). While the site had been subjected to limited test excavations in several middens in the late 1950s and 1960s, excavations in late 1988 through early 1990 of an 18 m wide service corridor traversing the core of the settlement revealed eight house structures. The fact that three of these had been constructed between the original longhouses suggests

population growth and/or an influx of new inhabitants. The site is defensively situated on a broad promontory overlooking Black Creek and was surrounded by a palisade consisting of one row on its western margin on a terrace midway up the slope, similar to that documented at the Black Creek site. On the eastern edge of the village, the palisade was comprised of seven rows, indicating it had been rebuilt at least once. More than 1,200 fragments of human bone, as well as human bone artifacts, were found inside and adjacent to midden areas (Robertson, Williamson, and Welsh 1998:52; Williamson 2007:200).

The material culture assemblage, which includes a catlinite pendant, suggests either direct or indirect links to peoples originating farther afield. Two intact adult crania were excavated from a refuse-filled depression in the area of the eastern palisade (Robertson, Williamson, and Welsh 1998:40–41). Craniometric analysis links these crania with the Uxbridge ossuary 30 km to the northeast (Dupras and Pratte 1998), pointing to feuding between neighbouring rather than far-distant communities. Also of note is the fact that 9 percent of the vessels have been identified as having attributes originating among St. Lawrence Iroquoian populations to the east, a relatively high percentage compared with contemporaneous sites along the north shore. Interestingly, 75 percent of these eastern-style vessels originated in House 8 and associated refuse deposits along the inner eastern palisade (Robertson and Williamson 1998:147), perhaps indicating the existence of a St. Lawrence Iroquoian enclave at Parsons by the mid- to late fifteenth century.

The northern Humber River, where its headwaters flow south from the Oak Ridges Moraine, features only sites dating to the late fifteenth to early sixteenth centuries, a period of widespread warfare and settlement aggregation. This group represents the later occupation of the Humber River drainage.

The completely excavated late fifteenth- to early sixteenth-century Damiani site encompassed an area of 1.5 ha and included a total of 23 house structures surrounded by a two- to three-row palisade (ASI 2014b). The village was expanded from an original core settlement of 16 aligned houses to incorporate 7 more longhouses. The midden contained scattered human bone, including burned cranial fragments.

The early sixteenth-century Boyd village encompasses an area of about 1 ha. Although this site has been subject to long-term small-scale excavations associated with field schools (Burgar 1990) and early investigations by the Ontario Archaeological Society (Donaldson 1962a), little is known about its internal structure. Peter Ramsden (1977:216) suggested that Boyd was ancestral to Seed-Barker and contemporaneous with Mackenzie-Woodbridge.

The McKenzie-Woodbridge site is thought to be an early sixteenth-century village located slightly south of the Boyd site and encompassing an area of approximately 2 ha. It, too, has only been subject to limited test excavations; portions of seven houses and a multi-row palisade (and possible earthwork) have been documented (Johnson 1980:78). A village cemetery, like that at Mantle, was excavated on a sandy knoll at a distance of 100 m from the palisade (Saunders 1986).

The Seed-Barker site is an approximately 2 ha village occupied in the early to mid-sixteenth century (Burgar 1989; 1993). It is thought to have been contemporary with Mantle, and has a similar site structure, suggestive of an integrated, post-coalescent community (Birch and Williamson 2013a). While only about a quarter of the settlement has been excavated, 20 houses have been identified along with a seven row palisade along the northwest boundary of the site, sections of which indicate three separate construction episodes. The presence of two European copper beads (Fox et al. 1995) and exotic ceramic vessels is also reminiscent of the Mantle site.

Two small sites likely associated with these villages have been documented. The Reiss site, situated on the West Humber River, consisted of two small loci that yielded both ceramics and lithic debitage, but no settlement patterns (MPP 1989). Flak Jacket 2 consisted of two poorly defined, open-ended cabins with very little associated refuse (Pearce 1995). The Toronto and Region Conservation Authority has also documented a series of small Wendat camps along the East Humber River (Margie Kenedy, personal

communication 2014).

The latest site in the Humber River sequence is the late sixteenth-century (GBP 1) Skandatut site (ASI 2012e). The site is 2.6 ha in extent and was surrounded by a one- to two-row palisade. It is thought to represent the last Wendat occupation of the drainage prior to the migration of the Humber River community to historic Wendake. The surface of the site yielded 12 discoidal shell beads and one tubular bead, all from marine shell along with brass scrap and glass beads (ASI 2012e). Hundreds of discoidal marine shell beads, glass beads, complete iron and brass pots, and other brass and copper artifacts were found in its associated ossuary, known as the Kleinburg ossuary, located across the stream from the village (ASI 2012e).

Credit River

There were also a number of ancestral Wendat/Tionontaté sites on the lower reaches of the Credit River drainage, about 30 km to the west of the Humber River (Figures 2 and 3). That sequence begins with the Early Iroquoian Lightfoot site, which consisted of a cluster of four houses with an associated midden, as well as an additional isolated house with an associated hillside midden. The site may also have a Middle Woodland component (Dana Poulton, personal communication 2014). The complete salvage investigations of the palisaded, turn-of-the-fourteenth-century Antrex site (ASI 2010d) included the hand excavation of more than 760 one-metre square units in areas of artifact concentrations within undisturbed topsoil, including two middens. The settlement pattern consisted of six longhouses, surrounded by a one- to two-row palisade.

Subsequent sites in the sequence include a number of fourteenth and fifteenth-century

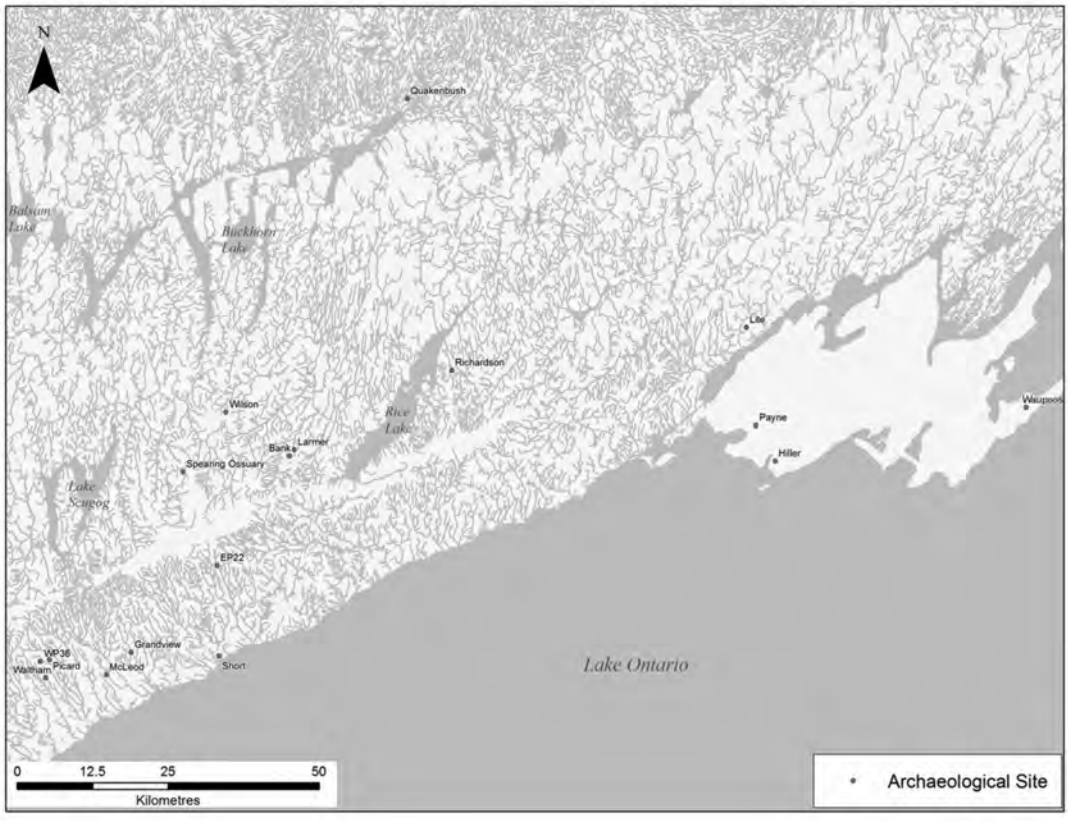

Figure 3. *Locations of selected ancestral Wendat sites in southeastern Ontario.*

villages and small, temporary special purpose sites (Konrad 1973; Williamson and Pihl 2002; Robertson 2010). The documented villages include the fifteenth-century Pengilly, River, and Springbrook sites. Pengilly has been subject to partial mitigative excavations and has yielded evidence of two longhouses, both of which had been expanded. The houses feature a dense array of posts and pits throughout their central corridors and would seem to have been occupied year-round. The presence of extramural activity areas suggests the site was occupied for some time and that additional houses are present on the site. The site also yielded a human burial, a burnt fragment of human skull rattle, and scattered human bone (MPP 1986b; Dana Poulton, personal communication 2014). The River site has yielded a cluster of four houses and one other structure separated by 200 m of surface scatter and documented middens (M.M. Dillon 1996). Springbrook was an unpalisaded village with eight well-spaced houses with two basic orientations (Poulton et al. 2008-2009). While no deep middens were detected, refuse areas were present at the ends of a few of the houses, indicating an occupation of some length. The clay soils perhaps inhibited the excavation of large, deep cultural features. A partial human cranium was found in one semi-subterranean sweat lodge and an unusual cremation burial was found nearby. No other scattered human bone was documented.

The Credit River drainage sequence ends with the Emmerson Springs (Hawkins 2004a) and Wallace sites (Crawford 2003), both of which have been subject to very limited excavations. Both of these sites date to the sixteenth century and have yielded European items.

While a number of small special purpose sites have been investigated in the lower reaches of the Credit, only one has been subject to extensive investigation. The Chappell Terrace site was located on the south bank of the Credit, approximately 6 km north of the Antrex site, and would appear to represent a small camp occupied intermittently during Middle to Late Archaic times; during the Middle Woodland; and again in the Middle to Late Iroquoian period, between circa A.D. 1400–50 (Robertson 2002). During the latter period it served as a seasonal hunting and game processing site apparently focused on deer.

Lynde and Harmony Creeks

Approximately 20 km to the east of the Duffins Creek drainage is Lynde Creek, on which at least three villages have been documented (Figure 3). The Joseph Picard site was an unpalisaded, 1.5 ha, mid-fifteenth-century village that featured ten widely spaced longhouses, including two pairs and a cluster of five structures, one of which was overlapped by another (ASI 2012d). Three of four AMS radiocarbon dates taken on maize samples from separate features are identical, at 450±30 B.P., which calibrates to A.D. 1420–1465 (2 sigma). The fourth date is 410±30 B.P., which calibrates to A.D. 1435–1510 and A.D. 1600–1615 (2 sigma), because the radiocarbon date coincides with wiggles in the calibration curve. The latter intercept date is considered highly unlikely. The site has yielded several artifacts made of walrus ivory, as well as a marine shell bead and beads made from steatite likely originating in Jefferson County, all indicating extensive trading networks with St. Lawrence Iroquoian or eastern Algonquin populations (Williamson et al. 2014).

A few kilometres to the west of the Joseph Picard site is a 1.5 ha mid- to late-fourteenth-century village discovered in the summer of 2012 (ASI 2014c). Atsista features 11 house structures partially enclosed by discontinuous fencing. Six of the houses are clustered together, while the others are spaced more widely. This site also yielded a number of steatite beads as well as a pipe bowl fragment. About 8 km south of it is the Waltham site, a fifteenth-century village for which only limited data are available. Both Waltham and Joseph Picard yielded bone artifacts decorated with lines painted with bone black. No late fifteenth- or early sixteenth-century successor villages have yet been documented in this drainage system, although there are late fifteenth-century sites situated about 40 km farther north.

To the east of Lynde Creek by 20 km is Harmony Creek. The unpalisaded Grandview site, a 0.8 ha late fourteenth- to early fifteenth-century village on Harmony Creek was found to contain 12 longhouses and 3 midden deposits

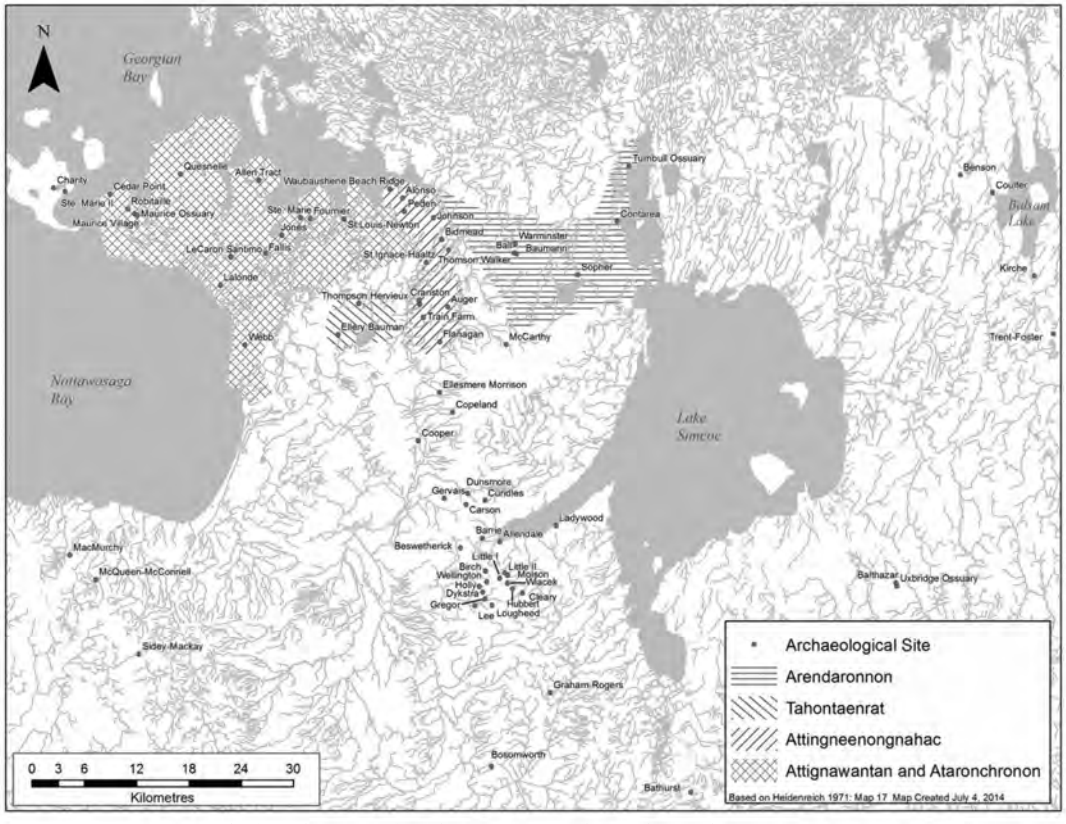

Figure 4. *Locations of selected ancestral and contact-period Wendat and Tionontaté sites in central Ontario.*

(Williamson et al. 2003). The settlement patterns and ceramic distribution suggest three major building phases, involving the construction of four, five, and three houses in each phase, respectively. The likely successor to the Grandview community is the McLeod site, a 1.6 ha fifteenth-century settlement that has had only limited investigation (Reed 1993). The fact that this site is twice the size of Grandview suggests it likely resulted from the amalgamation of Grandview and another community. The antecedents of these communities are unknown. One Early Iroquoian settlement, the Short site, is situated about 15 km east, on Bowmanville Creek (Donaldson 1962b; Williamson et al. 2003:47).

There are no known settlements that post-date the mid-fifteenth century in this region, although the presence of the late fifteenth-century Uxbridge ossuary in north-west Durham Region (Figure 4) suggests that there must have been similar-aged settlements in that region. It is also possible that portions of the populations that occupied the Grandview, McLeod, Joseph Picard, and Waltham sites migrated out of that region, perhaps north to Uxbridge, west to Duffins Creek, or east to the Trent valley. One village (Balthazar) and several unregistered villages have been documented within 10 km of the ossuary (Martin Cooper, personal communication 2013). Significant research has been undertaken into the lives of the Uxbridge people through biological analyses (Pfeiffer 1983, 1985, 1986, 1991; Pfeiffer et al. 1985; Pfeiffer et al. 1986; Pfeiffer and Fairgrieve 1994).

Trent River

The Trent River drains a large portion of southcentral Ontario, including most of the Kawartha Lakes and its supplying watersheds. By the early sixteenth century, there was a large

ancestral Wendat presence in the upper Trent valley that appears to have been a product of in-situ cultural development (from sites lower in the valley) and also from immigration from the St. Lawrence valley region (see Sutton 1990: Figure 3) (Figures 3 and 4). A series of thirteenth century and earlier sites along the north shore of Lake Ontario in the Bowmanville–Port Hope–Courtice area, as well as near Grafton and Brighton (Kapches 1987; MacDonald and Williamson 1995; Richardson 1968; Gordon Dibb, personal communication 2013), are likely the ancestral communities of the early sixteenth-century villages in the upper Trent River system. Dibb's excavation of the Grafton site, a fishing station on the shore of Cranberry Lake, revealed a complex of overlapping features and posts, making it difficult to discern houses. He recovered approximately 20,000 fish remains and portions of more than 100 ceramic vessels. An impressive suite of 18 radiocarbon dates yielded evidence of recurring occupation between the late ninth through to the early fourteenth centuries (Gordon Dibb, personal communication 2013). Late fourteenth-century villages in the Middle Trent valley (e.g., Wilson) and also the fifteenth-century two-row palisaded and multi-component Bark site and the fifteenth-century Barcroft village on Pigeon Lake (William Fox, personal communication 2014) are likely the result of in-situ development from these and other earlier Iroquoian populations in the Rice Lake region (Jamieson 1998; Sutton 1990:50; see also Pearce 1977 for a second focus of very early Iroquoian regional development). At least one early fourteenth-century 1 ha village, known as Gibson, has been documented on the west side of Chemong Lake (ASI 2008c), and one-turn-of-the-fifteenth-century village was documented on the west shore of Scugog Island (ASI 2011d). William Donaldson also documented the fifteenth-century Thomas village in Scugog Township (Donaldson 1962c).

The lower Trent River valley and Prince Edward County feature a number of villages that date to the late fifteenth century, including the Payne (Emerson 1967; Pendergast 1963), Waupoos (Pendergast 1964), Hillier (Ramsden 1977), and Lite (Pendergast 1972) sites. The ceramic assemblages from all of these sites are similar to other ancestral Wendat assemblages (Sutton 1990: 3), and while little is known about the former three sites, they are all smaller than the Lite site, which encompassed an area of 3 ha. While no houses were recorded for the Lite site, Pendergast reported that the remains of a multi-row palisade were found at the brow of the hill on which the site is situated, and he argued that the presence of deep middens indicated a lengthy occupation. The possibility that intensified conflict and concern for defence may have influenced the location and fortification of this village was further underscored by the recovery of three human skull gorget (or rattle) fragments and a significant quantity of human bone scattered in the undisturbed middens (Pendergast 1972:35). Clearly, this community was also involved in the widespread conflict that characterized the mid- to late fifteenth century on the north shore of Lake Ontario and elsewhere. Other less well-documented sites and ossuaries are present in the area of Fenlon Falls and Manvers Township (e.g., Larmer and Spearing ossuary) (Hakas 1967), where ASI recently documented a previously unknown large mid-fifteenth-century village named Auhoindio (formerly EP22).

There are also a number of fifteenth-century sites in the upper Trent valley, including the Hardrock site, located on the west side of Indian Point in Balsam Lake (Emerson 1954:185-203; Ramsden 1977:207,255); the Jameson site (Sutton 1990:45); and the Quackenbush site, a 1.5–2 ha village located east of Stoney Lake in the eastern Trent River valley (Ramsden 1977). Limited excavations at Quackenbush revealed portions of three longhouses, several midden deposits, and a mass grave of individuals within one of the longhouses, the remains of all of whom displayed signs of interpersonal violence (Peter Carruthers, personal communication 2014; Helmuth 1993), indicating that this site was also embroiled in the widespread conflict of the period.

By the late fifteenth through sixteenth centuries, the regional populations in the Trent valley had coalesced in the vicinity of Balsam Lake in the upper Trent valley. These include the

aggregated communities of Kirche (Ramsden 1989) and Coulter (Damkjar 1990), which are 2.5 and 3.3 ha in size, respectively. Both were well defended and were expanded, and both are thought to date to the early to mid-sixteenth century, as both also yielded European metal artifacts. These data suggest amalgamation was occurring in this region well into the sixteenth century, a date consistent with the patterns of conflict and village expansion to the east, in the St. Lawrence River valley.

Two sites documented in the Trent valley date to the late sixteenth century, namely, Benson and Trent-Foster. Benson, has been fully excavated and analyzed (Fogt and Ramsden 1996; Ramsden 1978, 1988, 2009), while Trent-Foster was subject only to test excavation. Trent-Foster is thought to have been exceedingly large; during the test excavation only one house and a multi-row palisade have been documented (Burgar and Pratt 1973). The Benson village encompassed 1.5 ha and contained 23 structures. It was thought to have also housed a substantial St. Lawrence Iroquoian population, based on the presence at the site of ceramic styles derived from that region. The small size of Benson, however, suggests that the balance of the combined populations of the Coulter and Kirche sites must have been housed at Trent-Foster. There are additional sites in this Goose Lake cluster as well (Peter Carruthers, personal communication 2014).

Wendat accounts provided to early Europeans suggest that the abandonment of the Trent valley must have occurred around A.D. 1590, implying that the area was abandoned after the occupation of the Benson and Trent-Foster sites.

Historic Wendake (Huronia) to A.D. 1620

Although the term Wendake is sometimes used by Wendat people to refer to all of their traditional territory in southern Ontario (Williamson 2010), historic Wendake is generally defined as the lands between Lake Simcoe and Georgian Bay (modern-day Simcoe County), lands that were also occupied by Wendat people by the end of the thirteenth century (Figures 2 and 5).

As a result of extensive surveys of southern Simcoe County, particularly Innisfil Township, by Gary Warrick, Jamie Hunter, Richard Sutton, and others, clusters of late thirteenth- and fourteenth-century sites have been found on upland locations to the west of Kempenfelt Bay. However, earlier Transitional Woodland or Early Iroquoian period sites are absent, with the exception of a small fishing or trading presence (Sutton 1999). A 1969 survey of the Penetang Peninsula (Latta 1971, 1973) also documented numerous sites, based on limited test excavations, but none were earlier than the fourteenth century. There is, however, a poorly known but substantial concentration of Middle Woodland sites in the lower reaches of the Nottawasaga River (Conway 1973; O'Brien 1974), which includes the multicomponent Schoonertown site as well as the nearby Blueberry Field site (Spittal 1981). Other well-known Middle Woodland sites include the Stockin site, at Methodist Point (O'Brien 1976); the Johnson 1 site, at the southeastern end of Minising Swamp; the Dougall site, on the west side of the narrows between Lakes Simcoe and Couchiching, which also yielded evidence of Early Woodland through historic Wendat (including four Early Iroquoian vessels) (Wright 1972); and the Bristow site on Thorah Island in Lake Simcoe, which also yielded evidence of Transitional Woodland or Early Iroquoian vessels (Sweetman 1967:11-13). The rarity of Early Iroquoian sites, with the exception of the Dougall and Bristow sites, combined with the substantial presence of Middle Woodland sites, suggest that local Algonquian populations had occupied Simcoe County and adjacent lands and that they continued to do so intermittently until in-migration of southern Iroquoian populations in the mid- to late thirteenth century, or perhaps a bit earlier given the early vessels at Bristow.

The Barrie site was one of the earliest ancestral Wendat sites located north of the Oak Ridges Moraine (Sutton 1999). The site was almost 1 ha in size, and excavations uncovered two longhouses and five middens. The site is thought to date to the late thirteenth through early fourteenth centuries based on an extensive vessel sample. It represents a pioneering presence in the region on the part of migrants from the north shore of Lake Ontario. The early fourteenth century Wilcox Lake site in northern Richmond

Hill, which was occupied year-round (Austin 1994), and the early to mid-fourteenth century Bathurst St. site in Aurora (ASI 2014d), both situated on the Oak Ridges Moraine, perhaps represent roughly contemporary communities that stepped their migration northward. Limited excavations at Wilcox Lake yielded evidence of at least five longhouses and a single-row palisade/fence, while Bathurst St., also only partially excavated, yielded one house, two middens, and a few small lines of posts, with no evidence of a palisade. It may have only been seasonally occupied.

The even earlier Wellington site, radiocarbon-dated to the mid- to late thirteenth century, also seems to represent an early incursion into the region (ASI 2005d). It featured two widely-spaced houses equidistant from the main site refuse area. One of the houses did not resemble a long-term Iroquoian dwelling but rather a structure erected and then maintained to shelter a series of recurring activities. Given the recovery of more than 12,000 artifacts, however, it is clear that Wellington was occupied for some time. There is evidence to suggest that the two houses were occupied simultaneously by two different groups, the longer house by ancestral Wendat and the shorter one by Algonquians. Perhaps the site was occupied for a series of negotiations between a party from an ancestral Wendat community from the north shore of Lake Ontario intent on moving into the south Barrie region and representatives of the local Algonquian population who either resided there or used the territory. The best evidence for such a scenario includes the presence of American eel, likely representing a food resource brought by the occupants from the north shore of Lake Ontario, since it is unavailable locally; significant differences in the frequencies of chert types between the two house structures, with the smaller house assemblage yielding significant quantities of Collingwood (Fossil Hill formation) chert, thought to be far more available to local Algonquians than to ancestral Wendat (Fox and Garrad 2004); and the presence of a probable ritual burial of multiple small, fur-bearing animals, something that was also documented in four features at the nearby, slightly later, Holly site (ASI 2009). These animal burials, which are unique finds in southern Ontario, are similar to the interment of disarticulated, generally young or immature dogs (and other animals) in ceremonial contexts (Smith 2000; Oberholtzer 2002) among Algonquian-speakers of the region (e.g., Brizinski and Savage 1983; Prevec 1987; Smith 1996:270-272, 2000). (For a summary of the cosmological significance of dogs in Wendat society, see Wright [2004].)

Holly included at least four major longhouses showing substantial long-term domestic use and extensive re-building, as well as three, maybe four, small structures that may have served a special purpose; several large middens; and multiple, exterior rows of posts and associated features. The nearby Steven Patrick (AMICK Consultants Limited 2003; Hawkins and Caley 2012), Allandale (Carscallen 2001), and Ladywood (DPA 1999) sites also represent early fourteenth-century sites. While Steven Patrick featured five houses representing at least two occupations, possibly during different times of the year (Hawkins and Caley 2012:101), Allandale and Ladywood, situated on the shore of Kempenfelt Bay, are small, perhaps repeatedly used fishing locales. A number of historically documented ossuaries and burials were situated on the Allandale site (AMICK Consultants Limited 2013). Hawkins and Caley (2012) compared the fish remains recovered from Steven Patrick with the three fisheries model advanced by Needs-Howarth and Thomas (1998) for the Barrie and Dunsmore sites and concluded that with fine-grained analysis, the model works for both the Steven Patrick settlement and the Allandale fishing locale. A dearth of deer at Steven Patrick is entirely consistent with the near absence of deer remains in the archaeological record of fourteenth and fifteenth-century southern Wendake (see Robertson et al. 1995 for further discussion).

The nearby Dykstra site featured only one—probably open-ended—house, several fence rows, a few external structures and a small midden/activity area; the site was probably occupied intermittently and perhaps seasonally for a special inland purpose (ASI 2006d). It may relate

to either Holly or the nearby Lee village, a late fourteenth-century village excavated in the 1990s by AMICK Consultants Ltd. Lee featured a very unusual settlement plan with eight clear houses all joined by short fence lines creating an enclosed inner plaza, as well as a highly unusual rectangular partitioned structure measuring 24 m long and 16 m wide divided width-wise into three equal sections. A number of equally unusual irregular and sizable enclosures were appended to its west end.

The Beswetherick site, test-excavated by Ridley (1973), provided one of the first radiocarbon dates of any of the Wendake sites—calibrating to A.D. 1340±45 (Timmins 1985:96). No settlement patterns are known for the site. Limited test excavations were also undertaken in 1967 at the Fournier site by William Russell (1967). His work revealed two components apparently separated by 10 m, one of which, he argued, first functioned as a fishing station. He uncovered a longhouse that had been expanded three times and that is said by Russell to have been constructed to encompass a spring. Traces of the bark covering the house as well as woven matting were found within the house. Russell documented more than 600 pit features and recovered a substantial artifact assemblage, including several complete ceramic vessels.

Located in Tiny Township, the Webb site is a late fourteenth-century village first recorded by Andrew Hunter in 1899 and test-excavated by Frank Ridley. Limited excavations on the site carried out in 1950 by J. Russell Harper of the Royal Ontario Museum (Harper 1952) revealed settlement patterns in the form of 21 "ash heaps," presumably middens, and an unusual house form. These small, circular structures measuring 3 m in diameter, with central hearth clusters consisting of posts, ash, and burned rocks, were perhaps Algonquian residential structures. A sizable artifact assemblage including Middleport Oblique, Lalonde High Collar and Black Necked vessels seems to indicate a late fourteenth- to early fifteenth-century date for the site (see also Bursey 1993). The recovery of half of a polished and drilled human cranium rattle is notable, as the presence of these types of artifacts peaks across Iroquoia in the second half of the fifteenth century (Williamson 2007; Jenkins 2015). Harper also recorded what he believed to be ancient trails, two to Georgian Bay, where he documented pre-contact hearths and deposits; one to Cranberry Lake; and another that traverses the landscape near to the site.

The unpalisaded, late fourteenth-century Wiacek site (Lennox et al. 1986; Robertson et al. 1995) featured five houses, two of which were small unusual structures perhaps used for special purposes or by visiting Algonquians (Robertson et al. 1995:50). By the early fifteenth century, there were numerous ancestral Wendat villages in Simcoe County (Warrick 2008:147), including a number that have been completely excavated. Dunsmore (Robertson and Williamson 2003), was a 2 ha village that included both seasonal tenancies and year-round occupations. The settlement appears to have served as both a seasonal fishing camp and a semi-permanent agricultural village, perhaps involving members of several different communities. Sixteen houses of various sizes were recorded. Both Wiacek and Dunsmore featured semi-subterranean sweat lodges. The partially excavated Hubbert site (MacDonald and Williamson 2001), however, contained at least three houses, featuring a total of 17 semi-subterranean sweat lodges, indicating considerable effort at social and political integration at the site. While the lack of both palisade complexes and scattered human bones on these and other sites indicates a period of relative peace, as was the case with contemporaneous sites along the north shore of Lake Ontario, the early to mid-fifteenth-century Loughheed site (ARA 2003a), also located in the same cluster of sites, featured a multiple-row palisade surrounding at least six closely spaced and aligned houses, but there was no additional evidence for conflict. On an adjacent property, the late fourteenth-century Gregor site featured four houses surrounded by a two-row palisade. It may have been inhabited immediately prior to Lougheed (ARA 2003b). The different nature of these settlement plans is likely reflective of that particular community's interactions with other groups, although the lack of palisading on neighbouring villages suggests the

community may have been concerned with farther-distant populations. Warrick and Molnar (1986) had suggested prior to the investigation of many of these southern sites that that there were two community sequences reflected in the record. At least one special purpose site has been thoroughly investigated. The Birch site (MacDonald and Cooper 1992) yielded evidence of scattered post moulds and 3 features and 58 artifacts that appear to place the site in the early fifteenth century. The wind-breaks represented by the posts and the recovery of plant remains from the features suggested that the site was used for gathering and processing plants in the summer or fall.

The Copeland site (Channen and Clark 1965) is a 1.5 ha early to mid-fifteenth-century village featuring a one- to two-row palisade surrounding four houses, at least one overlapping, while the Baumann site (Stopp 1985, 1986; also recent work by Dean Knight) is an early fifteenth-century village at which several houses and middens have been defined and tested. The nearby late fifteenth-century unpalisaded Carson site featured eight houses in three clusters, two with three houses and one with two (Varley 1993); the village seems to have been unconcerned with defence. Colin Varley analyzed the ceramic assemblage from Carson, comparing it with Copeland and Baumann, as well as with assemblages recovered from limited test excavations at several other roughly contemporaneous sites (i.e., Ellesmere-Morrison, Lalonde, and Bosomworth—Ramsden 1977; Emerson 1959). In his analysis, Varley demonstrates the doubtful utility of the concept of a Lalonde focus for fifteenth-century Wendat sites (Ridley 1952a, 1952b). While 22 percent of the Carson site ceramic assemblage consisted of Lalonde High Collar vessels, high collar vessels have been found in varying frequencies on nearby fifteenth-century sites in historic Wendake and on the north shore of Lake Ontario. They constitute, for example, 8 percent of the assemblage at Dunsmore, 4 percent at Hubbert, respectively, 36 percent at Fairlain Lake (Latta 1976:337), 22 percent at Copeland, 8 percent at Bauman, and 1 percent at Parsons. Because archaeologists now understand that these communities are all autonomous and subject to their own social and political contingencies, involved in different exchange networks with neighbouring and more distant communities (Williamson and Robertson 1994; Birch and Williamson 2013a:7-8), Lalonde is best thought of as a widely shared ceramic vessel style originating in the southern Barrie region.

The Forget site, situated overlooking the Wye valley and Mud Lake, is another village that reportedly featured numerous Lalonde vessels. First reported by Andrew Hunter in 1900, it was subject to extensive investigations by Wilfrid Jury from 1954 to 1963, for the field school of the Museum of Indian Archaeology (see also Ridley 1973); it was the first almost completely excavated Wendat village. The site is designated under Part VI of the Ontario Heritage Act, Re.709/710. The site had a double palisade wall and at least two hillside middens (W. Jury 1956). A rudimentary plan of the site published by Heidenreich (1971: Figure 8) shows 12 houses with 8 roughly parallel structures oriented northwest–southeast in the centre, with a pair of parallel, perpendicular structures on both the south and north sides. The south pair seems to be small cabins. More recently, William Finlayson prepared a report on the settlement patterns of the site based on Jury's field notes and described the site as a sixteenth-century village with 11 longhouses and 2 special purpose structures surrounded by 2 rows of palisade (Finlayson 2002:1). According to Jamie Hunter and Peter Carruthers, both of whom worked at the site, the recovered assemblage included Lalonde High Collar and Black Necked vessels, some complete. Both thought the site dated to the pre-contact period (Jamie Hunter and Peter Carruthers, personal communication 2014). A cache of 13 items of native copper, including knives and arrow and spear points, was found in a feature in a midden situated between the two palisade lines (Jury 1958; 1973). More recently, however, Susan Dermarkar of the University of Toronto (Mississauga) and Andreas Vatistas (2011) have examined the assemblage from the site, provided by the Museum of Ontario Archaeology, and described the ceramic and metal material culture along with glass beads, all of

which they believe are consistent with a seventeenth-century date for the site. They also cite as evidence of a seventeenth-century occupation a 1962 conventional radiocarbon date for the site from the University of Saskatchewan of 360±40, which calibrates today to A.D. 1464–1628 (1 sigma) and 1450–1636 (2 sigma) (CALEB rev. 7.0). The date, therefore, cannot contribute to the resolution of the period of site occupation. This issue will have to be resolved through careful analysis of Jury's original field notes, the catalogue system used by him and the museum for sites starting with the letter F, and the personal notes of other researchers who may have visited the site.

In 1947, Wilfrid Jury, with the sponsorship of the Martyrs' Shrine, carried out investigations of the Flanagan site, originally thought by Felix Martin and Arthur Jones to be Téonostayé, or St. Joseph II, based on rumours of the recovery of the fused base of a French-period candlestick or crucifix. St. Joseph was a large Wendat town containing 2000 people and was the scene of the martyrdom of Father Antoine Daniel (Thwaites 1896-1901, 33:259-265, 34:87-93). The Flanagan site is in a well-defended location surrounded by gullies on three sides, with a hillside spring providing the water source for the villagers. Jury found evidence of a continuous palisade on all sides, but on the weakest, north side he reported the presence of palisade reinforced by timbers and field boulders, the latter of which he postulated could have been rolled down the hill as a defensive strategy. He documented the presence of a 150 foot (45 m), large depression along the south palisade wall crossed by 29 foot (9 m) long, eighteen inch (46 cm) diameter logs held in position by posts, from which, he postulated, the site inhabitants had discarded their refuse. He found eight widely spaced longhouses between 40 and 77 feet (12–23 m) long and 18 to 26 feet (5.5–8 m) wide, all featuring 3 foot (1 m) wide bunk lines. Ash pits and hearths ringed by stones were found along their central longitudinal axes. Ceramic vessels marked with "chevrons"; a large pipe collection dominated by trumpet styles; a large quantity of faunal remains (large and small mammal, fish, especially suckers and gar, and reptiles); and charred maize cobs, nuts, and squash and sunflower seeds were collected. No European goods were recovered, and only one native copper awl was found. There is no report on the excavation other than two brief summaries (W. Jury 1948; W. Jury and Fox 1948); it was concluded it was a pre-contact settlement and not the site of St. Joseph.

The Cleary site was another early fifteenth-century village that was subject to at least limited testing. The 4.6 ha site was originally recorded by Andrew Hunter in the 1890s, and it has since been the subject of further investigations, including two excavations by the Ontario Archaeological Society (OAS), in 1963 and 1964, and then again by Gary Warrick (1988). Warrick's investigations recovered a total of 1,051 artifacts from the surface and identified 18 middens. The late fifteenth-century Jones site, situated near the south shore of Little Lake in Midland, has been subject to multiple investigations, beginning with those of Jamie Hunter between 1968 and 1973; Stage 2 and partial Stage 3 investigations by ASI (1989, 1995, 2004b), and further Stage 3 investigation by Merritt (2006). The site is 2.2 ha in extent and is surrounded, at least on one side, by a discontinuous single-row palisade.

Only a few sites that date to the sixteenth-century have been investigated in detail in historic Wendake. Their temporal placements as well as the ages of those sites subjected to limited midden testing in the mid-twentieth century have been estimated, in part, on the presence of varying quantities of French trade goods recovered from them (Trigger 1976:236-243; also Warrick 2008:116-123).

The McCarthy site in Oro Township, for example, was first documented by Andrew Hunter in 1888 and was subject to further investigation by Frank Ridley (1972) and more systematic Stage 2 assessments by Mayer Heritage and AMICK Consultants in 1994 and 2007, respectively (AMICK Consultants Limited 2011). The recovery of a brass ring and pipe by Hunter and a small piece of brass by AMICK, as well as the purported recovery of brass kettles from an ossuary 300 m west of the village, suggest the site dates to the late sixteenth century.

The Sopher site is a mid-sixteenth-century village associated with the Sopher ossuary. Both are located north of Bass Lake and west of Orillia. Test excavations at the 1.5 ha site yielded two parallel houses, spaced 10–15 m apart. No palisade was recorded (Norcliffe and Heidenreich 1974). The middens from the village reveal "that habitation primarily spanned the late prehistoric, with rare trade items only appearing in the top 3 inches [7.5 cm]" (Noble 1971: 42, 45). The ossuary yielded an iron bar celt, but neither the village nor the ossuary yielded glass beads, suggesting a mid-sixteenth-century date, within the range of a calibrated radiocarbon date for the site (Warrick 2008:116-117; see also Ramsden 1977:263 for an even later date for the site, based on ceramic seriation).

The 1.2 ha, unpalisaded, late sixteenth-century Molson site (Lennox 2000), however, was almost completely excavated and yielded evidence of at least 12 houses, with a number of small cabins on the site periphery, possibly inhabited by Algonquians (Warrick 2008: 222). The ceramic assemblage, in which Sidey Notched vessels represent 51 percent of the ceramics—similar to frequencies at the nearby Graham-Rogers, Cooper, and Tionontaté McMurchy sites—as well as those sites' locations to the east of the Tionontaté area, led Lennox to speculate that they may have been founding populations of that nation (Lennox 2000:158-161).

Despite relatively little evidence for hostility in either the fifteenth or sixteenth centuries, the ethnohistoric record of Wendake suggests that initial Wendat alliance building and confederacy formation occurred during the mid-fifteenth century, some 200 years before the arrival of Europeans (Thwaites 1896-1901, 16:227). Attignawantan (Bear) and Attigneenongnahac (Cord) were the original co-founders of the Wendat confederacy, since both had been resident in Wendake for at least 200 years (Thwaites 1896-1901, 16:227-229). Settled by the mid-fourteenth century, Attignwantan villages were located in western Wendake and across the Penetang Peninsula, while Attigneenongnahac villages were clustered to the southeast (Figure 4). Later additions to the confederacy were Arendahronon (Rock), who moved into Wendake c A.D. 1590, and Tahontaenrat (Deer), who joined c. A.D. 1610.

The Arendahronon likely originated with the Benson and Trent-Foster communities, becoming the easternmost tribe of the confederacy. Champlain was told by the Arendahronon that they formerly lived in the Trent valley and had abandoned the area due to fear of enemies (Biggar 1922-1936, 3:59). Their initial principal village in Simcoe County may have been the Ball site, which may have later relocated to Warminster (Warrick 2008:2006). Ball represents a thoroughly excavated, 3.5 ha, late-sixteenth- to early seventeenth-century Wendat site. It has been the site of field school excavations by Wilfrid Laurier University over the past three decades (Knight 1978, 1987, forthcoming). The site was found to contain more than 71 houses surrounded by a multiple row palisade, and it featured at least one major expansion, perhaps a defensive amalgamation of two villages (Warrick 2008:206). Based on the glass beads and the European assemblage, Fitzgerald (1986:3-7) believes the site dates to A.D. 1590–1620. The elaborate palisade may have been an expression of the inhabitants' continued concern about attack by the Haudenosaunee, or perhaps the inhabitants were the Wendat group with whom the Tionontaté had formerly been at war, as recorded by the Jesuits (Thwaites 1896-1901, 20:43). It is also possible that the people inhabiting the Molson cluster of sites, situated just to the east of the Tionontaté, had joined the Bear Nation and had at first continued a hostile relationship with their former neighbours.

Warminster consists of two palisaded sections approximately 165 m apart. They are considered contemporaneous on account of similarities in their material culture assemblages. The north village was 3.4 ha in size; the south village, 2.6 ha. Portions of approximately 80 distinct houses were reported from the northern village (Sykes 1983:81, 85). Bruce Trigger (1976:304) discussed the possibility that Warminster is the historically recorded principal village of the Arendahronon, Cahiagué, which Champlain visited in 1615 before his raid on the Onondaga. William

Fitzgerald argues that the site dates to after 1620 (1986:3-7) and therefore is not the Cahiagué that Champlain visited and that Ball may be Cahiagué (see also Warrick 2008:117-118). Heidenreich (2014), however, has recently defended the assignation of Warminster as Cahiagué based on linguistic analysis of the word as "place divided in two" or "cut in two," as suggested by John Steckley (2014:21-22); its large number of longhouses, consistent with its ethnographic description as a chief village with 200 cabins; and its location, matching the distances Champlain travelled to get to the village.

The Tahontaenrat (Deer), who joined around 1610, perhaps originated with the Skandatut (Kleinburg) and Wright-Van-Nostrand villages on the Humber and Holland Rivers, respectively (Birch and Williamson 2013a:158). The Tahontaenrat and Attignawantan spoke different Wendat dialects (Thwaites 1896-1901, 10:11) perhaps attesting to their geographic separation, lasting some 200 years prior to the confederacy—although the same should have been true for the Tahontaerat and Attigneenongnahac, as well as the Attignawantan/Attigneenongnahac and the Arendahronon, given their different origins. John Steckley has noted, however, that the northern and southern Attignawantan had different dialects, perhaps originating with Neutral or St. Lawrence Iroquoian people living among the northern Attignawantan (Steckley 2007:35-45; 2010:4-9). He has also noted differences between southern Attignawantan and Arendahronon dialects based on Sagard's dictionary (Steckley 2010) and Champlain's records, as well as similarities in at least one innovative feature between both Attignawantan dialects, the Attigneeongnahac (Cord) and Tionontaté (John Steckley, personal communication 2014). The Jesuits recorded that the Wendat (Attignawantan) and Tionontaté spoke the same language (Thwaites 1896-1901 20:43), and Steckley has noted that southern Attignawantan had features in common with Wyandot, perhaps originating with the Tionontoté dialect or with the dominance of the southern Attignawantan dialect in the Wyandot language.

The Tahontaenrat occupied a single large village, called Scanonaenrat, which must have appeared about 1610 and, if inhabited for 20 years, was succeeded by perhaps the Orr Lake (1620–35) and Ellery (1635–50) sites (Warrick 2008:207-208). No candidate site in Wendake has been identified for the first Deer village—Ball, Bidmead, and perhaps Molson are the only well-known candidate sites that are remotely possible, although Ball geographically is situated in presumed Arendahronon territory. Molson was too small to constitute the entire Deer nation, and Bidmead was situated within Attigneeongnahac territory. Both Ball and the 1.5 ha Bidmead site, which has a complex palisade around a densely packed series of houses, were perhaps large enough to have accommodated the entire nation. Bidmead is thought to date from 1610 to 1625 based on its artifact assemblage, especially the glass trade beads (Merritt 2001).

Other sites that may date to the same period but that have had very limited excavations include the 1–1.5 ha Waubaushene Beach Ridge and Alonso sites (Hunter 1976) and the Charlebois site (Latta 1973, 1976), all of which are situated some distance from Orr Lake in the territories of the Attignawantan and Attigneeongnahac.

Preliminary investigations on the eastern portion of the Ellery site produced more than 9,000 artifacts, including typical seventeenth-century ceramic types and shell beads and a large amount of trade goods, including red round and tubular glass beads and sheet metal projectile points (ASI 1993). An earlier component of the site was discovered by Alicia Hawkins during field school excavations in 2008 and 2011, when she found evidence of a village dating to the late fifteenth to early sixteenth century (Hawkins 2013), one of only a few documented times that a village location was occupied twice, in this case by presumably unrelated communities, one pre-contact and the other Tahontaenrat.

The earliest late sixteenth-century Tionontaté (GBP1) comprised at least two villages and a few associated camps, the villages being Sidey-Mackay and McQueen-McConnell (Garrad 2014: 425-452). Although Garrad (2014: 420-421) has documented numerous fourteenth and fifteenth century villages and camps, mainly in

Nottawasaga (also Sunnidale) Township (west Simcoe County), he argues that those populations both originated in and had returned to historic Wendake by the late sixteenth century. Garrad (2014:452-453) sees a primarily ancestral Neutral origin for the historically documented Tionontaté, while Gary Warrick (2008:208-209) has argued that these villages probably represent relocations from sites situated north or northwest of Toronto or Innisfil Township. To those possibilities, I would add the suggestion that the Emmerson Springs and Wallace sites in the Credit River watershed to the west are equally credible candidates. The Beeton and Logan sites, in the Albion Pass area of southwestern Simcoe County on the Oak Ridges Moraine, also need to be considered. While Logan has not been investigated, Beeton is approximately 1 ha in size and is surrounded by a two-row palisade (Latta 1980). Limited test excavations at Beeton yielded evidence of three houses, significant quantities of human bone from middens and features, and ceramic vessels with neck decoration suggesting a late fifteenth century occupation. Yet, the recovery of a small amount of brass that dates to the early contact period suggests an early to mid-sixteenth-century occupation.

What is known currently is that in the late sixteenth century, the only settlements remaining on the north shore of Lake Ontario were one or both of the poorly known Emmerson Springs and Wallace villages in the upper Credit watershed, Skandatut in the Humber headwaters, and Van-Nostrand-Wright on the East Holland River. By shortly after the turn of the seventeenth century, the north shore of Lake Ontario was devoid of permanent settlement, these populations having relocated north to join the Wendat and/or Tionontaté confederacies. The ties between these late sixteenth-century sites and those of historically recorded early seventeenth-century Wendat and Tionontaté communities can only be confirmed through further detailed archaeological research, at which time we may find that these north shore communities also contributed people to the Attignawantan and Attigneenongnahac nations, as did the Wenro immigration of 1638 (Thwaites 1896-1901, 17:25-29).

Historic Wendake (Huronia) A.D. 1620–50.

By the 1620s, Ossossane, Scanonaenrat, Teanaustaye, and Contarea were the four main, well-fortified villages of the Wendat. They contained hundreds of warriors and were prepared for Haudenosaunee raiders, thereby enabling the Wendat-Tionontaté to continue their involvement in the burgeoning fur trade. With the exception of the Tahontaenrat, these other nations also had ancillary villages, as well as nearby locales where Algonquians came to winter (Figure 4). According to seventeenth-century accounts (Biggar 1922-1936, 3:122; Thwaites 1896-1901, 7:225, 8:115, 10:313), the Wendat-Tionontaté population totalled 30,000–35,000 before the initial epidemic of 1634.

Substantial numbers of Algonquians wintered with the Wendat. In the winter of 1615–16, 700–800 Nipissing wintered among the Attignawantan in the lower Wye valley in a separate village. The Onontchataronon—Ottawa River Algonquins who likely inhabited lands south of the Rideau-Cataraqui Axis (Pendergast 1999)—possibly numbering 1,000, wintered among the Arendarhonon on the outskirts of Cahiagué, perhaps even in the southern village (Fox and Garrad 2004:129), between 1608 and 1616. This group may have included descendant St. Lawrence Iroquoians (Trigger 1976:227; Pendergast 1999).

Given their annual voyages to Quebec via the French River, Lake Nipissing, and the Ottawa River, as well as the much longer Saguenay route (Wrong 1939:99), the Wendat travelled through Algonquian territory regularly. The Wendat material culture that has been discovered on numerous sites throughout the Canadian Shield may have resulted from trade with the Wendat, been left by Wendat travelling through the landscape, or been manufactured by local Algonquian groups in the Wendat style.

Excavations at the Frank Bay site, for example, situated on a level tract of sand on Frank Bay in Lake Nipissing, have yielded numerous Wendat style ceramic vessels from a rich organic layer likely resulting from repeated use of the site for small, temporary camps (Ridley 1954: 40). Iroquoian style ceramics have also been found on Algonquian sites, such as the Odawa village on

Providence Bay, on Manitoulin Island (Conway 1987); a Matouweskarini hunting camp at the Highland Lake site, southeast of Algonquin Park (von Gernet 1992); and even on Lac St. Jean and the Saguenay River, in south-central Quebec (Moreau 2014; see also Dawson 1979; Fox and Garrad 2004; Guindon 2009; Mitchell 1975).

Few villages in historic Wendake that date to this 30 year period have been subject to detailed archaeological investigations, but the few that have appear to have been Attignawantan or Attigneeongnahac in affiliation.

One of the earliest sustained research/field school programs in Wendake was carried out by Trent University from 1970 to 1977 at the Le Caron site. This 2 ha site yielded evidence of five contiguous longhouses and a large part of the enclosing palisade (Johnston and Jackson 1980). About half of the site's palisade was excavated, revealing posts that were, on average, 12.4 cm in diameter and were thought to have been about 9 m in height, not too different from the height reported by Champlain for the "triple wooden palisade, 35 feet high" at the village of Carhagouha (Biggar 1922-1936, 4:239-240). The Le Caron palisade varied from one to three rows and consisted of approximately 5,000 posts. The site is thought to date to 1640±10 and is located in Tiny Township in Attignawantan territory. The houses were oriented perpendicular to the palisade and were closely spaced with no overlapping, suggesting a well-planned, densely populated village. Trigger (1985:215), following Tyyska and Hurley (1969), noted that average house lengths at Ball and Le Caron are shorter than those on sites in the late fifteenth and sixteenth centuries (e.g., Draper and Benson) and discussed whether this change might reflect the breakdown of the matrilineal extended family during this time. He also noted, however, that house lengths had been decreasing since the fourteenth century. This interpretation should be revisited, given the vastly larger sample that is now available to assess this question. This need to revisit earlier interpretations applies as well to the question of hearth spacing reflecting power and prestige among fourteenth-century houses, as raised by Varley and Cannon (1994).

Other excavations include those at the 2.5 ha Auger site (Latta 1985b, 1991), a multi-rowed palisaded and expanded village attributed to the Attigneenongnahac nation. Excavations revealed at least four uneven rows of longhouses with a west–northwest orientation that parallels the direction of the prevailing winter winds (Heidenreich 1971). Multiple open areas or plazas are located within the settlement.

The Thomson-Walker site (Latta 1995) is located on a promontory of a terrace bounded by the valley of the Coldwater River to the east and a tributary ravine to the south. The primary site occupation dates to c. 1625–35, as indicated by the predominance of early Period III glass beads, notably red and star varieties. The site has been disturbed by looting as well as the construction of a concession road through the entire length of the site. A three-row palisade was identified on the southwest side of the village in 1971, and at least two rows of palisade were observed along the southeast edge in 1993.

The Robitaille site (Latta 1971, 1976) was subject to intensive testing in 1969. Its location in the Penetang peninsula suggests it was Attignawantan in affiliation. Six middens and one longhouse were investigated, and a palisade was located along the south edge of the site. Both Latta and Bruce Trigger (1976:409-411) used the material recovered from the site to discuss the pace of technological change evidenced by the replacement of traditional stone and bone tools by ones made of European metals.

William Fox examined the stone tools recovered from Robitaille as well as the earlier Maurice site (1971; 1979). The Maurice village (Tyyska 1969; also Trigger 1976:350, 413-415) dates to approximately A.D. 1580, but the glass bead assemblage recovered from the nearby Maurice ossuary dates to the late historic period, that is, 1630–50 (Jerkic 1969; Motykova 1969). The village and ossuary are, therefore, unrelated. Fox concurred with the hypothesis that metal implements were replacing stone tools but noted major qualitative as well as quantitative differences between the two assemblages. He found more diverse exotic cherts in the larger, later, and perhaps more cosmopolitan Robitaille village,

along with a dearth of formal edge-retouched artifacts of local Huronia chert in favour of an increase in imported bifaces and formal edge-retouched artifacts of exotic raw material. This development represents to Fox an erosion of Attignawantan stone working skills. Among flaked stone artifacts, projectile points would appear to have been the most important tools. Among those made of ground stone, ornamental items, such as limestone effigy pipes and red siltstone/slate beads, seem to have been popular. He argues that they originated with the Tionontaté and Odawa, the latter perhaps having been responsible for Onondaga bifaces reaching the Wendat via their Neutral contacts, as well as for other exotic cherts, such as Collingwood and Kettle Point cherts.

In his later analyses of the Ball and Warminster sites flaked stone tool assemblages, Fox (1981) characterized the historic Wendat stone tool industry as a bipolar core technology, a product of using glacial cobbles mainly, although crude bifaces of local Huronia chert were recovered at Warminster (see also Bursey 1997).

The Cedar Point site (Latta 1973, 1976) is located on a ridge atop the end of Cedar Point, facing Beckwith Island in Georgian Bay. Four test squares were excavated, and the recovered material indicates that the site was occupied between 1615 and 1649.

The Peden site (Hunter 1976) is a disturbed, 3 ha village dating to approximately 1630–49. The Thompson-Hervieux site (Hunter 1976) is a late historic village (1630–50) also measuring approximately 3 ha. Several surface collections have been taken, including those by Frank Ridley in 1972, Delmar Kelly in 1975, and Jamie Hunter in 1976. The work in 1976 also included small test units to locate middens and to determine the extent of the village. Hunter and others also investigated the Chew-McInnis site in 1971–73 with a high school field school. They excavated a 200 to 300 foot (61–91 m) trench across the site, documenting at least four houses and several middens. A Jesuit ring was recovered. Recent analyses of the recovered assemblage, however, suggest there are two components to the site: the historic occupation and a fifteenth century pre-contact occupation (Anderson et al. 2014).

The 1630s and 1640s were disastrous times for the Wendat. In 1634, measles spread throughout the Attignawantan villages during winter. This was followed by an epidemic of influenza in early September 1636, which persisted until spring 1637. Warrick (2008:222-227) has estimated that between 1634 and 1637, Wendat and Tionontaté populations experienced a 20 percent decline, leaving just 23,000 people alive by the end of 1637. An epidemic of smallpox ravaged the Wendat and Tionontaté between early fall 1639 and spring 1640, reducing their population to 10,000–12,000, as documented by Jerome Lalemant in the 1639–40 census. Many villages were abandoned because they now had an insufficient number of residents, and Ossossané was relocated even though the village was only five years old.

Over the next ten years, the Wendat were attacked repeatedly, leaving only 15 villages remaining at the beginning of the dispersal period, in 1649. The Wendat dispersal involved four main groups: Ossossané (southern Attignawantan); Scanonaenrat (Tahontaenrat, Wenro, and Arendarhonon); Christian converts (Attignawantan, Ataronchronon, Attigneenongnahac, and Arendarhonon); and another mixed group, presumably traditionalists with close ties to neighbouring Georgian Bay Algonkians (Warrick 2008:237-238). About 2,000 Ossossané villagers and a mixed group of Wendat refugees fled to the Tionontaté, but, in December 1649, their main fortified village of Etharita was destroyed by Iroquois and about 1,000 people were forced to travel to Iroquois country. Another 500–1,000 Wendat-Tionontaté fled Tionontaté country to settle on Gahoendoe (Christian Island). With the escalation of hostilities with the Iroquois, the Tahontaerat left in 1649 to reside with the Neutral and then moved to Seneca country in 1651, where they subsequently occupied their own village. In 1648 and 1649, three villages near to the mission of Sainte-Marie fell to the Iroquois. These were Teanaustayé (St. Joseph), Teanaostaiaé (St. Louis), and Taenhatentaron (St. Ignace), the latter being the site where Jean de Brébeuf and Gabriel Lalemant were tortured to death. Some archaeologists and historians believe that St. Ignace was moved to

a second location (Heidenreich 1971:46-47; for a contrary opinion, see Trigger 1976:743-744; 855, Chapter 11, Notes 4 and 5; and for a more recent discussion of the search for St. Ignace II, see Latta 1988).

A small site flanked on three sides by the banks of the Sturgeon River, located south-east of Waubaushene (formerly the Hamilton Farm—west half of Lot 5, Concession 9, Tay), has been advanced as the site of St. Ignace (St. Ignace II by some) and was subject to excavations by William Wintemberg in the 1937 and 1938 and by Wilfrid Jury of the University of Western Ontario in 1946 (Fox 1949; E. Jury 1948; W. Jury 1947, 1951; see Latta 1988 for a detailed discussion of these excavations). W. Jury (1947) described a well-planned settlement of 26 longhouses, averaging 100 × 30 feet (30.5 × 9 m) in size, radiating outward from the centre of the site, and surrounded by a double palisade wall with platform-like structures in the north-west and south-east corners. In the centre of the site, Jury documented what he claimed was a French-designed, several-roomed, heavy-timbered building, thought to be the mission church (see also Thwaites 1896-1901, 39:247). In a later publication (1951), he claimed that an ash bed around two burned posts in the central building was the site of Brébeuf and Lalemant's martyrdom. The site, as reported, was largely devoid of either Indigenous or European artifacts, with the only French period material recovered being a steel knife in the central timber structure (and possibly a second knife, Latta 1988:12) and two iron axes reportedly having been taken from the surface of the site at some time in the past (Fox 1949:133-134).

The Newton site, located south of Victoria Harbour on a flat plateau above the Hog River and long thought to be St. Louis, was also investigated by Wilfrid Jury, between 1951 and 1953 (formerly Newton Farm, Lot 11, Concession 6, Tay), Andrew Hunter having provided an early description of the site (1899:66-67). The plan was described as similar to that of St. Ignace (E. Jury 1948:101; Jury and Jury 1955) with straight palisade walls, squared corners, and dwellings parallel to the walls. A smaller but similar European structure was found in the centre of this settlement. Evidence of a long occupation included extensive midden deposits with faunal and floral remains, including corn, beans, and squash, along with many European metal implements and glass beads. A crucifix, thought to have belonged to a priest, was also recovered. Jury also carried out investigations at the Train Farm site, and Elsie Jury (1962) reported on exploratory excavations from 1958–62 at the Quesnelle site (also known as Deshambault [Latta 1976]), thought by E. Jury to perhaps be the site of Carhagouha. Jury's excavations documented a large village site surrounded by a triple-wall palisade. He reported on the discovery at the site of European iron artifacts "of a different type to that found at late mission sites." Latta reports, on the other hand, that the assemblage she recovered was pre-contact and perhaps even earlier than Fairlain Lake (1976:309).

The most comprehensive excavation of a site of this period (and its reconstruction) occurred at the French mission site of Sainte-Marie, established in 1639–40. By 1648–49, the presence of the Jesuits and their lay assistants in Wendake had increased substantially, to around 50 Frenchmen in 1648–49, coincident with the growth of the Sainte-Marie mission into a well-fortified French settlement and associated farm (Kidd 1949; Trigger 1976:665-668). One of the first architectural descriptions of the remains of the site, aided by limited test excavations, was prepared by Jones (1908:10-11). More detailed information about the layout and buildings within the mission were determined through very detailed and meticulously reported archaeological investigations by Kenneth Kidd (1949). This work was followed by the work of Wilfrid Jury (and Jury 1954) and other, less extensive but very detailed excavations (Tummon and Gray 1992, 1995). This latter work also revealed pre-contact components at the site dating to the thirteenth and fourteenth centuries. And it located the multi-component Heron site, on the west bank of the Wye River, with occupations dating from the fourteenth and fifteenth centuries.

The principal work on the site revealed a wooden palisade and internal ditch complex, as

well as later stone fortifications, in addition to subdivided European and Aboriginal compounds—the former with a complete longhouse and the latter with a chapel, trade shops, a cookhouse, barracks, a barn for domesticated animals, a hospital, and various other dwellings. The architectural interpretation of these compounds has been debated due to inconsistencies between Kidd's detailed records and those of Jury (Trigger 1976:673-681), whose interpretations were at times fanciful. Jury's notion of a lock system for the eastern ditch (and Jury 1954:61-75), for example, has never received support from the scholarly community (e.g., Trigger 1976:679-680).

Many Wendat refugees from Iroquois aggression who originated from the rest of Wendake, including the widows and orphans from Ossossané, fled to Gahoendoe in the spring of 1649. They were subsequently followed by the Jesuits and the Wendat who had inhabited the Sainte-Marie mission, and later by others. While the exact number is unknown, thousands had fled to the island (Thwaites 1896-1901, 35:23, 34:223, 35:87). The Jesuits and lay workmen constructed a four-cornered fort, with curtain walls and bastions built of stone, and they also helped to strengthen the fortifications of the adjacent Wendat village. Prior to the abandonment of the village in 1650–51, conditions at the settlement were disastrous due to crop failure brought on by drought, famine (which led to cannibalism), disease, and the constant threat of and actual harassment by the Iroquois (Trigger 1976:770-788).

The first documentation of the site subsequent to the French period appears to have been by Fr. Pierre Chazelle, who described the remains in 1844 (Trigger 1985:9). Father Felix Martin visited and described the site in 1855 and prepared a plan and watercolour sketch of the site near the southeast corner of the island. Andrew Hunter visited the site in the late 1880s (Hunter 1898), noting the location of the fort and an associated redoubt, along with a Wendat settlement with five longhouses and a burial site. David Boyle (1898:35-42) subsequently visited the site in 1898, examining the fort and describing its dimensions and architectural remnants, along with a nineteenth-century village and burying ground and the Ahoendoé ossuary, located near the lighthouse. The ossuary was reported as being 20 feet (6 m) wide and 5 feet (1.5 m) deep in its centre and having been investigated previously. At the time of Boyle's visit, skeletal remains were still present, some of which were removed. In the early 1920s, a plaque was installed on the site by the Historic Sites and Monuments Board.

The site was not subject to further recorded documentation or actual archaeological investigation until the summer of 1965, when Wilfrid Jury and Peter Carruthers carried out archaeological excavations supported by the Ontario Ministry of Tourism and Information, the Ontario Historic Sites and Monuments Board, and the St. Marie I Restoration Project (Carruthers 1965 and this volume). Excavations were preceded by consultation with the Beausoleil First Nation, who permitted the work, provided that the excavations, carried out in part by band members, were confined to a single test trench inside the walls of the compound and that the artifacts remained on the island in the possession of the people.

Low stone walls outlined a compound about 100 ft (30.5 m) square, with diamond shaped bastions at each corner. The 1965 test trench was 10 ft (3 m) wide, extending north–south from front (south) to north through the near centre of the enclosure and encountered very wet conditions. Four major features were uncovered, including the partial, well-preserved but mostly charred remains of a building against the north wall, among which was found a rich assemblage of Wendat and European items; a well, possibly of the box variety, employing planks to surround a spring (see also Boyle 1898:37); a disturbed area on the south wall filled with construction debris; and another portion of a structure that had also burned.

Among the recovered artifact assemblage was a caramel-coloured gun flint; an early type of musket worm; a double tournois coin dating to 1640; hand-forged iron nails, spikes, and tacks; various copper, brass, and bronze items; as well as bronze nuggets from objects that had melted in

the fire. Hardware items included sheet and bar strapping, hinges, a pintle, door locks perhaps brought from Sainte-Marie I, rings, chain (from near the well), kettle bales, and fasteners. The fine crystal and blown bottle glass recovered are consistent with domestic and ecclesiastical activities. Indigenous pottery, one piece of shell wampum, and a number of glass beads were also recovered. The beads included red spherical (with black cores), red tubular, red oval faceted, as well as blue spherical and blue elliptical with flat ends beads. The recovery of oxen bone provided physical evidence of the report that two bulls and two cows were transported by raft from Sainte-Marie 1 to the new site (Thwaites1896-1901, 35:23, 27:99-101). Unfortunately, the recovered artifact assemblage from these excavations was lost when the school in which they were curated burned several years later.

In 1967 and 1968, the University of Toronto investigated three burial pits to the north of the fort and recovered 129 skeletons (Saunders et al. 1974). The presumed "Indian compound" area north of fort was also investigated; little evidence was found. The remains were analyzed using metric and non-metric and univariate and multivariate analyses. Based on their results and the recovered ceramic assemblage, the researchers concluded that the remains were those of the 1649–50 population based on their unique but heterogeneous characteristics compared with other regional populations. Those remains that had been removed from Christian Island at some point in the past were reburied in the fall of 2013 (see below).

Unfortunately, in 1975, Parks Canada excavated drainage trenches by backhoe within the enclosure, irreparably damaging the deposits documented so carefully by Carruthers (Snow 1975).

In 1987, the Museum of Indian Archaeology (London) carried out excavations of 190 one-metre squares in and adjacent to the fort as part of an archaeological management plan of the Christian Island Reserve (Finlayson and Smith 1988). As in 1965, evidence of charred wooden planks in the fort was found. A survey of the island also led to the discovery of the 1.5 ha Charity site on the shore of Douglas Lake, about a kilometre west of the fort; 91 one-metre squares were excavated there. Among the few artifacts recovered was an iron nail identical to those found at the fort, suggesting to the researchers that the village and the fort were contemporaneous. The researchers concluded that the size of the Charity site was not sufficiently large to have accommodated the thousands of Wendat that are known to have fled to the island and that there must be multiple settlements and cabins yet to be documented (also Thwaites 1896-1901, 35:87).

In 1991, Northeastern Archaeological Associates carried out additional excavations at the Charity site (Jackson et al. 1992; Jackson and Merritt 1998, 2000), which they believe to be the village that refugees established on their relocation to the island in 1648; others fled to there from Ossossané in May of 1649 (Thwaites 1896-1901, 34:203). Over 400 m of contiguous longhouse area was excavated by hand, resulting in the definition of three incompletely exposed and seemingly narrow and short longhouses, although the researchers believed there may have been as many as 80–100 houses at the site. The recovery of glass beads that share chemical characteristics with those recovered from the Tionotaté Plater-Martin, Plater-Fleming, and Kelly-Campbell sites suggested to Jackson and Merritt that the villagers included Tionotaté refugees. The ceramic sample from one house also contained numerous Genoa Frilled type vessels, once linked with the Wenro, who are known to have inhabited Ossossané. It should be noted, however, that Alicia Hawkins has outlined the problems with assuming that these vessel types are associated with the Wenro, whose homeland is unknown (see Hawkins 2001, 2004b). Charred and fractured human remains recovered in several longhouse posts of one of the houses were examined by Michael Spence. His results suggest evidence of cannibalism (Jackson et al. 1992:7; Spence and Jackson this volume). The recovered assemblage is typical of a GBP3 historic period site, and includes copper, brass, and iron implements; glass trade beads dominated by red circular and oval varieties; and ceramic pipes and vessels typical for the period. The absence of animal remains other than fish was noted by the

researchers, who thought that this was consistent with a record of famine.

Discussion

What followed the Gahoendoe disaster was a period of population movements and adoptions. Segments of the population that survived famine and Iroquois attacks moved to near Quebec City and eventually to Lorette, where their descendants flourish today. Other Wendat went with the Tionontaté to live with Algonquians farther west in the upper Great Lakes, eventually becoming the Wyandot and settling in communities at Windsor and Detroit; in Ohio; and, later in the nineteenth century, in Kansas and Oklahoma (Tooker 1978). Still others were adopted into Iroquois communities (Trigger 1976:826-831). For more information about post-dispersal Wendat-Wyandot history, see Labelle (2013).

All of these populations, including the Iroquois and Algonquians, have survived four centuries of colonial domination and attempts at assimilation. Archaeological research continues to play an important role in efforts to assert their rights and interests in their ancestral and contemporary territories. Contemporary research projects include those generated by land-use and infrastructure development throughout the Wendat's former territory.

Yet, it must be said that, despite over a century of archaeological work in historic Wendake, we are no closer to answering some of the fundamental questions about Wendat history. There has been an industry, ever since the days of Jones and A. Hunter, of trying to link historically recorded villages with actual sites on the ground, often on the basis of small samples of artifacts drawn from surface collections or limited excavations of middens on select sites, rather than all the possible candidate sites. As Joyce Wright (2006) correctly pointed out in her review of Wendat ceramics and tribal affiliation, a small sample drawn from one midden on a complex site could lead researchers to form a completely inaccurate understanding of the site, especially if that sample had been drawn from amidst an ethnic enclave.

We also have the problem of inadequate reporting for major excavation projects (e.g., Aurora, Wallace, Warminster, Fournier, Forget, Flanagan, Quesnelle-Deshambault). It is crucial that we as a community make an effort to publish in more detail what is known about these sites. Marti Latta, for example, is currently attempting to piece together the settlement pattern results of the University of Toronto's mid-twentieth-century work at Warminster.

While policy direction and engagement with Indigenous communities is certainly moving toward protection of archaeological sites as a shared objective, it is only with more detailed and substantive excavations on selected sites that we will begin to unravel the complex site sequences in historic Wendake and the individual national histories. To do so, however, we must have a coordinated approach to the documentation of this history. What is sorely needed is an archaeological management plan for Simcoe County to guide the conservation of archaeological sites.

The new public registry of site reports managed by the Ministry of Tourism, Culture and Sport should preclude the previous problem of consultants not only failing to publish their excavation data, but also refusing to share their license reports, thereby handicapping our efforts at actually understanding the past, which was the very purpose of the investigations in the first place. This problem is not restricted to sites in Wendake; it also pertains to some of the sites in the greater Toronto area.

One of things that frustrated me while I was carrying out this review was realizing that much of the work carried out in the 1950s and 1960s, including almost complete site investigations (such as those at Forget or Warminster) were never even completely reported on, let alone published. The records of many of these excavations are still available, and their examination would make for superb graduate student projects, making valuable contributions to our understanding of Wendat history. Other potential graduate projects that could make valuable contributions would be ones focused on the sites around the Uxbridge Ossuary area, the lower and middle Trent River system, and

the enigmatic Beeton site and associated Logan village. During my research for this paper, I was privileged to view a roll-out map as long as a table showing hundreds of sites in historic Wendake, including those first recorded by Hunter and Laidlaw, that was prepared and updated over the years by Peter Carruthers, as well as maps maintained by Jamie Hunter and Bill Fox. Knowing that our understanding of tribal territories and the ecological parameters of site locations could be enhanced through GIS analysis, and having had significant difficulty at tracking down exact locations of sites, I would suggest that undertaking GIS-based analysis of all Wendat sites would be an excellent graduate project for a geographically inclined student.

More generally, a central repository for Huron-Wendat materials, co-managed by the Huron-Wendat, could facilitate access to their material culture for researchers. Whether modelled after, and perhaps associated with, Sustainable Archaeology or stand-alone, this facility might also be a conduit for encouraging research in Huronia and might allow for the establishment of dynamic personal relationships between archaeologists and the Huron-Wendat Nation. Like any political jurisdiction, the true representatives of the jurisdiction will change with different administrations, and archaeologists must be prepared to accept instruction and change in the people with whom they deal.

Ongoing Research

There are some exciting research prospects, many supported by the efforts of the Huronia Chapter of the Ontario Archaeological Society. In addition to Alicia Hawkins of Laurentian University's ongoing work in Wendake, new research is being undertaken by Gary Warrick and Bonnie Glencross of Wilfrid Laurier University on the Allen Tract site. The screening of back dirt left by looters resulted in the recovery of various European metal trade objects and more than 100 glass beads that place the site clearly in GBP2—c. A.D. 1600–20. The site's location, size, and date leads Warrick and Glencross to believe it is the site of the Attignawantan village of Carhagouha, where, in 1615, Recollet priest Joseph Le Caron, accompanied by 12 Frenchmen, overwintered. Their research has included gradiometer and metal detector survey to try to locate Le Caron's cabin, which was located outside of the village.

Other ongoing research includes work by Archaeological Services Inc. in association with Megan Burchell of Memorial University on the sourcing of marine shell and walrus ivory objects recovered from fifteenth-century sites in the Lynde Creek drainage. Archaeological Services Inc., Jennifer Birch of the University of Georgia and William Fox are also collaborating with Adrian Burke, Claude Chapdelaine, Anne Baron and their colleagues in a steatite sourcing project.

Jennifer Birch and her students carried out gradiometer work on the Spang site to define its limits and to determine the nature of the palisade and interior village patterning of houses. Further archaeological definition was also undertaken at the large Trent-Foster village in the upper Trent River valley. Research at Trent-Foster will involve Trent University, Archaeological Services Inc., and Jennifer Birch and is being led by William Fox.

John Hart is continuing his work tracking ethnic traditions or territories by employing social network analysis using ceramic attributes. His more recent work includes more Ontario data supplied by Jennifer Birch, Susan Demarkar of the University of Toronto (Mississauga), and Archaeological Services Inc.

Ongoing PhD dissertation research, of which I am aware, includes that by Greg Braun at the University of Toronto (Mississauga) involving innovative analytical techniques for ceramic petrography and leading to insights concerning relationships within Iroquoian communities, religious practices, and the "lives" of objects. Susan Demarkar, also, is examining ceramics and exchange networks, of the Keffer site in the Don River drainage. Sarah Striker of Arizona State University is looking at the social dynamics of coalescence, focusing on how individual and collective social relationships changed throughout the process and how such relationships contributed to coalescence. She is doing so using four of the sites in the Duffins-Rouge ancestral Wendat sequence, including Burkholder 2,

Draper, Spang, and Mantle. Mariane Gaudreau of Simon Fraser University is developing a collaborative research program with the Huron-Wendat community in Wendake, focusing on Wendat conceptions of ethnicity and cultural affiliation to explain their ties with the St-Lawrence Iroquoians. Her research will attempt to reconcile oral tradition and archaeological interpretations.

The University of Waterloo, in conjunction with Robert MacDonald; Peter Carruthers; Suzanne Needs-Howarth and Chris Junker-Andersen; and staff from Archaeological Services Inc., is completing a thorough review of the artifact assemblages and data from the Quackenbush site in the Trent River valley in an effort to define its nature and relationships with other Wendat sites.

In the fall of 2013, the Huron-Wendat Nation of Wendake, Quebec, repatriated the human remains and associated grave goods from 12 Wendat ancestral archaeological sites. The remains of approximately 1,760 people were reburied at the Thonnakona (Kleinburg) Ossuary, on land owned by the Ontario Heritage Trust. The reburial, attended by Wendat, Wyandot, and other Indigenous peoples, followed years of discussion and planning between the Huron-Wendat Nation and the University of Toronto (for a detailed account, see Pfeiffer and Lesage 2014).

The protocol signed by the Wendat and the University specified the retention of small samples of tissue (one tooth per person and small samples of disease-altered bone), which will help archaeologists and biological anthropologists, in a collaborative effort with the Huron-Wendat, to advance our understanding about the lives of these Wendat ancestors (e.g., diet, health, diseases, origin of populations). The success of this protocol to achieve these goals has been demonstrated in a pilot study using remains from other Wendat sites and one Neutral site (Pfeiffer et al. 2014).

The Huron-Wendat Nation is also planning to undertake a long-term research project on the fifteenth-century Auhoindio site found recently as part of the Highway 407 east extension project, along the north shore of Lake Ontario. This project will not only provide a better understanding of the links between communities in the lower Trent River valley and St. Lawrence Iroquoian populations in eastern Ontario and Quebec, but it will also allow for a Wendat-run project at which Wendat students can be trained in their archaeology and history. With this and similar involvement by the Wendat in development projects that affect their interests, archaeologists and historians working with their record in Ontario will find a fully engaged and collaborative research partner with well-defined goals and objectives.

Acknowledgements. This paper was prepared at the request of the Huron-Wendat Nation, whose representatives working on the Ontario file found that there was no comprehensive account of past and present archaeological research of their former occupancy of Ontario. I was, in turn, surprised that no such document existed for historic Wendake. At least summaries of most of the north shore site sequences had been prepared previously on a number of occasions. While Norman Emerson, Jim Wright, and Peter Ramsden, in particular, had outlined early notions of the culture history of north shore sites and drainage sequences, the first such summary that ASI prepared was in 1998, when David Robertson, Martin Cooper, and I (Williamson et al. 1998) detailed our understanding of the culture history of ancestral Wendat occupation of the Humber River valley in order to design a framework for interpreting new, extensive excavations at the Parsons site. This and subsequent summaries were informed by an understanding that north shore communities were politically autonomous and that our challenges, among many, were to sort out the history of the sequences of which they were a part, as well as the social, political, and economic networks in which they participated. The Parsons/Humber summary was followed by a similar piece in 2003 prepared by Robert MacDonald, Stephen Cox Thomas, and me to contextualize the Moatfield site and ossuary within the Don River valley. David Robertson and I followed this up with a 2005 synthesis of the pre-

1690 Indigenous settlement history of the North Pickering Development Planning Area (Seaton) and adjacent lands, which used data from Poulton's 1979 survey of the NTIA lands, Finlayson's 1985 analysis of the Draper site, and the research of others. This 2005 synthesis outlined what was essentially an ancestral Wendat history of the Duffins–Rouge drainage. Jennifer Birch's subsequent 2010 analysis of the Draper to Mantle sequence—undertaken in the context of situating villages in the transitional sequence of pre-coalescence through post-coalescence—advanced significantly our understanding of how to interpret these sites and allowed her and me, in Chapter 3 of the Mantle site volume (Birch and Williamson 2013a), to update and summarize these and other north shore sequences more meaningfully. That chapter thus represents the major source for the north shore sequences here. I thank Jennifer Birch for her research collaboration on that and many other related matters over the past several years. I should note that I have updated all of these sequences, however, with new site data that we had both intentionally and unintentionally excluded from the Mantle volume discussion.

I am very grateful to a number of other colleagues for informative discussions: Peter Carruthers, Martin Cooper, Neal Ferris, William Fox, Charles Garrad, Jamie Hunter, Margie Kenedy, Dean Knight, Marti Latta, Louis Lesage, Rob MacDonald, Lisa Merritt, Robert Pearce, Susan Pfeiffer, Rob Pihl, Dana Poulton, Paul Racher, David Robertson, David Smith, John Steckley, Debbie Steiss, and Gary Warrick. Carol Bella, Andrea Carnevale, Alexis Dunlop, Joan Kanigan, Debbie Steiss, Claire van Nierop, and Thanos Webb provided much appreciated research assistance. Peter Carruthers, Martin Cooper, Jamie Hunter, and Louis Lesage read earlier drafts of the manuscript and provided valuable comments, while William Fox and Gary Warrick contributed significantly as reviewers for the article. Suzanne Needs-Howarth also identified numerous areas requiring clarification during her expert copyediting of the paper. Shady Abbas undertook the daunting task of mapping many of the sites that are mentioned in text, using data derived from an exercise that Shady undertook for the Huron-Wendat Nation of mapping all Huron-Wendat sites in southern Ontario on a GIS platform.

I am also grateful for the opportunities I have had to work with members of the Huron-Wendat Nation—in particular, Louis Lesage, Mélanie Vincent, Simon Picard, and Line Gros-Louis—on this and other, related projects.

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Les fondements de l'érudition moderne concernant l'histoire et l'archéologie Wendats ont été placés à la fin du XIXe siècle et au début du XXe siècle par l'entremise de chercheurs comme Andrew Hunter et Arthur Jones qui ont enquêté des centaines de sites et de sarcophages qui avaient été signalés aux autorités provinciales. L'objectif de leur travail, et de plusieurs qui ont suivi, était la recherche de lieux qui pourraient être liés aux villages et aux missions mentionnés dans les premiers comptes rendus. Alors que des archéologues amateurs, universitaires et d'agences gouvernementales ont utilisé ces premières études de sites Wendats dans leurs enquêtes au milieu du XXe siècle, une révolution dans la collecte de données archéologiques a eu lieu lors des trente dernières années. Une grande partie des données demeure non publiée et d'autres données n'ont même pas été signalées. Ce document est un aperçu de la plupart de ce travail (surtout celui associé aux sites où de fouilles importantes ont eu lieu), et il vise à fournir un guide à ceux qui souhaitent utiliser ces études pour approfondir divers aspects de l'histoire de la période historique ou des communautés ancestrales Wendats.

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The Bioarchaeology of Cannibalism at the Charity Site

Michael W. Spence and Lawrence Jackson

The remnants of the Huron (Wendat) nation, fleeing Iroquois war parties, took refuge on Christian Island over the winter of 1649–50. Suffering from starvation and disease, some were forced to cannibalize the remains of deceased family members. Although this tragic situation was described by the Jesuits, archaeological excavations on Christian Island by David Boyle in 1897 and the University of Toronto in the 1970s found no skeletal evidence for the practice of cannibalism among the burials that they encountered. However, the 1991 excavation of the Charity site, on an inland lake, revealed several deposits of human bone, representing five individuals, associated with one of the longhouses. The skeletal elements show evidence of dismemberment, defleshing, percussion breakage, and burning. Both the skeletal and the contextual data support the Jesuits' report of cannibalism, including their statement that it was frequently practiced by those close to the deceased.

Introduction

The demise of the Huron (Wendat) nation in southern Ontario in the mid-seventeenth century has been convincingly articulated by first-hand French sources in the Jesuit Relations (Thwaites 1896-1901:35). The occupation and abandonment of the French Jesuit mission of Ste. Marie near today's town of Midland, Ontario, has been archaeologically documented by the excavations of Jury and Jury (1954), Kidd (1949), and Tummon and Gray (1995). Less well known is the French and Huron refuge on Christian Island, where the fort Ste. Marie II and an associated village are described in the Relations. Archaeological work by Boyle (1898), Carruthers (1966, and this volume of *Ontario Archaeology*), and Finlayson and Smith (1990) confirmed the location of the French fort, and test excavations by the London Museum of Archaeology (now the Museum of Ontario Archaeology) in 1987 identified a nearby village known as the Charity site (Finlayson and Smith 1990) (Figure 1). In 1991, Northeastern Archaeological Associates accepted a contract from Beausoleil First Nation to carry out more detailed excavations at the Charity site (BeHb-4), using a field crew of First Nations students from Christian Island.

Although Iroquois war parties in the past had usually withdrawn to their homeland for the winter, they remained in Ontario over the winter of 1649–50. Their occupation of the mainland kept the French and Huron from leaving Christian Island, and food stocks rapidly diminished. Starvation and disease took many lives over the winter and reduced many of the refugees to cannibalism. The Jesuit Father Ragueneau, Superior of the Mission, described the situation:

> …and they even devoured one another, but this in secret; for although the Hurons, ere the faith had given them more light than they possessed in infidelity, would not have considered that they committed any sin in eating their enemies, any more than in killing them, yet I can truly say that they regard with no less horror the eating of their fellow-countrymen than would be felt in France at eating human flesh. But necessity had no longer law; and

> famished teeth ceased to discern the nature of what they ate. Mothers fed upon their children; brothers on their brothers; while children recognized no longer, in a corpse, him whom, while he lived, they had called their Father" [Thwaites 1896-1901:35:89].

and

> Everywhere, corpses have been dug out of the graves; and, now carried away by hunger, the people have repeatedly offered, as food, those who were lately the dear pledges of love, —not only brothers to brothers, but even children to their mothers, and the parents to their own children. It is true, this is inhuman; but it is no less unusual among our savages than among the Europeans, who abhor eating the flesh of their own kind. Doubtless the teeth of the starving man make no distinction in food, and do not recognize in the dead body him who a little before was called, until he died, father, son, or brother [Thwaites 1896-1901:35:21].

As Ragueneau wrote, the Huron and Iroquois had no particular compunction about eating the flesh of enemy captives (see also Abler 1980; Seeman 2011:18). This, however, was usually a limited ritual consumption, intended to insult the enemy or to absorb some of the enemy's more admirable qualities. The consumption of their own people was a very different matter, inspiring horror and shame. It was "the very antithesis of the respect for the dead that was at the heart of Wendat social and religious norms" (Seeman 2011:135).

Huron mortuary practices in normal times involved a primary burial (often placement of the body on a scaffold) at the time of death. Months or years later these bodies would be retrieved and placed together in a large secondary burial, the ossuary, which often held hundreds of individuals (Williamson and Steiss 2003). Preparation for the secondary burial involved stripping the corpses of their remaining flesh, reducing them to bundles of disarticulated bones. This process sometimes left cutmarks on the bones, particularly at articulation points. It did not lead to the extensive fracturing and burning characteristic of remains that had been cannibalized to satisfy hunger (White 1992). The 1991 excavation at the Charity site uncovered an assemblage of human skeletal remains that did show these features, providing material corroboration of the Jesuit accounts of cannibalism.

The Charity Site (BeHb-4)

Charity lies on the southwest edge of Douglas Lake, about one kilometre inland from the French fortification of Ste. Marie II (Figure 1). Charity may have been originally settled some time before the Huron exodus, to then be expanded by the incoming refugees, but this is uncertain. Also, it is not clear whether the Jesuit account of the Hurons' ordeal referred to the occupants of Charity or to those of a settlement located near the fort. Most likely it encompassed all the refugees living on the island. Ragueneau said that the priests also visited outlying residences (Thwaites 1896-1901:35:87).

The 1991 work at Charity uncovered large parts of three longhouses using only hand excavation, with 3.2 mm mesh screens, rather than the 6.4 mm mesh screens often used in Ontario archaeology (Jackson and Merritt 1998; Jackson et al. 1992). The fine mesh screen permitted a very high artifact recovery rate, and the use of trowel excavation indicated some interesting trends in subsistence among the longhouse populations. House A, with 14 excavated ash, hearth, and pit features, is 5.5 to 6.0 m wide with an exposed length of 16 m. House B, with 10 excavated ash, hearth, and pit features, is also 5.5 to 6.0 m wide, with a total length of only 15 m. House C is also about 15 m in length, with nearly four-fifths of the house excavated, and a width of 6.0 m. Evidence of rebuilding makes it difficult to assign an exact number of ash, hearth, and pit features to House C, although these are roughly similar to those of houses A and B. Houses B and C are actually oriented northwest–southeast, but in order to simplify the description and discussion of the houses, they will be treated as if they were oriented north–south.

House C is a complex structure, and some

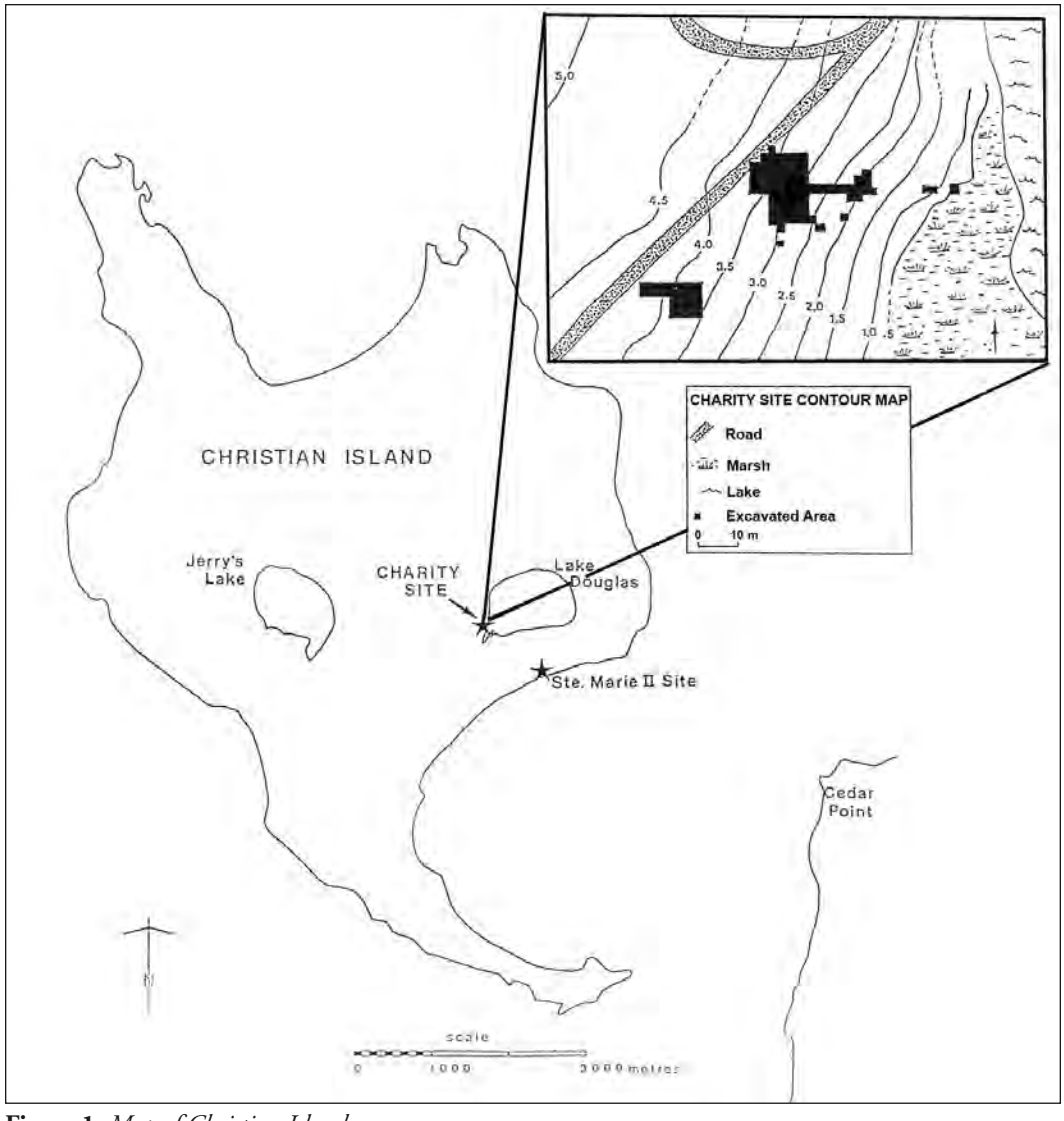

Figure 1. *Map of Christian Island.*

details of its form have been obscured by tree roots (Figure 2). It has a well-defined west side wall and an east side wall that is somewhat less so, especially in the southern half. There is also a rather erratic line of postholes running roughly along the house midline, interrupted in places by tree roots. This may have been an earlier house wall, some sort of interior division of House C, or the supports for a row of sleeping benches. The south end wall is formed by a straight line of posts across the house, rather than the rounded end more commonly found in longhouses. Near the north end there is another straight line of posts across the longhouse, but this area is so near the edge of the excavation that it is difficult to say whether this was the north end wall of the house or just a storage compartment division near that end. Posts in the east wall of adjacent House B are more densely distributed than posts in the west wall of House C (Figure 2). House C, then, may have had a shorter use span than House B, or may have been erected by people too weakened by starvation and disease

to build a more substantial structure.

The most unusual feature of House C was the discovery of several deposits of human remains in six postholes and in two ground surface locations at the north end of the house. The proveniences (Figure 2) are as follows:

Deposit 1—Excavation Unit N18W8

Deposit 1 was a small cluster of fragmented bones that had been resting on, or was embedded in, the original surface. It was located in an open area, about 1 m outside the north end of House C.

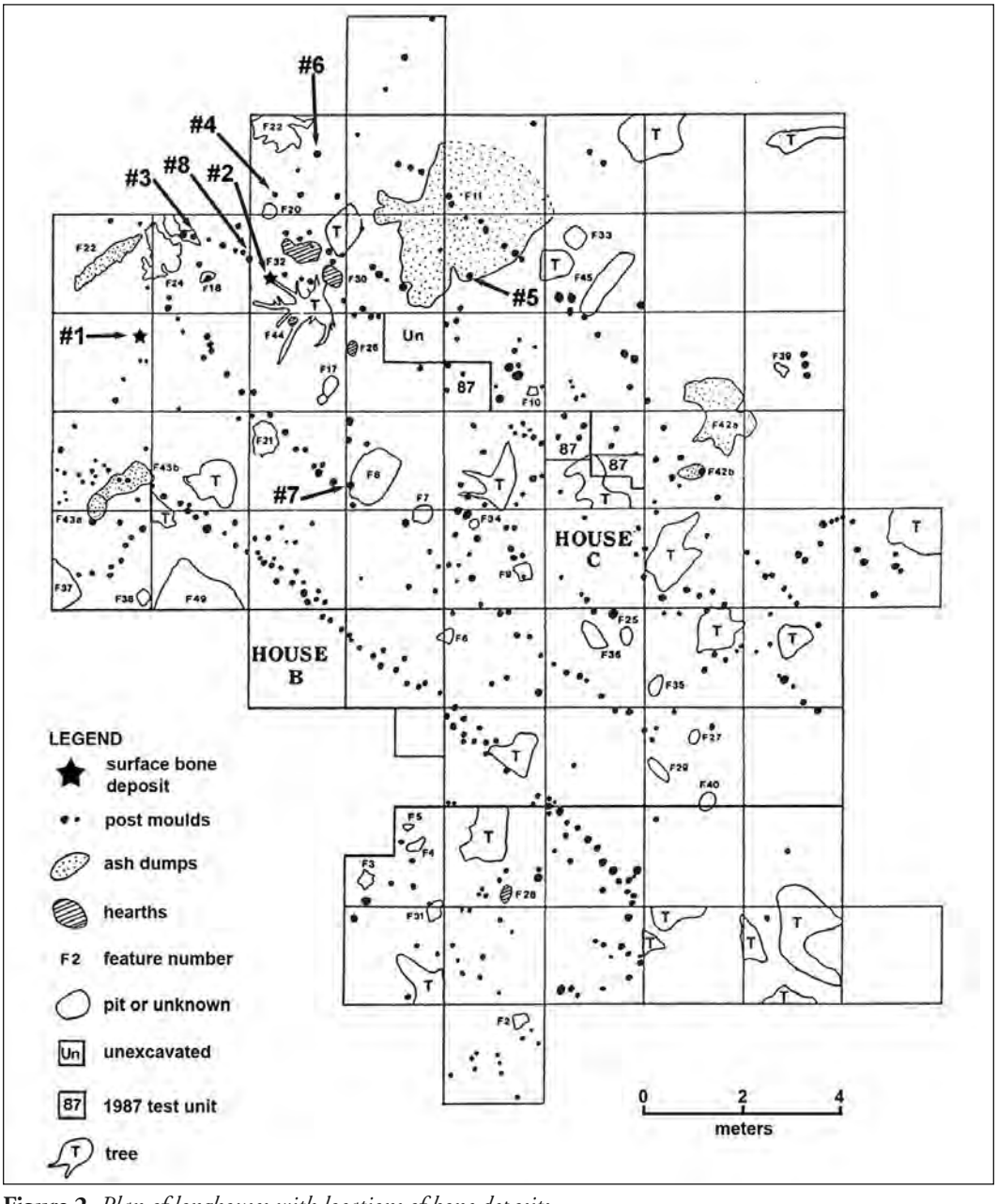

Figure 2. *Plan of longhouses with locations of bone deposits.*

Deposit 2—Excavation Unit N20W4
Also resting on or in the original surface, Deposit 2 was a loose cluster of bones inside the north end of House C. It extended through much of the west half of excavation unit N20W4.

Deposit 3—Excavation Unit N20W6
Deposit 3 was in posthole C-46, in or just beyond the end of House C. The human skeletal fragments were concentrated in the upper 14 cm of the posthole, which extended another 21 cm below the concentration (Figure 3).

Deposit 4—Excavation Unit N22W4
This deposit was clustered in the upper 17 cm of posthole E-6, which continued for another 16.5 cm below the cluster (Figure 3). The posthole was in the north end of House C, part of a line of posts that may have been either the squared end of the house or the dividing wall of a house-end storage cubicle (Figure 2).

Deposit 5—Excavation Unit N20E0
In contrast to deposits 3 and 4, the bone fragments of Deposit 5 were in the bottom 18 cm of a posthole (Figure 3). The posthole, Z-19, was located inside the east side wall.

Deposit 6—Excavation Unit N22W4
Deposit 6 was in the upper half of posthole E-11 (Figure 3), in the same line of posts as Deposit 4.

Deposit 7—Excavation Unit N16W2
The skeletal fragments of Deposit 7 were concentrated in a 6 cm band in the lower part of posthole B-18 (Figure 3), which formed part of the west side wall of the longhouse.

Deposit 8—Excavation Unit N20W6
Deposit 8 was scattered throughout posthole C-41 (Figure 3), which was located inside the north end of the longhouse. The post formed part of a line of posts that ran along the midline of the house.

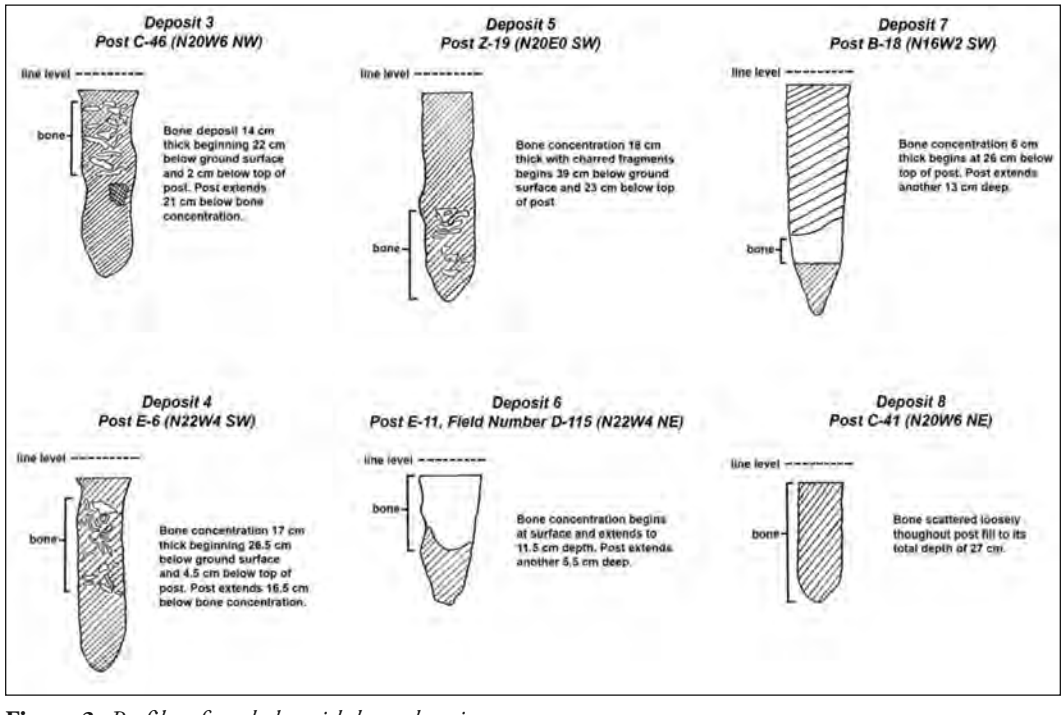

Figure 3. *Profiles of postholes with bone deposits.*

The Individuals

There are five individuals (A–E) represented among the skeletal remains (Table 1). Two of these people are represented in more than one deposit, and one deposit held the remains of two people. The skeletal remains of all five were very incomplete and highly fragmented. Many of the long bone diaphysis fragments could not be attributed to a specific skeletal element, other than to say whether they are from a large (humerus, femur, or tibia) or small (radius, ulna, or fibula) long bone. There is no trace of rodent gnawing, but some bones from Deposit 7 had been chewed by a carnivore.

Table 1. *Individuals and contexts.*

Individual	Age	Sex	Deposit
A	adult	female	1
B	adult	female	2, 4, 8
C	3–4 years	indeterminate	4
D	adult	male	3
E	adult	indeterminate	5, 6, 7

All fragments more than 30 mm in length were examined under magnification for evidence of human alteration. Cutmarks and scraping (defined here as multiple aligned striae) were noted. Deliberate breakage is evident in a variety of features: spiral fractures; percussion impact sites and notches, often with associated striae resulting from slippage of the tool; anvil abrasions and striae; and conchoidal scars. These have been defined, with ample illustration, in Turner and Turner (1999) and White (1992). Although some of these features can also be produced as isolated incidences by taphonomic forces, the frequency, density, and repetitive nature of their occurrence at Charity leave no doubt that they were the result of deliberate actions.

A number of fragments show the effects of thermal exposure. This is usually in the form of smoking (e.g., blackening of the surface; see Buikstra and Swegle 1989). Only one long bone fragment, from Individual B, reached the stage of calcination (whitening). Some fragments have rounded edges and darkened and exfoliated surfaces with some embedded matrix, characteristics that White (1992:160, Figures 6.27-6.31) associates with thermal exposure.

Projecting parts of long bone fragments were examined for "pot polish." Observations and experiments by White (1992:120-124) showed that bone splinters immersed in heated water in a ceramic vessel may suffer some abrasion from coming into contact with the pot wall, leaving any projections on them smoothed and rounded, often with a low polish. Turner and Turner, discussing the Wupatki Ruin in Colorado (1999:20, 24, Figures 2.7-2.8, 3.51-3.52, 3.184-3.186), report that only 10.5 percent of a sample of deer long bone fragments from the site have pot polish. On the other hand, 100 percent of the fragments in an experiment using metal Dutch ovens show it (Dixon et al. 2010:643-644). The difference may lie in the vessel material. In any case, pot polish is a good indication that bone fragments had been placed in heated water to render their fat, leaving a deposit of edible grease in the pot. As detailed below, evidence of such polish occurs in the Charity assemblage.

Individual A

Individual A is an adult. The proximal epiphyses of the radius and ulna and the distal epiphysis of the radius are fully fused. The sagittal suture is also fused, with complete obliteration of the suture line; however, the coronal and lambdoidal sutures are clearly visible. This probably represents a case of premature sagittal synostosis, a condition present, although rare, among the Huron (Pfeiffer et al. 1985:86). The sharp superior orbit margins, small supraorbital ridges, and frontal bossing indicate a female. The size and gracility of the observable long bones, particularly when compared with those of Individual D (a male), support this interpretation.

Identifiable elements of Individual A are the occipital, the frontal, both parietals, the left temporal, at least four right ribs, both radii, the right ulna, the right humerus, the left lunate, the right triangular, and the right femur. All but the two carpal bones are incomplete and fragmented.

Of the long bones, only the femur could be reconstructed to any extent. Nine fragments could be conjoined to form the distal 204 mm of the

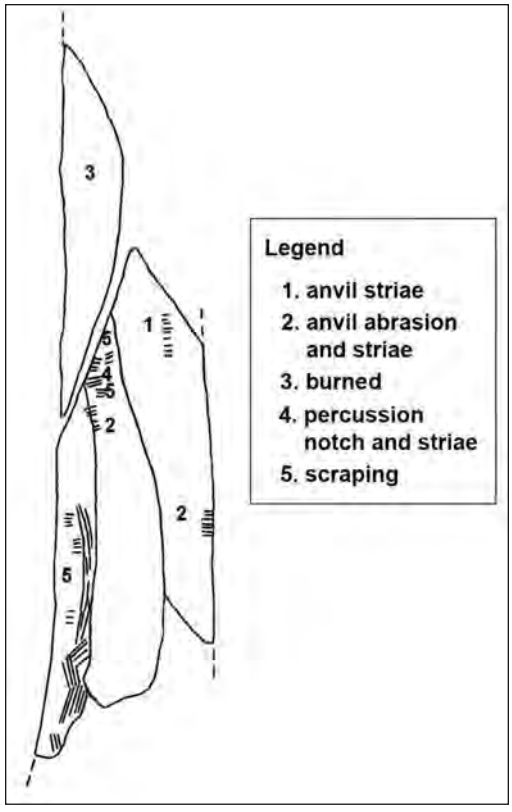

Figure 4. *Reconstructed segment of right femur, Individual A, showing postmortem treatment.*

diaphysis. This segment and numerous unidentifiable fragments of large long bone show a variety of features that indicate that this fragmentation was deliberate: spiral fractures, cutmarks and scraping striae, percussion pits and notches with slippage striae, conchoidal scars, and anvil abrasions and striae (Figure 4). One of the fragments from the reconstructed femur segment had been burned after breakage, and two have pot polish.

Two fragments of unidentified large long bone show evidence of having been smoked by fire on the break and internal surface, indicating that the exposure to fire occurred after the breakage. Also, several fragments of femur, humerus, radius, and ulna have darkened and exfoliated surfaces, indicators of thermal exposure (White 1992:160). One of the femur fragments also has a smoked interior. Two rib fragments have a series of transverse cutmarks on the external surface of their necks.

A large segment of the cranium that includes most of the occipital, parietal, and frontal bones could be reconstructed from 16 fragments. Note that in our analysis, conjoined or articulating fragments are counted only as one. The segment has scattered percussion impact points and striae, but no cutmarks, scrapes, or burns. A separate occipital and parietal segment formed from two articulating fragments has smoking on both the exterior and interior surfaces.

Five long bone fragments have pot polish. Four of these are from large long bones (three identified as femur) and one is from a radius. Two of the fragments form part of the reconstructed femur segment, so in calculations these count only as one. All show rounding and smoothing of the projecting ends, and one of the femur fragments also has a low polish on the projection.

Individual B

Individual B is represented in deposits 2, 4, and 8, in the north end of House C (Figure 2). The three deposits are all linked by conjoining skeletal fragments, and there are no element duplications or size inconsistencies among the adult bones in these three deposits.

Individual B is an adult female. The bones are of adult size, and the iliac crest has fully fused. Heavy dental attrition and a considerable level of oral pathology indicate a person of middle age or older. Sex is expressed by sharp superior orbital margins and very small supraorbital ridges.

Consistent with our interpretation, the skeletal elements are fragmented and generally incomplete (Table 2). Deposit 8 contained only three items, including a fragment of occipital that conjoined with a Deposit 2 temporal piece. The skeletal elements represented in deposits 2 and 4 are similar: both held fragments of cranial, facial, and vertebral material. There does not seem to have been a strict division of body parts among the various contexts, which is not surprising given their proximity.

The right side of the maxillary dental arcade was present. It shows postmortem loss of the third

molar and central incisor. There is antemortem loss of the first and second molars, and there are abscess pockets at those sites. The crowns of the premolars and canine have been destroyed by caries, and there are abscess pockets at both premolar sites.

Table 2. *Individual B: Element representation by context.*

Deposit 2	Deposit 4	Deposit 8
occipital	nasal	occipital
L parietal	L, R parietals	proximal hand phalanx
L temporal	proximal hand phalanx	vertebra: 1 lumbar
frontal	R femur	
sphenoid	L, R 1st metatarsals	
maxilla	proximal foot phalanx	
vertebrae: 2 thoracic	L, R innominates	
	sacrum	
	vertebrae: 2 cervical, 2 thoracic	

L = left; R = right

A large right parietal segment of eight conjoined pieces from Deposit 4 has five percussion impact areas, some with conchoidal flakes and associated percussion striae. It has no cutmarks or evidence of thermal exposure. A cranial piece from Deposit 2 has a cutmark with multiple internal tracks, probably produced by a chert tool edge. This mark is in contrast to several cutmarks on the lumbar vertebra of Deposit 8. Those are deep, narrow, V-shaped, and with no internal striations, indicating the use of a metal knife (Greenfield 1999). This evidence suggests that at least two people may have been involved in the processing of Individual B.

A frontal fragment shows post-breakage burning, and the right malar has evidence of thermal exposure on the orbital floor. There is also burning on the external surface of the maxilla and on the right femur diaphysis. A right femur diaphysis segment of 210 mm could be reconstructed from 10 fragments. There are three percussion impact sites, one with associated striae. The exposure to fire occurred after breakage. There are also cutmarks on the diaphysis of a small long bone (radius, ulna, or fibula) and just anterior to the left articular facet of the sacrum (the only part of the sacrum that was present). The partial lumbar vertebra of Deposit 8 bears five cuts on the arch.

As with Individual A, the bone breakage of Individual B preceded the thermal exposure. No long bone fragments have pot polish.

Individual C

Individual C is a child represented by only two skeletal elements, which were found mixed with elements of Individual B in Deposit 4. One is the second cervical vertebra. The arch halves had joined with each other and with the dens, but the centrum had not yet fused with them (and was not present). The lines of fusion between the arch and dens are still partially open. The *ossiculum terminale* had not joined the dens. This level of development indicates an age of 3–4 years (Scheuer and Black 2000:200-202). There are several cutmarks across the anterior surface of the dens.

The other element of Individual C is the left fifth metacarpal, 43 mm in length. The head, which was also recovered, had not yet fused to the diaphysis. There are no cutmarks or other alterations.

Individual D

Skeletal elements of Individual D were recovered from Deposit 3. Individual D is an adult. The proximal and distal epiphyses of the femur, tibia, and humerus are fused. Individual D is probably a male. The observable skeletal elements are larger than those of Individual B, a female. The only measurement, the epicondylar breadth of the distal left humerus, is 62 mm. In the historic Neutral Grimsby, the series means and standard deviations for this measurement are 60.1 ± 3.710 mm for males and 54.5 ± 4.547 mm for females (Jackes 1988: Table 6). In the Moatfield Ossuary, the epicondylar breadth for left humeri, sexes combined, is 60.34 mm (Stock and Willmore

2003: Table 13.1). The four morphological features of the distal humerus that Rogers (1999) recommends for sex identification all indicate that Individual D is a male.

Identifiable elements are the left humerus, femur, tibia, and patella; the proximal first foot phalanx; and two small calvarial pieces (one is parietal). Beyond the two calvarial pieces, all the bones are from the leg—and where side is identifiable, they are all of the left leg. Virtually all of the recovered long bone material consists of metaphysis and epiphysis fragments. It seems, then, that the Deposit 3 material was primarily from the processing of the end portions of the bones of an adult male left leg. Note that the missing diaphyses are not represented in any of the other deposits.

As with the other individuals, the bones show spiral fractures, percussion pits and notches, percussion striae, conchoidal scars, scraping and cutmarks, and cortical "peeling" (White 1992:140-143). The distal end of the left femur has one percussion impact pit with adhering flakes on each condyle and a third pit on the anterior surface. The creation of the latter would not have been possible while the patella was still in place. Cutmark morphology indicates the use of both chert and metal tools. One fragment of small long bone has pot polish. There is no evidence of thermal exposure.

Individual E

Individual E was represented in deposits 5, 6, and 7 (Table 3). These deposits are more widely dispersed than the others, separated from one another by 4–7 m (Figure 2). Nevertheless, there is some repetition among the three contexts (Table 3). All have fragments of the occipital bone. Deposits 5 and 6 also have both sphenoid and temporal bone fragments, and deposits 5 and 7 have rib, hand, and foot elements. Fragments from Deposit 5 conjoin with others in deposits 6 and 7.

However, there are also some important differences among the deposits. Cranial material is represented by only a fragment of inferior occipital bone in Deposit 7, which contains a considerable amount of postcranial material. Deposit 6, in contrast, contains primarily cranial

Table 3. *Individual E: Element representation by context.*

Deposit 5	Deposit 6	Deposit 7
occipital	occipital	occipital
L, R temporals (petrous)	L, R temporals	L scapula
sphenoid	sphenoid	L humerus
L triangular	frontal	L radius
middle hand phalanx	L, R zygomas	L ulna
distal hand phalanx	L, R parietals	L capitate
L 2nd cuneiform	nasal	L hamate
2 ribs	maxilla	L trapezium
vertebra: 1 lumbar	mandible	L trapezoid
	L femur	L lunate
		L scaphoid
		L metacarpals: 2nd, 3rd, 5th
		3 proximal hand phalanges
		1 middle hand phalanx
		2 distal hand phalanges
		L tibia
		fibula
		L 3rd cuneiform
		3 metatarsals: 1st, L5th, unidentified
		6 ribs
		vertebrae: atlas, axis, 1 lumbar, 3 lumbar or thoracic

fragments but only four small postcranial pieces, all probably femur. These two deposits are the most widely separated, being 7 m apart, and may represent the separate processing of particular body segments. Most of the cranium and mandible had been placed in Deposit 6, while some ribs and vertebrae, and virtually the entire left arm, were found in Deposit 7. However, the left triangular bone was in Deposit 5, and the petrous parts of both temporals were found in Deposit 5, while other parts of the two temporals were in Deposit 6. Perhaps the initial processing of Individual E (defleshing, dismemberment, breakage of some elements, and possibly some consumption) was done in one place, and the various body parts were then divided among the participants for the final steps (further breakage, boiling to render fat, some consumption). Both chert and metal implements had been used on the Deposit 7 material.

Element duplications show that Individual E is a distinct person from individuals A, B, and D. Individual E is fully adult. The proximal epiphysis of the ulna and the distal epiphyses of the ulna, radius, and humerus are fused, and the annular rings of the vertebrae have fused to the bodies. The mandibular third molar has erupted. Cranial features suggest that Individual E is a female. The superior orbital margin is sharp, and the supraorbital ridges are small. Both the cranium and mandible are small, but measurements were not possible due to the fragmentary condition of the remains. The epicondylar breadth of the left humerus is 53 mm, a little below the female mean for the Grimsby ossuary of 54.5 mm and well below the sex-combined left humerus mean of 60.34 mm for the Moatfield ossuary (Jackes 1988: Table 6; Stock and Willmore 2003: Table 13.1). It is also considerably smaller than that measurement for Individual D, a male. On the other hand, the morphological traits of the distal humerus suggest that Individual E may be a male (Rogers 1999). All but the medial epicondyle angle, which is too damaged for observation, suggest male sex. The proximal epiphysis of Individual E's left ulna is larger than the corresponding part of the right ulna of Individual A, a female. All things considered, it is probably best to not assign a sex to Individual E.

One loose upper right molar was found in Deposit 6. The right second premolar through third molar are still in place in the Deposit 6 mandible segment. Wear is light. There is one small caries on the second premolar. Abscesses are absent. The level of oral pathology suggests a person considerably younger than the Individual B woman.

The Individual E skeletal elements (Table 3) are very fragmented and incomplete. There are numerous cutmarks and scrapes across the frontal bone, which has been reconstructed from eight pieces (Figure 5). Four percussion impact points are present on the frontal, one with associated slippage striae. Near one of the impact sites, a cutmark extends across the break, indicating that

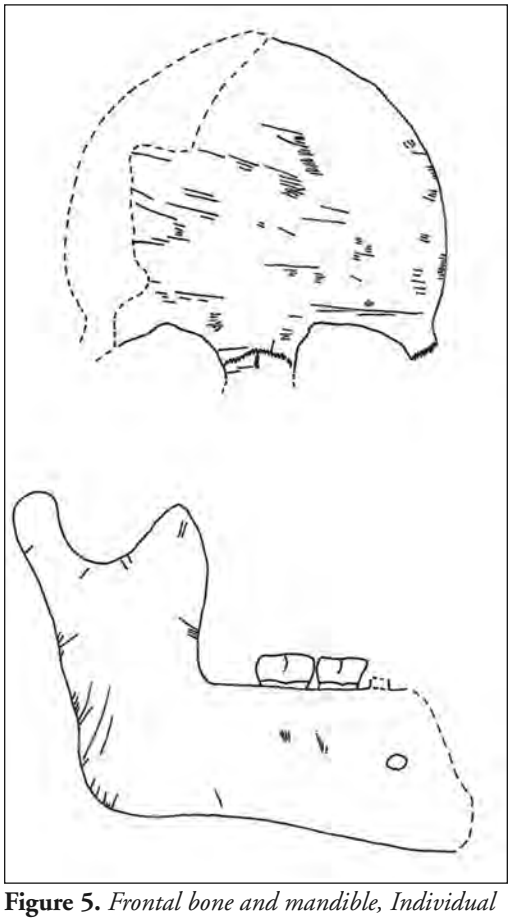

Figure 5. *Frontal bone and mandible, Individual E, showing postmortem treatment.*

defleshing preceded the breaking of the cranium. There are also cutmarks across the nasal bones and a percussion notch with a conchoidal scar on the occipital. The mandible, represented by most of the right side, has cutmarks over much of the body and ramus (Figure 5).

Smoking from thermal exposure occurs on both the exterior and interior surfaces of an occipital fragment, a piece of the temporal squama, a sphenoid fragment, and both petrous elements. It is also on some small facial fragments and the left temporo-mandibular fossa. On the mandible it appears on the anterior break, the anterior edge of the coronoid process, and the top of the condyle (but not on the corresponding right temporo-mandibular fossa). This evidence indicates that the thermal exposure of the cranium and mandible occurred after their separation and breakage.

The left scapula is represented only by the supero-lateral part, including the glenoid fossa, the coracoid process, and part of the acromion. There are cutmarks on both surfaces, clustered particularly around the acromion on the posterior surface. There is also a percussion impact site on the acromion. Cutmarks occur across the distal end of the left humerus, along with a percussion scar with striae, and on the distal part of the left radius, along the diaphysis of the left ulna, on the ulnar tuberosity, and on the posterior surface of the olecranon process. The superior edge of the semilunar notch has been burned, but there is no trace of burning on the corresponding part of the olecranon fossa of the humerus. The broken diaphysis of the radius has been chewed by a carnivore, indicating that the animal had access to the bone after breakage. Cuts occur on the lunate and the second and fifth metacarpals. Also, three fragments of small long bone and the distal ends of the third and fifth metacarpals show evidence of carnivore gnawing with tooth punctures, cortical loss, and scooping.

It was possible to reconstruct 161 mm of the left tibia diaphysis from eight pieces. It bears a number of cuts and has anvil striae in two places. The diaphysis had been burned in a few places after the cutting. At one point the smoking crosses a break but does not appear on the break surface, indicating that the thermal exposure there preceded the breakage. Elsewhere on the same bone the burning clearly followed breakage. White (1992:336) reported that much of the burning at Mancos preceded breakage. Turner and Turner (1999:23) said that this was apparently true for Mancos but that in most Anasazi sites burning followed breakage. It usually followed breakage at Charity. Of three metatarsals represented in Deposit 7, two have been gnawed by carnivores.

The ribs from both deposits 5 and 7 have transverse cutmarks on their exterior surfaces, and in one case on the interior as well. The one lumbar fragment of Deposit 5 is smoked, and a lumbar transverse process of Deposit 7 has also been burned. The second cervical vertebra has cutmarks around the left foramen transversarium and on the right posterior arch. One fragment of small long bone has pot polish.

As in the other individuals, the sequence seems generally to have been: (1) cutting and scraping, to remove flesh and separate elements; (2) breaking of bones by percussion; and (3) burning (roasting) of some parts and rendering. Some long bone fragments bear extensive scraping marks. Binford (1981:134) says that the periosteum is sometimes removed before breaking bones so that the breakage can be better controlled. This procedure may account for some of the scraping of elements observed in the Charity material, although much of it is probably due simply to flesh removal.

Discussion

The data on human alteration of the bones are presented in Table 4 as fragment counts. Fragments that conjoin or, in the case of cranial pieces, articulate across a suture are counted as one. Pieces less than 30 mm in length are not included because it is often difficult to interpret the alteration in such a small fragment.

Analysis using fragment counts does have some drawbacks. Although it may offer an accurate reflection of the intensity of processing, it is likely to underestimate its extent. For example, eleven ribs (Minimum Number of Elements, based on neck counts) are represented in the Charity collection, seven of them with cutmarks. However,

a count of fragments gives only 9 of 20 with cuts (Table 4). Also, of the five long bones in Deposit 7, four have cuts and two have evidence of percussion breakage. When assessed by fragments, cuts occur in only 11 of the 36 pieces and percussion evidence in only 10. However, the difficulty of identifying the specific elements represented by many of the small fragments leaves us with little choice but to use fragment counts.

The treatment of the Charity remains goes well beyond the usual primary to secondary burial processing of the Huron. Turner (1983) has suggested several criteria for the recognition of cannibalism, which in Turner and Turner (1999) were refined to cutmarks, breakage, anvil abrasions, burning, many missing vertebrae, and pot polish. The Charity skeletal remains fit this profile well, and their context offers further support.

Vertebrae are scarce in the collection, represented by only three complete cervical vertebrae (one of them the axis of Individual C, the child) and eight fragments of thoracic and lumbar vertebrae. The eight fragments are all of arches and transverse processes. Bodies are represented by only two very small pieces from Individual E. The sacrum is represented by a single articular facet with a cutmark from Deposit 4. Turner and Turner (1999:21) stress vertebral underrepresentation as a major characteristic of cannibalized assemblages. Turner (1983:232) is unable to explain this underrepresentation, but notes it is a consistent feature of the Anasazi collections. It is also a consistent feature at the Charity site.

Turner and Turner's (1999) and White's (1992) characterizations of cannibalism are based largely on the Anasazi evidence. Those cases show a thorough use of the bodies, more so than would be expected of ritually motivated cannibalism. Although some have suggested that the Anasazi remains may have other explanations, like the execution of witches (Darling 1998; but see Turner and Turner 1999:52-53), the identification of human myoglobin in human feces at Cowboy Wash leaves little doubt that the remains had been consumed (Billman et al. 2000). White (1992:359-360) believes that nutritional needs were the primary motive for the cannibalism and that the thoroughness of processing, which varied from site to site, was determined by the degree of need. He points out that the Anasazi broke up most of the larger long bones but left the smaller ones (radius, ulna, fibula) and those of children mostly intact, focussing instead on those elements with more nutritional value (White 1992:344).

Charity displays more thorough processing than the Anasazi finds, suggesting that it represents a case of actual starvation cannibalism (Table 4). The small long bones show the same extensive percussion-induced breakage as the large ones. The two bones of Individual C, the child, were not broken, but the cuts on the axis suggest that the remains had undergone at least the initial stage of processing for consumption.

To look at this from another angle, the data from the Keffer site in the Toronto area (Finlayson et al. 1987) can inform us on the treatment of human remains from non-burial contexts in an earlier (late fifteenth century) Huron community,

Table 4. *Individuals A–B, D–E: Processing stages by element category.*

	Total Number of Fragments*	Fragments with Scrapes and Cutmarks	Fragments with Percussion	Fragments with Thermal Exposure	Fragments with Pot Polish
cranial	30	2	4	7	–
large long bones	26	9	9	6	3
small long bones	45	10	15	5	3
total long bones	73	19	24	13	6
ribs	20	9	0	1	–
vertebrae	11	2	0	1	–
metacarpals	3	3	0	0	–
metatarsals	2	0	0	0	–

* Conjoined/articulated fragments are counted as one; only fragments over 30 mm are included.

one that was not under stress. Stewart (1999:92, Table 6-9) reports that non-human mammal bones at Keffer have little evidence of long bone breakage for grease extraction. A considerable quantity of human bone (695 fragments) was recovered from the site's middens (Rainey 2002). Fifty-six fragments are from subadults, but only eight of these, all cranial, show human alteration. This alteration seems to have been due to normal mortuary preparation and to gorget manufacture, not to deliberate trauma or cannibalism (Rainey 2002:137, 139). Of the adult material, only nine cranial, one mandibular, and three long bone fragments have evidence of percussion breakage. Perimortem trauma, probably representing conflict or torture, is visible on several elements, mostly from males (Rainey 2002:166). Traces of burning occur on 19.7 percent of the fragments, but Rainey (2002:148, 166) attributes this to midden fires, for which there is abundant evidence at Keffer. Her conclusion is that some of the midden bone is from mortuary activities and some from the execution of captives, but that there is nothing to indicate gustatory or starvation cannibalism. She notes that the data are not sufficient to assess the possibility of a more limited ritual cannibalism (Rainey 2002:167). The Keffer data, then, present a rather different picture from Charity. There is good evidence of inflicted trauma, focussed on adult males, but nothing like the thorough processing seen at Charity. The Keffer remains were discarded in middens, while the Charity remains were mostly buried in postholes.

The Charity remains, which include two women, one man, one adult of unknown sex, and a child, are most likely those of refugees who had been living on the island and probably in the Charity village. Although the vast majority of people on the island were Huron, there may have been some Petun, Ojibway, or Wenro and perhaps even adopted Iroquois captives among the refugees. House C had a high proportion (28 percent) of Genoa Frilled ceramics, suggesting that some of its residents may have been Wenro (Jackson and Merritt 1998). Although the human remains are not necessarily those of the House C residents, Ragueneau's account makes it clear that such events did occur within households (Thwaites 1896-1901:35:21, 89).

The disposal contexts include two places on the original surface and several postholes. The distribution of bone fragments in the postholes (Figure 3), spread through much of each posthole rather than clustered around the perimeter at the top, indicates that the remains were placed in holes from which the posts had been removed, rather than just tucked in around the edges of existing posts.

Deposit 7 (Figure 2) had been placed in a posthole that had been part of the west side wall. Deposit 5 was in an isolated posthole in the east part of the house, one that it may have been possible to remove without compromising the integrity of the structure. Deposits 4 and 6 were in the row of postholes across the north part of the house, either the end wall or a storage partition. The post in the Deposit 6 hole was probably also a support post of the east side wall. Deposits 3 and 8 were in postholes that were part of the midline row that may or may not have been a structural element of House C. Since the removal of all these posts would probably have compromised the structural integrity of House C, it is likely that the placing of the remains in them occurred during or after the dismantling of the longhouse. This may have happened when the refugees were preparing to leave the island after the disastrous winter of 1649–50, or perhaps even when a final group left in 1651 (Trigger 1976:787).

The purpose of placing these deposits in postholes may have been concealment. Although the odours of food preparation would not have gone unnoticed by others living in the vicinity, they may have feared discovery by the Jesuits who would sometimes visit outlying settlements (Thwaites 1896-1901:35:87). The priests had a very powerful tool at their disposal for enforcing compliance with their values. They controlled the distribution of food stocks, and were apparently willing to give more to "the more favored among them" (Thwaites 1896-1901:35:23, 99). Alternatively, it is possible that the placing of the remains in the postholes was a form of burial. If individuals A–E had been members of the House C social group, the placing of their remains in

their longhouse's postholes may have been considered an appropriate way to bury them, given the conditions of the time. At the Keffer site, an infant had been buried in the hole for a longhouse support post. However, Deposit 1, which was resting on the surface, in the open, is not entirely compatible with either of these scenarios. It may represent an event at a different, perhaps later, point in time.

Those who consumed individuals A–E were probably members of the same community. Although there were Iroquois on the mainland and some had even gained a foothold on the island, they would have had adequate access to other foods and would not have processed the bodies so thoroughly. The Charity data indicate starvation cannibalism on a level even more extreme than was found at the Anasazi sites. Also, there is no evidence that the five individuals died as a result of violence. Although there are many indications of percussion on the crania, they are adequately explained by the need to gain access to the brains for food. None of the crania have been scalped. Cutmarks are very scarce on all calvarial fragments except for Individual E, where they are densely distributed across the frontal bone (Figure 5). However, these are related to the removal of flesh from the forehead, perhaps to facilitate the breakage indicated by the four percussion impact sites there, rather than to scalping. The cut and scraping marks do not continue across Individual E's parietal bones. Also, the burning of cranial and postcranial bones generally took place after breakage, linking it to the processing sequence rather than to torture or execution. No axe wounds, projectile point punctures, or other indications of assault are present. Nevertheless, it must be admitted that the possibility of violence cannot be completely dismissed, even though the available skeletal material makes it seem unlikely. Many skeletal elements are absent, and even fatal trauma may leave no trace in the bones.

The use of chert and metal tools suggests that more than one person took part in the processing and consumption. Whether this occurred over a single day or over several days, the amount of food provided by five thoroughly processed corpses would have sustained more than just one or two people. The evidence suggests, then, that several surviving refugees ate the remains of their kin who had died of starvation or disease, just as Ragueneau described (Thwaites 1896-1901:35:21, 89, 189).

Conclusions

Element duplications, fragment conjoins, and similarities in element size and morphology have allowed the identification of five individuals distributed through eight deposits at the Charity site. The bodies of the four adults had been given the same postmortem treatment, a sequence of defleshing and dismemberment (indicated by cutting and scraping), followed by breakage of the bones (spiral fractures, percussion pits and notches, and percussion and anvil striae on both cranial and postcranial elements), and then by thermal exposure of some elements, perhaps from roasting, and their immersion in hot water to release edible grease from the fragments. In the case of Individual E, thermal exposure apparently both preceded and followed breakage. There were only two elements from the child, but cutmarks on the axis suggest that the body had been subjected to at least the first step in the processing sequence.

This thorough processing of bodies is not apparent in the refugee burial sites associated with the Sainte Marie II lakeshore settlement. Boyle (1898) does not mention it in his description of a burial pit that he excavated, although prior disturbance and poor preservation may have limited observation. Spence saw no trace of it in the four crania from that excavation that are stored in the Royal Ontario Museum. Saunders et al. (1974) do not note any processing of the 114 individuals from two large and four small burial features that they excavated. These features do show a departure from normal Huron burial practices, reflecting the stresses experienced by the refugees, but if cannibalism was involved it was limited and did not leave skeletal evidence. It may be that the presence of the Jesuits nearby discouraged any attempts at cannibalism there, or that these burials occurred before the nutritional stress became so severe.

The 1991 excavation by Northeastern Archaeological Associates uncovered only part of the Charity site. Some of the human bone deposits were within 0.5 m of the edge of the excavated area, all the represented individuals are incomplete, and the end of House C may extend further to the north. It seems likely that more skeletal material from these same individuals still lies beyond the limits of the excavation. Any archaeological work undertaken in the future at the Charity site should focus on the further recovery of these individuals, as well as the general documentation of life—and death—in a community under siege.

Acknowledgements. We are particularly grateful to Joanne Sandy, administrator at Beausoleil First Nation, for her help with all aspects of the field project. Robert Rose was the field director, and Caroline Theriault and Ian Gault were field assistants. The very competent field crew consisted of Beausoleil First Nation students. We are also very grateful to Wanda Monague of Beausoleil First Nation, who worked for several weeks with Spence on the analysis of the skeletal remains and whose work was supported generously by an academic internship from Beausoleil First Nation. Thanks also to Jim Keron for help with statistics and to Chris Ellis for help with the figures.

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Les vestiges de la nation Huronne-Wendat, qui fuyaient les expéditions guerrières iroquoises, se sont réfugiés sur l'île Christian au cours de l'hiver 1649–1650. Souffrant de famine et de maladie, certains ont été forcés de cannibaliser les restes des membres de famille décédés. Bien que cette situation tragique ait été décrite par les Jésuites, les fouilles archéologiques sur l'île Christian effectuées par David Boyle en 1897 et par l'Université de Toronto dans les années 1970 n'ont trouvé aucune preuve squelettique de pratique de cannibalisme au sein des sépultures trouvées. Cependant, l'excavation du lac à l'intérieur des terres de 1991 au site Charity a révélé plusieurs dépôts d'ossements humains qui représentaient cinq individus associés à l'une des longues maisons. Les éléments squelettiques portent des indices de démembrement, d'écharnage, de cassures et de brûlage. Les données squelettiques et contextuelles soutiennent le rapport jésuite de cannibalisme, y compris leur déclaration que c'était fréquemment pratiqué par les proches des défunts.

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The Gosling Site (AiHb-189): A Small, Parkhill Phase, Paleo-Indian Site in Guelph, Ontario

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A description and analysis of the information recovered during the 1996 CRM fieldwork at the Early Paleo-Indian (fluted point–related) Gosling site is presented. The site, located in the City of Guelph, Wellington County, Ontario, is a single-component one assignable to the Parkhill Phase based on the recovery of a Barnes-type fluted point. The assemblage from the site is the largest recovered from an Ontario Parkhill Phase site that is located away from the strandline of pro-glacial Lake Algonquin/Ardtrea. Yet, the assemblage is a very small, diffuse lithic scatter comprising only 24 artifacts recovered over an area of 373 m^2. The majority of the assemblage is from a controlled surface collection, because the site was not recognized as a Paleo-Indian component until, during stripping of the ploughzone in an attempt to find features, the fluted point was recovered. Nonetheless, Gosling is of some significance because it expands our currently highly biased knowledge of the Parkhill Phase in terms of site locational preferences, tool inventories, and lithic raw material source selections. In addition, as an object lesson, the site highlights a number of characteristics of Paleo-Indian sites, known primarily to specialists in that field, that need to become better known in the CRM community. These characteristics should assist in recognizing such sites in the future in cases where diagnostic fluted points are not recovered.

Introduction

We report here on a small Early Paleo-Indian fluted point site located in a ploughed field on the outskirts of the city of Guelph in Wellington County, Ontario (Figure 1). It is the only fluted point site per se currently known in the whole county. The site was discovered in 1996 during an archaeological assessment of a proposed 75-hectare (185-acre) residential subdivision named the Clairfields. The survey of the property resulted in the discovery of 28 sites and isolated findspots, six of which were recommended for test excavations and/or salvage excavations (D.R. Poulton & Associates Inc. 2001). One of those six sites was Gosling (AiHb-189), the subject of this paper.

The Gosling site is assignable to the Parkhill Complex, or Parkhill Phase, which is argued to be the second of at least three time-sequential Early Paleo-Indian (EPI) developments in the eastern Great Lakes area (see Deller and Ellis 1988, 1992a, 1992b; Ellis and Deller 1990, 1997; Ellis et al. 2003; Roosa 1977b:119; Roosa and Deller 1982; Storck 1984). Both the Gosling site and the assemblage from it are relatively small—it is no more than a diffuse lithic artifact scatter. The Stage 3 controlled surface collection of the surface of the site recovered just 17 artifacts, including flaking debris. These artifacts were loosely distributed over a surface area of about 373 m^2, or an average of only one artifact per 22 m^2. The subsequent Stage 4 salvage work on a stripped subsoil surface recovered another 7 specimens, for a total sample of 24 artifacts. Aside from stressing the rarity and ephemeral nature of these sites in Wellington County and many other areas of Ontario, the Gosling site is very significant from two perspectives.

First, despite their rarity, several Parkhill Phase Paleo-Indian sites actually have been located

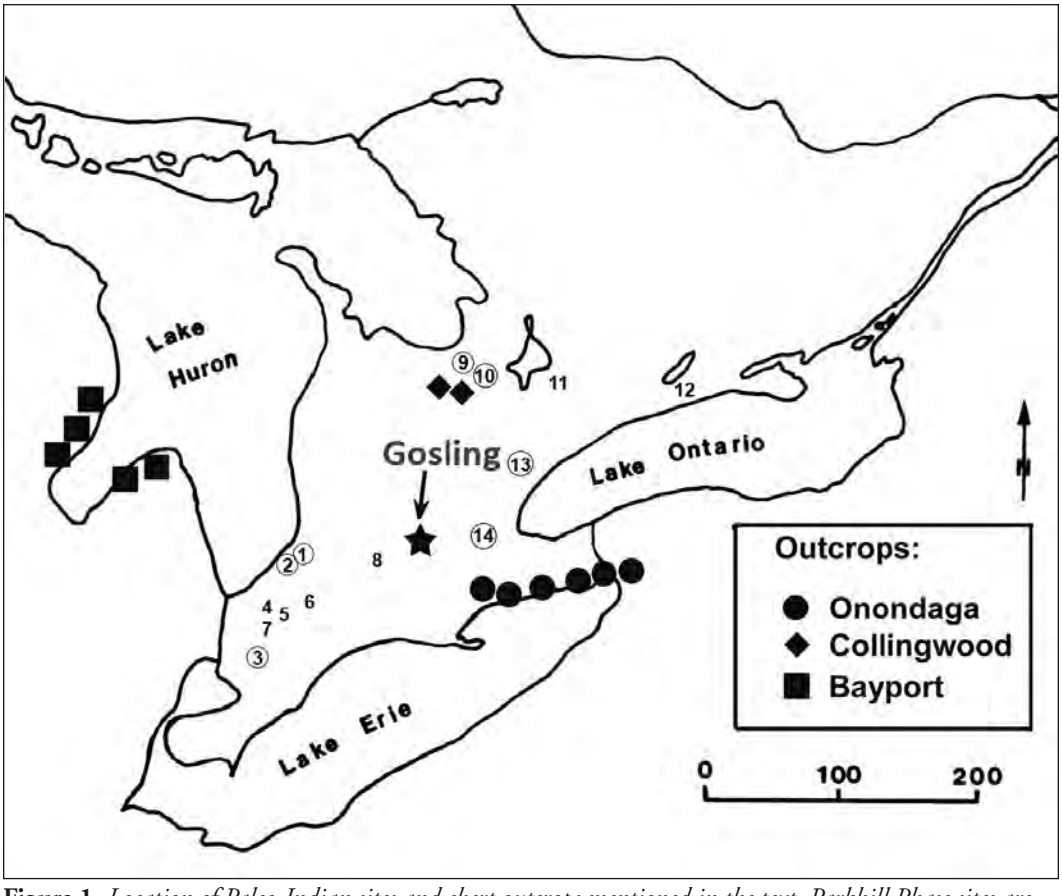

Figure 1. *Location of Paleo-Indian sites and chert outcrops mentioned in the text. Parkhill Phase sites are encompassed in circles.1: Parkhill, McLeod, Dixon; 2: Thedford II; 3: Babula Farm; 4: Weed; 5: Murphy; 6: Caradoc, Crowfield; 7: Snary; 8: Alder Creek; 9: Fisher; 10: Banting, Bear Creek; 11: Udora; 12: Halstead, Sandy Ridge; 13: Rainbow Creek; 14: Glass.*

and investigated in Ontario. Indeed, more sites of that phase have been intensively investigated than of any other single local Paleo-Indian development. However, as has been suspected for some time (e.g., Deller 1979:6; Ellis 1994; Jackson 1990, 1998; Jackson and McKillop 1991; Storck 1982; Wortner and Ellis 1993), and as was recently clearly substantiated in a comprehensive study (Hanson 2010; Hanson and Ellis 2012), our existing sample of Parkhill Phase sites is severely biased to those associated with the now high and dry abandoned strandline of pro-glacial Lake Algonquin/Ardtrea (c. 11,000–10,300 RCYBP; see Jackson et al. 2000; Karrow et al. 1975; Karrow and Warner 1990). This lake (or lakes) existed at levels above modern ones in the Lake Huron/Georgian Bay basin and extended across the northern portion of southcentral to southwestern Ontario. Given their locational biases, site locations near that lake are unlikely to be a representative cross-section of the Parkhill phase. For example, they may be skewed toward occupations in only certain seasons, and to movement patterns in those seasons or those general areas of the province. Hence, they may be very biased in terms of raw material source preferences, tool kit composition, and so on. Indeed, as we will discuss, Gosling is the largest known Ontario Parkhill Phase assemblage not associated with Lake Algonquin/Ardtrea, and it

reveals several differences from the "typical" sites known to date. Hence, it expands our knowledge of the variability among these early occupations.

The other reason the Gosling site is significant is that it serves as an object lesson in how to recognize Paleo-Indian sites in surface collections in cases where distinctive fluted projectile points have not been recovered. As stated above, the intensive surface collection recovered 17 artifacts: eight were unifacial tools and the other nine were identified as pieces of chipping detritus. At the time, none of the material appeared particularly diagnostic, but the presence of several tools, and of specimens that were burnt, suggested that subsurface cultural features might be present. In the apparent absence of cultural and temporal diagnostics, and given the diffuse nature of the surface artifact distributions, it was not considered that the ploughzone portion of the site warranted the manual excavation of one-metre squares (D.R. Poulton & Associates Inc. 2001). To address concerns for possible cultural features, however, it was recommended that the site be stripped of the ploughzone to check for settlement patterns, including hearths that might account for the burned objects. This stripping took place in October 1996, and it was during the check of the exposed subsoil that the base of a fluted point made of Onondaga chert was recovered.

It is unfortunate that the Gosling site was only recognized as a Paleo-Indian component so late in the investigations. However, the recognition of these sites can be very difficult. Most assemblages are small, and unless one has been able to spend considerable time studying and observing closely such assemblages—in other words, unless one is a specialist in their study—these sites can be hard to recognize. Ellis, who has worked on many of these assemblages since the early 1970s, is confident he would have guessed that this location was a Paleo-Indian one based on the initial surface recoveries. However, he strongly suspects that non-specialists, who would have included most CRM practitioners in Ontario, would have been unable to do so. That being said, the surface collection from the Gosling site does exhibit several characteristics that are useful in recognizing sites of this age, and we believe that detailing these here will serve as an explicit guide to future CRM researchers or non-specialists in determining whether a site is of Paleo-Indian affiliation.

In the following, we will first discuss the Parkhill Phase and our current knowledge of it, and then we will describe the work at Gosling and the materials and information recovered. Subsequently, we will discuss how the site has enhanced our knowledge of the Parkhill Phase and highlight site characteristics than can serve to recognize Paleo-Indian sites.

The Parkhill Phase

As noted above, the Parkhill Complex, or, as we prefer, Parkhill Phase (see Deller and Ellis 1992b; Ellis and Deller 1997:2; Shott 1986), is argued to be the second of at least three time-sequential developments in the eastern Great Lakes area, following in time the more Clovis-like/Gainey materials and preceding the Crowfield Phase. First recognized as a distinct Paleo-Indian development by Roosa (e.g., Roosa 1977a, 1977b; Roosa and Deller 1982), the main distinguishing criterion for the Parkhill Phase is the presence of Barnes-type fluted points, which are named after the site in Michigan where they were first recognized (see Roosa 1965; Voss 1977; Wright and Roosa 1966).

Barnes points (see Figure 2) have been

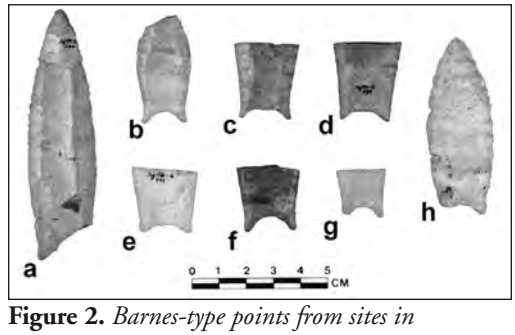

Figure 2. *Barnes-type points from sites in southwestern Ontario. Thedford II (a, d, e, h); Parkhill (b, f, g); Mullin (c). Bayport chert (a, c, d); Onondaga chert (f); Collingwood/Fossil Hill chert (b, e, g, h.). Note that h is a preform for an almost finished point that came from a probable cache.*

described in detail in several publications (Deller and Ellis 1992a:36-48, 1992b; Roosa 1965; Storck 1983). They are small to moderate-sized, usually fish-tailed points with narrow maximum (<26 mm) and basal (<20 mm) widths and moderately deep (c. 3–5 mm) basal concavities that have a smooth convex to sometimes slightly squared-off (e.g., Figure 2c–e) plan outline. Lateral edges expand from the narrow basal area toward a point of maximum width located around or just below mid-point. This expansion from the base is measured by the face angle (Wright 1981; see Deller and Ellis 1992a:Figure 25a), which is the interior angle between a line drawn across the basal ear apexes and one parallelling the point lateral edge. It is measured on both corners (if present, and ignoring ear flaring) and averaged per point. Measurements of around 90° indicate essentially parallel-sided points, while those above 90° expand from the base and those below 90° contract or, in other words, are sub-triangular in outline shape. For most Barnes points, the face angle is between 94° and 98°, which is considered a moderate expansion. This degree of expansion places them morphologically—and, one can argue, temporally—between the more parallel-sided earlier forms and the later, markedly expanding Crowfield points.

Barnes points tend to have single, well-centred and well-executed flutes on each face, most of which are 10–15 mm wide. Fluting ranges considerably in length, from 25 to 75 mm, but flutes in the longer range are the norm. As first noted by Roosa (1965), a distinctive characteristic of Barnes points is the frequent presence of the so-called Barnes basal finishing technique. This technique consist of a removal of a short expanding to parallel-sided flake over the base of the main flute, usually on each face, which removes remnants of the striking platform that had been used to flute the items. Sometimes this finishing flake terminates by feathering out or blending with the main underlying flute, such that it is difficult to distinguish its distal termination. However, often the thinning flake hinges out, such that its termination is clearly visible -- although sometimes the side edges of the Barnes basal thinning flake carry farther following the edge of the underlying flute scar ridges (see Figure 3 for examples). After the Barnes basal finishing flake removals, there may be some smaller selective flake removals to regularize the shape of the basal concavity. However, the fine continuous retouch of the concavity seen in other point forms, such as western Folsom (e.g., Ahler et al. 2002:Figures 5.6-5.8; Roberts 1935:20), is generally, although not completely, absent, with more selective retouch being the norm.

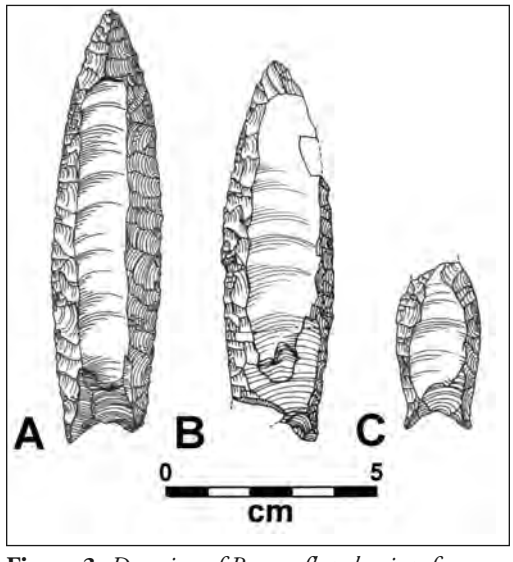

Figure 3. *Drawing of Barnes fluted points from the Thedford II and Parkhill sites, illustrating flakes removed from the base over the main flute ("Barnes basal finishing technique"). Drawings by Janie Ravenhurst.*

Beyond the point forms, several other characteristics have been suggested to be distinctive of Parkhill Phase sites. In much of southwestern Ontario, and certainly in areas to the west and north of London, Collingwood chert from the Fossil Hill formation (see Storck and von Bitter 1989) is a raw material found on many sites of all phases, including Gainey (e.g., Jackson 1996; Wortner and Ellis 1993) and Crowfield (e.g., Deller and Ellis 2011; Deller et al. 2009) sites. Indeed, since it was almost never used in that area on later sites, its simple presence has often been used to initially identify EPI sites. On the Parkhill Phase sites in that area with more than a

handful of artifact recoveries, Collingwood usually is the predominant material (>70 percent), but there are much smaller amounts of other Ontario cherts, such as Onondaga and Kettle Point and, notably, Bayport chert from the Saginaw Bay area of Michigan (Figure 1). Most of these cherts also occur on Paleo-Indian sites of other phases, but what seems to be distinctive of the Parkhill Phase in southwestern-most Ontario is the dominance of Collingwood, with some amounts of Bayport—a combination not seen on sites of other phases (Deller and Ellis 1992b:40). In the northern part of southcentral Ontario, closer to Lakes Huron and Simcoe, Collingwood chert is also usually predominant on Parkhill Phase sites, such as Fisher (Storck 1997; see Figure 1). A probable exception is the smaller Banting site Area A-West, where Onondaga chert ("grey chert") may be slightly more common than Collingwood chert (Figure 1; see Storck 1979:Table 2). Also, at the Bear Creek site, west of Lake Simcoe, 50 percent of the tools/preforms are on Collingwood chert, but Onondaga chert still makes up about 30 percent of the assemblage (Archaeologix Inc. 2004:Table 3). Regardless, also distinctive of the Parkhill Phase, at least compared with material preferences on presumed earlier sites, is the fact that no sites are known in which the predominant raw material source used is more than 200 km away, suggesting reduced range mobility from earlier times. Nonetheless, several sites located some 175–200 km from the Collingwood sources yielded tools/preforms made predominantly on that chert (Figure 1), such as Thedford II (Deller and Ellis 1992a), Parkhill (Ellis and Deller 2000), Dixon (Deller and Ellis 1992b:31), and McLeod (Muller 1999). This evidence suggests that range mobility was still quite high, especially compared with ethnographic norms (see Ellis 2011).

Several suggestions have been made over the years as to how Parkhill Phase lithic tool kits differ from those of earlier times. In reviewing this evidence, we stress that sample sizes are very small and that sampling error is a real possibility. Some distinctive unifacial tools, such as what have been called backed and snapped unifaces, proximal end and side scrapers, and hafted perforators (see Ellis and Deller 1988), are known only from Parkhill Phase sites. At the opposite extreme, there are some well-known Paleo-Indian tool forms that are commonly found in other areas east of the Great Lakes but that, it has been suggested, were absent or exceptionally rare in all the Great Lakes tool kits (see Deller and Ellis 1992a:127-130). Examples include blunt-bitted "twist drills" with fluted or unfluted bases (Byers 1954:349; Gramly 1982:30-34); elongated, steeply retouched hafted unifaces that have been called "limaces" (Gramly 1982:37-40) or "flake shavers" (Grimes and Grimes 1985); and objects worked in a bipolar manner, referred to as "*pièces esquillées*" (MacDonald 1968:85-90). However, there is increasing evidence, based on subsequent work on reported Ontario EPI sites (albeit largely not ones of the Parkhill Phase), that such types as the flake shavers and *pièces esquillées* may be present or may be more common than was previously suspected (e.g., Ellis and Racher 2011; Jackson 1996:27, 1998:46, 78; Wortner and Ellis 1993:4).

Hanson (2010; Hanson and Ellis 2012) recently compiled evidence on all confirmed fluted point locations from across southern Ontario. The 141 locations include 48 sites (i.e., locations with multiple artifact recoveries) and 93 isolated finds of diagnostic artifacts. Locations firmly assignable to specific developments included 59, or 40.1 percent, Clovis-like/Gainey; 41, or 27.9 percent, Parkhill; and 26, or 17.7 percent, Crowfield. Deliberate Ontario Paleo-Indian archaeological surveys by investigators such as Deller (1976, 1979) and Storck (1982, 2004) were focused to some extent on the Algonquin/Ardtrea strandline, and those investigators freely admit the bias. Because few finds were known at the time, their goal was to find any sites, regardless of their location. In any case, it comes as no surprise that 40 percent of all the reported Paleo-Indian sites per se have been found within 5 km of that strandline despite the fact that this area includes only 5.6 percent of the exposed land available for occupation and modern archaeological survey (Hanson 2010). Moreover, of all the developments, the Parkhill Phase had the highest frequency of reported overall locations within that Algonquin/Ardtrea area (40 percent of total sites and findspots), whereas Clovis-like/Gainey was

the least associated (14.6 percent). In fact, 14 out of 23, or 61 percent, of the known Parkhill Phase sites (as opposed to the findspots), are within 5 km inland from the shore of Lake Algonquin/Ardtrea. In sum, as a result of strandline-focused surveys, we have biased our discoveries to finding many more Parkhill Phase locations, including sites, relative to Clovis-like/Gainey ones (Ellis et al. 2011:540; Hanson 2010; Hanson and Ellis 2012).

It is also notable that most of the Ontario EPI sites that have been extensively excavated are Parkhill Phase ones and that these include almost all the larger (and Algonquin/Ardtrea strandline–associated) excavated sites, such as the aforementioned Parkhill and Thedford II sites in southwestern Ontario and the Fisher (Storck 1997) and Bear Creek (Archaeologix, Inc. 2004) sites in southcentral Ontario (see Figure 1). With the notable exception of Gosling, none of these "interior" sites, away from the strandline, have been thoroughly investigated, and none have yielded more than three tools/preforms (see Deller and Ellis 1992b). Most of the extensively excavated Parkhill Phase sites exceed c. 700 m^2. These excavated sites also often have multiple discrete, somewhat widely spaced clusters of cultural material (e.g., Ellis and Deller 2000; Stewart 1997), even though the vast majority of known Paleo-Indian sites as a whole—including all the "interior" Parkhill Phase ones—consist of single clusters covering less than c. 400 m^2. The only small Parkhill Phase site that has been extensively excavated seems to be the c. 90 m^2 Banting site Area A-West (Storck 1979:5-17), although that site, too, is Algonquin/Ardtrea associated.

At almost all of these strandline area Parkhill Phase sites, artifacts on Collingwood chert are the most common (again, Banting Area A-West seems to be an exception), despite the fact Onondaga is dominant among more locations in the overall combined sample of all known fluted point sites and findspots documented across southern Ontario (Hanson 2010:67). This apparent Parkhill Phase raw material preference may relate to the fact that site samples are biased to that northerly-located strandline area. In fact, prior to the discovery of the Gosling site, the only two reported apparent Ontario Parkhill Phase site assemblages that seemingly have no Collingwood chert items at all (and that barely qualify as sites, since each has yielded only two tools), are well removed from the strandline: the Glass site, near Brantford, in southcentral Ontario, and the Babula farm site, near Thamesville, in southwestern-most Ontario (Deller and Ellis 1992b:39; see Figure 1).

The Gosling Site

The Gosling site was discovered on May 8, 1996, during the pedestrian survey of a ploughed field (D.R. Poulton & Associates Inc. 1996; Sherratt et al. 2006:4-6), with survey transects spaced at five-metre intervals. As the last of 28 sites to be discovered in the Clairfields property, it was provisionally designated Clairfields Site 28. With the exception of the building lots of three nineteenth-century farmsteads, the entire 75-hectare property was agricultural. It had been ploughed in the fall of 1995, and winter weathering had followed. In consequence, by May 1996, when the survey was conducted, conditions for the observation of cultural remains were ideal: surface visibility was excellent.

The site is located on a narrow band of stony

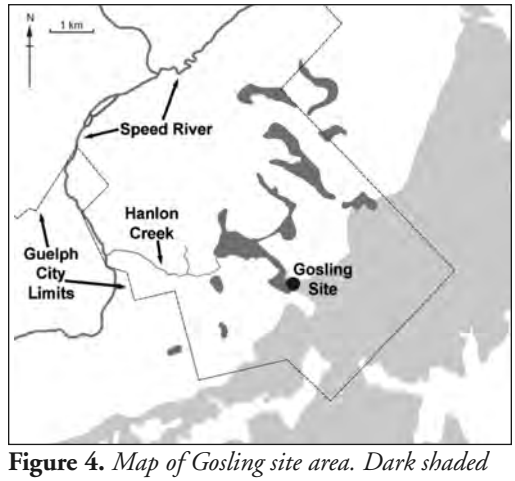

Figure 4. *Map of Gosling site area. Dark shaded zones are areas of muck soils. Light shaded zone represents elevated area consisting largely of a northeast-trending band of stony sandy loam till.*

sandy loam till and overlooks an area of muck soils to the north and west/southwest. The muck soils are associated with an extensive wetland in the Hanlon Creek Conservation area. Hanlon Creek is a tributary of the Speed River, itself a tributary of the Grand River (Figure 4). The topography of most of the Clairfields property is generally rolling, with numerous knolls, but the area in which the site is situated is flat. Its location, on better-drained sandy loam soils adjacent to the muck soils and related wetlands, is typical of many Paleo-Indian sites (see Deller 1979:6; Deller and Ellis 2011:5).

On May 13, 1996, an intensive one-metre-interval controlled surface collection of the site was conducted, whereby individual artifact locations were recorded by transit and tape relative to a fixed datum point. As noted earlier, 17 artifacts were collected (D.R. Poulton & Associates 1996:Table 12). These items were found over a maximum area measuring 47 m north–south and 17 m east–west. However, if the peripheral finds alone are used to outline the site, the total area covered is only 373 m^2 (Figure 5). As illustrated in Figure 6, the site was located near the east edge of an agricultural field. The long axis of the field was north–south, and this direction also defined the orientation of the ploughing. Thus, it seems likely that the attenuated distribution of the artifacts and their greater north–south distribution (Figure 5) is a direct result of the direction of ploughing. Such a directional effect has been demonstrated by artifact conjoins at several other ploughed Paleo-Indian sites (Deller and Ellis 1992a:101, 1996:31, 2011:34; Ellis and Deller 2000:171, 2002:110).

The analysis of the surface-collected sample identified seven tools (classified at the time as a "drill," two end scrapers, a side scraper, two "utilized" flakes, and a scraper fragment); a bipolar core (or wedge); and nine pieces of chipping detritus; three of these seventeen items were thermally altered. Sixteen of the specimens were of Onondaga chert from source areas southeast of the site (Figure 1). The exception was a piece classified as "shatter" that was identified as being of Haldimand chert, outcrops of which occur near the Onondaga sources just west of the Grand River. Almost all of the pieces of chipping detritus were relatively small (all but one weighed <1 g each).

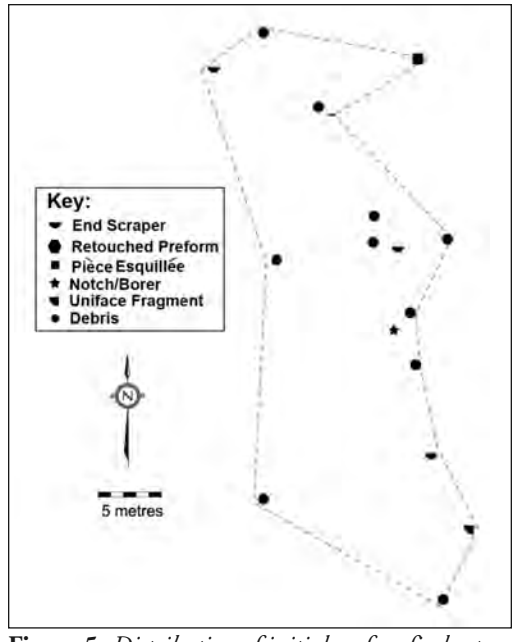

Figure 5. *Distribution of initial surface finds at Gosling.*

Based on the results of the survey, Gosling was classified as a "diffuse lithic scatter." Given the ephemeral nature of the site and the apparent lack of cultural or temporal diagnostics, excavation of one-metre units was not considered warranted. However, and as mentioned above, based on the disproportionate representation of tools in the small sample and the presence of thermally altered specimens, it was inferred that the site had some potential for subsurface cultural features, and it was therefore recommended that the site be mechanically stripped of the ploughzone to try to locate such features.

The Stage 4 salvage excavations of the site proceeded on October 23, 1996. The ploughzone was stripped by a backhoe with a straight-edged ditching bucket under archaeological supervision. Stripping exposed an area measuring 30 m north–south by 25 m east–west. The area so exposed represented 80 percent of the surface area of the site as delimited by the surface distributions of artifacts; it excluded five outliers (Figure 7). As the

Figure 6. *View of the Gosling site looking east.*

ploughzone was stripped, the surface of the exposed subsoil was cleaned using shovel and trowel and checked for possible features. In the process, as noted, an unpleasant surprise was the recovery of the fluted point base. It was the first fluted projectile point ever recovered directly by an archaeological investigation in all of Wellington County.

As a result of the stripping, two potential cultural features were exposed. They were 4 m apart and were located in the approximate centre of the site as defined by the surface artifact distributions (Figure 5). Each of the possible features had a single artifact on the exposed surface. Although samples were taken for flotation, upon excavation, both features were determined to be natural depressions in the surface of the subsoil or possibly three throws. Aside from the fluted point base, the salvage excavations added six artifacts to the site inventory. They were a biface fragment, a side scraper, and four more small pieces of what were classified as "flaking debris." These six specimens were recovered in the hand screening through 3.2 mm mesh and in the floatation of soil samples of the possible feature matrices. Hence, the total inventory from the site at completion of the field work was 11 tools/preforms and 13 pieces of detritus. Our analyses have reclassified one of the pieces of debris as a scraper fragment, so the assemblage examined here consists of 12 tools/preforms and

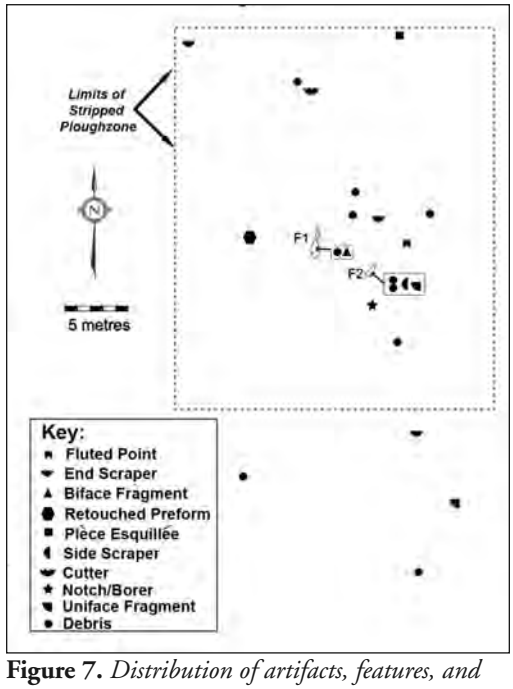

Figure 7. *Distribution of artifacts, features, and mechanically stripped area at the Gosling site.*

12 pieces of debris. The distribution of these items, including three flakes that were in the potential features, is plotted on Figure 7 using the artifact classifications employed in this analysis.

The Lithic Assemblage

The lithic assemblage consists solely of flaked stone tools and debris from lithic reduction. We stress that there are no pieces of fire-cracked rock (FCR) from this site.

With the exception of three items of flaking debris discussed in more detail below, all items in the assemblage are on a high-quality Onondaga chert that has few of the limestone inclusions often seen in secondary deposits of this chert. This characteristic suggests use of primary bedrock sources as opposed to those secondary deposits. Use of primary deposits is confirmed by surface remnants of the original unaltered material surfaces found on five of the artifacts: a biface fragment, a narrow end scraper, a trianguloid end scraper, a side scraper, and a single piece of flaking debris. While limestone cortex is not present on any of these five items, all do retain a flat, planar surface that lacks the battering and smoothing characteristic of material from secondary deposits. The nearest primary outcrops of Onondaga chert are to be found about 100 km south of the site, just west of where the Grand River enters Lake Erie. The Onondaga items at the site vary considerably in colour, from a distinctive and relatively uniform blue-grey to dark blue-gray/gray/very dark gray colour (10B5/1-10YR5/1 to 10B3/1-10YR3/1 in the Munsell colour system) to a gray/light brownish gray/grayish brown (10YR6/1, 10YR6/2 to 10YR5/2). Excepting the trianguloid end scraper, all of the other darker-coloured items (the fluted point base, a biface fragment, a narrow end scraper, a side scraper, and some flaking debris pieces) have fracture surfaces and/or potlids, demonstrating that they had been heated after or at discard (such as by heating a hafted tool to remove it from a mastic). This evidence suggests that the darker colouring seen in several cases has been enhanced by the heating.

Tools/Preforms

Projectile Point. As noted, a single Onondaga chert fluted point base was recovered from Gosling (Figure 8), although there is a basal segment of another possible example, described as a "biface fragment" below. A potlid scar indicates it was heated at or after discard. The definitive base is from a medium-size point and has an incomplete length, width, and thickness of 22.6 mm, 22.0 mm, and 4.4 mm, respectively. This base is clearly from a classic example of a Barnes-type fluted point (compare Figure 8 with the examples in Figures 2 and 3). Across the base on one face it exhibits a fine, continuous retouch in the basal concavity, an attribute that is not typical of the type, but otherwise the base matches the description noted earlier for that type in every detail, including (1) fish-tailed corners; (2) lateral edges that expand moderately (face angle of 97.5°) from above the fish-tails and that indicate maximum width had to be on the missing fore-section; (3) a narrow base under 20 mm (17 mm); (4) a moderately deep basal concavity (3.6 mm); (5) single flutes on each face, in this case of at least 13.4 mm and 13.2 mm wide, respectively, that on both faces extended 17 mm from the basal apex to the transverse snap and obviously were longer prior to breakage; and (6) the presence of the Barnes basal finishing technique on each face. On one face the finishing technique involved the removal of a primarily 12.5 mm wide and 10 mm long flake. However, on one edge a 2 mm wide extension of the finishing flake removal extended up the lateral scar of the underlying flute for an additional 4.3 mm, a characteristic seen on other Barnes point examples (e.g., Figure 3). On the

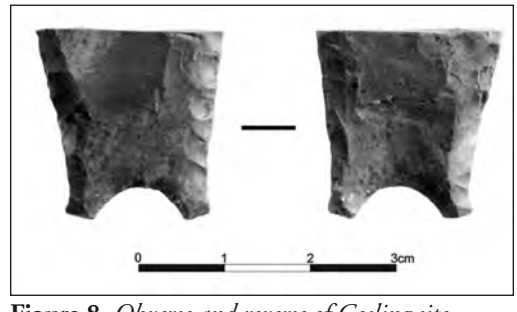

Figure 8. *Obverse and reverse of Gosling site Barnes fluted point base.*

opposite face the finishing flake also has a primary width of 12.5 mm and length of 10 mm, but then it narrows to a width of 3 mm and extends up the one flute scar edge for an additional 8.4 mm.

Pièce Esquillée. A notable artifact is a small (22.9 by 21.0 mm), thin (4.0 mm) flake with bifacial bipolar flaking on opposing margins (Figure 9b), classified in the original report as a bipolar core. These bipolar margins correspond to the old lateral edges of the original flake. Based on an acute-angled, faceted, and ground platform remnant at one end, we suggest this item probably was made on a flake from large biface core reduction.

Similar bipolar objects have been recovered from sites of many ages, including Paleo-Indian ones. In Paleo-Indian contexts they are often referred to, following MacDonald (1968:85-90), as *pièces esquillées*, or, literally, "scaled pieces," because the often short, overlapping facial flakes resemble fish scales. Like the present example, they are frequently made on flakes, including the recycling of former unifacial tools, such as end scrapers. Use of flakes and tools as blanks is something that tends to distinguish Paleo-Indian items from many, although not all, of the bipolar forms found on later sites. Debate has ensued as to their specific function or use on Paleo-Indian sites. MacDonald (1968) saw these largely as wedges used to split antler, bone, or wood. However, some researchers have interpreted them as bipolar cores produced by battering small, harder-to-grip items on an anvil to detach useable flakes, often by recycling smaller artifacts and flakes under conditions where there is restricted access to raw materials (e.g., Goodyear 1993; Shott 1999).

In their Paleo-Indian analyses, Lothrop and Gramly (1982) argued there is little if any evidence for the use of the small flakes detached from these items, suggesting they were used as wedges. Moreover, at the Mill Iron site, a Paleo-Indian site in Wyoming, several pieces of a *pièce esquillée* that had broken in use could be reconjoined (Bradley and Frison 1996:62-64). Without going into details, the refit patterns clearly indicate that the item was held in something when it was battered and broke,

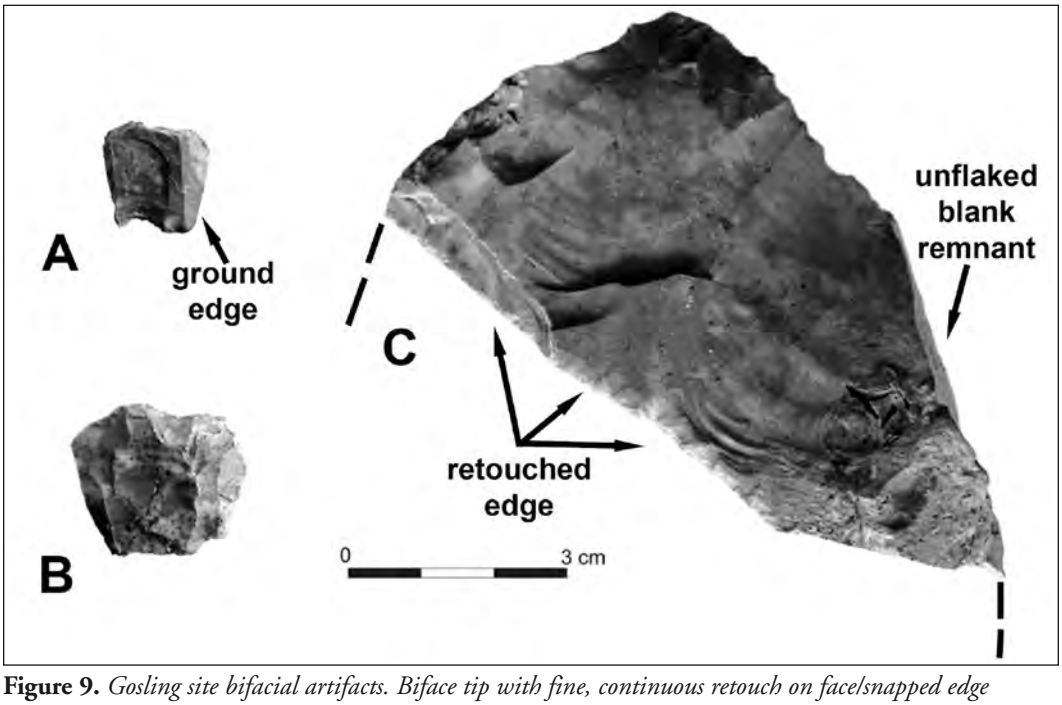

Figure 9. *Gosling site bifacial artifacts. Biface tip with fine, continuous retouch on face/snapped edge juncture (a); pièce esquillée (b); biface fragment (c).*

providing definitive evidence that this particular item was actually used as a wedge. It may be that such items served as both cores and wedges in Paleo-Indian contexts. The Gosling example is quite small, being at the very bottom range of these items compared with what has been reported from other sites (compare, for example, with MacDonald 1968:Table 9) and as such is supportive of a wedge interpretation. Based on extant flake scars, as a core it would only have yielded a few very small flakes that would have been about 14 mm long at most. It seems unlikely it was used as a core given its size, and especially given that people could easily have salvaged for their use flakes that are just as large from the unmodified and unused debris found at most Paleo-Indian sites, including Gosling.

Biface Fragments. One of the two biface fragments in the collection is a small, squarish fragment (under 15 mm in length and width; Figure 9a). It is highly fragmented, and two of the four margins consist of sloughed-off surfaces resulting from burning. In addition, potlid scars are present on both faces, obscuring some details. One extant margin has unifacial retouch; the other face at this margin edge consists of a small, flat, planar remnant of the original bedrock source. Notably, the edge of that same margin is ground and the other extant margin that meets it at right angles (bottom edge on Figure 9a) is concave. These characteristics raise the possibility that the item represents the corner of a fluted biface—that is, its ground side edge and concave base. Also, there are partial preserved scars going up both faces that could be flute remnants. If they are indeed flute remnants, the unmodified original surface on one face may indicate a point that was made directly on a thin flake by largely simple edging rather than by reduction from a larger biface preform. Production of Barnes points on thin flakes is rare but not unknown (see Ellis and Deller 2000:83-84).

The other biface fragment (Figure 9c) is the 38.2 mm long and 11.7 mm thick snapped-off tip end of a larger unrefined biface. It closely resembles the larger ovate/ovoid preforms reported from several Paleo-Indian sites, such as Caradoc and Crowfield (Deller and Ellis 2011:74-82, 156-157; Ellis and Deller 2002:32-37; Storck 1997:51-52). The tip edge is bifacially flaked except for a flat surface on the preserved margin, which extends farther down from the tip end and which is at right angles to the transverse section of the item (Figure 9c). This flat surface seems to be a remnant of the striking platform or a bottom core remnant of the original flake blank on which this item was made. Comparable remnants do occur on unrefined biface examples at other sites, such as Crowfield (Deller and Ellis 2011:Figure 5.12). The item was snapped at a slight diagonal angle to the longitudinal biface axis. There is a slight lip at the juncture of the snap and one face that created a less right-angled (c. 55–60°), and hence sharper, edge. The item was recycled after breakage, as indicated by the fact that the sharper edge has been deliberately retouched on the artifact's face adjacent to the break. The retouch produced a continuous, fine (c. 2 mm long) working edge that extends along the margin for 31.8 mm and that resembles the well-executed retouch seen on Paleo-Indian unifacial tools, such as raclettes (e.g., Deller and Ellis 2011:Figure 9.6c).

Trianguloid End Scrapers. Two items in the assemblage resemble the classic Paleo-Indian trianguloid end scraper (Table 1). One of these items was subsequently recycled into another use, and the other item may have been recycled too. Both items have or had steeply bevelled bits at the

Table 1. *Characteristics of trianguloid end scrapers. All metrics excepting bit angle are in mm.*

Figure #	Length	Width	Thickness	Bit Width	Bit Depth	Bit Width-to-Depth Ratio	Bit Thickness	Bit Angle
8b*	39.3	30.3	9.6	30.3	6.2+	4.89	9.6	70–85°
8c	33.3	26.7	6.5	26.7	8.9	3.00	5.5	55–70°

* Bit depth, bit width to depth ratio, and bit angle of this item have been altered by recycling into a spurred tool.

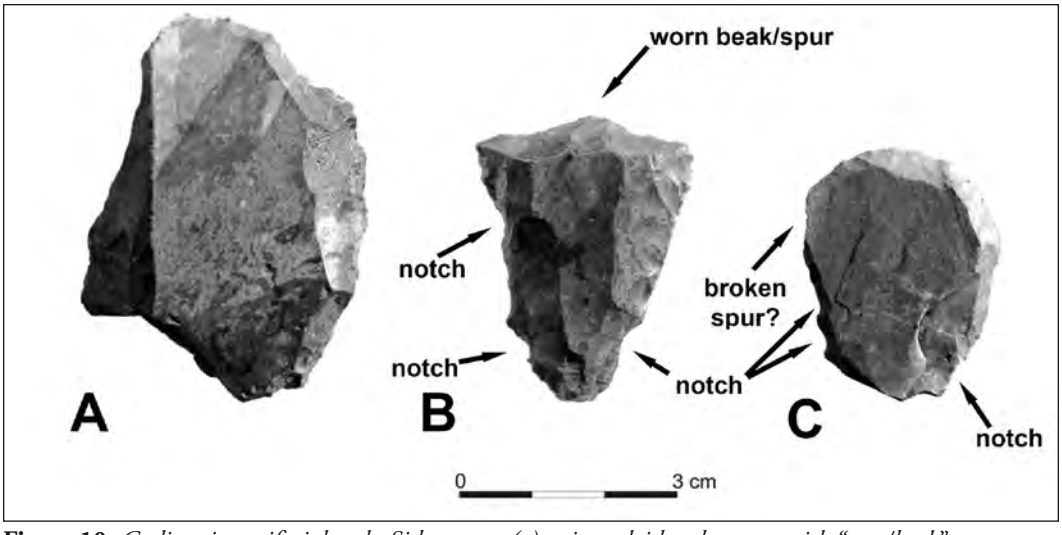

Figure 10. *Gosling site unifacial tools. Side scraper (a); trianguloid end scraper with "spur/beak" remnant on bit (b); trianguloid end scraper (c).*

end of the flake blank, and both also display lateral unifacial retouch along most of the side edges to taper the proximal end for hafting.

One of the tools has a more convex bit that is quite deep relative to its width, and it has a 55–70° edge angle (Figure 10c; Table 1). The tool was made on a flake that had an almost completely unflaked dorsal surface, representing an original bedrock surface; lacks much longitudinal curvature; and has a right-angled platform, all of which suggest detachment from a blocky/tabular core form. The right margin adjacent to the platform has a small area of bifacial retouch that produced a slight notch, presumably to allow easier melding of the tool with its haft. The left margin also has two shallow notches adjacent to the platform that may have served to anchor a binding. Such notches are present on trianguloid end scrapers at many EPI sites (e.g., Rule and Evans 1985; Wortner and Ellis 1993:6-7), including Parkhill Phase ones (Ellis and Deller 2000:109-110; Storck 1997:Plate 3.16d). A small area on the left side edge at the juncture with the bit has been broken off. This break placement and size is unusual, and it may be that the broken off area was formerly a spur that was snapped off in use. Such spurs are often found at the corner on these tools; despite claims to the contrary, many researchers have presented good evidence that these represent tool accessories or recycling of the thick corners of former end scrapers to produce engraving tools (e.g., Ellis and Deller 2000:107-108; Eren et al. 2013; Seeman et al. 2013:423).

The second trianguloid end scraper (Figure 10b) has definitely been recycled. It apparently originally had a steeply retouched, flatter bit. Subsequently, a massive pointed spur or beak was flaked into the centre of the bit for use as some kind of engraving or incising tool and that beak is heavily worn down. This scraper also exhibits a deliberate notch about 10 mm behind the bit on the left lateral margin. As is the case with similar notches present on other trianguloid end scrapers (e.g., Ellis and Deller 1990:46, 2000:108), given its placement, this notch may represent a tool accessory rather than a modification for hafting. However, two other deliberate bilateral notches, one on each margin about 8 mm from the proximal end, are clearly hafting modifications. One of these notches, on the left margin, was produced by bifacial retouch. This item is made on a slightly curved blank, and the intact platform is acute-angled, ground, and faceted, suggesting the tool was made on a large flake from biface core reduction.

Narrow/Nosed End Scraper. The Gosling assemblage includes a single example of what have been referred to as "narrow or nosed" (*grattoir à museau*) end scrapers (Figure 11a), a recurrent tool form on many EPI sites (see Deller and Ellis 1992a:60-63; Ellis and Deller 1988:117-119; Frison and Bradley 1980:109). Paleo-Indian sites yield a variety of flake tools with elongated, narrowed working edges. These items range in size and form from small, pointed gravers or piercers to larger items that have been lumped by some into a general category of "beaked scrapers" (e.g., Storck 1979, 1997:Plate 3.12). However, the larger items vary considerably in the shape of the working edge, from pointed forms with thin side profiles ("perforators/awls") to pointed tools with thick side profiles ("beaks") to somewhat wider and convex plan forms that essentially have end scraper bits (narrow/nosed end scrapers), albeit of a specialized form, such as the Gosling example. Moreover, some items, such as some of the perforator and beak forms, seem to have been hafted tools, whereas there is no evidence of hafting on the specialized end scraper forms. Given the variation in working end morphology and its correlation with other indices, such as hafting modifications, some researchers assign these variants to separate types, being doubtful that all of these tools served the same function (e.g., Ellis and Deller 1988:117-119; MacDonald 1968:98-99). However, even tools typed as narrow end scrapers vary somewhat. For example, some have long, isolated work ends, with the end scraper bit at the tip of a projection (Frison and Bradley 1980:Figure 71c-d; Storck 1997:Plate 3.12a, 3.12f), whereas others have relatively short projections that do not extend far from the body of the tool (Ellis and Deller 1988:Figure 13f-i). This variation suggests these tools were used in somewhat different specific contexts.

The Gosling example measures 37.7+ mm long by 16.6 mm wide by 6.1 mm thick. It exhibits a narrow (6.3 mm), thick (4.1 mm), moderately steep (60–65°), convex working edge or bit at the end of a long distal projection. This projection was deliberately formed by the application of a steep retouch (65–80°) along both margins that extends back some 25.9 mm from the bit end and seemingly narrowed considerably the original width of the flake blank. Such deliberate narrowing suggests scraping use in a deep, laterally confined space. The proximal or basal ending of the tool is expanding, but the exact original form of the base and the maximum length and width of the artifact are indeterminate because

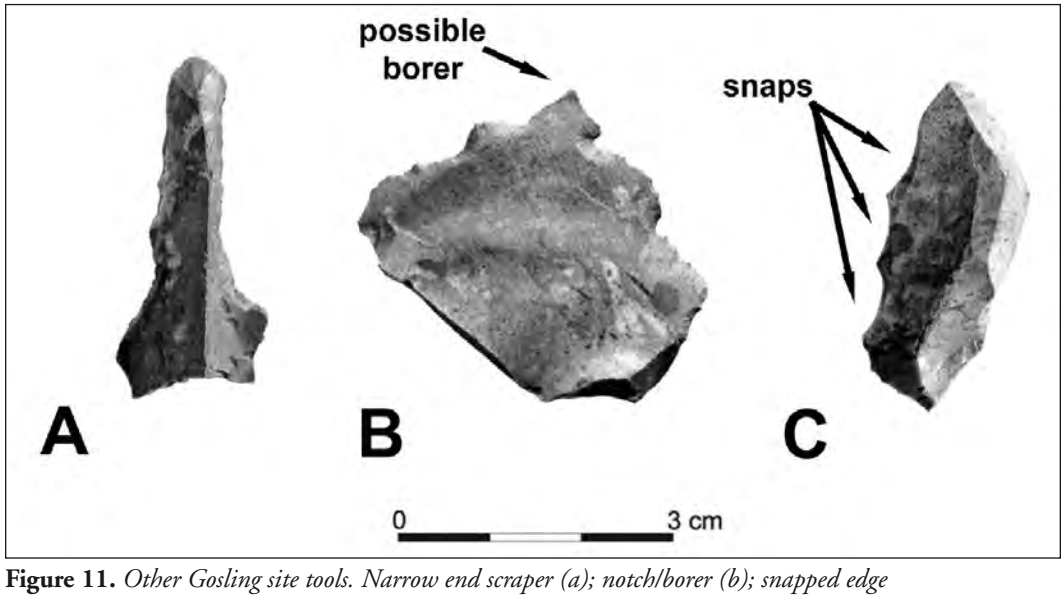

Figure 11. *Other Gosling site tools. Narrow end scraper (a); notch/borer (b); snapped edge denticulate/cutter (c).*

it has been heat broken; the remaining basal margin and part of the adjacent left side edge consist of damaged surfaces from this thermal damage. Despite its broken proximal end, its shape and thick proximal cross-section suggests it was not a hafted tool.

In transverse section, the working end is plano-convex in the area of the bit but somewhat trianguloid away from the bit, because the long projection of the tool has been placed such as to parallel a long, central flake scar ridge of the original tool blank—probably to reinforce the strength of the tool bit in use. Placement of such bits around dorsal ridges is characteristic of most known examples of this tool form. This factor seems to account for a lot of the variability in specific bit placement on the tool blank on unhafted examples (Ellis and Deller 1988:118); they are placed where the ridge happens to be situated on a given flake blank. Retouch on the ventral face is limited to the distal 13.3 mm of the bit and was perhaps applied to remove some distal curvature in the bit area. It was the long, narrow configuration of the bit, combined with the presence of both dorsal and ventral retouch at the distal end, that led to this item being called a "drill" in the original Stage 1–3 assessment report on the site. However, as we stress above, it does not have the typical biconvex transverse section of a drill-like form.

Side Scraper. A consistent tool form on Paleo-Indian sites are side scrapers, defined here as flakes with deliberate, continuous lateral retouch that extends back from the edge for at least 2.5 mm along one or both lateral margins. The single example in the Gosling collection exhibits continuous retouch—albeit heat-damaged, so it appears somewhat irregular in plan—all along the right flake margin. This retouch forms a convex outline in plan view (Figure 10a). The retouched edge ranges from 50° to 65°, and the retouch itself extends up to 13.2 mm from the tool edge onto the back of the flake. Overall, this item measures 52.6+ mm long by 48.3 mm wide by 14.7 mm thick.

This side scraper is fractured by heating along the left lateral and the proximal, or platform, end. It is possible the tool had retouch on the missing left margin too and was therefore a "double" side scraper, but there is no evidence of retouch on the small intact left edge segments, so it may be that the tool was simply a single convex side scraper form. The missing platform makes it difficult to determine the kind of flake upon which it was made, but, given its thickness and irregular back, it was most likely made on a flake from a blocky core form.

Denticulate/Cutter. Denticulates, or flake tools with serrated edges, are not usually very diagnostic, because they have been recovered from sites of many different ages. However, the denticulate recovered from Gosling is a different story (Figure 11c). This tool measures 35.9 mm long by 15.5 mm wide by 7.0 mm thick. The blank form is indeterminate, but, given its thickness and angularity, probably derived from the reduction of a block core form. Typical of denticulates is the serrated edge along the right lateral margin, but what makes it distinctive is how the serrated edge was specifically formed. A series of three small (7.6–9.5 mm long by 1.3–2.0 mm deep), adjacent but slightly overlapping, semi-circular pieces have been serially snapped along the margin. The pointed segments between the snaps form the teeth of the serrated edge; no retouch or other modification is evident at the points or in the intervening concavities. This form of edge modification provides a thick (2.9 mm), strong, serrated working edge that would work well when used in a "saw-like" manner. Such snapped edge denticulates were first recognized by Gramly (1982:41) in the Paleo-Indian assemblage from the Vail site, in Maine. He described them as one variant of a larger category called "cutters," which also includes other tool forms, such as micro-piercers/gravers. He believed these denticulates would be most easily made by placing the edge of a thin flake into a shallow slot in the convex side of a wood or bone tool and bending the flake to snap off the small segments held in the slot.

Notch/Borer. A single tool on a flake from a blocky core form measures 35.0 mm long by 35.5 mm

wide by 9.1 mm thick. It has had intermittent retouch applied on the flake underside (i.e., inverse retouch) to form working segments on its distal and left lateral edges (face shown in Figure 11b). There are two notches on the distal end and two on the side edges, with intervening, projecting unmodified areas on the margins as well as at the corner juncture of the two margins. There is nothing to suggest use of the somewhat widely spaced (6.8–10.6 mm) and for the most part relatively blunt intervening projections as in the manner of a denticulate. This absence suggests the notches were the use edges. An exception may be the corner projection, which is more pointed and seemingly smoothed, perhaps through use as a graver/piercer/borer/spur. Small composite tools incorporating various combinations of notches, spurs, denticulates, and other working edge forms are common on Paleo-Indian sites (e.g., Deller and Ellis 1992a:68; Frison and Bradley 1980). These different edges presumably were placed together on the same tool for convenience (e.g., so they could be used in different operations in the same overall task without obligating the user to pick up separate tools).

Scraper Fragments. The last two items of note are small edge fragment of scrapers of indeterminate form. One of these, recovered in the flotation sample from Feature 2, was initially classified as flaking debris but has subsequently been recognized as a small tool edge. Both items retain parts of moderate to steeply bevelled segments of convex scraping margins. The length of that remnant margin is 14.4 mm on one example and 8.8 mm on the other.

Flaking Debris

There are only 12 pieces of potential flaking debris in the assemblage. Except where noted below, all are on Onondaga chert. The most notable aspect of the debris is that it is of a very small size, averaging 0.38 g and totalling only 4.51 g. Indeed, excluding one piece of potential shatter (2.53 g), all items weigh much less than 1 g each.

The sample includes three flakes that, based on the presence of acute-angled, faceted, and ground platforms and their small size (average weight 0.19 g), appear to be from the later stages of biface manufacture or resharpening. Another two flakes are small (weighing 0.02 and 0.01 g, respectively) flakes from retouching the edges of unifacial tools, such as scrapers (see Frison 1968:150; Shafer 1970:484). An additional five items are simply medial and distal fragments of thin flakes that lack platform remnants. All of these are also small (weighing <0.7 g each; average 0.27 g). The largest of these items, a medial segment, is burned. Its material is unknown, although it could be Onondaga chert. Regardless, this item is also notable because it may be a segment of a c. 17.8 mm wide channel flake from point fluting. It does have a complex dorsal scar pattern suggesting flaking from the side edges, as is characteristic of flakes removed from the end of a biface. It apparently had parallel sides and a smooth, biconvex cross-section and lacked longitudinal curvature, which are also characteristics of these fluting flakes (for a detailed description of channel flakes from Parkhill Phase sites, see Deller and Ellis 1992a:84). However, the short nature of the segment (12.8 mm), and its heat damage, makes positive identification difficult.

The remaining two pieces of debris are unique, and their interpretation unclear. One is a larger (weight 2.53 g) angular item that is on an unknown light grey to bluish grey material. It may be Colborne chert, a Devonian material from the Bois Blanc formation that can be found in the southeastern part of the Niagara Peninsula (Fox 2009:361). This item was originally classified as shatter, implying an origin in earlier stages of tool production, but, as we discuss below, other interpretations are possible. The last item classified in the debris is the platform segment of a larger flake with a right-angled platform, which weighs 0.52 g. Once more, this item may be suggestive of earlier stages of core reduction or of more primary flaking on-site, but other, more viable interpretations are discussed below.

Of the total debris, a relatively high percentage (5/12, or 42 percent) can be assigned to the reduction of specific tool categories, such as bifaces or unifaces, which suggests a site emphasis

only on final stages of tool manufacture/edge resharpening. The small size of these items, as well as those five thin debris pieces lacking platforms, is also more consistent with tool finishing and resharpening. The small number of debris pieces compared with the number of tools/preforms also suggests a de-emphasis on manufacture and particularly a de-emphasis on the earlier stages of tool production—although this may in part relate to the fact that the ploughed site matrix was largely striped rather than screened. In fact, using the artifact classification employed in this paper, only nine flakes and eight tools were recovered in the surface collections, resulting in a "debris-to-tool" ratio of just over 1:1. If there was much in the way of primary reduction at this site, we would expect there to have been large debris that would be easily seen and thus surface collected and recovered in much larger quantities during those surface collections.

The only potential evidence of the earlier stage of stone tool manufacture are the two pieces of flaking debris, which may be seen as a piece of shatter and a core reduction flake platform end, respectively. It is possible, however, that the piece of shatter, which is on an unknown material, represents brief non-Paleo-Indian use of the site location. It is also possible that these two items, even if they are both Paleo-Indian, as we believe they are, do not represent early stage tool production at all. They could actually represent tool fragments from sections of unifacial tools lacking edge retouch. This interpretation seems more consistent with their rarity and especially with their being found in a primarily surface-collected assemblage, where there would be a bias toward finding larger items from the earlier stages of reduction. If these were simply shatter from core working, one would expect relatively many more pieces to be present. In fact, in Ellis's experience working on a number of larger Paleo-Indian assemblages, there are always a few, more blocky fragments lacking edge retouch. In these cases, if there has been a thorough excavation and a chance to do thorough refitting of segments, they often can be confirmed as tool fragments rather than as shatter from tool manufacture. In addition, proximal or platform segments of larger flakes can also be from tool finishing or final manufacture. They can represent, for example, the thicker platform ends trimmed off flake blanks to prepare them for hafting as end scrapers and other tools. At some sites, comparable items are demonstrably from that source (see Deller and Ellis 1992a:87). In summary, there is little evidence of much early stage stone reduction at Gosling, and may be none at all.

Discussion

Implications for Paleo-Indian Studies

The Gosling site is a small, diffuse lithic scatter, with chipped lithics predominantly made on Onondaga chert. All of the tool forms recovered from the Gosling site are ones expected to be found on Paleo-Indian sites. All indications are that Gosling is a single-component site occupied during the Parkhill Paleo-Indian Phase; only one piece of potential shatter/tool fragment has a remote chance of being non-Paleo-Indian.

Small sites (<400 m^2) seem to make up the bulk of the Paleo-Indian archaeological record, but, as we stress above, few have been extensively investigated. On Figure 12, we plot all the data we could find for fluted point sites (or comparable-sized site areas at those locations with discrete multiple loci) in the eastern Great Lakes drainage that (1) have been excavated or intensively surface collected; (2) have adequate but still small sample sizes (10–65 tools/preforms); and (3) have been classified or described so that we can accurately determine the frequency of two specific artifact forms, namely, fluted bifaces and trianguloid end scrapers. We plotted these two tool categories because the variation in frequency of these categories has been suggested to be a prime driver of inter-assemblage variability in Early Paleo-Indian tool assemblages (Ellis and Deller 2000:227-228). Unfortunately, while the frequency of fluted bifaces is easy to determine in most assemblages, assemblages are rarely described in the literature such that the trianguloid end scraper totals can be determined—so our sample is smaller than it need be and biased to assemblages we have actually examined. That being said, the data from the available sample

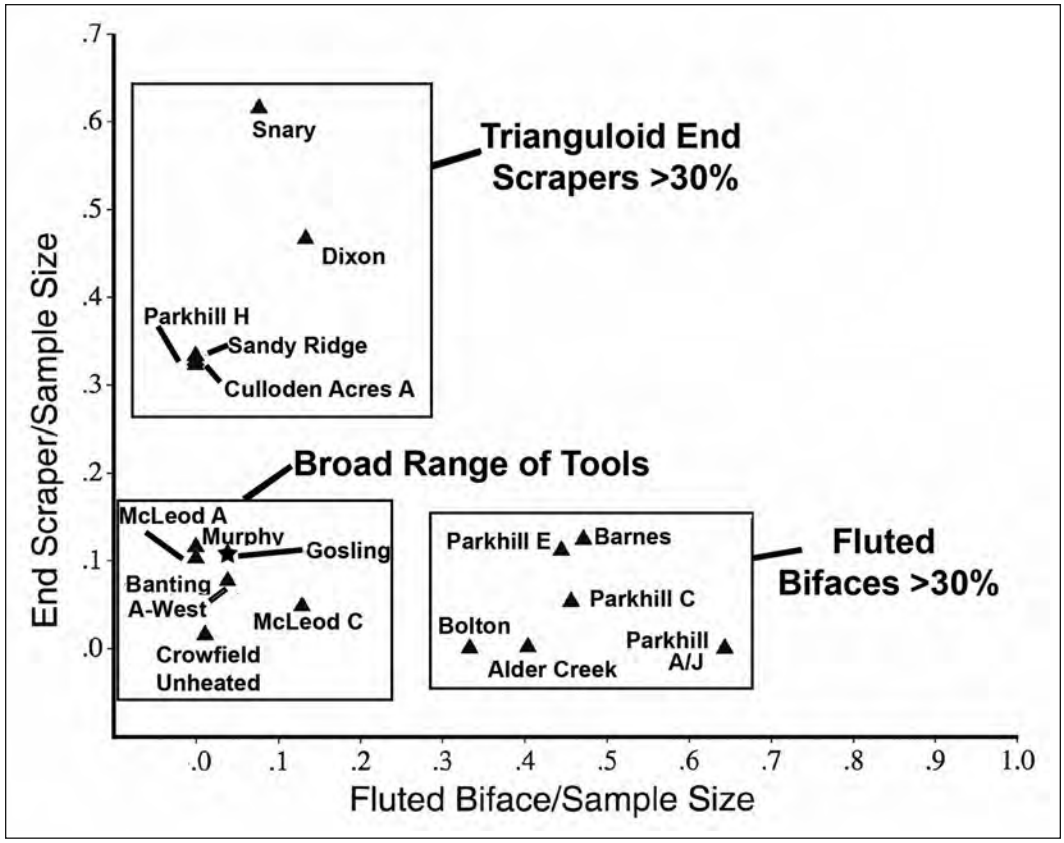

Figure 12. *Graph plotting relationship between trianguloid end scraper and fluted biface proportional frequency at small fluted point sites or site areas. All sites or areas have sample sizes of tools and preforms totalling 10–65 items.*

shows they actually seem to fall into three discrete groups (see Figure 12).

Many locations seem to be relatively specialized encampments/activity areas, because they are dominated by one or the other of the two particular tool forms plotted. Notably, both these tool forms are more highly flaked and, one presumes, more curated or long-lived forms (see Ellis and Deller 2000:226-238), suggesting intensive use of such tools where they predominate. For example, sites such as Snary (Wortner and Ellis 1993), Dixon (Deller and Ellis 1992b:31), Sandy Ridge (Jackson 1998), and Culloden Acres Area A (Ellis et al. 1992) are dominated by trianguloid end scrapers (>40 percent), while fluted bifaces/biface preforms are very rare/absent. In contrast, other locations, such as Bolton (Deller and Ellis 1996) and Alder Creek (Timmins 1994), as well as sites in adjacent areas, such as Barnes, in Michigan (Voss 1977), are the reverse, being dominated by fluted bifaces, with little evidence of trianguloid end scraper use. At all of these sites, where data are available, the tool distinctions are mirrored by variability in the flaking debris assemblages. Higher percentages of uniface retouch flakes (and lower debris-to-tool ratios) occur on the end scraper/uniface–dominated sites, whereas high percentages of biface reduction debris, including channel flakes (and higher debris-to-tool ratios) occur on the sites with the fluted bifaces (Muller 1999:159-173). This evidence reaffirms that the relative tool form frequency differences are measuring, at some level, differences in site activities or function

("substantive behavioural differences"). We do not believe, they are simply measuring factors such as site assemblage size/occupation spans as has been argued by investigators such as Shott (1997). One could argue that sites dominated by fluted bifaces represent hunting camps (where discarded finished points predominate; e.g., Bolton, Alder Creek) or camps where individuals geared up in advance of hunting activities (where fluted preforms broken in manufacture predominate; e.g., Barnes). Based on recent, detailed use-wear studies of trianguloid end scrapers (Loebel 2013; Seeman et al. 2013), the sites where those tools dominate relate to relatively intensive hide preparation/processing.

In direct contrast to those somewhat specialized assemblages, several other small sites or comparable small areas in multi-locus sites have quite diverse artifact assemblages, with examples including Murphy (Jackson 1996), McLeod Area C-West (Muller 1999), Banting Area A-West (Storck 1979:5-17), and the unheated assemblage from Crowfield (Deller and Ellis 2011:182). These sites have a comparatively small combined percentage of fluted bifaces and trianguloid end scrapers (<20 percent and often much less). The remaining bulk of these assemblages is made up of a diversity of other biface and flake tool forms, suggesting these were domestic sites, where a range of everyday activities was carried out. Gosling clearly fits in with such diverse assemblages (Figure 12). There is only one definitive fluted biface and one trianguloid end scraper (the other trianguloid item was recycled into a beak/spurred tool), and all other tool classes or types are represented by single examples, such as the *pièce esquillée*, denticulate/cutter, narrow end scraper, and convex side scraper. Almost every tool from Gosling is unique within that assemblage, so it is as diverse as such sites can be in terms of its tool inventory.

All the tool forms recovered from Gosling are fairly typical of Parkhill Phase sites. Some tools, such as the narrow end scraper, may actually be characteristic only of Parkhill and later EPI sites, as we have not seen them reported from any sites with more Clovis-like/Gainey points (Deller and Ellis 1992a:127). The one notable exception from Gosling that does not seem typical of Parkhill Phase assemblages is the *pièce esquillée*. As we discussed earlier, Deller and Ellis (1992a:127) suggested these items are rare to non-existent in all Great Lakes EPI assemblages. However, based largely on what was unpublished data at that time, as well as on finds from adjacent areas of the USA, they did suggest that these artifacts were infrequently employed during the time of the earlier, Clovis-like/Gainey sites. Yet, they suggested there was little evidence for pièce esquillée use during later, Parkhill Phase times. Some of the unpublished Ontario Clovis-like/Gainey assemblages comprising the artifacts that Deller and Ellis referenced have since been published. These include Murphy (Jackson 1996:27) and Weed (Deller and Ellis 2010:7). Additional *pièces esquillées* have now been reported from other Clovis-like/Gainey sites, such as Snary (Wortner and Ellis 1993:4), Sandy Ridge (Jackson 1998:46-47), Halstead (Jackson 1998:78-79), and Udora (Storck and Spiess 1994:122). Some of these artifacts are clearly recycled from scrapers and other tools. None of these sites have yielded more than three examples of *pièces esquillées.* Compared with sites to the east, in New England and the Maritimes—where literally hundreds can be present (e.g., MacDonald 1968)—these are still a very rare form in Ontario. All of these Clovis-like/Gainey sites except for Udora are interior sites, situated away from the Lake Algonquin/Ardtrea shoreline. One might argue that the association of such items with more interior sites than strandline sites may be due to varying activities being carried out, including differences in season of use. However, as we discuss above, there is a decided bias to interior locations in the known Clovis-like/Gainey sites investigated. In sum, *pièces esquillées* may be more common on Algonquin/Ardtrea strandline–associated Clovis-like/Gainey sites, but we have investigated so few of the sites in those locales that we really cannot reach a firm conclusion.

Seasonal differences in use could still be a viable explanation for the extreme rarity of *pièces esquillées* in reported Parkhill Phase strandline-associated assemblages. While not totally unknown on Parkhill Phase strandline-related sites (two examples occur at Banting Area A-West [Storck 1979:11]), the many other strandline sites

of this phase lack *pièces esquillées*. While few interior Parkhill Phase sites have been investigated overall, it may be significant that the one with the largest artifact sample, namely, Gosling, does include a *pièce esquillée*. In short, these artifacts may actually have been relatively common on the interior sites of that phase and reflect activities during different seasons of use. We obviously need to find more interior Parkhill Phase assemblages to address that question.

The Gosling artifact inventory is almost exclusively on Onondaga chert, which had to have been obtained from bedrock sources to the south, near Lake Erie. This preference is only seen at one other site, Glass, near Brantford. However, as stressed earlier, that "site" only has two Paleo-Indian tools and may not be representative. Nevertheless, Gosling clearly shows that sites dominated by Onondaga chert and having no Collingwood chert representation do exist. Onondaga chert does occur on the Parkhill Phase sites dominated by Collingwood chert in the Pro-Glacial Lake Algonquin/Ardtrea vicinity to the north. It is rare on such strandline-associated sites in southwestern-most Ontario, such as Thedford II and Parkhill, where it makes up only 2 percent and 6 percent, respectively, of the total preform/tool assemblage (Deller and Ellis 1992a:Table 8; Ellis and Deller 2000:Table 4.1). In southcentral Ontario on strandline-associated Barnes sites, the frequency of Onondaga chert seems to vary considerably. On some sites, such as Fisher (Stewart 1997:Table 5.2), Onondaga is very rare overall (<5 percent); it is even absent altogether from some areas at that site. Yet, as we note above, on other sites just to the east of Fisher, such as Banting Area A-West (Storck 1979:Table 2) and Bear Creek (Archaeologix 2004:Table 3), Onondaga apparently makes up 30–50+ percent of the assemblages.

The distribution of sites where Collingwood/Fossil Hill chert is by far the most common material extends from the Fisher site westward, over to the Thedford/Parkhill area (see Figure 1). This distribution has been suggested by several individuals to represent the "range" of a particular local group or band focussed on that chert source (e.g., Roosa 1977a:353; Roosa and Deller 1982:13; Storck 1984:12-13; Storck and Von Bitter 1989:180). In this model, the small amounts of Onondaga and Bayport chert present in those assemblages could be evidence of interaction (i.e., exchange of personnel or of goods), with bands primarily exploiting other, adjacent areas that centred more on those other materials. The high percentage of Onondaga at Gosling, the first site where we can clearly say that Onondaga chert is the major tool stone in use, could be taken to be consistent with that model. These data could suggest a band exploiting the area between roughly Guelph/the west end of Lake Ontario south to Lake Erie and from about the Grand River to points east. An isolated Barnes point on Onondaga chert from the Hanlon 12a site (AiHb-294), located 1 km east of Gosling (Sherratt et al. 2006:1-3), would be consistent with such a view.

However, there is evidence that this interpretation is oversimplified. For example, a site located 55 km due east of Gosling in the City of Vaughan, the Rainbow Creek site, yielded a Paleo-Indian assemblage with minimal evidence of Onondaga use (Figure 1). That site has yielded two tools and two pieces of flaking debris on Collingwood chert, four tools on Bayport chert, and two pieces of Onondaga chert debris (D.R. Poulton & Associates Inc. 2004; Mayer, Poulton & Associates Inc. 1989:52-53) and as such more closely resembles sites found much farther west and northwest of Gosling. While no fluted points have been recovered from Rainbow Creek, the Collingwood and Bayport chert connection and the types of artifacts recovered (e.g., hafted perforators and beaks) strongly suggest a Parkhill Phase association (Deller and Ellis 1992b:40). As another example, quite large percentages of Onondaga chert occur in more northerly locations in southcentral Ontario among Parkhill Phase assemblages that also have significant percentages of Collingwood chert, such as the Banting Area A-West and Bear Creek sites (Figure 1) mentioned earlier. These sites suggest that a model of simple movements by two bands in adjacent areas focussing on one source in their respective geographic areas may be an oversimplification. There may even have been changes in chert

exploitation patterns over time or seasonally. More site data and detailed analyses are needed to evaluate such possibilities.

Recognizing Paleo-Indian Sites

As we discussed earlier, Ellis is convinced he would have recognized the Gosling site as an EPI site prior to the recovery of the fluted point. Based upon the assemblage, we synthesize here a list of characteristics that are useful in recognizing these kinds of sites, even in the absence of fluted points. A few of these characteristics pertain also to sites of other ages, and, conversely, we should not expect any single Paleo-Indian site to necessarily exhibit all of these characteristics. However, one should suspect an EPI association for any assemblage that exhibits a significant number of the following characteristics:

(a) A Lack of Fire-Cracked Rock. We stress above that the Gosling site assemblage does not include any FCR, a material that is ubiquitous on later sites, especially on Archaic ones. The lack or extreme rarity of FCR on Ontario Paleo-Indian sites is something Brian Deller (personal communication, 1974) has long stressed. In fact, this absence/extreme rarity is characteristic of these sites across all of North America (e.g., Thoms 2003:89, 2009:577-578).

(b) Use of High-Quality Toolstone from Primary Outcrops. Except where primary sources of good, flakeable stone are totally absent, Paleo-Indians show a distinct preference for employing raw material from the primary sources (Ellis 1989:140-142; Meltzer 1984:200-201). As we discuss above, any retained original surfaces of the Onondaga raw materials found in the Gosling assemblage indicate use of primary sources and, hence, are consistent with that preference.

(c) Use of Flakes from Large Biface Cores. Paleo-Indians in the Great Lakes region and elsewhere in the east often used large flakes derived from biface cores as blanks for tools (e.g., Lothrop 1989; MacDonald 1968:62-67; Wright and Roosa 1966), whereas later Archaic and Woodland groups did not consistently use such blanks. Therefore, their mere presence can be used as a clue in identifying Paleo-Indian associations. The frequency of the flakes from these biface cores employed as tool blanks on these early sites can vary from as little as 10 percent to as much as 35 percent, based on assemblages with substantial numbers of tools assignable to block or biface core reduction (e.g., Lothrop 1989:Table 5.4). As noted above, the *pièce esquillée* and one of the trianguloid end scrapers from Gosling seem to have been made on biface core flakes. In other words, biface core flakes make up essentially 2/5 (or 40 percent) of those tools assignable to the reduction of either the biface or blocky core forms (all from Stage 2–3 work). Despite the small sample, the high frequency of these items at Gosling makes it even more likely that this site is an EPI one.

(d) Absence of Primary Stages of Manufacture, Including Core Reduction. As we note above, there is very little evidence that the primary stages of manufacture were carried out at Gosling, and there actually may be no evidence at all. Aside from a lack of cores themselves, evidence supporting the absence of core reduction takes the form of the uniformly very small-sized debris and a rarity of debris versus tools.

The absence of primary manufacturing debris is consistent with data from all other Paleo-Indian sites located at some distance from the toolstone sources used (c. 30+ km), where the debris is uniformly small and restricted to tool finishing and rejuvenation (e.g., Deller and Ellis 1992a:87-92). In sum, only tool blanks, already somewhat reduced biface preforms, and finished tools seem to have been transported around. This strategy avoids people having to carry around a substantial amount of material that would only be trimmed off and discarded as waste. The low ratio of debris to tools at many sites, indicating a relatively high percentage of discarded tools, is also a direct product of this strategy. In fact, it is common on sites throughout the Northeast to have tools outnumbering waste pieces. Surface-collected sites, in particular, have more tools than waste pieces because the small flakes that dominate the later stages of manufacture and these site assemblages can be easily missed (Carr and Adovasio 2012:289, 293). Gosling certainly fits that profile. We suspect that on most Ontario *non*-Paleo-Indian sites, especially those that have been

surface collected only, the ratio of tools to flaking debris would not be approximately even, as seen at Gosling; instead, debris would occur in a high ratio to the tools.

We note that a very low ratio of debris to tools is especially the norm on Paleo-Indian sites such as Gosling, where unifacial rather than bifacial tools dominate the assemblage. There are apparently two reasons for the rarity on the uniface-dominated sites (see Deller and Ellis 1992a:88-89; Muller 1999:159-173). One reason is that the finishing of a single biface produces more debris than the finishing of a single uniface (Collins 1975:32). A second reason is that most material from retouching unifaces is very small, making it harder to recover these items compared with the, on average, somewhat larger biface reduction flakes. Therefore, at a site such as Gosling, where there are more unifaces (8/12, or 66 percent of the assemblage), we should expect debris to tool ratios to be low and much of the uniface debris to be so small that it would be very difficult to find it in a surface collection (or even 3.2 mm mesh)—and that appears to be the case.

(e) Distinctive Paleo-Indian Tool Forms. The Gosling assemblage includes a number of tool forms that are relatively distinctive of EPI sites. One is the single side scraper that was recovered. Such scrapers, with long, extensive retouch on straight to more often convex edges, are reported from most Paleo-Indian sites, and they can be the single most common unifacial tool in an assemblage (e.g., Deller and Ellis 2011:59). Some examples, including ones that combine end and side scraper working edges, can also be very large, ranging from 60 mm to more than 100 mm in length (Deller 1979:Figure 7; Ellis and Deller 2000:Figure 6.11a, b). In contrast, side scrapers are rare or absent on sites of later affiliations, and large examples seem to be non-existent. Indeed, while there are some exceptions, scrapers of any kind, never mind specifically side scrapers, are *relatively* rare on sites of the subsequent Middle to Late Archaic periods. In the Archaic, as has long been noted (e.g., Gardner 1976:42; Tuck 1977:Table 1), simpler, amorphous, briefly used flake tools come to make up much larger percentages of the assemblages. It has often been suggested that side scrapers per se, with the notable exception of concave-edged, or "spokeshave," forms, are not "made" as such. Rather, they start out as simple used or retouched flakes with no or minimal edge retouch; through consistent resharpening they are turned into the heavily retouched side scrapers (Dibble 1987, 1995; Ellis 1984:458-459; Hayden 1977:179-182). In Paleo-Indian assemblages, the ubiquitous presence of side scrapers could be due to a perceived need to make maximum use of certain raw materials transported over long distances. The presence of a single side scraper at Gosling would only make a researcher suspicious it may be a Paleo-Indian site, but it is worth stressing that the presence of several examples, or exceedingly large examples, will strengthen the case for a Paleo-Indian affiliation.

Gosling yielded additional artifacts that can help archaeologists recognize these early site assemblages. One example is the thick-edged denticulate/cutter made by serially snapping adjacent semi-circular sections off a flake edge. As we note above, these tools were first recognized at the Vail site in Maine by Gramly (1982:41). They are a very simple tool and yet they are a quite distinctive tool form that, to our knowledge, has not been recovered from any sites other than EPI sites. While they are not common, examples have been documented at a number of fluted point sites in Ontario (Deller and Ellis 2011:66; Ellis 2002:Figure 7j; Ellis and Deller 2000:129; Jackson 1996:Figure 9e). Another example is the single *pièce esquillée*. We note above that bipolar objects per se are not restricted to Paleo-Indian sites, so at face value such objects are not diagnostic of Paleo-Indian assemblages. However, the Gosling example stands out because it is made on a thin flake. At other Paleo-Indian sites, these *pièces esquillées* are often made by recycling side or end scrapers. We know of no other groups that recycled scrapers in this manner; bipolar objects with those characteristics can therefore be a clue to a Paleo-Indian affiliation, because they are more likely to be wedges rather than cores (see Hayden 1980:2-3).

Finally, the unifacial end scraper forms seen at Gosling could be very useful in recognizing fluted

point–related sites. The narrow/nosed end scrapers are the most distinctive, with their small and obviously very specialized bits. Items resembling trianguloid end scrapers do occur on later sites, notably in Early Archaic (e.g., Ellis et al. 1991) and Middle Archaic Brewerton and related assemblages (e.g., Ritchie 1940:Plate XV, XXXVI), but well-made, precisely flaked examples with combinations of characteristics—such as a relatively large size, relatively abrupt angular corners at the bits on extensively resharpened items; bilateral edge retouch, including hafting notches; the presence of spurs at the corner of bits; or manufacture on large flakes from biface cores—have a high probability of being EPI associated. Recycling of these scrapers by placing the spurs/gravers in the bit centre (as in a Gosling example) is especially distinctive of these sites; we are unaware of any examples of this recycling on end scrapers of a later date. While not common, pointed working edges placed in the centre of former end scraper bits most certainly occur on other Paleo-Indian sites. Those spurs range in size from smaller, more "graver-/piercer-like" projections (e.g., Ellis and Deller 2000:Figure 6.19d) to larger, more beak-/perforator-like projections (e.g., Eisenberg 1978:Plates 2-5). Recycling by flaking spurs/gravers in the centre of the narrow, formerly hafted ends opposite the bit are also distinctive of Paleo-Indian trianguloid end scrapers (see Deller and Ellis 1992a:Figure 6.10a-c) although such examples were not found at Gosling.

(f) A High Percentage of Formal, Retouched Tools/Preforms. The Gosling assemblage has few simple, amorphous retouched or used flakes. This rarity is a major contrast with later tools assemblages, such as those of the Archaic, where informal tools predominate. Excepting perhaps the notch/borer tool and the small denticulate/cutter, all the other Gosling items (83 percent of the total assemblage and 78 percent of the surface finds) are either bifaces or flake tools with extensive, deliberate retouch.

A high proportion (70–100 percent) of formal, extensively retouched tools/preforms is characteristic of EPI sites that are some distance removed from the employed quarry/lithic source areas (e.g., Ellis 1984:Table 87). There seem to be several reasons for the emphasis on formal tools at Paleo-Indian sites (Ellis and Deller 1990). One is that the tools are often resharpened, as in the case of side scrapers, discussed above. Another reason is that many Paleo-Indian tools, such as the points, end scrapers, and some large forms with narrowed to pointed working ends, are hafted—and this requires more extensive shaping. Finally, although one can debate the reasons for this practice, it is quite clear that Paleo-Indians produced a wide range of distinctive tool working edges apparently designed to carry out quite specialized tasks. The various distinctive, narrow and blunt to pointed and thick to thin working edges within the "beaked scraper" class provide a good example. Moreover, as was first really stressed by Frison and Bradley (1980:84-85), the desire for quite specialized edges is such that people often modified flake tools in ways other than the normal means of removing retouch flakes from the faces of flake edges. A prime example here is the thick, snapped edge, denticulate/cutter from Gosling, which was made by small edge snaps. But most Ontario Paleo-Indian sites actually have snapped or, less often, radially fractured flake tools that were deliberately produced so that the thick, steep break edges can be used in scraping and other tasks (see Deller and Ellis 1992a:68-69). In any case, the desire for a range of specialized edges is another factor contributing to the higher percentage of more formal tools in such assemblages.

Paleo-Indian Sites in Wellington County

As of 1996, when the Gosling site was discovered, only two confirmed discoveries of fluted point locations had been documented in all of Wellington County. Both consisted of single points in old collections, and both were from West Garafraxa Township, in the northeastern part of the county. One is a Clovis-like\Gainey point on Collingwood chert; it is registered as the Louttit site (AkHc-6) (Archaeological Sites Database; Hanson 2010). The other is a complete Barnes point on Onondaga chert; it is an unregistered location that is documented by Garrad (1971:#40) (Hanson 2010).

In conducting an archaeological survey, any archaeologist worth his or her salt should always expect the unexpected. However, because fluted point locations were so rare in Wellington County at the time, the last thing the personnel conducting the 1996 survey of the Clairfields property expected to find was an EPI site.

And the number of confirmed locations is still small today. After the 1996 discovery of the Gosling site, there was a hiatus of seven years before another Early Paleo-Indian location was discovered in Wellington County. The project in question was the 2003 assessment by D.R. Poulton & Associates of the proposed Hanlon Creek Business Park, situated less than 1 km from Gosling. Hanlon Creek 12a (AiHb-294) consists of an isolated surface-collected find of a Barnes-type fluted point (D.R. Poulton & Associates Inc. 2007a, 2007b). In the 11 years since Hanlon Creek 12a was discovered, the firm has continued to conduct archaeological assessments in the City of Guelph and elsewhere in Wellington County, but it has made no further Early Paleo-Indian finds in this area.

As part of the current research, we compiled an inventory of confirmed Early Paleo-Indian locations in Wellington County, taking a fairly strict approach. This involved consulting the literature, other researchers, and the Archaeological Sites Database of the Ontario Ministry of Tourism, Culture and Sport, and then limiting the inventory to sites where Chris Ellis and/or Caitlin Hanson (see Hanson 2010) or Dana Poulton had either examined the projectile points or good quality photographs thereof. The rationale for this was to eliminate later points that had been mistakenly identified as "fluted" points but that are actually assignable to types that are not fluted, such as Holcombe and Hi-Lo. In the older literature, prior to the extensive, more recent, post-1970s work on Paleo-Indian point typology and recognition, such points could be often misidentified (e.g., Garrad 1971: #4, #6, #9, #10, #12, 29, #30, #32, #37, etc.). We therefore do not recommend taking a fluted point identification in the older literature at face value. During this inventory, conducted since about 2005, we learned of a third confirmed fluted point in an old collection, which was recognized post-1996 by Dena Doroszenko of the Ontario Heritage Trust; it is from Eramosa Township (personal communication to Chris Ellis and Dana Poulton). The latter specimen is complete, of Onondaga chert, and appears to be transitional in form between the Clovis-like/Gainey forms and Barnes forms.

Given the numerous archaeological assessments that have been carried out on proposed developments in the City of Guelph and Wellington County over the past three decades or so, it may seem surprising that only two assessments have discovered Early Paleo-Indian localities, but it should not be. Wellington County has a surface area of 4,080 km^2 (1,020 square miles). Therefore the three EPI finds known from older collections and the two other locations (including Gosling) that were discovered by archaeological assessments represent an average of only one findspot or site for every 816 km^2 (170 square miles). Given these statistics, the only surprise is that these assessments recorded any EPI finds at all.

The same comments apply to Late Paleo-Indian locations in Wellington County. They are limited to four projectile points of the Hi-Lo type, all of which were discovered in archaeological assessments. The Late Paleo-Indian locations are the Martinello 5 and Hilborn sites (AjHb-19 and AjHb-21, respectively) (Archaeological Sites Database), the Priceless site (AiHb-227; New Directions Archaeology Ltd. 2001), and the Hanlon Creek 7 site (AjHb-287; D.R. Poulton & Associates Inc. 2007a). The test excavations of the Priceless site also recovered two flakes.

Since the 1996 fieldwork on the Clairfields development, D.R. Poulton & Associates has conducted several archaeological assessments in the south end of Guelph, and the lands involved have totalled in excess of 400 ha. The discovery late in the day that the Gosling site was an EPI component had left Poulton feeling "gun shy" when it came to dealing with lithic scatters of unknown age and cultural affiliation in this part of Guelph. Therefore, in the subsequent test and salvage excavations of four sites in the area, the firm dry-screened the soil matrix on 3.2 mm

mesh, rather than the usual 6.4 mm mesh. The sites in question were Hanlon Creek 12a and three lithic scatters. The excavations of these four sites involved 362 individual one-metre units. The results of the test excavations at Hanlon Creek 12a were negative. In contrast, the three lithic scatters were all relatively rich in chipped lithic artifacts, but none of them had the same suite of traits as the sample of artifacts that had been surface collected from the Gosling site. Two of those sites proved to be Bifurcate Base components of the Early Archaic Period, c. 8,900–8,000 RCYBP. They are the Southgate 17 site (AiHb-326) and the North Locus of the Hanlon Creek 13 site (AiHb-295) (D.R. Poulton & Associates Inc. 2007b, 2007c, respectively). The third site, the Southgate 11 site (AiHb-324), proved to be an Early Woodland component of the Meadowood Complex, c. 2,500 RCYBP (D.R. Poulton & Associates Inc. 2007c).

Summary and Conclusions

The Gosling site is a very rare example of an "interior" Parkhill Phase site. The small size of the recovered assemblage and the site's relatively small spatial extent are typical of most Paleo-Indian sites and of all known Parkhill Phase sites that are removed from Lake Algonquin/Ardtrea. It may be that such small sites are typical of the interior Parkhill Phase ones. Large interior sites of any phase are currently unknown for Ontario. While they occur in adjacent areas, such as Michigan (e.g., Simons 1997), all those sites apparently date earlier, when more Clovis-like/Gainey points were in vogue.

The Gosling assemblage is a very diverse one, which suggests to us that it is a small domestic residential site rather than a specialized site/activity area or logistical encampment of a small task group. As such, the assemblage suggests a small occupying group, such as a family or extended family, and a settlement pattern involving dispersion into such small social units in the area. Along with its more sheltered location, away from any potential active lakeshore, it may also be a colder weather encampment—but seasonality inferences are sheer speculation. Gosling is the only Ontario interior Parkhill Phase site with a lithic assemblage large enough to determine if it is a generalized or specialized occupation site. More specialized Parkhill Phase occupations certainly occur in interior areas in adjacent areas of the Northeast, such as the Barnes site itself, located in Michigan (Voss 1977; Wright and Roosa 1966), which is notable for a heavy emphasis on making fluted points. We have yet to find definitive interior specialized sites in Ontario, but the Rainbow Creek site (Figure 1), mentioned earlier, with its Collingwood and Bayport chert combination, may be an example. All four classifiable tools recovered from that site were hafted "beaked" forms (D.R. Poulton & Associates Inc. 2004:Table 1).

Since the Gosling site is the only interior Parkhill Phase site known with a substantial assemblage and since it is one of the few known in the area east of London but west of Lake Ontario, it is perhaps not surprising that it exhibits characteristics rarely seen before, such as the presence of a *pièce esquillée* and a major focus on the use of Onondaga chert from outcrop sources. Evaluating the significance of these observations, however, is beyond our current knowledge and abilities. We need to document many more of these interior sites and their associated assemblages.

More broadly, of course, the Gosling analyses reinforce the idea that we should not judge the significance of a site by the number of artifacts it yields (or what it costs to excavate them) but by what it can tell us about past peoples—a point that Ellis (e.g., Ellis and Deller 1991; Wortner and Ellis 1993) has continually made with regard to Late Pleistocene/Early Holocene site assemblages. We have the impression there is a tendency to think that the most significant sites will be the most obvious, when in fact the opposite can be true.

In addition, it is worth reminding ourselves that, had the survey crew used a survey interval wider than 5 m, or had they conducted the survey under less than ideal conditions—or perhaps even, had they placed the transects differently—the Gosling site could easily have been missed altogether.

The description of the Gosling assemblage also provided the opportunity for us to highlight several assemblage characteristics that are useful in initially recognizing Paleo-Indian assemblages that lack fluted points. They range from an absence of FCR, to the small size of the flaking debris, to a high tool/preform-to-debris ratio in surface collections, to a high percentage of more formal, purposefully retouched tools. This list is not exhaustive. There are, for example, many other tool forms not found at Gosling that are characteristic of EPI sites and few other kinds of sites (e.g., Ellis and Deller 1988; Ellis and Racher 2011). As we stress above, any one of these characteristics, with the exception of some distinctive tool forms, can be found in later site assemblages—but the more characteristics that are present, the higher the probability a site is Paleo-Indian in affiliation. If a site exhibits as many of these traits as are seen at Gosling, it is a virtual certainty that the site is of that age.

Without a doubt, other Early and Late Paleo-Indian sites await discovery in the City of Guelph and elsewhere in Wellington County, but the Paleo-Indian occupation of this area left such a small footprint that discovering one of these sites will always be a rare event. Nonetheless, we hope that this documenting of the Gosling site will increase the chances of archaeologists recognizing such sites in the future.

Acknowledgments. Several individuals provided assistance in the archaeological investigations that are documented in this paper, and we are especially grateful for their help. They are as follows: Rick Sutton, who served as field director; Ken Fish, President, Candevco Properties Group Inc., the development proponent for the Clairfields development; Leslie Marlowe, President, L.M. Real Estate Consultants, the client contact for the archaeological assessment of the proposed Southgate Business Park; Jim Mairs, Manager, Economic Development Department, City of Guelph, who coordinated the archaeological assessment of the proposed Hanlon Creek Business Park; Peter Cartwright, Director, Economic Development Department, City of Guelph, who assisted in coordinating the archaeological assessment of the proposed Hanlon Creek Business Park; Astrid J. Clos, President, Astrid J. Clos Planning Consultant, the planning consultant for the archaeological assessments of the proposed Southgate and Hanlon Creek Business Parks; Phil Woodley, New Directions Archaeology Ltd.; Dena Doroszenko, Archaeologist, Ontario Heritage Trust; and Robert von Bitter, Archaeological Data Coordinator, Culture Services Unit, Ontario Ministry of Tourism, Culture and Sport. We also thank Ed Eastaugh for assistance with some figure preparation, Christine Dodd for producing the Gosling site maps and artifact photos, *Ontario Archaeology* Editorial Board member Ron Williamson for handling the peer review process for this paper (because Ellis is currently the journal's editor), and Andrew Stewart and Peter Timmins for helpful and cogent comments on the manuscript.

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Une description et une analyse des informations récupérées lors d'un travail sur le terrain GRC (gestion des ressources culturelles) de 1996 au site du début de la période paléo-indienne (lié aux pointes cannelées) sont ci-dessous présentées. Le site est situé dans la ville de Guelph, dans le comté de Wellington, en Ontario. Selon la découverte d'une pointe cannelée de type Barnes, ce site est un élément unique associé à la période Parkhill. L'assemblage du site est le plus grand récupéré d'un site de période Parkhill en Ontario et il a été retiré de l'ancienne ligne de rivage du lac pro-glaciaire Algonquin/Ardtrea. Par contre, l'assemblage est composé d'une très petite dispersion diffuse lithique incluant seulement 24 artéfacts récupérés sur une superficie de 373 mètres carrés. La majorité de l'assemblage provient d'une collection de surface contrôlée puisque le site n'avait pas été reconnu comme étant paléo-indien jusqu'à ce que, dans une tentative de labourage pour trouver des vestiges, la pointe cannelée a été récupérée. Néanmoins, le site Gosling est d'une certaine importance car il élargit notre connaissance biaisée de la période Parkhill quant aux préférences de localisation, à l'inventaire des outils et aux choix de sources de matières premières lithiques. De plus, comme leçon résultante, le site met en évidence un certain nombre de caractéristiques de sites paléo-indiens, connues principalement par des spécialistes de ce domaine, qui ont besoin d'être mieux connues dans la communauté GRC (gestion des ressources culturelles). Pour l'avenir, et dans les cas où des pointes cannelées de diagnostic ne seraient pas récupérées, ces caractéristiques devraient aider à reconnaître ces sites.

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From Grey to Print

Introduction

Ron Williamson

I would like to introduce readers to a new section of *Ontario Archaeology*, which brings significant or influential studies from the so-called grey literature to a wider audience.

Whether working in a university, museum, government, or private context, we have struggled for decades with our responsibility to produce and disseminate knowledge. We all, however, suffer the particular pressures of our employment contexts and cannot always find the time or means to do so.

This problem is not a new one. Even early WPA works programs, as well as post-World War II contract programs, in the United States were criticized for not framing their work within scientific processes that would lead to publications. They were, however, successful at putting archaeologists (and others) to work and addressing the loss of sites to land development. Similarly, in Ontario during the 1960s, a few universities and the province, mainly Hydro and the Lands and Forests Parks Department, funded an impressive amount of research in history and archaeology. It was not until the early 1970s, however, that post-graduates in history, architecture, museums, and archaeology from Canadian university departments were retained by government agencies to manage the heritage resources in their jurisdictions, as a way of understanding and preserving the environment, both natural and cultural. In Ontario, the first iterations of systematic cultural heritage management occurred within the Ministries of Natural Resources (Lands and Forests), Archives, and Tourism and Information, and, later, Culture and Recreation.

In the process of carrying out the research necessary to manage cultural resources, agency reports or conference presentations were prepared, circulated as necessary, filed, sometimes shared with colleagues, and occasionally published. The unpublished works, however, fell into the category of a burgeoning "grey literature," which students of successive generations often found difficult, if not impossible, to access.

This new section of OA is an attempt to address this problem. The objective is to find significant or influential studies that were undertaken but that, for whatever reason, were not published. They are being presented in their original form, without peer review. They have been slightly edited, and wherever possible they are accompanied by their original graphics. In this way, these pieces should retain the flavour of the time and reflect the original intent of the authors; they are being reproduced in consultation with the authors.

Our first piece from the past is a 1966 report based on excavations undertaken by Peter Carruthers (for Wilfrid Jury) at Saint Marie II on Christian Island in 1965. This site was the refuge of many Wendat and Tionontaté after the successful attack on Saint Marie I by Iroquois in 1649. Although the site was subject to investigations by various researchers in the nineteenth century, this work reports on the first systematic excavations inside the fort. These investigations are also significant for having been undertaken in full consultation with Beausoleil Island First Nation, within whose land the site is located. Carruthers documents important structural remains, and he recovered a representative artifact assemblage reflective of the site's occupation. The destruction of this assemblage by a fire a few years later on Christian

Island underscores the importance of this report as the only record of these artifacts. It is appropriate that Carruthers' piece should appear in the journal along with an overview of archaeological research of the Wendat and with Spence and Jackson's analysis of the human remains recovered from the Charity site, situated near the fort on Christian Island.

While we have several papers and reports already selected for publication, please do not hesitate to contact me should you have suggestions for publication in the future.

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From Grey to Print

Preliminary Excavations at Sainte Marie II[1]

Peter J. Carruthers

Sainte Marie II, situated on Christian Island, was the scene of the last chapter in the story of French and Wendat occupation in historic Wendake in southcentral Ontario. This paper reports on the first systematic excavations undertaken at the site. Abandoned in 1651, it was not until the mid-nineteenth century that the fort was relocated and documented, leading to the installation of a plaque in 1923 by the federal government. The excavations were undertaken in the summer of 1965 by Wilfrid Jury and Peter Carruthers and were sponsored by the Ontario Historic Sites and Monuments Board. The objective of the project was to determine the feasibility of carrying out more extensive excavations with a view to future reconstruction and interpretation of the site. The work was among the first designed in Ontario in meaningful consultation with a First Nation. Beausoleil First Nation permitted the excavations provided they were carried out, in part, by band members, they were confined to a single test trench inside the walls of the compound, and that the recovered artifact assemblage remained on the island in the possession of the First Nation. The remains of at least one structure were encountered, along with a refuse deposit and evidence of an altered landscape. A comprehensive range of both European and Aboriginal artifacts were recovered including a 1640 French coin, similar to one recovered from Sainte Marie I. As this assemblage was eventually destroyed by fire, this paper represents the only record of their former presence on the site. (Abstract by Ronald Williamson)

Introduction

Sainte Marie II, situated on the north shore of the large curving bay comprising the southeastern shore of Christian Island, was the scene of the last chapter in the story of French and Wendat occupation in historic Wendake (Figure 1). When the advance of the Iroquois had reached the gates of Sainte Marie I, the remaining Wendat were fearful. Twelve of the "most considerable captains" of the Wendat asked the Jesuit Fathers to take pity on them and move with them to the island where most of their brethren had already taken refuge. The fathers, wanting to remain with their flock, planned then to burn and abandon Sainte Marie I and establish the Island of St. Joseph, as it was then called, as "the centre of our mission and the bulwark of these countries" (Thwaites 1896-1901, 34:109, 211-215).

Accordingly, on June 14, 1649, the party of some 60 Frenchmen, including priests, helpers, and soldiers, departed with all their belongings from their original home on the Wye River and, after a laborious voyage of a few days, by boat and by raft, reached the home of the remnant 300 families of Wendat (Thwaites 1896-1901, 35:83).

The prospect of establishing a new mission in

[1] As noted in the introduction to this new "From Grey to Print" section of *Ontario Archaeology*, the intent is to publish significant or influential studies/papers that are often cited but that, for whatever reason, were not previously published. The reports resulting from these studies are being presented here in their original form, without peer review. They have, however, been edited to conform to the journal's house style. To avoid interrupting the flow of the narrative, metric equivalents for measurements are not given. This first instalment of From Grey to Print was originally written in 1966.

Figure 1. *Location of Sainte Marie II.*

the short space of a summer was formidable; not only was much actual construction imperative in both the French and Wendat camps, but one of the primary considerations toward the weathering of a siege was the storing of a food supply. The French set to work erecting a closely built stone wall around their chosen position, enclosing within it a church, living quarters, a well, and likely a stable for the livestock, creating a "small fort, built according to military rules" (Thwaites 1896-1901, 35:85). They also undertook to fortify the adjacent Wendat village, which comprised over 100 cabins, with bastions to guard the approaches.

Having established living quarters for both shelter and protection, the French took up the strenuous job of clearing the heavily forested ground for cultivation. The Wendat had already planted a crop of corn, but the excessive summer drought had reduced any possibility of gaining a substantial harvest, and they had already survived the summer and part of the autumn on roots, wild fruits, and a few small fish. By this point, perhaps only 1 family in 10 was able to supply the energy needed for the clearing and cultivation of land, which was unprepared for tillage. The French, on the other hand, had about one year's worth of grain, the remnants of their three-year supply brought with them from Sainte Marie I, the balance having been given to the Aboriginal population. The French thus sent emissaries to the Algonquian nations, 60, 80, or 100 leagues away, for 500 or 600 bushels of acorns and a large amount of smoked fish before the snows fell (Thwaites 1896-1901, 35:87-99).

Winter came, covering the ground with four feet of snow, making the gathering of roots and plant foods impossible. A terrible famine struck among the already weakened Wendat, inciting acts of cannibalism and the numerous atrocities committed by people driven to desperation [editor's note: see Spence and Jackson, this volume]. Death from disease and malnutrition became commonplace and gradually the numbers of the once numerous Wendat were reduced to a pitiful few.

During March, with the hint of thaw in the air, those who were able to sought out the hill summits in the area, both on the islands and on the mainland, to find acorns and vegetation where the snow was thinnest. Other groups headed for the opening waters to fish in order to further supplement the meagre food supply. But the dangers were many, for several people drowned after falling through the melting ice. Then in late March the persistent Iroquois fell upon the camps of the Wendat on the mainland, and a massacre ensued. Only one man escaped to bring news to the beleaguered islanders.

With the cutting off of the new food sources, famine once again gripped the diminishing population. When rumours of the coming of two more bands of Iroquois circulated among the Wendat, they decided in council that they would have more of a chance if they left the island and spilt up to live in small groups in the forest. Two Wendat captains then approached the Jesuit Ragueneau and, after explaining that once they had dispersed there would be no reason for the French to remain, urged the French to retreat as well and establish a place near Quebec where "the remnants of this ruined nation" could reassemble at some future time. For 40 hours the fathers consulted among themselves, and eventually, after realising that with further Iroquois hostility and famine there would be no Christians left in the flock, they decided to retreat from Christian Island to the protective walls of Montreal, Quebec, or Three Rivers [Trois-Rivières] (Thwaites 1896-1901, 35:191-193).

On June 10, 1650, the meagre possessions of the group were once more gathered up, and the French, along with some of the remaining 300 Wendat, retreated up the shores of Georgian Bay, into Lake Nipissing, and into the Ottawa River valley, travelling through lands once populous, now largely abandoned and desolate, toward the St. Lawrence River, ending the French and Wendat occupation of historic Wendake.

There is no record of Sainte Marie II after its abandonment until the mid-nineteenth century, when various visitors began to record observations taken during visits to the island. These included Father P. Chazelle, S.J., who seems to have been the first recorded visitor, in 1844, followed, in June of the following year by the Reverend G.

Hallan, who made a tracing of the approximate remains (Thwaites 1896-1901, Notes to Vol. 34:252). Father Félix Martin visited and described the site in 1855 and prepared a plan and watercolour sketch of the site. Father Martin described the site in the following way:

> This Fort is a square flanked by four bastions and solidly built of stone and mortar—much more regular in shape than that of St. Marie I. The walls in their present condition stand in some places nearly seven feet above the ground, according to Ragueneau, they were originally fourteen feet high. In the centre of the fort is a cistern, nine feet square, in solid masonry; within it is about four feet deep and there are indications that it once had a flooring of planks. A wall which extends some sixteen feet within the enclosure abuts, at right angles, upon the west curtain; what its object was would be difficult to determine. There are traces of a moat around the fort, but the trees which cover the site, and the marshy nature of the ground in the immediate vicinity, render it difficult to ascertain the dimension. The foundations of the fort are bedded deeply in the soil and the joining of the masonry affords evidence of careful workmanship and skilled labour [Martin, n.d.].

Much later, A.F. Hunter, in a dedication speech at the site, is quoted as saying, "In 1886 (thirty seven years ago) when the present speaker first saw these walls, they were higher in many places, and more complete than they are now. Everyone must regret the devastation, by men hunting for relics in 1902 and 1903. The well near the centre suffered most in this raid for relics" (Hunter, A.F., quoted in Orr 1924:50-51).

The site was relatively uncared for until 1923, when the Historic Sites and Monuments Board of Canada made site improvements for the unveiling of a bronze commemorative plaque on September 15 (Figure 2). In preparation for this event, a large quantity of scattered stone in the immediate vicinity was gathered and piled both on the walls and where the walls were assumed to be. The limited quantity of rock available was likely due to the fact that much of it, loosened and dispersed by the depredations of time and treasure seekers,

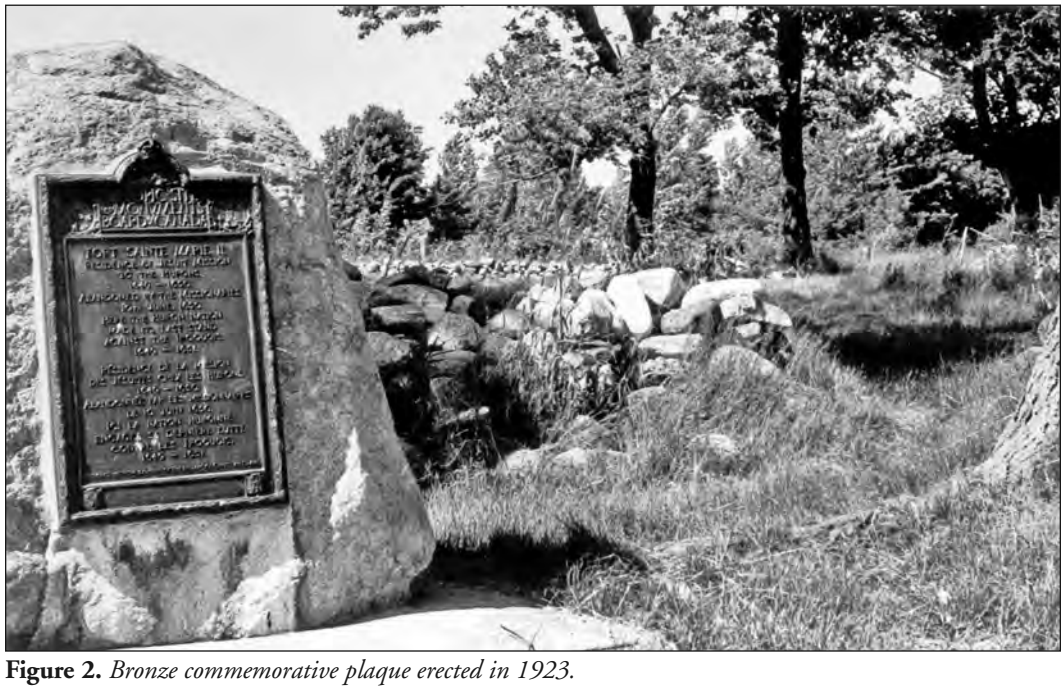

Figure 2. *Bronze commemorative plaque erected in 1923.*

had been removed for incorporation into house foundations and docks. From 1923 until 1965, however, the only major change at the site had been the removal of a section of wall from the northeast bastion.

These preliminary investigative excavations were sponsored by the Ontario Historic Sites and Monuments Board and occurred over a two-week period between July 20 and August 4 of 1965. The objective of the project was to ascertain the feasibility of more extensive excavations, with a view perhaps to future reconstruction and interpretation, in particular assessing the degree of disturbance on the site, the degree of preservation, the quantity of artifactual material, and the extent and nature of evidence regarding the construction techniques and material used by the Jesuit inhabitants.

Excavation on the site was permitted by the Beausoleil First Nation Band Council within the conditions that the excavation be confined to a single test trench; that no excavation be carried on outside the area of the compound; that the artifacts remain on the island in the possession of the people; and that part of the field crew was to be recruited from among the inhabitants of the Island. The requirement that the artifact assemblage remain on the island was later waived to the extent that the artifacts could be removed temporarily for analysis and study.

The site is situated on ground that slopes quite markedly toward the lake shore. The front wall of the structure is perhaps approximately 100 feet from the lake, the ground dropping about four feet rather suddenly down onto a sand beach, a short distance in front of the stone work. The high water table is evidenced by the spring water which flows from the base of this drop, explaining the generally marshy nature of the ground.

The surface features within the enclosure were irregular, but there did not seem to be signs of previous large, random excavations, although there had been reports of some. Other reports also stated that on one occasion the interior ground had been ploughed or perhaps only disced and that the stone enclosure had been used as a pig pen. At least eight substantially sized trees were located within or associated with the site, including birch, elm, beech, cedar, and maple species. Poison ivy had, in the past, been profuse.

Method of Investigation

Grid

The stonework, marking the walls of the site, consisted of low piles of field stone, arranged in an approximate hundred foot square, with irregular bastions on each comer. The walls, by no means straight, were still consolidated with aged mortar in a few places, notably on the east and south sides, and the masonry appeared to be in relatively good shape. The highest point of the rock structure was in the southeast bastion, reaching a height of four or five feet. In the majority of places, however, it was only a few feet in height. The orientation of the stone wall was checked with a prismatic compass and the lie of the centre line of the compound (i.e., parallel to east and west walls) was found to be approximately 5° east of north.

Because of the closeness of the structure to a north–south–east–west wall alignment, it was decided to use a north–south grid on the site. Accordingly, an east–west base line was laid out running west from an iron pipe driven securely into the ground in the northeast bastion, to a similar pipe 95 inches away, near the west wall. The former point was designated as Bench Mark (B.M.) #1, the latter as Bench Mark (B.M.) #2. At a point on the base line 50 feet west of B.M. #1, a wooden stake was driven into the ground and designated as 500 E 500 N. All unit designations, whether they were five by fives or some other size, were called by the designations of the southwest stake as it applied to the grid system. Thus a 10 foot square whose southwest stake was 20 feet directly south of 500 E 500 was called 500 E 480, and a 10 foot square directly west of this unit was called 490 E 480.

By triangulation, test trench 1 was staked along the north–south line passing through the pivot point (500E), having as its eastern limit a north–south line passing through stake 510E 500. In this way, a line of 10 foot squares was delineated, running from the north wall to the south wall (Figure 3). The primary plan was to

fully excavate this trench, in keeping with the agreement with the Band Council. If subsequent finds necessitated the extension of this exploratory trench, such extension was to be delayed until the primary trench had been completed.

Excavation

Although the test trench was gridded into 10 foot squares, it was decided to remove these units in benches two feet wide, extending the width of the unit. The benches in the test trench were oriented east–west in order that the excavation of each could be carried out progressively, step by step down the trench. This manner of removal of 2×10 blocks also facilitated the acquisition of more than the usual number of wall profiles than would normally be recorded for a 10×10 unit. Although the stratigraphy was not expected to present complications, suitable control was obtained by this method. Also, the concentration of the efforts of excavators using a 2×10 foot bench rather than a 10×10 foot unit ensured enhanced artifact recovery.

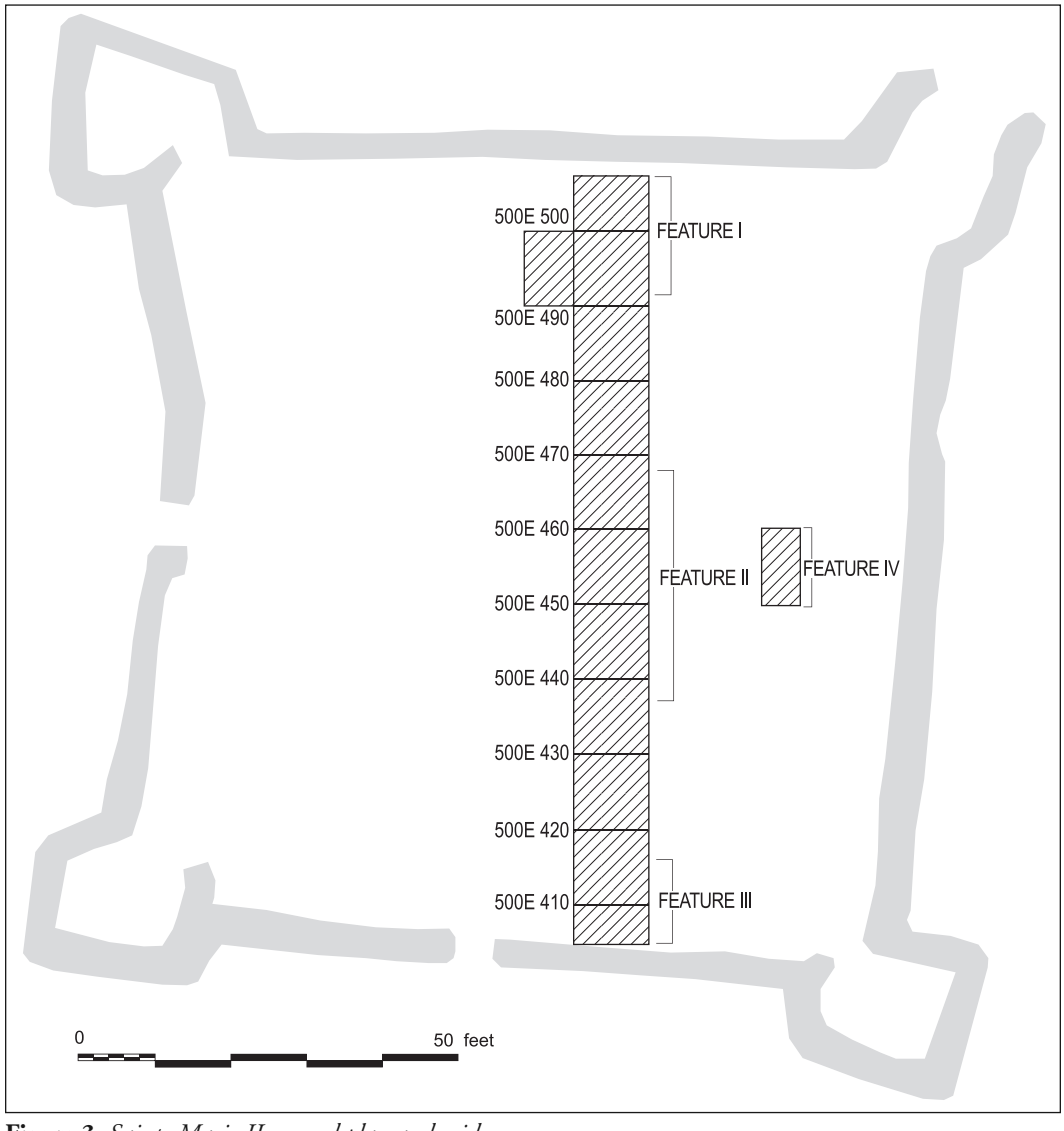

Figure 3. *Sainte Marie II ground plan and grid.*

For the purposes of removing the benches, six inch arbitrary levels were employed, the earth in each level being removed by trowel. At the completion of each level, a square sheet was drawn, indicating the position of all the artifacts found in that level with their depths, along with soil discolouration and texture changes, rock formations, wood deposits, charcoal concentrations, and any other notable features. The square forms were drawn on pre-printed sheets with a 10 foot square on them, with a grid subdivided into tenths of inches. One square sheet was kept for each 10 foot unit at any one level, and thus when a bench reached that level, the information was duly recorded in its proper place. In this way, upon completion of the 10 foot unit, a complete record of artifacts and soil changes was completed for each six inch level.

In the event that a notable feature became visible in the ground during the lowering of the floor from one square to another, intermediate sheets were drawn on an individual rather than on a composite basis to suit the need for recording, and these were designated alphabetically; for example, an intermediate square sheet between square sheets 1 (6 inches) and 2 (12 inches) of 500 E 504: 500 E 504, S.S. # 1a, 3 × 10 feet. As many of these intermediate sheets as were necessary for accurate recording were undertaken. Field notes were recorded on the front and back of square sheets. The artifacts were tagged separately according to the level within the unit. The recording of a unit floor plan on a square sheet signalled the closing of a bag and the opening of a new one. Thus, a bag of artifacts from Unit 500 E 492, as well as a level between square sheet 2 and square sheet 2a, would be designated in this way: Operation: T.T. #1; Date: 13:7:65; Unit: 500 E 492 (10 × 2); Level: S.S. #2-2a; Bag No. 17N.

The test trench was excavated from both ends simultaneously, and the bags from each end of the operation were numbered consecutively from 1, with a designation for north end (N) or south end (S). These numbers were used as a check and were entered in a field catalogue, along with full particulars about the bag plus its more notable

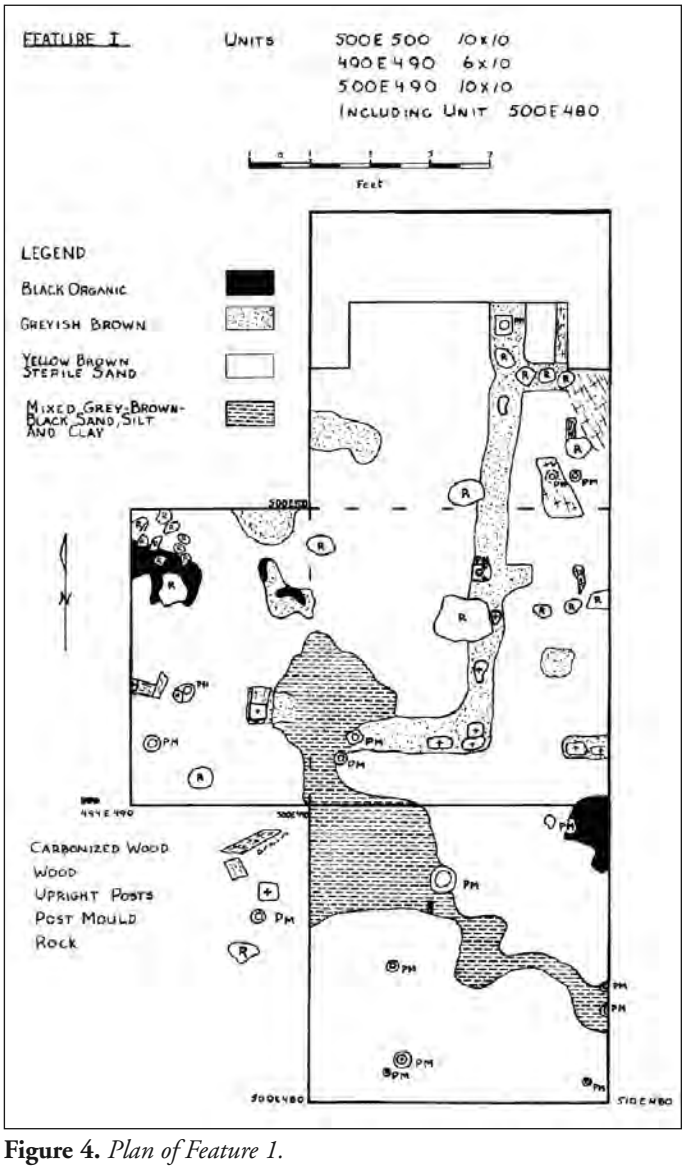

Figure 4. *Plan of Feature 1.*

contents. This was to facilitate organisation of material both in the field and during cataloguing, and it minimised loss of artifacts.

Features

During the excavation and the subsequent analysis, structural remains (e.g., building foundations) or other deposits were designated as separate features, and these are discussed below.

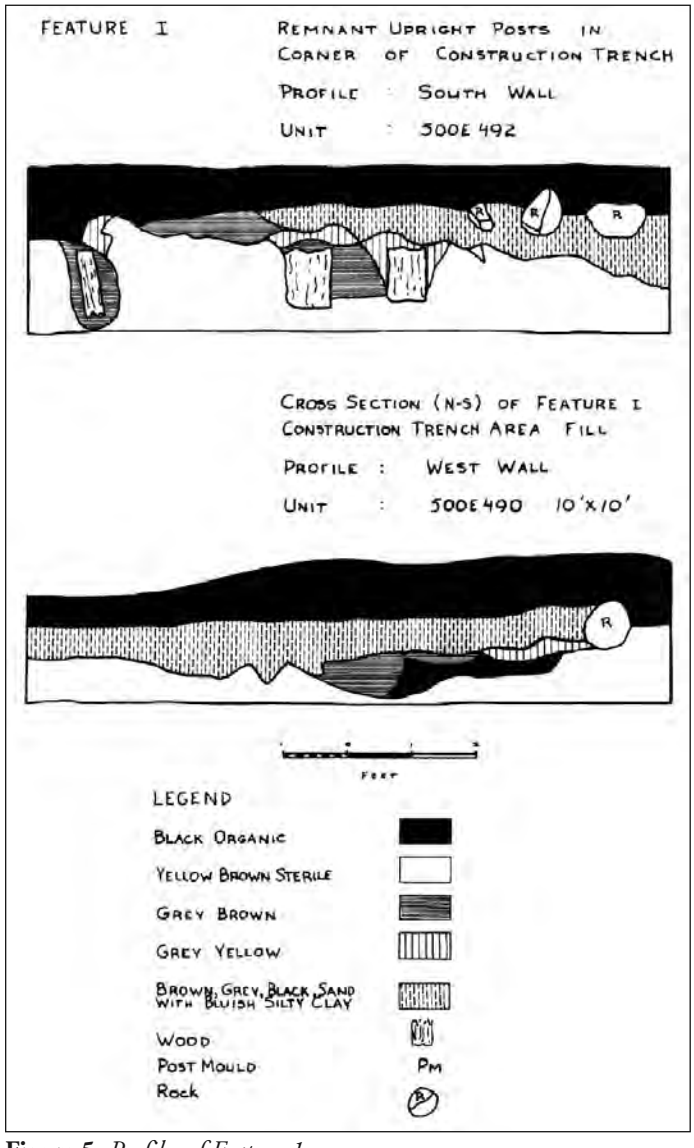

Figure 5. *Profiles of Feature 1.*

Feature I

Feature I was the most significant and rich deposit on the site because it represented the ruins of a building (Figure 4). The upper stratum was disturbed, with a large quantity of loose limestone fragments, among which were found nails, glass beads, and metal fragments. With increasing depth, intact structural elements and many more artifacts were exposed. At the northern end, a concentrated north–south line of limestone was noted, which was further demarcated by flecks of mortar and soil discolouration. The southeast corner of Unit 500 E 490 consisted of sterile yellow-brown sand that outlined the southern limit of disturbance. The southwestern area was a highly disturbed mixture of sands, silts, and clays, and to the north of this was a concentration of field stone arranged in an approximate square. Many artifacts continued to be found, nails making up the greatest percentage, as might be expected among the remains of a wooden building. Carbonized wood flecks were scattered throughout, although not in any great quantity, and a carbonized plank, 12 inches wide, lay just east of the line of stones, oriented NNW–SSE.

The stratum that was most likely the original ground level was at a depth of around 12 inches, although this was variable. This level yielded a significant number of artifacts, along with evidence of fire, such as pieces of carbonized wood, fragments of Aboriginal pottery that had been melted by the heat, and nuggets of smelted bronze. An interesting grey-green cinder or slag-like material, which seemed to have high silica content, lay with its shiny, convoluted surface facing down and a light brown silt-covered surface facing

up in a semi-continuous stratum over much of the feature at this level. This material was obviously a product of the fire, and upon melting had been deposited at ground level, where it hardened into slag-like fragments. Where it occurred in a distinct stratum, it seemed to lie just above the yellow-brown subsoil (Figure 5). It was most noticeable in the vicinity of the construction trench, into the surficial depression of which it appeared to have fallen.

The construction trench itself became increasingly apparent with excavation. Approximately 22 feet of continuous trench was uncovered, outlining the corner of a structure as well as possible doorways and other walls of the same structure. The structure was supported by upright timbers, four or five inches by six inches, set in a construction trench that was then filled with mixed soil and rocks for support (Figure 6). When the trench, which was just less than two feet in depth and one foot wide, had been filled to ground level, the rest of the structure was constructed around these uprights, the walls possibly consisting of horizontal planks nailed to the timbers. The remains of timbers, as found in the trench, did not seem to be arranged at regular intervals, and because some of them were preserved better than others, it was presumed that many had decayed. Thus the original distribution pattern was impossible to ascertain.

Potential doorways were indicated by intervals in the construction trench, such as are shown in Figure 4. Two hinges and several clenched nails, all of which could have been used on doors, were found in Feature I at a depth of between 8 and 10 inches. The high incidence of mixed sand, silt, and clay soils in the western part of Unit 500 E 490 was attributed to the levelling of the ground surface prior to or during construction, and the purpose of the concentration of field stones in the northwest corner of Unit 495 E 490 is unknown. Several nails were found among the stones. Much more excavation would be necessary to ascertain with any certainty the nature and function of the building represented by these remains. The main value of the feature lies in showing that sufficient evidence of structural and artifactual deposits has been preserved and that a full, comprehensive excavation would be profitable.

Possibly associated with Feature I are the three long post moulds in Unit 500 E 480, to the south. The largest of these was one foot in diameter, with dark and light grey colouration, tapering to a width of 7.5 inches before disappearing beneath the water table level at a depth of 2.4 feet. The depth of the post mould was 3.1 feet. This post had iron fragments around its outer circumference. Lying against the post, almost at the water table line (2.4 feet), was a sheet of very heavy gauge iron stock that measured 9 by 4 inches, with a thickness of 0.15 inch. The presence of this artifact in this context was inexplicable. Its fairly regular shape suggests that bulk iron stock was shipped to Sainte Marie I in this form for use in forging nails and other materials. The second post mould contained a stub of wood 1 foot long and 2 inches wide that tapered to a point at a depth of 2.4 feet. The third post mould had a diameter of 9 inches at a depth of 1 foot, 9 inches, where it contracted to a diameter of 7 inches and tapered to a point beneath the water line. Two nails were associated with this post at a depth of 10 inches. These three posts lined up vaguely with the interior construction trench of Feature I but may not have been related. Other post moulds and numerous artifacts were also located in this area.

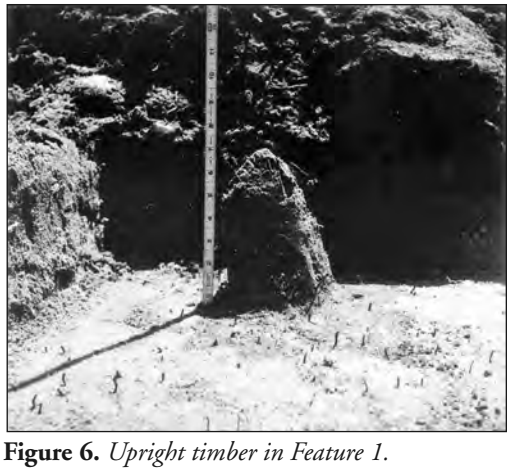

Figure 6. *Upright timber in Feature 1.*

Feature II

This particular deposit extended from the northwest corner of Unit 500 E 430 to the northern part of Unit 500 E 460 and was apparent during the initial stages of excavation. The upper horizons in other parts of the site consisted of a black sandy loam and, while silty clays and multi-shaded sands were present around the periphery of this feature, the feature itself was also filled with silty clays and multi-shaded sands (Figure 7). With increased depth, the entire feature continued to be a confused mass of bluish, silty clay concentrations mixed with grey, black, yellow-brown, and brown sands. In some places, a yellow-brown silty clay was encountered. The soils were quite moist, and

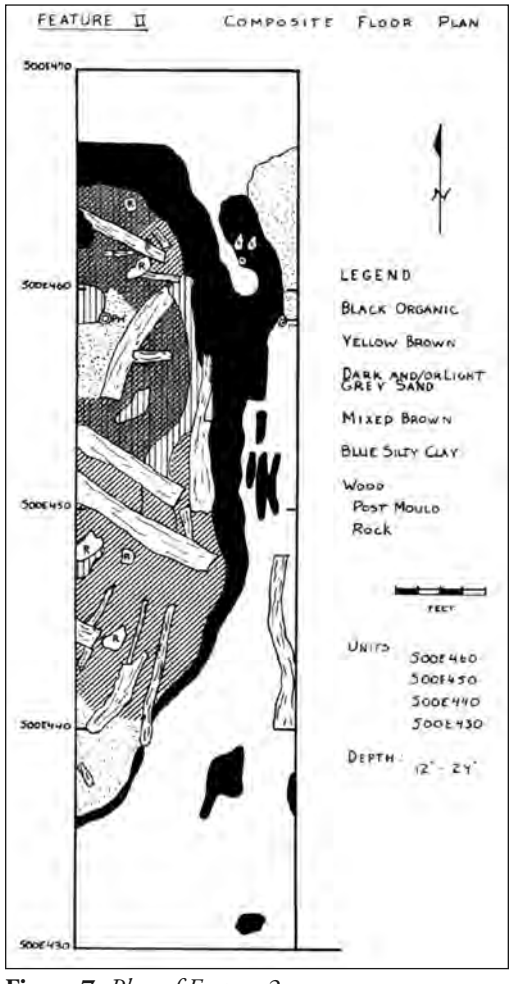

Figure 7. *Plan of Feature 2.*

the many wood and timber fragments randomly scattered throughout were well preserved. A large number of rocks were found throughout the northern end of the feature, perhaps remnants of a building wall.

At a depth of 18 inches, the nature of the feature became clearer with the presence of a yellow-brown, largely sterile layer of sand. Between the yellow-brown sand and the mixture of sand, silt, and clay fill was an obvious band of black sandy loam with a high organic content. This band was almost two feet wide at the north end, decreasing in width as it meandered south, and when the depth of the floor was lowered, the area of yellow-brown sand increased as the topsoil-like band migrated inwards.

This was the original upper soil horizon before the settlement was built (see Figure 8). Since it could be followed under the fill of Feature II only to the level of the water table, it is not certain whether it extended under the entire deposit. Obviously, the deposition of the fill was subsequent to the construction of the fort, and it was evidently laid down over the old soil horizon.

The bottom of the filled area, as least as far as could be excavated, was a tangled mass of well-preserved tree trunks and branches in no particular orientation (Figure 9). Among these, hemlock, cedar, and "soft woods" could be identified. The clay, silt, sand, and rock mixture had been placed around and piled on top of this basic log fill.

Artifacts found in the upper horizons of the fill included nails, glass beads, glass, a length of chain, other iron and copper articles, and a French coin, all of which were in or close to the upper levels and were not deposited during the filling of Feature II.

A well or cistern is known to have been present near the middle of the site. It is postulated that the compound was built around a low, swampy hollow from which flowed a spring. The French probably built the nine foot by nine foot rock well around or over the spring and filled in the hollow area to regular ground level, first with logs and branches cut during the clearing process, followed by clays, silts, and sands that were found nearby. In this way the ground within the fort was levelled and dried and a constant supply of water

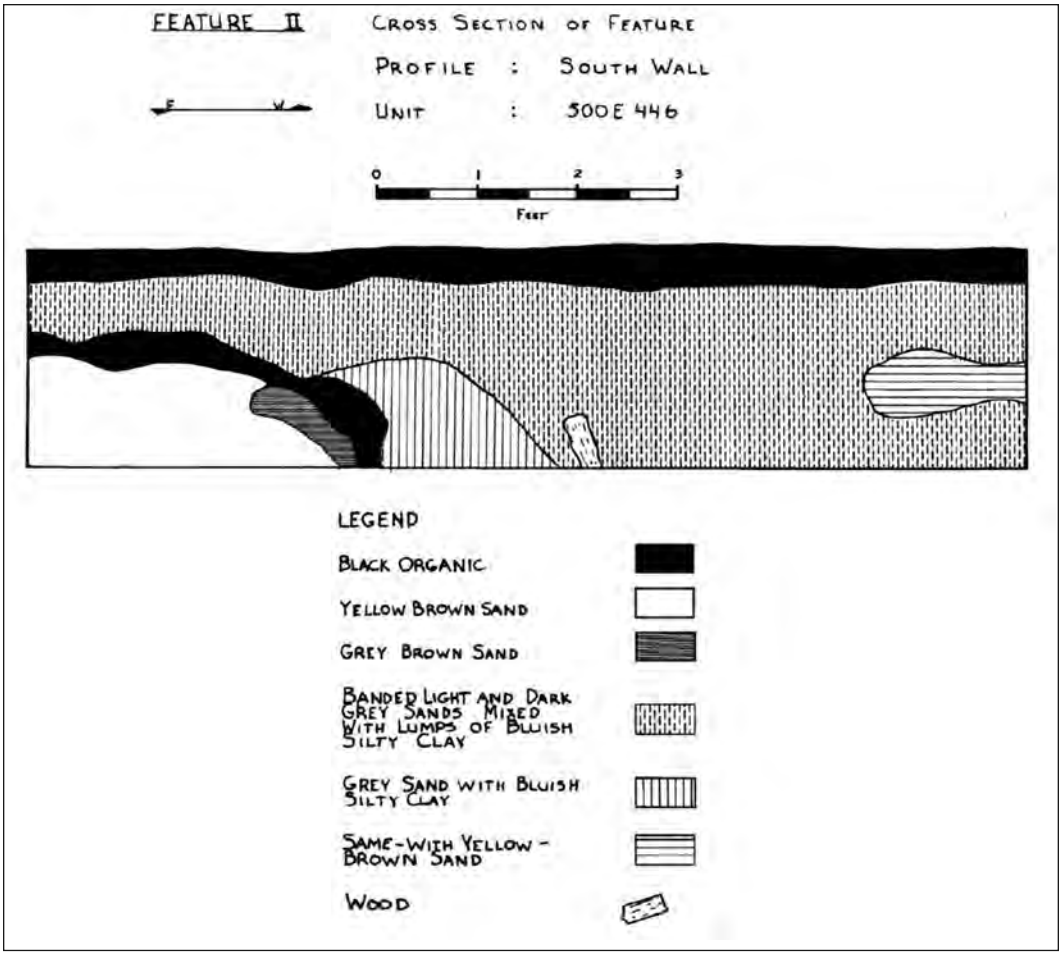

Figure 8. *Profile of Feature 2.*

was assured. The destruction of the upper parts of the well by treasure seekers in the early twentieth century is unfortunate, but it is likely that some of the well's structure remains intact below-ground.

It is noted that the bluish silty clay existed as a definite stratum under the yellow-brown sterile lacustrine sands. This information was obtained from a well drilling site on the island, but an actual geological profile was not made.

Feature III

The mixed nature of the fill in this feature, which extended across most of the southern 15 feet of the trench, was apparent from the beginning of the excavation. The upper level of the feature consisted of pockets of soils of different colour and texture, ranging from black organic loam to yellow-brown mottled sand (Figure 10). Fragments of wood, glass beads, nails, bits of iron and copper, and fragments of glass and mortar were scattered throughout. As the excavation progressed throughout the deposit, wood occurred more frequently, in larger pieces, and the amount of bark increased. No apparent orientation was noted in either the wood or the bark, and the degree of preservation was attributed to the high moisture content of the soil.

Rocks, largely field stone and smaller than one foot in diameter, were scattered throughout

Figure 9. *Tangled mass of well-preserved tree trunks and branches in Feature 2.*

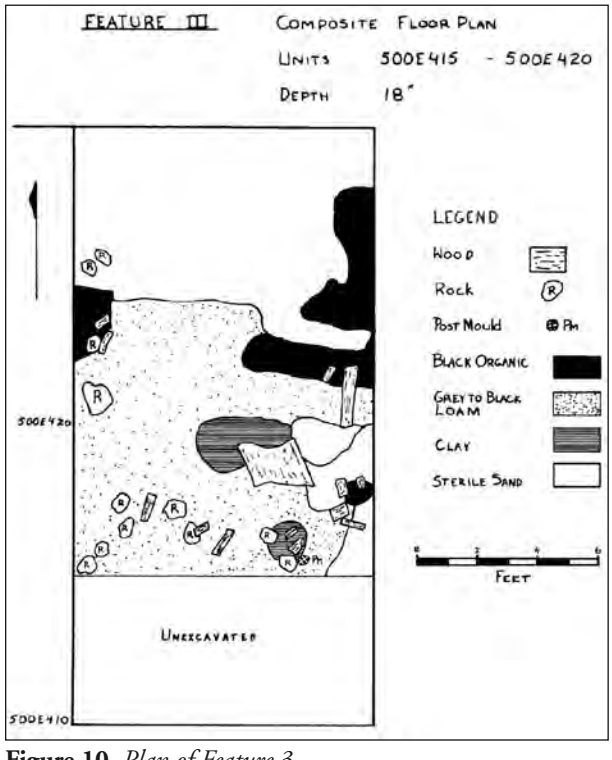

Figure 10. *Plan of Feature 3.*

with no evident arrangement. At a depth of about one foot, the western and southern areas of the deposit were jet-black organic fill, while the northern and central areas had for the most part reached mottled, almost sterile yellow-brown sand. The expansion of the sand became the delineator for the northern border of the feature, as was apparent in the eastern and western wall profiles of Unit 500 E 420 (Figure 11). The bottom of the deposit was not reached at any point south of Unit 500 E 425 because of the high ground water table in the area, a feature which, although it contributed to the preservation of organic materials, impeded the investigations.

Feature III appears to have been a refuse deposit, containing parts of timbers, plank ends, wood chips, left-over pieces of bark, and excess wall stone. Included also were glass beads, nails, glass, and copper, but these items were for the most part in the upper levels, above the construction debris.

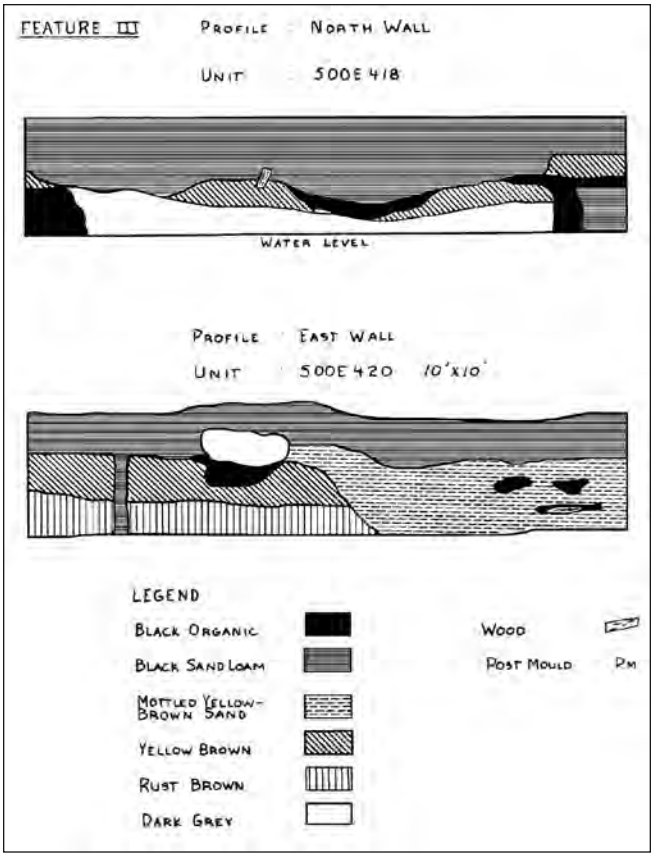

Figure 11. *Profiles of Feature 3.*

A concentration of Aboriginal pottery was found in the northeast corner of Unit 500 E 415, which was not apparent until a depth of 17 inches had been reached. This discovery was consistent with the intermittent but consistent deposit of soil and debris in the feature. Although there was a fair amount of carbonized wood among the debris, there were also numerous fragments of siliceous cinder material, and it can thus be concluded that the deposition of refuse was completed before the destruction of the fort. Only further excavation could reveal its full extent and relationship with the southern wall.

Feature IV

Comprised of the west half of Unit 520 E 450, this feature was only partly excavated. A significant concentration of bark fragments and organic matter was apparent in the black sandy topsoil of the southern end of the unit from the onset of excavation (Figure 12). Several nails, a glass bead, and pottery fragments were also recovered. At a depth of 12 inches, the floor of the unit had divided into three principal areas, a northern area with a black sandy deposit with a fairly high organic content; a central yellow-brown mottled sand that may have been disturbed; and a southern area of highly organic dark grey to black soil with a high percentage of bark fragments, most lying on edge, oriented in a north–south direction. Overlying this stratum in the western section was a layer of yellow silty clay perhaps four inches thick (Figure 13). Wood and nails were present in both the north and the south areas. A timber lying north–south protruded from the north wall with black, highly organic fill to the east of it and black sandy loam to the west. It was difficult to tell whether the two parallel pieces of wood were actually separate timbers or one timber of which the mid-portion had decayed.

A series of parallel and adjacent planks oriented north–south and resting on what appeared to be two and possibly three 4 inch squared timbers lying in an east–west direction, were documented at the same level in the southern end of the deposit, under the black organic layer. The cross-timbers rested in a grey sand, under which was found undisturbed subsoil at a depth of around 1.8 feet. A decorated brass cylinder was found at this level, just below a hinge pin.

The black fill in the northern end disappeared as well at a depth of 1.8 feet. The central portion of mottled sand was underlain by a thin black organic stratum that appeared to be continuous with the fill in the northern end, under which was undisturbed sand.

The incidence of bark in the deposit is reminiscent of Sainte Marie I, where its recovery in deposits was interpreted as fragments of roof covering. The confused stratigraphy indicates a

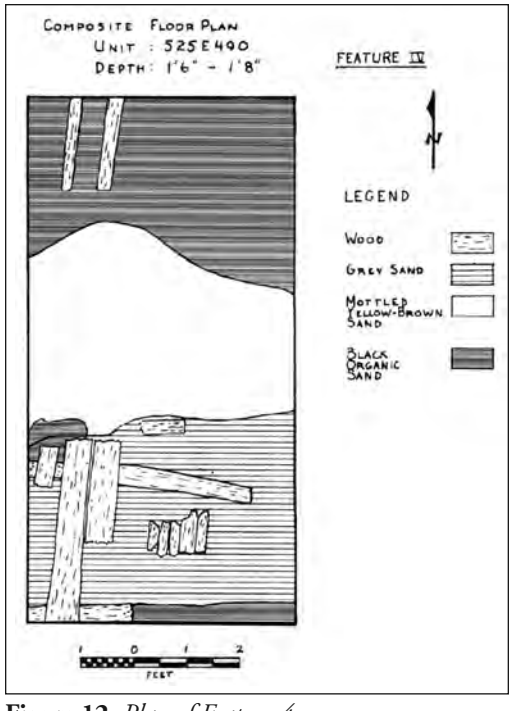

Figure 12. *Plan of Feature 4.*

significant degree of disturbance, and the presence and orientation of the timbers is highly suggestive of a structural element. The presence of only seven nails suggests the possible use of wooden dowels. The base timbers seem like supports; the planking and the black organic stratum would indicate flooring; and the high incidence of carbonized wood, organic matter, and bark could be the tumbled remains of a building. Although there were only three fragments of siliceous matter in Unit 525 E 450, there were 86 in the adjacent unit, indicating the same cataclysmic destruction as was noted in Feature I.

Material Culture

The artifacts found at the site have been grouped under general classificatory headings and are discussed in the following sections. See also Table 1.

Nails

Of a total of 523 catalogued artifacts, excluding the siliceous cinder material, 400 are nails or

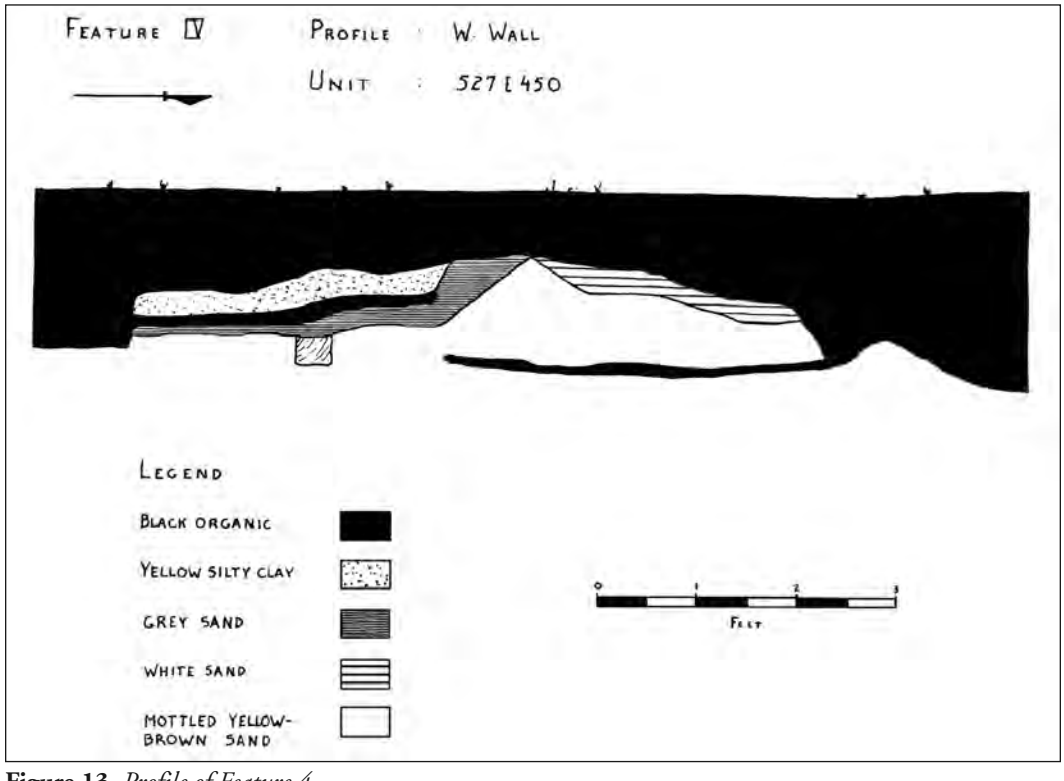

Figure 13. *Profile of Feature 4.*

fragments of nails, and 7 are spikes or spike fragments. Although it was thought at first that a typology of nail types would be attempted, it was subsequently decided that such a study should be left until a complete sample from the site had been obtained.

Feature I contained 317 nails and 6 of the spikes, by far the richest deposit on the site. Twenty-two nails in the area between Features I and II are likely associated with this concentration. Feature II, although not representing structural remains, yielded 28 nails, which, judging by their distribution stratigraphically, were randomly deposited during the deposition of the fill. Most of them were larger nails, 2 inches or more long, and they occurred at depths between five and nine inches.

The fact that no more than 26 nails occurred in Feature III suggests the absence of a structure in this area. Of the two spikes found here, one was a modern 6 inch wire type found at a depth of around 15 inches, representing evidence of recent disturbance. Unlike Feature II, the nails in this area were largely all less than 2 inches long, with a few exceptions. However, many of them were broken. Feature IV contained seven nails, and even though much well-preserved wood, in the form of timbers and planks, was found in the feature, none of the nails were found in wood. The nails ranged in size from 1 inch to 3.5 inches.

Among the assemblage were a small, well-preserved copper tack 0.65 inch long with an irregularly rounded flat head; a large headed copper nail, perhaps a scupper nail (Mercer 1929:237; Office of Ordnance 1813:D-68) or a flat-headed filling nail (Office of Ordnance 1813:E-84); iron, square-shanked nails with slightly brad-like, L-shaped heads; iron and square-shanked nails of the Rose type, with rounded heads; and rectangular-headed, square-shanked, iron, straight and clenched nails, the latter of which are general-purpose carpentry nails and are often used "clenched" in doors and other structures in which vibration could play a loosening role (Mercer 1929:237) (Figures 14 and 15).

The spike shown in Figure 16a was 6.2 inches long and was found in the northern end of Feature I. Because of its heavy nature, it was probably not used in ordinary woodwork and may have been employed in the fastening of gate timbers. It is very similar to one found at Sainte Marie I (Kidd 1949:Plate XXXI A). Round-headed spikes like Die-Dogs (Office of Ordnance, 1813:L-138) were also found, and although incomplete, they were likely around 3.5 inches in length. These also were for heavier woodwork and could have been used when bolts were not available. One die-headed spike with a square head and four-inch-square shank (Office of Ordnance 1813:L-106) was also found and was likely used for heavy woodwork.

Figure 14. *Assorted iron nails.*

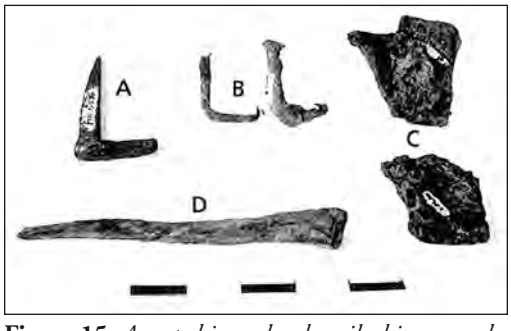

Figure 15. *Assorted iron clench nails, hinges, and iron piece.*

Iron Hardware and Fragments

Numerous artifacts made of iron were recovered; all measurements provided here are approximate because of the encrustation of iron oxide.

In Feature I, associated with clenched nails and other destruction debris at depths of between 8 and 10 inches were two iron hinges made of approximately 0.1 inch thick iron stock (Figure

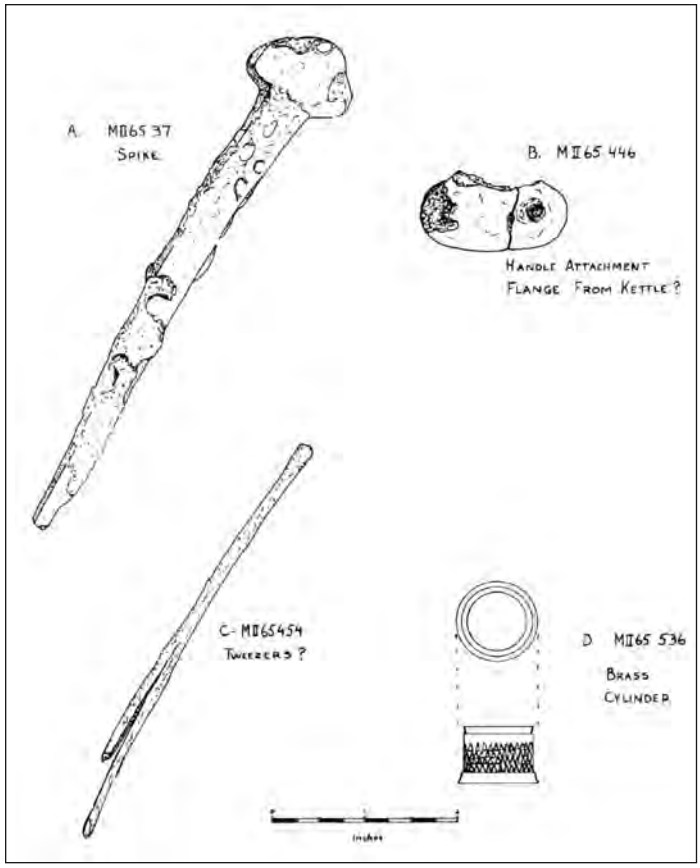

Figure 16. *Iron spike, flange from kettle, tweezers, and brass cylinder.*

Figure 17. *Iron shaft, chain with hand-forged links, and fragments of sheet iron stock.*

15c). When extended, these would have been slightly less than 5 inches in length, with a width at the hinge joint of 1.4 inches. The hinge plates appear to have had at least three fastening holes and were flared at the extreme ends to a width of perhaps 2.5 inches. Feature I also contained a small iron ring of 0.3 inch diameter in Unit 500 E 500, at a depth of 13 inches; a length of 0.15 inch thick iron wire wound around twice into a coil in Unit 500 E 496; and a 1.7 inch long iron strap with a short, right-angle bend at one end in Unit 500 E 498.

A 0.8 inch long iron cylinder with a diameter of 0.6 inch was found between Feature I and Feature II, at a depth of 9 inches in Unit 500 E 482. Unit 500 E 460 yielded a 17.8 inch long length of chain with 21 hand-forged links (Figure 17b) at a depth of 5 inches in the black topsoil, along with a 6.5 inch long forged iron piece with a body flared upward at the heavier end and tapering to a point at the other end. While the purpose of the latter artifact is uncertain, both may relate to the functioning of the well. Also found in Feature II (Unit 500 E 450) was a lock plate with a keyhole and much of the associated locking mechanism intact (Figure 18). Although apparently "in situ" because of the depth, it seems more likely that the lock plate was deposited there after the destruction of the buildings. Also found in the upper level of Feature II (Unit 500 E 438) was a broken handle flange from a kettle (Figure 16b). An iron eye, on a shaft, from round stock was also found at a depth of 12 inches. The shaft had broken 0.6 inch from the ring. On the periphery of Feature II at a depth of 17 inches in Unit 500 E 436 was a 5 inch length of iron, rounded in cross section, with a diameter of 0.2 inch. It resembles a tweezers-like instrument such as was found at Sainte Marie I (Kidd 1949:Figure 20c) (Figure 16c).

Feature III (Unit 500 E 418) contained a 6.4 inch long × 0.4 inch wide × 0.1 inch thick piece of

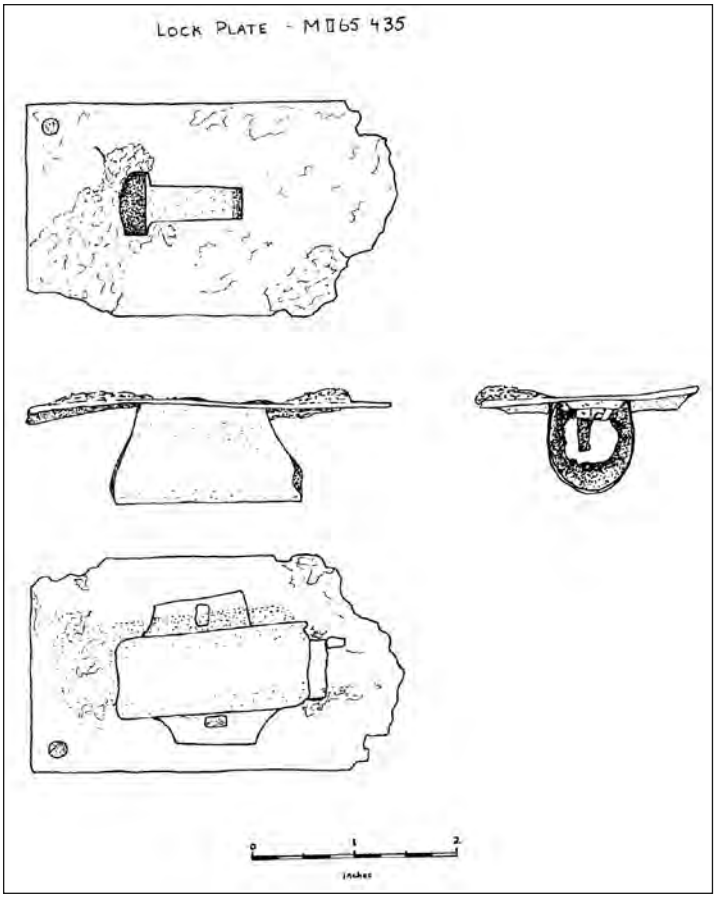

Figure 18. *Iron lock plate with keyhole.*

flat stock with rounded ends. Its use is unknown.

Two noteworthy artifacts were uncovered in Level 2 of Unit 525 E 450, in Feature IV. Lying on top of the squared timber at a depth of 8 inches in the northern end of the unit was an 8.1 inch iron shaft (Figure 17a). One end, tapering toward a final diameter of 0.15 inch, was squared for a distance of 2.8 inches. The diameter at this point increased from 0.3 inch to 0.45 inch, gently tapering into a round shaft for a distance of 5.3 inches, to a final diameter of 0.14 inch. The squared end appears to have been prepared for hafting in a wooden handle in much the same way as a contemporary soldering iron or file. The purpose of this tool is unknown. In the southern end of the same unit, at a depth of 12 inches, an L-shaped hinge pin and support were found. The 1.7 inch long upright was forged round in cross section, and the 2.9 inch long horizontal element is of squared stock, which tapered from a diameter of 0.4 inch at the pin to a point. Although this artifact would not have been large enough to support the weight of a door, it is possible that the windows, without glass, had shutters that were hung on iron hinges.

A total of 93 unidentifiable fragments of heavily oxidized iron material were found. The majority of these were small, fragmented pieces of what appeared like sheet iron stock (Figure 17d). But 10 of them were oxidized lumps that had formed around artifacts, eating away most of the core materials and rendering them unidentifiable. Feature I and the associated area to the south, having a significant concentration of identifiable iron artifacts, had the largest number of these fragments (66 from Feature I and 9 from the area to the south). Of these, five were lumps of concentrated iron oxide. Feature II had three iron oxide masses and two fragments. Feature III yielded the same number of iron oxide lumps and eight fragments, while Feature IV contained only two fragments. The distribution of this material acts only as a measure of concentration of occupation debris, the use to which the iron stock was put being unknown.

Copper Artifacts

A total of 24 pieces of copper of several different gauges was recovered, most of which appeared to be scrap sheet copper. The majority of fragments (18) were found in Feature I. None of these constituted actual artifacts, most of them being angular or irregular pieces of copper sheeting, the largest of which were found in units 500 E 498 and 500 E 494. The piece from the first unit is of

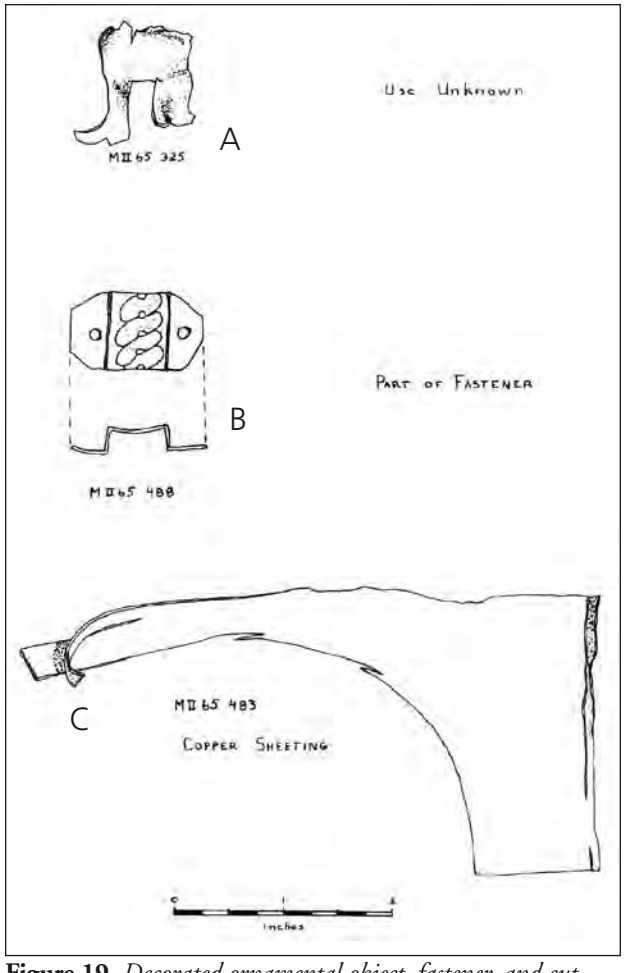

Figure 19. *Decorated ornamental object, fastener, and cut sheet made of copper.*

heavier gauge copper resembling the material from which kettles were made. Two pieces from the second unit were found at a depth of 7 to 8 inches, slightly east of the construction trench. One of them, an irregular rectangle varying between 2.4 and 2.7 inches long and 1.4 and 1.5 inches wide, thinned toward its longest side to an almost blade-like edge. The irregular nature of its appearance, however, precludes its identification as a formal cutting tool. At a depth of 1.3 inches in 2 foot × 10 foot Unit 494 E 490, a group of seven copper fragments was found associated with nails in black sandy loam. Adhering to some of the pieces was carbonized wood.

The area between Feature I and Feature II produced two sheet copper fragments, both in the 6–12 inch level. Unit 500 E 488 yielded a small, ornamentally fashioned piece with a rectangular notch cut from the end. Its use is unknown, although it seems to have been a decorative piece (see Figure 19a). The other of these fragments was a thin, 1.5 inch long copper burr resulting from the process of shearing sheet copper. The four remaining copper artifacts were associated with Feature II. At a depth of just under 1 foot in Unit 500 E 430 in the highly organic black soil at the eastern end, a rhomboid-shaped fragment of heavy-gauge copper with a hole punched in it was found. While its purpose is uncertain, it may have been used as a patch. A piece of heavy-gauge copper 5.2 inches long and 2.5 inches wide was located further south at a depth of between 12 inches and 18 inches in the grey mottled sand of Unit 500 E 424. The piece had a large, semi-circular section sheared out of it. Across the top edge and along the side was evidence of shearing attempts, and the inner border of the completed cut was jagged with sharp burrs resulting from the shearing process (Figure 19c). This seems to indicate that a certain amount of metal stock was kept by the French, and this was likely shipped from New France in sheets. The depth of this piece indicates that it was deposited fairly early in the construction process.

A small copper artifact, which may have been used as a fastener of some sort, was uncovered between a depth of 12 inches and 18 inches in Unit 500 E 422. Its total length was 1.3 inches and its width 0.76 inch. On the upper surface was an engraved design (see Figure 19b), and holes for attachment had been put in the side flanges. Also found in this unit, at a greater depth, was a thin-gauge copper strip 2.52 inches long by 0.4 inch wide, with an irregular edge.

A small copper or brass cylinder, 0.6 inch high, was located in Feature IV at a depth of 18 inches, associated with the wooden planking that

appeared to form a floor resting on east–west-oriented cross beams. The inner diameter at one end was 0.67 inch, while that at the other was 0.75 inch. There was a narrow (0.1 inch) band or rim around the larger end. Between this rim and the other end was a design of closely spaced, small, impressed triangles, which runs in four parallel adjacent rows around the cylinder (see Figure 16d). Its use is unknown, but perhaps it had some ecclesiastical association. It is unlikely to have been made in either Sainte Marie I or Sainte Marie II.

From the available evidence it seems as though the French made most of their utilitarian copper objects as the need arose, from copper stores which were available. Although most evidence of manufacture was not present in Feature I, most of the discarded items were, and the majority of pieces were unrecognizable scraps, consistent with their deposition subsequent to the burning of the building. Some of the copper sheeting may have been used to make tokens, which were given to the Wendat with the most pressing needs to exchange tokens for food (Thwaites 1896-1901, 35:99).

Beads

A significant number of beads were recovered from the site, suggesting many more may be present. The specimens can be divided into seven main types on the basis of colour, shape, and mode of formation.

Red Glass Droplet Beads. These were the most numerous of all the types, there being a total of 30 recovered. They were uniformly a dark red in colour, some glossy, some duller, and they varied in size from above 0.2 inch in diameter to about 0.1 inch. Their shape varies from spherical to irregularly elliptical, and some were wider at right angles to the bore than along the bore. They seem to have been formed by the dropping of molten red glass into a cooling element, such as water, in a manner similar to that used in the production of lead shot.

Red Glass Spherical Beads with Black Centres. This was the next most numerous bead type, with nine examples. The area surrounding the bore was clear and cylindrical, with a regular bore through it. Around the exterior circumference of this transparent cylinder was a thin layer of bright red glass similar to that of some of the droplet beads. Finally, a layer of clear glass had been applied to the red glass to round out the bead into a sphere. In cross section, this appeared colourless, but when it was looked at directly, the red from the middle layer showed through dully. Thus a three-coloured effect was produced: black, bright red, and dull red. One of these red-and-black beads was found in Unit 500 E 498, embedded in the oxidization deposit around a nail, at a depth of 9 inches.

Red Glass Tubular Beads. Two red tubular beads were found. These were cut from long, cylindrical tubes of red glass and can occur in any length. Length, therefore, is not a definitive characteristic in this case. One found in the vicinity of Feature III, however, had a greater diameter in cross section (0.15 inch) than the example found in Feature I (0.1 inch). The larger one appeared to be lighter in colour as well.

Red Glass Faceted Beads. Only one example of this type was found, in the upper horizon of Feature III in Unit 500 E 422. The bead was found split in half. The diameter at right angles to the bore was 0.37 inch, and along the bore it was 0.31 inch. The bore itself had a diameter of 0.1 inch. Coloured a slightly lighter red than the droplet beads, it had a dull finish to it, probably due to design rather than patination. On a complete artifact there are probably six facets, those opposite one another being similar, each pair being of different size and shape to conform to the three-dimensional, trapezoidal shape of the bead, and all of them defined by rounded rather than sharp borders.

Light Blue Glass Spherical Beads. Three beads of this type were found; one, with a diameter of 0.22 inch, was found in Unit 500 E 500, Feature I, at a depth of 1 foot 3 inches and was associated with destruction debris on the east side of the construction trench. Another, with a diameter of 0.1 inch, was outside Feature I, in Unit 500 E

484, in the upper, disturbed horizon. This was the smallest and was slightly disc-shaped, being thicker in diameter across the bore than along it. The third light blue bead, heavily patinated, was located in the upper disturbed horizon as well, just north of Feature II in Unit 500 E 472. With a diameter of 0.16 inch, it had a fracture groove running parallel to the bore on the outer surface.

Dark Blue Glass Elliptical Beads. One example of this type occurred in the upper level of Feature I in the most northern unit of the test trench. This bead, with a slightly patinated surface due to weathering, was dark blue in colour. Its shape was elliptical with flat ends, due to the entrance and emergence of the 0.06 inch diameter bore. Its diameter at right angles to the bore was 0.2 inch, and its length was approximately 0.35 inch, the approximation being necessary because of damage at the ends.

Shell Bead. Only one example of possible non-European beadwork was found. This was a disc-shaped, medially perforated shell bead with a cross-bore diameter of 0.43 inch, a bore diameter of 0.12 inch, and a thickness of 0.15 inch. It was very similar to a piece of shell wampum. The regularity of the surfaces, however, which remained intact, and the symmetry of manufacture, suggest European manufacture. It was found in the upper horizon of Feature I, in Unit 500 E 494.

Distribution of the Beads. There were 19 beads in Feature I, including 14 droplets, 1 red and black, 2 blue, 1 red tubular, and 1 red and black. Feature II yielded only 2 beads; 1 red droplet and 1 red and black. Feature III contained 12 beads: 7n droplets, 9 red and black, 1 red tubular, and 1 faceted, and Feature IV yielded only 1 red and black bead.

The remainder of the beads were scattered in the area between Features I and II, the largest concentration being nearer to Feature I. These included 11 droplets, 2 blue beads, and 3 red-and-black beads. Apart from the fact that the greatest number of beads were of the red droplet type and that there was a lack of beads around the vicinity of Feature II, there seems to have been no one area where a certain type of bead was prevalent. Feature I and the adjacent area to the south contained more beads, but this same area produced more artifacts generally.

With the possible exception of the shell disk, all of the beads were of European manufacture and had been produced as North American trade items. They may have been stored as trade items by the Jesuits in the fort and perhaps unintentionally scattered during its destruction by the French; most were found associated with structural remains.

Earthenware

Two examples of European earthenware were found, one in the northern 10-square-foot unit and the other twenty-two feet to the south. Both appear to have been a type of stoneware, reddish pale brown in colour, with what may be a slight glaze on the interior surface. The striations formed during the turning of the vessel were quite apparent on both the interior and exterior surfaces, although less so on the interior. Because both of these fragments were found in the upper, disturbed horizon and not in any direct association, little can be concluded from their recovery.

Glassware

Three types of glass were found, including nine small fragments of a very fine, clear crystal, the largest of which was a rim fragment 1 foot long by 0.44 inch wide with a rolled, tubular rim; one piece of dark yellowish green bottle glass with the beginnings of a multi-coloured patina on the inside, and five relatively large fragments of thick (up to 0.25 inch) bluish green bottle glass. The latter types of glass, judging from the bubble inclusions, were blown rather than moulded. The crystal, slightly more than 0.05 inch in thickness, appeared to be fairly uniform and could possibly have been from the same vessel. Although most of the fragments were found in association with Feature I, none of the fragments showed evidence of burning, and they were found at varying depths both inside and outside the feature. Indeed, one fragment was discovered at a depth of 18 inches

and in association with the post mould with the large iron plate at the bottom. This would indicate that the crystal fragments could have been discarded during the construction of the inner buildings of the site. Two small crystal fragments were discovered at the south end of the test trench, at a depth of 8 inches in the disturbed area. There is little that can be said about the yellowish green fragment of bottle glass that was irregularly shaped, 1 inch long at its maximum length and 0.9 inch wide. Its thickness was approximately 0.1 inch. It was found in the disturbed upper horizon of the deposit around Feature I.

Fire Arms

In the Relation for 1647–1648, it is stated that "On the 6th [of August, 1648] the fifty or sixty Wendat canoes started from Three Rivers, which took on board twenty six Frenchmen […] five fathers, one brother, three boys, nine workmen, and eight soldiers…" (Thwaites 1896-1901, 33:99). Only one soldier was reported as going back to Quebec in 1649 (Thwaites 1896-1901, 34:59), thereby leaving seven soldiers at Sainte Marie I. Therefore these men were likely among the French refugees who travelled across to Christian Island in June of 1649, and, naturally they, at least, would have been armed, possibly with harquebuses (Thwaites 1896-1901, 32:70), but perhaps also with more advanced weapons, such as a snaphance, a doglock, or perhaps even a flintlock.

A gun flint was found south of Feature I in Unit 500 E 482, in the disturbed upper level (Figure 20a). The flint was of the French caramel-coloured type and had been flaked and retouched for this purpose. Slightly wider (1.1 inches) than it is long (1.06 inches), the flake tapered away from the bulb of percussion, at which point the thickness was 0.3 inch, to a thickness of approximately 0.1 inch. Steep retouch was evident along the back and sides, becoming less steep along the leading edge.

A probable gun worm was found to the north of Feature II in the upper horizon of Unit 500 E 474 (Figure 20b). It was corkscrew-shaped and featured only one sharpened curl at the tapered bottom. These tools were attached to the end of a gun ramrod and were used for removing objects, such as wadding or shot, from the barrels.

Coinage

One of the more significant finds was a small (0.78 inch diameter) copper coin called a double tournois. Minted in 1640, it shows the profile of Louis XIII, who reigned from 1610 to 1643 (Palmer 1962:119) on one side and three fleurs-de-lis on the other (Figure 21).

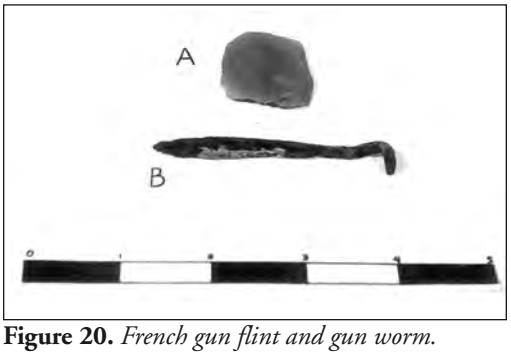

Figure 20. *French gun flint and gun worm.*

Figure 21. *French double tournois coin (1640).*

The basic unit of exchange in pre-revolutionary France was the livre, divided into twenty sous, each of which was composed of twelve deniers. But because the Paris, or Parisis, unit was the official one, it had more value than the tournois unit. Spooner (1956:94) states, "la livre parisis etait plus forte d'un quart que la livre tournois." Thus, whereas a sou tournois would be composed of twelve deniers, a sou parisis would have the equivalent value of 15 deniers. Conversely, a denier tournois would be worth one-twelfth of a sou tournois, while a denier parisis would be equivalent to one-fifteenth of a sou parisis. A double tournois would be equal to two deniers tournois.

A photograph of the double tournois of the year 1642 is shown in Spooner (1956:Plate XXIX). It appears to be similar to the example from Sainte Marie II except that the face of the latter is seriously obliterated. The impression on the Sainte Marie II artifact was very much off-centre due to a faulty minting process, unlike the example from Sainte Marie I (Kidd, 1949:130), which is worn but well centred. Although French money of this sort had no exchange value in the heart of Wendake, it was, nevertheless, carried to and lost at the site.

Aboriginal Ceramics

More than 155 fragments of Aboriginal pottery were found concentrated in the vicinity of Features I, II, and IV. Of these, five finds are considered sufficiently significant to be described in detail.

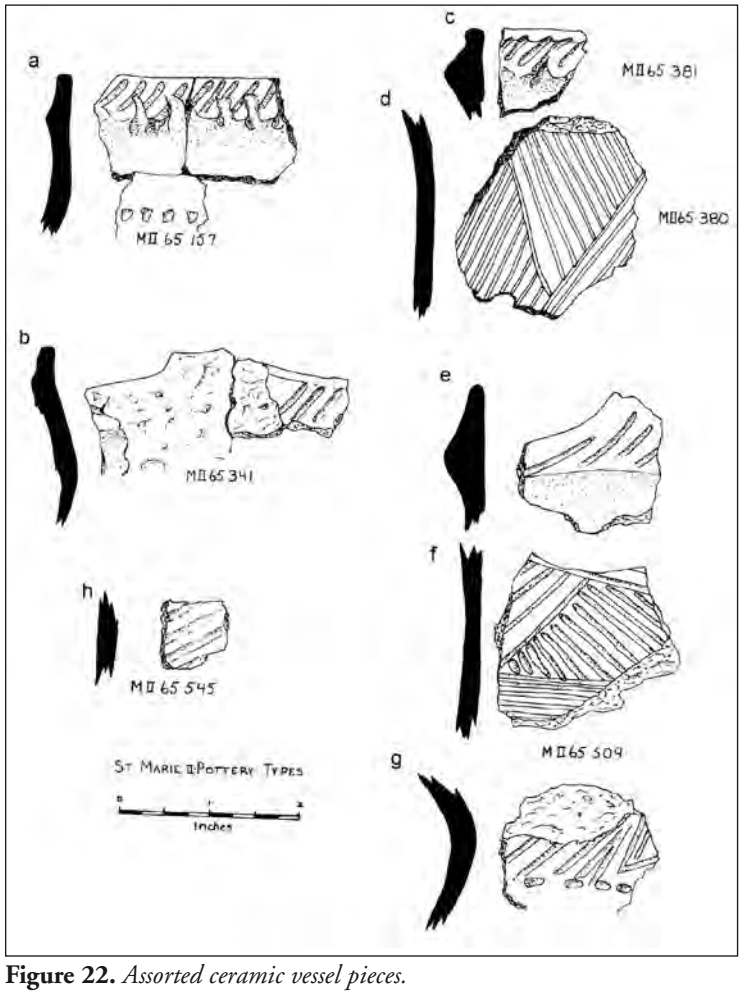

Figure 22. *Assorted ceramic vessel pieces.*

A concentration of 38 pieces was found associated with Feature I, in the eastern part of Unit 500 E 498, at a depth of 11 inches. This was in dark brown to black soil just east of the construction trench and forming part of what has been interpreted as a destruction level, being just above the stratum of siliceous cinder. The fragments, although reddish brown in colour originally, had been heavily blackened by carbon except in areas where the fabric had been whitened, perhaps by heat. The design had two elements. The collar was relatively narrow (0.65 inch) with a flaring lower edge that was deeply gashed at intervals of approximately 0.45 inch, although this was variable. Between the flaring edge and the lip was a row of wide, oblique lines which continued around the rim (see Figure 22a). The second

element consisted of a row of vague, shallow punctates found on the collar, perhaps 1.5 inches below the rim. This row continued irregularly around the circumference. The thickness varied from 0.2 to 0.3 inch, the temper was medium, and the finish was irregular. The most interesting feature of this pottery, in view of its association with the destruction level and its position above the silicified layer, was the fact that several of the pieces show definite signs of silicification. One rim fragment, in particular, appears to have been subjected to heat to the extent that the exterior surface had become slag-like, with bubble cavities and an amorphous appearance, although the basic design contours of the surface were still apparent.

Another ceramic vessel type was found at the 9 inch level of Unit 500 E 486. Comprised of two pieces, it was a slightly castellated rim sherd, the exterior surface of which was largely exfoliated. The design that remains on a small portion of intact rim was one of broad, parallel, oblique lines around the circumference (see Figure 22b); the lip of the rim elevated gradually toward a diminutive castellation and then receded. The colour of the pottery was a dark greyish brown with what appears to have been carbon blacking on the surface and the temper was relatively fine. The complete sherd had an overall length of 2.9 inches and a width of 2.1 inches.

In the same level as the above, in Unit 500 E 482, as well as in Unit 500 E 480, several pieces of a light pinkish brown pottery were found, all associated with the general destruction debris such as was showing at a depth of 7–8 inches. Only two of these sherds showed any definitive design motifs; one is a rim and the other a collar. The smaller sherd, exhibiting 0.9 inch of rim length, had a smooth, rounded, lip with a short, straight collar. The collar was decorated with obliquely parallel indistinct impressions (see Figure 22c). The second sherd was a large neck sherd decorated with a geometric design of abruptly opposing triangular areas of oblique parallel lines (Figure 22d). The rim fragment appeared to have been of substantial diameter, perhaps indicating that the height of the shoulder/neck area would have been sufficient to place the design found on the second, larger neck sherd. While the colour, texture, and quality of construction of both sherds were similar, the differences between the two motifs were striking.

The largest concentration of pottery was found in the northeast corner of Unit 500 E 415, in Feature III. Seventy-three fragments, perhaps from two vessels, were found in a one-foot diameter pit that had a total depth of just less than two feet. The fill of the pit was an intense black, highly organic-charcoal-flecked, moisture-saturated soil. The exterior surface of the pottery was a greyish brown with slight pink undertones and most interior surfaces were exfoliated; where those surfaces were still intact, they were dark grey–brown with some carbon encrustation.

A neck sherd was found that was decorated with a band of opposed, zoned, triangular areas filled with parallel lines (Figure 22f). A second neck fragment (Figure 22g) also featured triangular zoning, below which was a single row of oval punctate impressions which were spaced at 0.3 to 0.35 inch intervals around the neck. It is not known if the two fragments were from the same vessel. Only one rim sherd was found with this concentration. It is castellated, with a concave collar profile 0.4 inch below the lip. The neck was undecorated and the collar had vaguely impressed oblique lines, not necessarily parallel but slanting in the same direction (Figure 22e).

Feature IV yielded eight fragments of pottery, located in Unit 527 E 452 at a depth of between 6 and 8 inches. All of the fragments were greyish brown in colour with sparsely distributed coarse temper and a very irregular surface with many little cavities. Only one of the fragments showed any evidence of design, this being four vaguely impressed parallel lines, spaced at approximately 0.15 inch (Figure 22h). Another sherd featured a round, knob-like lug, which rises 0.2 inch from the interior surface of the vessel and was 0.4 inch in diameter. A fragment of a split stem of a pipe elbow was also found with this pottery.

The majority of scattered undecorated body sherds were found in the occupation debris of Feature I, for the most part at a depth between 6 inches and 1.5 feet. The presence of ceramic vessels within the fort likely relates to their use by visiting Wendat, perhaps to pick up their corn or acorn rations.

Pipes

Three ceramic pipe fragments were also found, two relatively close to one another 10 inches south of Feature I. One of these was a 1.1 inch length of pipe elbow found at a depth of 8 inches in Unit 500 E 482 in heavily mottled yellow–brown sand. It was a light grey–brown colour and had a bore diameter that varied from 0.46 to 0.22 inch. The maximum diameter of the piece itself was 0.73 inch. The surface finish was smooth, and there appeared to be little tempering present. The design on the cylinder was a slowly revolving spiral ridge that moves toward the bowl in a clockwise direction, perhaps executed by twisting the pipe stem while the clay was still wet. Another pipe elbow fragment was found nearby at a slightly higher level, perhaps 1.5 feet to the southeast. It was found near the bottom of the sandy topsoil horizon along with various pieces of occupation debris. The stem fragment was 1.12 inches long, with a diameter of 0.58 inch. Since it was found split, the bore was exposed, having a diameter of 0.2 inch. The whole piece had a slight upward curve, such as might be found near the elbow. As was mentioned above, a fragment of split pipe stem was found with a group of pottery fragments in Unit 527 E 450, at a depth of 4 inches. Made from grey–brown clay, this fragment had a maximum length of 1.5 inches and a diameter of 0.47 inch. The bore, with a diameter of 0.25 inch, was quite regular, and vague striations could be discerned inside. The curve of the piece suggests it, too, may have been an elbow fragment.

The discovery of these pieces outside building remains suggests their use was confined to the open area and related to an Aboriginal habit alone. It is not inconceivable, however, that having long ago run out of French smoking apparatus, the European inhabitants of the fort may also have used Aboriginal pipes and tobacco.

Bone Material

In general, very little evidence of food debris was found on the site.

Two mammalian scapulae were excavated, one, the larger of the two, from the upper level of Unit 500 E 504 in Feature I. The smaller one was also from Feature I, between Levels 1 and 2, just south of the construction trench in Unit 498 E 490, at a depth of 7 inches.

Ragueneau's account (Thwaites 1896-1901, 35:27) records that they transported the following livestock from Sainte Marie I: 10 fowl, a pair of swine, 2 bulls, and 2 cows; perhaps the scapulae were from two of those animals. Although slightly different in size, they were similar in form and were likely of the same species.

With the exception of a small, unidentifiable fragment of bone in 500 E 498, all of the remaining bone material was found in the 10-foot-square Unit 500 E 480, to the south of Feature I, largely in the upper six inches. A group of 30 burned bone fragments was found in the dark grey to black mottled sand in the western part of 500 E 480 (2 foot by 10 foot), at a depth of 5 inches. The rest was scattered randomly throughout the disturbed soil. All of the fragments were small and unidentifiable.

It should be noted that no human remains were discovered. Human remains were, however, placed at the north end of the trench by Beausoleil First Nation some years after the excavation, upon the discovery of burials during house construction on the island.

Miscellaneous

Two hunks of yellowish white pure lime were uncovered in Unit 500 E 500, between Levels 2 and 3. This material was likely extracted from limestone by the French for use in the mortar for stonework. This could have been made either on the island or at Sainte Marie I.

The scattered presence of three hardened blobs of bronze likely represents separate articles that were melted by the fire. They were similar to nuggets that were found at Sainte Marie I (Kidd 1949:131). A spectrographic and chemical analysis was carried out on these three objects by the laboratories at Canada Metals, Toronto, Ontario, to determine the composition of the material. They were bronze alloys containing varying quantities of copper (approximately 75–85%), tin (variable), lead (approximately 5%), and zinc (approximately 5–15%). The variation among the three samples is further indication of differing origins.

Conclusions

Definite conclusions regarding the nature and extent of the features at the site are premature at this time; more extensive excavation is required to define their nature and extent. There is evidence to suggest, however, the former presence of portions of one, possibly two, structures within the trench. There is also clear evidence of alteration of the landscape, likely for levelling and well construction as well as for the creation of a refuse deposit. The preservation of features appears to be sufficient to conclude that further excavation would be both feasible and potentially beneficial.

Except for the serious oxidation of iron artifacts due to the high moisture content of the soil, the preservation of artifactual material was good, and a comprehensive range of items was recovered. These included a French coin, vintage 1640, similar to one recovered from Sainte Marie I, and other European material culture similar to that recovered from Sainte Marie I (e.g., nails, spikes, copper, and glass beads). A variety of Aboriginal items was also recovered.

Recommendations

(1) The site of Sainte Marie II, representing a vital piece of Ontario and Canadian history, should be excavated, especially in view of the condition of structural and artifactual evidence.

(2) Before further excavation of the site takes place, it should be trenched or tiled to lower the water table, which in many cases prevents the complete investigation of the occupation level.

(3) The site should also be divested completely of poison ivy for the safety and comfort of the field crew.

(4) Full consultation with Beausoleil Island First Nation should be undertaken to facilitate such investigations, and quarters or living arrangements, including limited laboratory facilities for cataloguing and sorting, should established on the island for the future field crews; yet few restrictions should be imposed on the excavators as regards the limits of excavation and the accessibility of the artifacts in order to derive the maximum benefit of undertaking the investigation.

(5) The first task of future investigators should be to complete the excavations of Features I to IV.

(6) A complete comparative analysis of all artifacts should be undertaken when the sample is complete.

Acknowledgements. As is so often the case, many people offered their time and assistance during the field excavation and the preparation of the report. Mention must certainly be made of the hospitality, co-operation, and interest of the residents of Christian Island, both during and after the excavation. To the W.H. Cranstons, the J. Sloans, the Dr. B. Boyds, the W.W. Jurys and Mr. A. Durieu, I owe a debt of gratitude for lodging during my stay in Penetang. The efficiency and workmanship of the field crew, consisting of D. Boyd, J. Cranston, Wallace Jamieson, Bud King, Lionel Monaque, R. Packer, W. Ramey, and J. Sutherland, was excellent and greatly appreciated. To Mr. W.R. Carruthers for artifact photography and Mr. D.F. Hutton of Canada Metal, for non-ferrous Analyses, I am deeply in debt. Thanks are also due to the Ontario Historic Sites and Monuments Board for financial assistance and the Ste. Marie I Restoration Project for the use of part of their crew. Gratitude is also extended to Dr. W.W. Jury, who provided the motivation and guidance for the excavation.

From Grey to Print editor's notes. I thank Andrea Carnevale and David Robertson for their assistance with the figures and Nicole Aszalos for locating all of the original excavation notes and files at the Museum of Ontario Archaeology. In 1987, the Museum of Ontario Archaeology carried out excavations of 190 one-metre squares in and adjacent to the fort as part of an archaeological management plan of the Christian Island Indian Reserve, with the approval of Beausoleil First Nation Band Council. As was the case in 1965, evidence was found of charred wooden planks in the fort. The 1987 excavations

also recovered a similar assemblage of material culture.

Attached to the original report was a complete artifact catalogue for all the material from the 1965 preliminary excavations at Sainte Marie II. Due to space constraints, it is not reproduced here. The catalogue is available on request from the author or from the Museum of Ontario Archaeology. The following table summarises the catalogue.

The Catalogue numbers on the artifacts were composed of three elements, as shown in the following example:

(1) M II - this is a code designation for the site "Sainte Marie II"

(2) 65 - this refers to the year in which the artifacts were recovered

w(3) 157 - this is a list number given to the artifact in chronological sequence as it was catalogued

The complete number therefore is M II 65 157.

Included in the catalogue are proveniences, date of discovery, and cursory descriptions of the artifacts. The catalogue has been partially revised since the original cataloguing took place.

Table 1. *Artifact Catalogue by Provenience*

Provenience	Artifact	Frequency
494E490	Bead, round, red	1
	Nails, complete	11
	Nails, fragments	12
	Copper, fragments	7
	Misc. metal	1
	Fused material	2
	Total	34
496E490	Nails, complete	4
	Nails, fragments	7
	Bronze, fragments	1
	Misc. metal	2
	Fused material	2
	Total	16
498E490	Bead, cylindrical tube, red	1
	Nails, complete	10
	Nails, fragments	6
	Tack	1
	Copper, fragments	1
	Misc. metal	2
	Fused material	5
	Bone	1
	Total	27
500E415	Beads, round, red	1
	Nails, complete	1
	Nails, fragments	3
	Spike	1
	Misc metal	1
	Ceramic	73
	Total	80
500E418	Bead, round, red	1
	Nails, complete	
	Nails, complete	3
	Nails, fragments	2
	Spike	1
	Bronze, melted	1
	Crystal	2
	Total	10
500E420	Bead, round, red	2
	Nails, complete	1
	Bronze	1
	Misc. metal	4
	Total	8
500E440	Glass, bottle	1
	Fused material	5
	Total	6

Provenience	Artifact	Frequency
500E443	Nails, complete	1
	Glass, bottle	1
	Total	2
500E446	Glass, bottle	1
	Total	1
500E448	Misc. metal	3
	Fused material	2
	Total	5
500E450	Nails, complete	1
	Lock	1
	Crystal	1
	Total	3
500E452	Nail, complete	1
	Nail, fragment	1
	Fused material	4
	Coin, Louis XIII, 1640	1
	Total	7
500E455	Nail, complete	1
	Misc. metal	1
	Fused material	1
	Total	3
500E457	Nail, complete	1
	Bronze	1
	Total	2
500E460	Spike	1
	Chain-21 links	1
	Total	2
500E470	Beads, round, red	1
	Nails, complete	1
	Nails, fragments	4
	Fused material	1
	Total	7
500E472	Bead, round, blue	1
	Copper	1
	Misc. metal	4
	Fused material	1
	Ceramic, European	1
	Total	8

Provenience	Artifact	Frequency
500E488	Nail, complete	10
	Nail, fragment	9
	Misc. metal	2
	Copper	1
	Ceramics	1
	Fused material	47
	Bone	1
	Total	71
500E490	Bead, round, red	1
	Nail, complete	13
	Nail, fragment	13
	Misc Metal	3
	Fused Material	87
	Total	117
500E492	Bead, round, red	4
	Nail, complete	16
	Nail, fragment	8
	Misc. metal	22
	Copper	1
	Bronze, melted	1
	Fused material	205
	Total	257
500E494	Bead, disc, white	1
	Nail, complete	23
	Nail, fragment	17
	Copper	2
	Misc. metal	11
	Ceramics, European	1
	Fused material	324
	Crystal	2
	Total	381
500E496	Nail, complete	11
	Nail, fragment	20
	Spikes	3
	Iron rings, fused	2
	Misc metal	12
	Ceramics	3
	Fused material	176
	Total	227

Provenience	Artifact	Frequency
500E498	Bead, red	4
	Nail, complete	19
	Nail, fragment	13
	Copper	4
	Misc. metal	7
	Ceramics	42
	Bone	1
	Fused material	106
	Total	196

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Le site Sainte Marie II, situé sur l'île Christian, a été le théâtre du dernier chapitre de l'histoire de l'occupation française et Wendat dans la ville historique de Wendake dans le centre sud de l'Ontario. Cette communication présente les premières fouilles détaillées entreprises au site. Abandonné en 1651, le fort n'a pas été relocalisé ni documenté qu'avant le milieu du XIXe siècle, menant ainsi à l'installation d'une plaque par le gouvernement fédéral en 1923. Les fouilles ont été entreprises à l'été 1965 par Wilfrid Jury et Peter Carruthers et elles ont été parrainées par la Commission des lieux et monuments historiques de l'Ontario (Ontario Historic Sites and Monuments Board). L'objectif du projet était de déterminer la faisabilité d'effectuer des fouilles plus approfondies avec une vision future de reconstruction et d'interprétation du site. Ce travail a été parmi les premiers en Ontario conçu en consultation sérieuse avec une Première Nation. La Première Nation Beausoleil a autorisé les fouilles à condition qu'elles soient réalisées, en partie, par des membres de leur bande, qu'elles soient confinées à une épreuve simple de fouille en tranchée à l'intérieur des murs de l'enceinte et que l'assemblage d'artéfacts récupéré demeure sur l'île et soit en leur possession de Première Nation. Les vestiges d'au moins une structure ont été rencontrés ainsi qu'un dépôt d'ordures et une preuve de paysage perturbé. Une gamme complète d'artéfacts européens et autochtones a été récupérée, y compris une pièce de monnaie française de 1640, semblable à une pièce retrouvée au site Sainte Marie I. Comme cet assemblage a finalement été détruit par le feu, ce document représente la seule trace de leur ancienne présence sur le site.

Peter J. Carruthers, 1966