THE BARRIE SITE: A PIONEERING IROQUOIAN VILLAGE LOCATED IN SIMCOE COUNTY, ONTARIO

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The Barrie site (BcGw-18) is one of a very small group of sites located in Simcoe County which represent the only known Uren substage Middle Iroquoian village sites located north of the Oak Ridges Moraine in all of southcentral Ontario. The site was partially excavated from 1991 to 1993 as part of the author's doctoral dissertation research on Iroquoian migration patterns. The earliest Iroquoian village sites in Simcoe County date to the Middle Iroquoian period, and were established as the result of a rapid migration from south of the Oak Ridges Moraine. As one of the earliest known Iroquoian villages in the region, the Barrie site offers a unique opportunity to examine the adaptations made by pioneering slash and burn horticulturalists. The following article provides a detailed analysis of the site's settlement patterns and artifact assemblage. It also examines the local and regional context of the Barrie site, the possible source area for the migrants, and the structural conditions which may have caused the colonization of this region in the first place.

INTRODUCTION

Unlike many other regions in southern Ontario where there is clear evidence of in situ development from the Early Iroquoian (ca. A.D. 900-1280) through to the Middle and Late Iroquoian periods (ca. A.D. 1280-1650), Simcoe County was not permanently occupied by Iroquoian groups until the late thirteenth or early fourteenth century It is only in the Middle Iroquoian period that we see the appearance and proliferation of Iroquoian villages in this region. Recent research clearly indicates that the Middle Iroquoian occupation of Simcoe County was the result of a migration into the region (Sutton 1996). Until recently, the Barrie site was the only confirmed Uren substage (ca. A.D. 1280-1330) village site located north of the Oak Ridges Moraine in Simcoe County. In order to determine how the initial Iroquoian migrants adapted to this region, excavations were carried out at the Barrie site between 1991 and 1993. The results of the excavation were partially incorporated into the author's doctoral dissertation on Iroquoian migration patterns (Sutton 1996). Although the objectives of the excavations were primarily research oriented, they took on the form of a salvage excavation because of plans to develop a portion of the site for residential use.

The Barrie site (BcGw-18) is located in the City of Barrie, in Simcoe County, Ontario. The site was first reported by Andrew Hunter (1907) as Vespra Site #41 during his exhaustive survey of the archaeological resources of Simcoe County In 1958, Frank Ridley published an article in *Ontario Archaeology* entitled "The Boys and Barrie Sites", in which he described the results of his test excavations at both of these sites (Ridley 1958). Ridley identified the Barrie site as a Uren substage village site, based on the comparative analysis of rim sherd assemblages, and recognized the continuity in material culture between the Barrie site and both the earlier Early Iroquoian period and the subsequent Middleport substage of the Middle Iroquoian period (Ridley 1958:20). In 1976, J. Hunter (1977) conducted limited test excavations at the Barrie site as a part of his archaeological resource assessment of the Barrie area.

SITE LOCATION AND LOCAL ENVIRONMENT

The Barrie site is located on the extreme southern margins of a large upland area

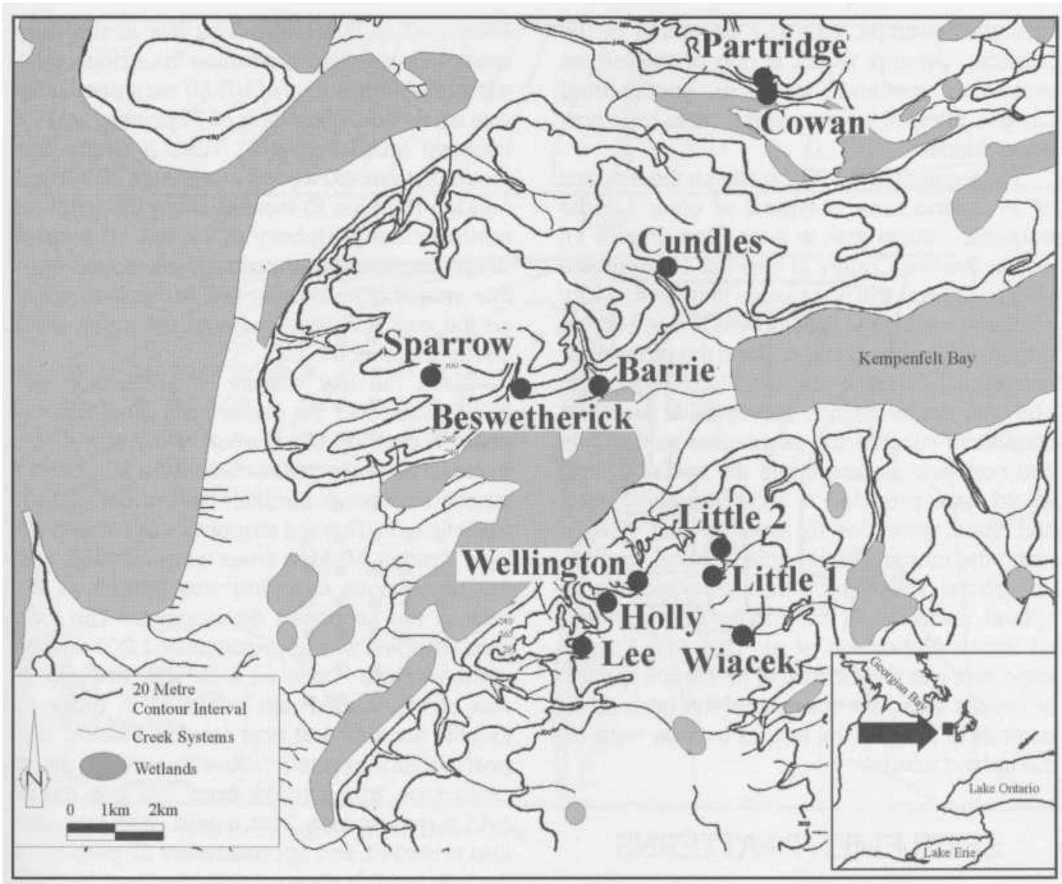

Figure 1. The Location of the Barrie Site and Other Middle Iroquoian **Villages in the Region.**

associated with the Simcoe Uplands physiographic region (Figure 1). The Simcoe Uplands consist of a series of broad rolling till plains which were islands in glacial Lake Algonquin (Chapman and Putman 1984:182). The upland till plains stand 60 m above the adjoining lowland lake plains. The upland areas are encircled by a series of bluffs, terraces and minor beaches which form steps down the hillsides. The numerous terraces and shorelines were created by the rising and falling water levels of several successional glacial lakes which existed between 10,000 and 2,500 B.C. The Barrie site is situated on one of the lower sandy loam terraces near the base of the upland area, at an elevation of 245 m above sea level. The site straddles Dyments Creek, which issues as a spring just north of the site from the upland area. The upland till plains have a gently rolling topography and are dotted in a few places by small swampy depressions. However, the sandy soils of the uplands are so well drained that streams are rare on the crowns of the uplands (Chapman and Putnam 1984:182). The main source of water on the uplands are the numerous springs which issue from part way down the upland slopes and feed the permanent lowland streams. The dominant soils of the uplands are well drained sandy loamy and loamy sands with a low moisture holding capacity and relatively low to moderate natural fertility (Hoffman et in. 1962).

The terrace occupied by the site is situated only 25 m above the floor of a wide, flat-bottomed valley which is a part of the Simcoe Lowlands physiographic region. The Simcoe Lowlands consist of a series of steep sided, flat-floored valleys and were flooded by glacial Lake Algonquin (Chapman and Putnam 1984:176). The lowlands south of the site contain large clay plains of poorly to imperfectly drained soils, which supported large bogs and extensive swamps. With the exception of the Minesing Swamp, which is one of the largest remaining wetland areas in southcentral Ontario, many of these swampy areas have now been drained.

The location of the Barrie site on the margins of an upland area is typical of other Middle Iroquoian village sites in the region (Figure 1), and in Simcoe County in general. Heidenreich (1971:111) was the first to note that the majority of village sites in the region were located on the edges of the upland areas, along the terraces or recessional shorelines of glacial Lake Algonquin. The well drained sandy soil uplands provided conditions suitable for permanent settlements and corn horticulture, while the lowland areas would have provided a wide variety of floral and faunal resources. By situating their villages along the margins of the upland areas, Iroquoian groups would have had easy access to upland, lowland and intermediate environmental zones (Robertson et al. 1995:41). Equally important was the location of numerous springs or creeks along the margins of the uplands, in contrast to the general lack of surface water in the upland interior.

SETTLEMENT PATTERNS

In 1991, 22 one metre square test units were excavated in five discrete areas of the Barrie site in order to determine the site's integrity and information potential. The test excavation confirmed that the site was still relatively intact, and contained recognizable settlement patterns and undisturbed midden areas. More extensive excavations were carried out at the site over a four month period in the summer of 1992. Due to extremely shallow topsoil deposits across the eastern section of the site, it was determined that the site could not be ploughed and subjected to a controlled surface collection. Instead, a series of 78 one metre square test units was excavated at five metre intervals across the suspected site area on the east half of Dyments Creek in order to determine the size of the settlement, and to identify potential mid-den areas. Shovel test pitting at five metre intervals on the west side of Dyments Creek immediately opposite the known area of the site, revealed that it also extended into this area. A series of 50 cm square test units was then excavated at five metre intervals in the area west of the creek to determine the extent of the site in this area. A total of 101 50 cm square units was excavated, consisting of 74 positive and 27 negative units (Figure 2). Also, a single one metre unit was excavated in a plough-disturbed midden (Midden E) located along the extreme northwestern periphery of the site. The small diagnostic artifact assemblage recovered from this area suggested that the occupation areas on the east and west sides of the creek were contemporaneous.

Given the low density of artifacts in the ploughzone over the eastern site area, and the plans to develop this portion of the site, it was decided that select areas would be stripped of topsoil in order to facilitate settlement pattern identification. This soil stripping was carried out by a Gradall. Midden areas were avoided, and the ploughzone stripping was limited to the area of the proposed development. The total area stripped was approximately 1,200 square metres in size. Once an area was stripped, it was shovel shined and trowelled in order to identify features and post moulds. Feature and post mould locations were recorded using cross tape triangulation from two five metre grid stake corners. Post mould diameter was also recorded, and approximately 35 percent of the post moulds were sectioned to confirm their identification as posts and to measure their depths and angles. All feature plans and profiles were measured, mapped and photographed. All precontact and historic feature fill was screened through 6 mm mesh. Flotation samples were taken from a representative sample of the precontact features (38 percent), support posts and undisturbed midden areas. A total of 751 litres of soil was gathered for flotation. Flotation was carried out on site, utilizing the two bucket method. The heavy fraction from the flotation was screened through 3 mm mesh while the light fraction was gathered from a series of fine mesh screens (.8-.425 mm).

In 1993, some additional salvage excavation was carried out at the site in advance of construction activities associated with the expansion of the Dyments Creek culvert. This resulted in the excavation of 10 one metre square test units and the mechanized stripping of a 175 square metre area just east of Dyments Creek. Overall, 152 one metre square units and 101 50 cm square units were hand excavated at the site

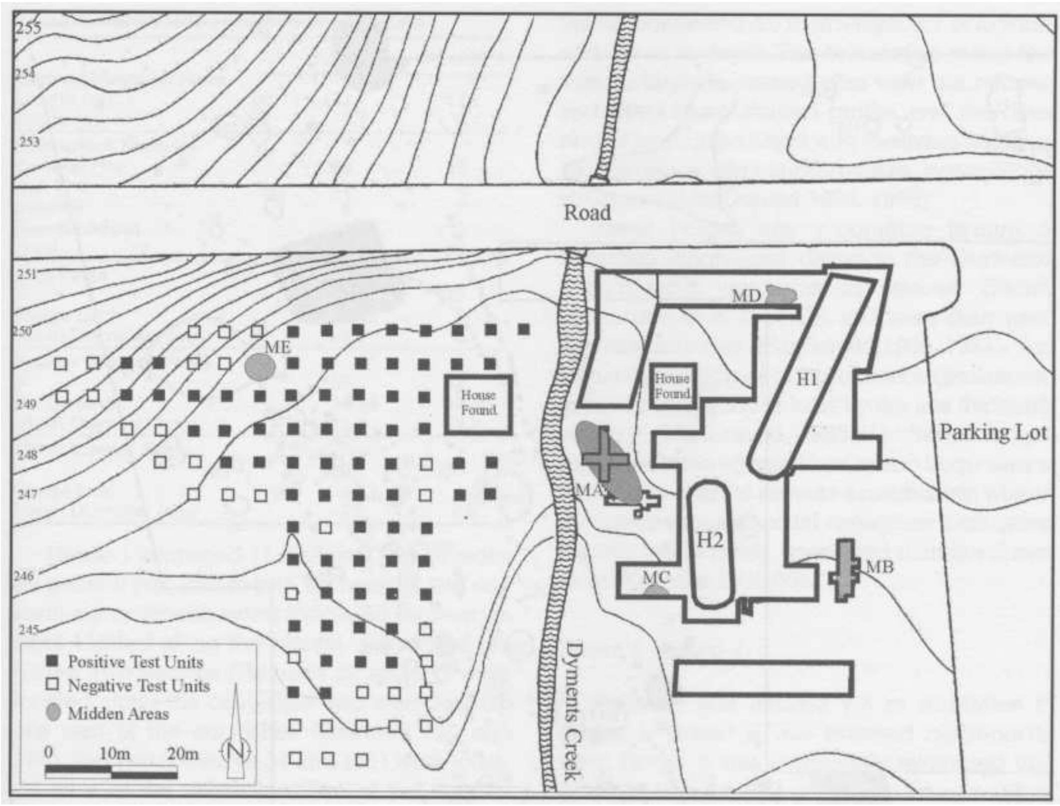

Figure 2. 1991-1993 Excavations at the Barrie Site.

between 1991 and 1993.A total of 1,375 square metres was excavated with the aid of heavy machinery. The results of 1991-1993 excavations, combined with the results of previous investigations, indicate that the original size of the site was approximately .8-.9 hectares. It appears that Dyments Creek runs north-south through the middle of the site. Approximately .5-.6 hectares of the site is located east of the creek, while another .3 hectares is located west of the creek. The total area excavated represents approximately 17 percent of the estimated original site area. Urban development in the form of road, residential and commercial construction, has destroyed or rendered inaccessible a .3 ha area, or 30 percent of the original site area.

The identification of settlement patterns at the site was hampered by the leaching of organic material through the fine sandy soils, and disturbance caused by intermittent late nineteenth and twentieth century occupations of the site area. Nonetheless, at least two longhouses and four midden areas were identified within the areas of the site which were investigated on the east side of Dyments Creek. There was no indication that the village was enclosed by a palisade. The lack of a palisade, the different orientation of the longhouses, and their association with large open areas, is typical of many of the Middle and early Late Iroquoian villages which have been excavated in this region. The less structured placement of the long-houses on many of the precontact sites which have been excavated in this region indicates a lack of concern for defence, and freedom from the spatial restrictions which are imposed by placing a palisade around a village.

House 1 (Figure 3)

House 1 is the longest of the two houses and is oriented to the northeast. The extreme northern end of the house extends under the road which crosses this section of the site. The maximum length of House 1 was at least 32.2 m (Table 1). However, a single line of posts representing a north end wall indicates that the original length of the house was 25.7 m. The house

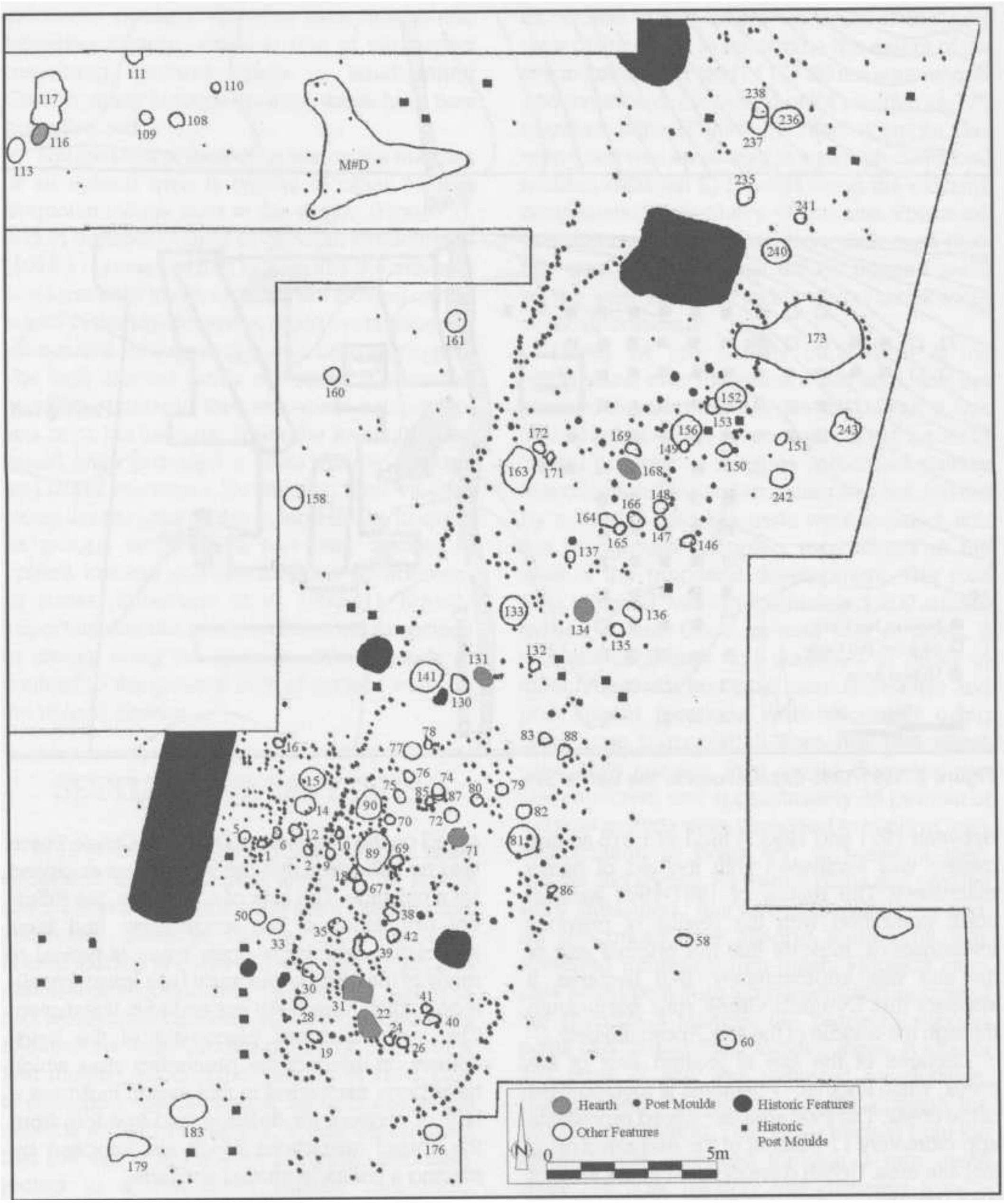

Figure 3. House 1 at the Barrie Site.

had a maximum width of 6.7 metres. The house walls were formed largely by a single row of posts, although some small sections contained paired posts. The east wall of the house was poorly defined and it is therefore difficult to identify entrance *ways*. One clear entrance way with a width of two metres was located on the south end of the house. Over 350 posts were recorded in the interior of House 1. The posts are spread throughout the central corridor and bunkline areas of the house. There is a much higher density of posts in the southern end of the house than in its northern end. The distribution of support posts suggests that there may have been a bunkline measuring 1.7 m in width along the central section of the east wall.

Table 1. Barrie Site Longhouse Statistics.

	HOUSE 1	HOUSE 2
General Measurements		
Length (m)	+32.2	17.6
Width (m)	6.7	6.1
Subsurface Features		
General Pits	39	29
Ash Pits	25	4
Hearths	6	2
Sweat Lodges	1	1
Total	71	36
Wall Posts		
n	**233**	175
Range (cm)	5-13	5-12
Mean Diameter (cm)	8.2	8.1
Interior Support Posts		
n	36	42
Range (cm)	14-28	14-30
Mean Diameter (cm)	21.1	19.2
Other Interior Posts		
n	331	210
Range (cm)	4-13	4-13
Mean Diameter (cm)	7.1	7.6

House 1 contained 71 features. This includes 39 general pits, 25 ash pits, six hearths and one semi-subterranean sweat lodge. All six hearths were located along the central corridor of the house. Two hearths (Features 22 and 71) were located along the centerline, two were located just east of the centerline (Features 134 and 168), and two (Features 31 and 131) were located west of the centerline. Two of the hearths (Features 22 and 31) were clustered together at the south end of the house. The other hearths were separated by distances of 3 to 3.6 m. The features within House 1 were distributed across the central corridor and possible bunkline areas. There was a higher concentration of features and posts in the southern section of the house, particularly along the west wall. The concentration of features and posts extends to the west outside of House 1. This concentration of features and posts may indicate the presence of a third longhouse on the site, which overlaps the south end of House 1. Alternatively, they may represent the location of an outside activity area which may predate or postdate House 1. Unfortunately, the presence of a large historic feature to the west of House 1 precluded further investigation of this area. Consequently, in the absence of more definitive settlement pattern data, the resolution of these questions is not possible.

One semi-subterranean sweat lodge (Feature 171) was located along the east wall of the house, just inside its original north end. The structure was appended to the east wall with its interior ramped entrance way facing west. This feature measured 3.5 m in length, 2.1 m in width and 1.9 m in depth. The orientation of this feature, its keyhole-shaped plan view, the ramped and deep basin shaped profile, and the outer ring of posts associated with the living floor, are all typical of semi-subterranean sweat lodge structures (MacDonald 1988, 1992).

Sweat lodges are a common feature of Iroquoian longhouses dating to the fourteenth and fifteenth centuries in Simcoe County (Robertson et al. 1995:46), and were likely used for ritual activities (MacDonald 1988, 1992). This feature type appears in the archaeological record in southern Ontario at least by the late thirteenth century (MacDonald 1988:21). Sweat lodges may have been adopted by Ontario Iroquoians at this time in order to provide a mechanism where-by unrelated males could strengthen their group identity within newly developed matrilineal systems (Kapches 1995:90).

House 2 (Figure 4)

House 2 was located 7.3 m southwest of House 1. House 2 was oriented north-north-west. House 2 was completely excavated and was 17.6 m in length, with a maximum width of 6.1 m (Table 1). The house walls were formed by a combination of single rowed, paired and clustered posts. The west wall in the northern section of the house was disturbed by a small Euro-Canadian root cellar. Possible entrance ways to the house, ranging in width from .7 to 1.4 m were located on the north end wall, the west side wall and the east side wall. Over 250 posts were recorded in the interior of House 2. The interior posts were concentrated along the central corridor of the house and had a lower density in the southern end of the house. The distribution of support posts suggests that there may have been two bunklines measuring 1.2 to 1.4 m in width along the central section of the east and west walls. A line of posts across the interior of the north end of the house may represent an interior storage cubicle with a width of 2.3 m.

House 2 contained 36 features. This includes 29 general pits, four ash pits, two hearths and one semi-subterranean sweat lodge. One hearth (Feature 197) was located along the central corridor of the house on the centerline. The other hearth (Feature 98) was located near the boundary between the central corridor and

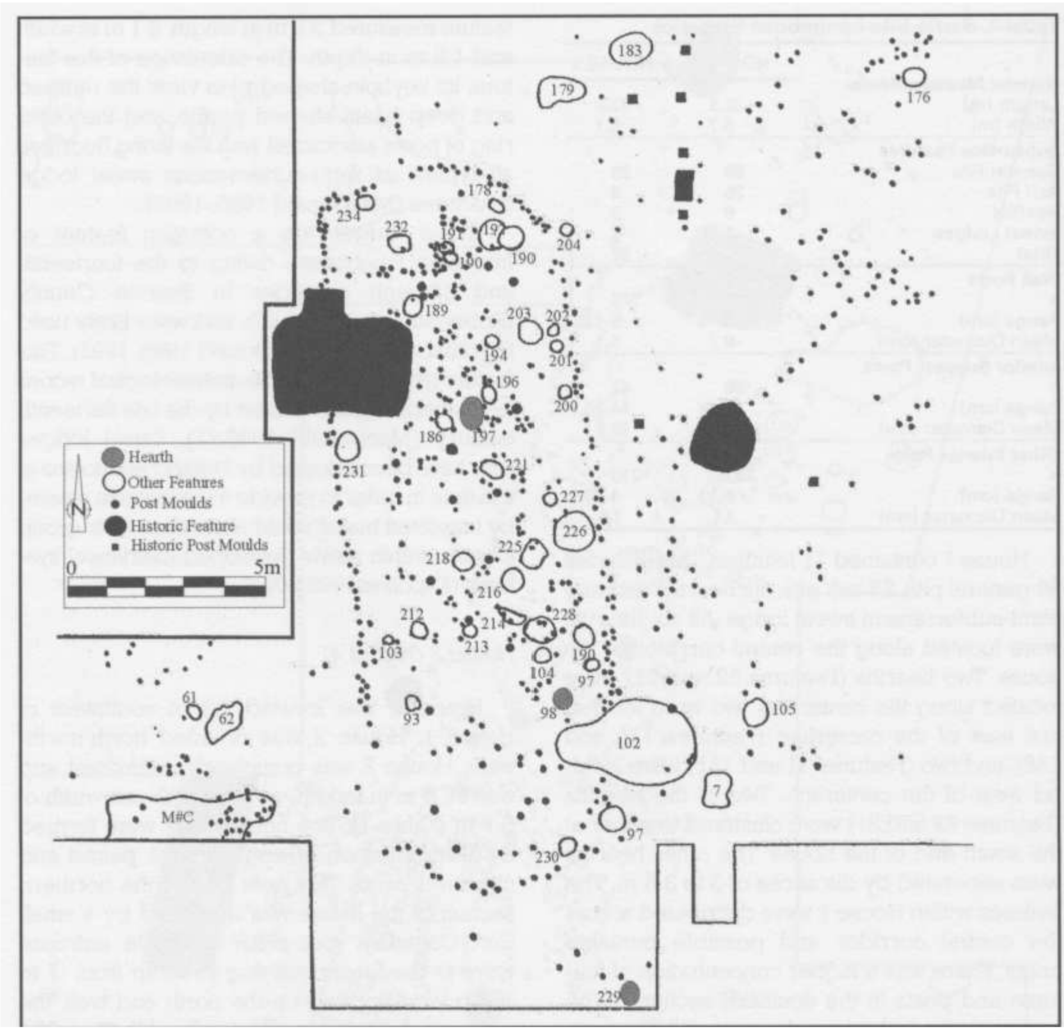

Figure 4. House 2 at the Barrie Site.

bunkline area along the east wall. The two hearths were separated by a distance of 6.8 m. The features within House 2 were distributed throughout the central corridor and bunkline areas. There was a higher concentration of features east of the centerline and an absence of features from the south end of the house. One semi-subterranean sweat lodge (Feature 102) was located along the east wall of House 2 at the south end of the house. The sweat lodge had the same general orientation as the sweat lodge located in House 1. This structure was also appended to the east wall of the house with its ramped entrance way facing west. This feature measured 3.6 min length, 2.1 m in width and .9 m in depth.

Exterior Features

Over 500 post moulds and 47 features were located outside of Houses 1 and 2. These posts and features are only tentatively identified as being located outside of house structures. As will be discussed below, some of them may represent poorly defined longhouses which can only be confirmed by additional excavation. The 47 exterior features include 30 general pits, 15 ash pits and two hearths. One cluster of seven features was located northwest of House 1. This cluster includes one hearth, five ash pits and one general pit. Although very few post moulds were associated with these features, the possibility still exists that they were associated with a longhouse oriented in the same direction as House 1. Another cluster of features was located 4.5 m northwest of House 2. This cluster included nine features separated into two groups by a short line of posts. The feature cluster included six general pits and three ash pits. This was probably the location of some type of outdoor activity area. An irregular line of posts which measured over 20 m in length was located east of House 2 and south of House 1. These posts may have functioned as a fence line between the two houses.

Middens

Five midden areas were identified at the site. Midden A was discovered while excavating one metre test units across the site. It was located along the east bank of Dyments Creek, six metres northwest of House 2. The midden extended over an area measuring approximately 13 m from north to south and four metres from east to west. The southeast portion of this midden was heavily disturbed by the construction of a septic tank drainage bed. A total of 18 one metre units was excavated in Midden A. The western section of the midden was covered by an alluvial clay deposit measuring 20 to 30 cm in depth which was formed by recent flooding of the creek. A plough-disturbed layer approximately 40 cm in depth was located underneath the alluvial layer. Undisturbed midden soils, ranging in depth from 5 to 26 cm were located underneath the ploughzone layer. The undisturbed midden layer consisted of a complex combination of layers and pockets of dark organic material, which were sometimes separated by thin layers of sterile sandy soil.

Midden B was discovered while excavating one metre test units across the site. It was located 15 m east of House 2 and 14 m southeast of House 1, and while its length is not known, it covers an area measuring at least eight metres north to south and three metres east to west. A total of 20 one metre units were excavated in Midden B. This midden was plough-disturbed to a depth of approximately 20 cm. Undisturbed midden soils ranging in depth from one to five centimetres were located below the plough-zone. The midden layer consisted of a dark uniform black organic soil and was created by the placement of refuse in a narrow gully which ran north-south along this section of the site.

Midden C was discovered after the area surrounding it had been stripped of topsoil. It was located in a natural depression, four metres southwest of House 2. This midden measured 3.7 m from east to west. Its north to south dimensions are not known. Midden C was plough-disturbed to a depth of approximately 30 cm. Its undisturbed portion had a maximum depth of 40 centimetres, and was stratified, consisting of three successive layers containing different combinations of dark black organic soil, ash and charcoal.

Midden D was located four metres north-west of House 1 and was identified after the surrounding area had been stripped of topsoil. Originally, this midden appears to have been a deep pit which was gradually filled in with refuse, the deposition of which continued until it overflowed the feature. The deposit was irregular in shape and measured 4.3 m north to south and 3.6 m east to west. Its maximum depth below the stripped topsoil layer was 70 cm. The undisturbed section of the midden was stratified into three layers. The narrow basin shaped bottom of the feature, which was originally the bottom of the deep pit, contained light gray sandy soil. The intermediate level had a wide basin shape profile and contained a mixture of light ash and brown sandy soil. The upper most layer consisted of black dark organic soil.

Midden E was located approximately 35 m west of Dyments Creek, along the extreme northwestern periphery of the site. It was located while excavating 50 cm square test units at five metre intervals across this section of the site. After locating the midden, the 50 cm square unit was expanded into a one metre unit. The excavated section of the midden was completely plough-disturbed, with sterile subsoil located 25 cm beneath the plough-disturbed layer. No other units were excavated in the midden, consequently its precise dimensions are not known.

ARTIFACT ANALYSIS

A total of 18,499 artifacts, not including plant remains, was recovered during the 1991-1993 excavations at the site. Table 2 summarizes this material by artifact class. As with most Iroquoian village sites which have been excavated in this region, the assemblage is dominated by ceramics, followed by faunal remains and a very small sample of lithics.

Table 2. Barrie Site Artifact Frequencies by Class

ARTIFACT CLASS	n	%
CERAMIC VESSELS		
Rim Sherds	861	4.65
Neck Sherds	84	.1
Shoulder Sherds	130	.45
Body Sherds	1892	10.22
Castellations	8	.04
Unanalyzable Sherds	10,837	58.58
CERAMIC PIPES		
Bowls	18	.09
Stems	**3**	.01
LITHICS		
Projectile Points	13	.07
Bifaces	**5**	.02
Scrapers	31	.16
Gravers	17	.09
Wedges	13	.07
Drills	3	.01
Utilized Flakes	90	.48
Cores	50	.27
Debitage	945	5.1
Ground Stone Celts	**5**	.02
Misc. Ground Stone	**4**	.02
Hammerstones	7	.03
Grinding Stones	**3**	.01
Abraders	3	.01
Whetstones	2	.01
Pestles	1	<.01
Netsinkers	1	<.01
COPPER	1	<.01
WORKED BONE	10	.52
FAUNAL REMAINS	3462	18.71
TOTAL	18,499	99.77

Ceramic Vessels

The ceramic assemblage is dominated by small, fragmented and unanalyzable ceramic sherds, followed by analyzable body sherds, rim sherds, shoulder sherds, neck sherds, and a small pipe assemblage. A total of 869 rim sherds and rim sherd fragments was recovered from the site between 1991 and 1993. Of this total, 356 rim sherds were considered to be analyzable in that they had an intact lip, collar, collar base, interior, and at least a portion of the neck. Following the matching of rim sherds from the same vessel, and the exclusion of eight isolated castellations and 24 juvenile vessels, the rim sherd assemblage was reduced to a minimum vessel count of 253. The Ridley (1958) artifact collection from the site, housed at the Huronia Museum in Midland, contains 48 analyzable rim sherds. The Ridley rim sherd assemblage was analyzed by the author and combined with the 1991-1993 assemblage, to bring the total minimum vessel count to 301.

The rim sherd assemblage was analyzed using both individual attributes and traditional typologies. Ceramic assemblages from Iroquoian sites dating to the late thirteenth and early fourteenth centuries exhibit a larger variety of complex design motifs and application techniques than do later Middle and Late Iroquoian sites. As a result, past analyses of the rim sherd assemblages from these sites have tended to rely on individual attribute analysis (Rozel 1979; Wright and Anderson 1969; Wright 1986). Although traditional typological analyses of these assemblages have been conducted in some cases (Wright 1966), the two forms of analyses have often been mutually exclusive. Both approaches are utilized here in order to facilitate future comparative studies. A sample of the rim sherds recovered from the Barrie site are illustrated in Figures 5 to 9.

Table 3 summarizes the relative frequencies for rim form, interior and exterior profile, and for collar, lip, interior, and neck motifs and techniques. The typological analysis of the rim sherds (Table 4) follows the classifications defined by MacNeish (1952). The additional ceramic types defined by Ridley (1958:9-17) for sites dating to this period are not recognized in this study because of inconsistency and a lack of clarity in their definition. Table 5 summarizes the individual attributes associated with each rim sherd type. One additional rim sherd type, Uren Punctate, which was not defined by MacNeish (1952), is used here for the first time. The Uren Punctate type was created in order to recognize the small group of rim sherds in the assemblage that were decorated on the collar exterior with punctate motifs. The attributes for this type are listed in Table 5, and share some similarities with the Goessens Punctate type defined by J.V. Wright (1966:124) for Early Iroquoian sites. Three examples of the Uren Punctate type rim sherds are illustrated in Figure 9 (g-i).

Wright (1966:54) was the first to note that three pottery types dominated what is commonly referred to as the Uren substage of the Middle Ontario Iroquoian period. The Ontario Oblique, Iroquois Linear, and Ontario Horizontal rim sherd types occur in frequencies of 50 percent or more on Uren sites. This pattern has been confirmed by subsequent analyses

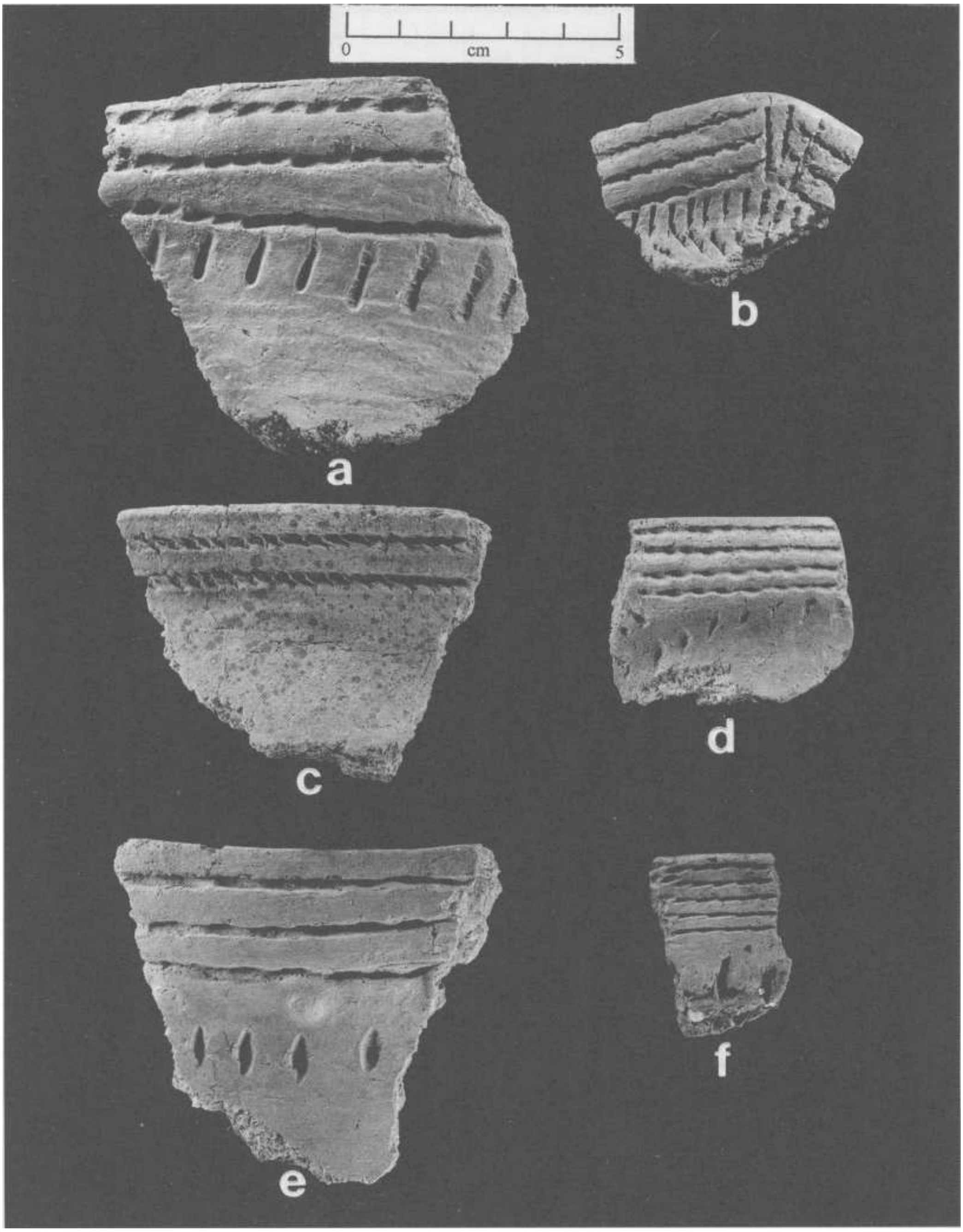

Figure 5. Barrie Site Rim Sherds: Iroquois Linear (a-d, f), Uren Noded (e).

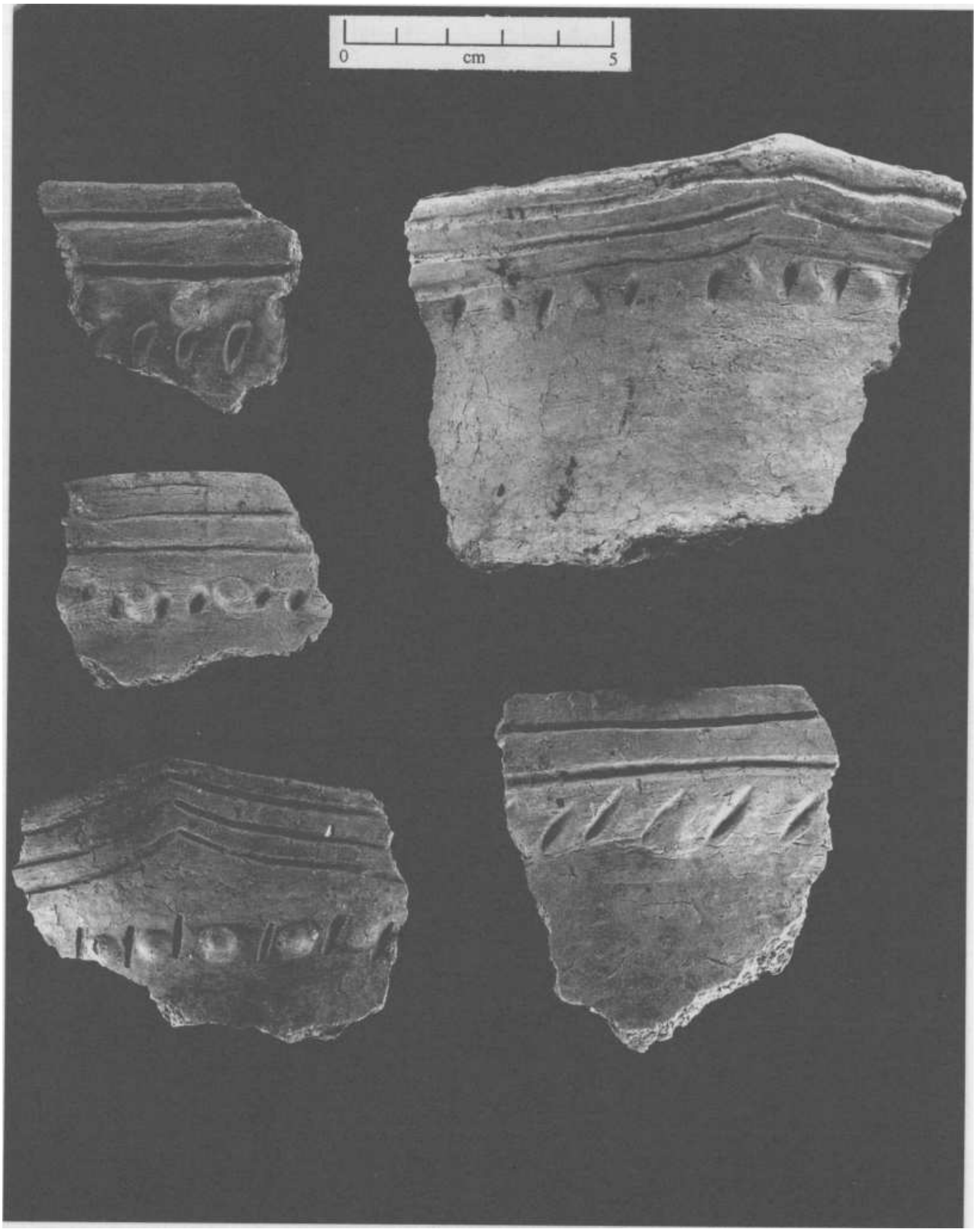

Figure 6. Barrie Site Uren Noded Rim Sherds.

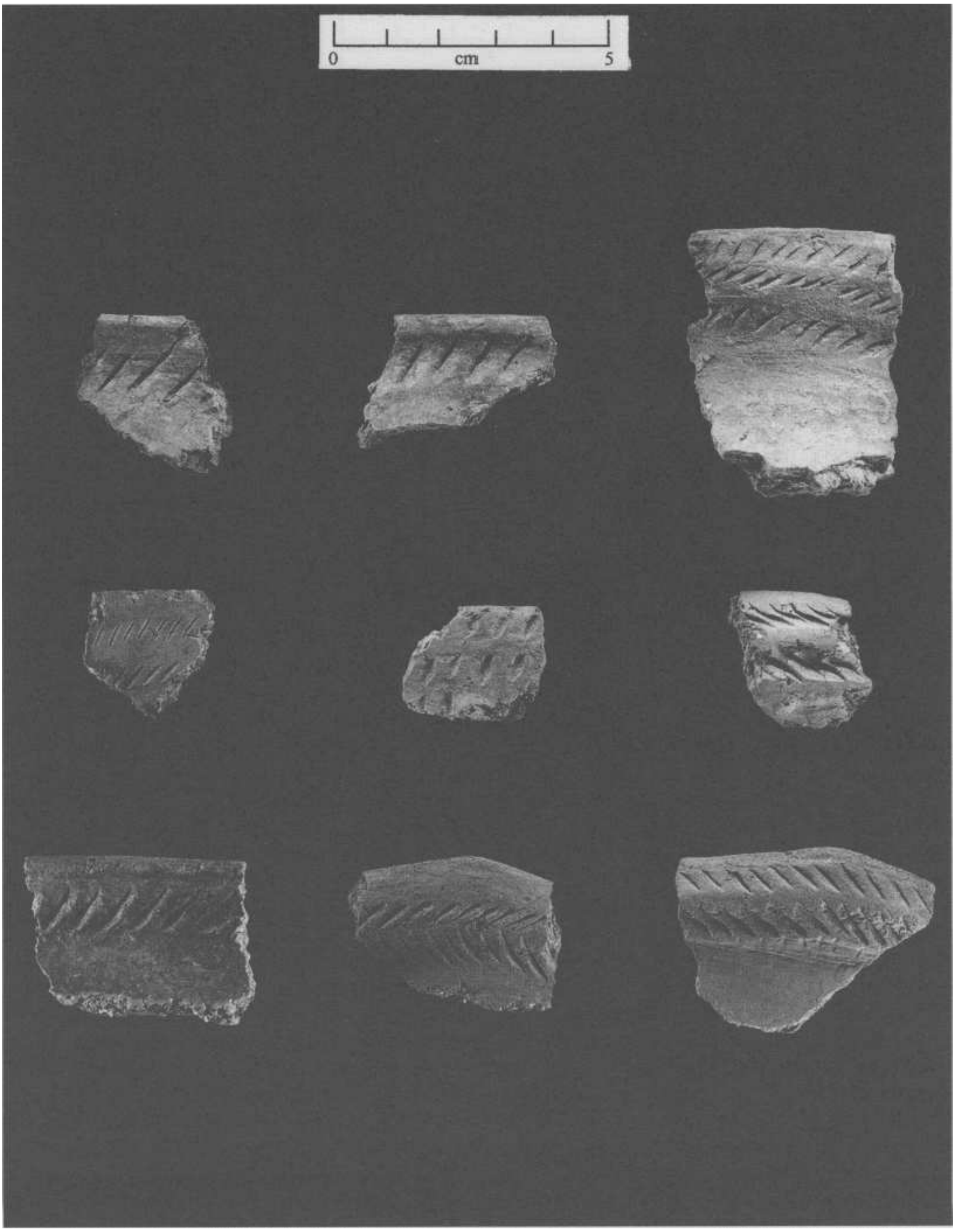

Figure 7. Barrie Site Ontario Oblique Rim Sherds.

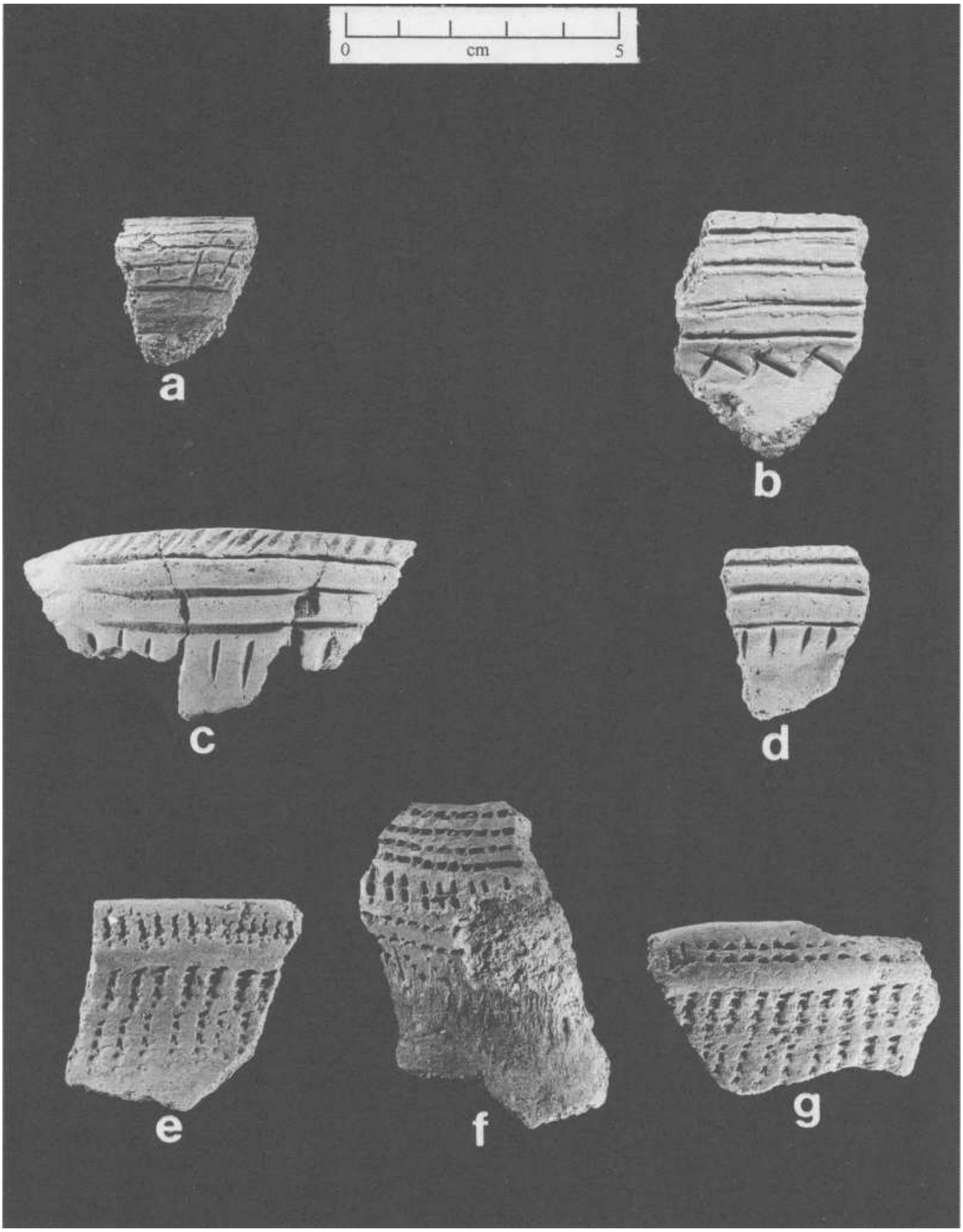

Figure 8. Barrie Site Rim Sherds: Ontario Horizontal (a-d). Uren Dentate (e-g).

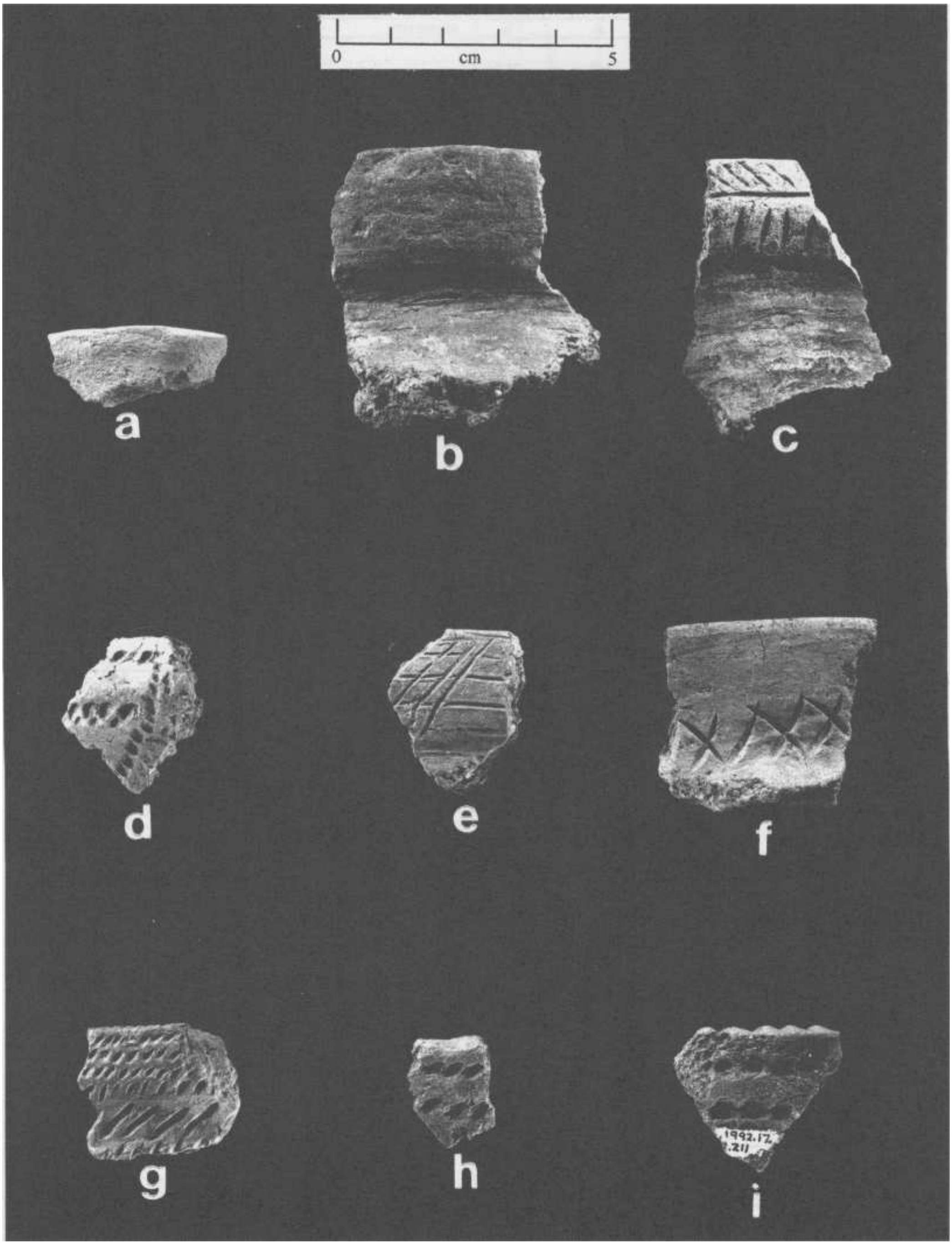

Figure 9. Barrie Site Rim Sherds: Ripley Plain (a), Niagara Collared (b), Middleport Criss-Cross (c), Miscellaneous (d-f), Uren Punctate (g-i).

Table 3. Barrie Site Ceramic Vessels: Individual Attributes and Summary Statistics.

ATTRIBUTE	n	%	ATTRIBUTE	n	%
RIM FORM					
Incipient Collared	146	48.5			
Collared	89	29.6			
Collarless	66	21.9			
INTERIOR PROFILE			**EXTERIOR PROFILE**		
Concave	268	89.0	Convex	210	69.8
Convex	27	9.0	Straight	53	17.6
Straight	6	2.0	Concave	38	12.6
COLLAR MOTIFS			**COLLAR TECHNIQUE**		
Horizontal	149	49.5	Push-Pull	83	27.6
Oblique	39	13.0	Incised	63	20.9
Horizontal/Oblique	20	6.6	Linear Stamped	36	12.0
Oblique/Horizontal	19	6.3	Incised/Linear Stamped	20	6.6
Plain	16	5.3	Plain	16	5.3
Punctate	10	3.3	Push-Pull/Linear Stamped	12	4.0
Oblique/Oblique	10	3.3	Linear Stamped/Incised	13	4.3
Horizontal/Boss	6	2.0	Punctate	10	3.3
Opposed	3	1.0	Linear Stamped/Push-Pull	7	2.3
Obliques/Boss	3	1.0	Push-Pull and Incised	6	2.0
Obliques/Punctate Segregated Boss	2	.7	Push-Pull/Boss	**5**	1.7
Criss-Cross	2	.7	Dentate Stamped	3	1.0
Horizontals/Criss-Cross	2	.7	Incised/Boss	3	1.0
Other	20	6.6	Incised/Punctate Segregated Boss	2	.7
			Cord Stamped	3	1.0
			Dentate Stamped/Push-Pull	2	.7
			Other	17	5.6
LIP MOTIF AND TECHNIQUE			**INTERIOR MOTIF AND TECHNIQUE**		
Plain	126	41.9	Plain	207	68.8
Linear Stamped Obliques	68	22.6	Linear Stamped Obliques	63	20.9
Horizontal Push-Pull	45	15.0	Punctate	15	5.0
Incised Horizontals	18	6.0	Dentate Stamped Obliques	7	2.3
Punctate	14	4.7	Other	9	3.0
Oblique Dentate Stamped	12	4.0			
Cord Stamped Horizontals	**5**	1.7			
Interior Lip Notched	3	1.0			
Other	10	3.3			
			PUNCTATES AND BOSS		
			Punctate Segregated Boss	22	7.3
			Exterior Boss/No Punctate	18	6.0
			Interior Punctate/No Boss	10	3.3
			Exterior Punctate/No Boss	1	.3
			Absent	250	83.1
NECK MOTIF AND TECHNIQUE			**BODY SHERD SURFACE TREATMENT**		
Oblique Linear Stamped	102	33.9	Ribbed Paddle	960	50.7
Plain	95	31.6	Plain	534	28.2
Punctate Segregated Boss	14	4.7	Check Stamped	178	9.4
Oblique Dentate Stamped	12	4.0	Corded	89	4.7
Oblique Linear Stamped/ Oblique Linear Stamped	11	3.7	Scarified	45	2.4
Punctate	9	3.0	Check Stamped and Ribbed Paddle	31	1.6
Incised Horizontal/ Oblique Linear Stamped	9	3.0	Linear Stamped on Corded	24	1.3
Criss-Cross Linear Stamped	4	1.3	Corded and Ribbed Paddle	16	.8
Incised Horizontal	4	1.3	Fabric Impressed	8	.4
Boss	4	1.3	Incised	5	.3
Incised Obliques	3	1.0	Push-Pull	2	.1
Stamped Obliques/Boss	3	1.0			
Other	31	10.3	TOTAL	1892	99.9

'*all totals =301 unless otherwise indicated

Table 4. Barrie Site Rim Sherd Types.

RIM SHERD TYPE	n*	%
Iroquois Linear	110	36.5
Ontario Horizontal	64	21.3
Ontario Oblique	42	14.0
Uren Noded	41	13.6
Uren Punctate	10	3.3
Niagara Collared	7	2.3
Ripley Plain	6	2.0
Uren Dentate	5	1.7
Uren Corded	4	1.3
Middleport Criss-Cross	2	.7
Miscellaneous	10	3.3
Total	301	100.

*includes Ridley (1958) assemblage of 48 analyzable rim sherds

Table 5. Barrie Site Rim Sherd Attributes.

IROQUOIS LINEAR (110)

COLLAR (n)	LIP (n)	INTERIOR (n)	NECK (n)	RIM FORM (n)
push-pull horizontals (76) complex (12) push-pull horiz./obliques (9) obliques/push-pull horizontals (5) push-pull opposed (3) dentate stamped obliques/push-pull horizontals (3) push-pull horiziontals/criss-cross (2)	plain (45) push-pull horizontals(28) obliques (16) punctates (8) dentate stamped obliques (6) horizontal ((3) complex (3) cord impressed horiz. ()	plain (78) obliques (13) horizontal punctates (1) complex (3) dentate stamped obliques (2) obliques/obliques 12) cord impressed obliques ()	obliques 145) plain (37) dentate stamped obliques 110) obliques/obliques (4) push-pull horizontals/ obliques (6) horizontal punctates 14) complex (3) push-pull horizontals/dentate stamped obliques ()	incipient collared (58) collared (38) collarless (14)

ONTARIO HORIZONTAL (64)

COLLAR (n)	LIP In)	INTERIOR (n)	NECK (n)	RIM FORM (n)
horizontals (44) obliques/horizontals 110) horizontals/obliques (8) complex (2)	plain (34) obliques (14) push-pull horizontals (8) horizontals (7) punctates ()	plain (5) obliques (1) dentate stamped obliques () horizontal punctates ()	obliques (24) plain (16) horizontals/obliques (9) obliques/obliques (4) horizontals (3) criss-cross (2) horizontal punctates (2) horizontals/criss-cross () dentate stamped obliques () complex (2)	incipient collared (36) collared 120) collarless (8)

ONTARIO OBLIQUE (42)

COLLAR In)	LIP (n)	INTERIOR (n)	NECK (n)	RIM FORM (n)
obliques (33) obliques/obliques (7) horizontals/obliques () obliques/obliques/push-pull horizontals ()	obliques (22) plain (17) push-pull horizontal (2) horizontal ()	obliques 127) plain (15)	plain (14) obliques (24) obliques/obliques(3) complex ()	collarless (20) incipient collared 112) collared (10)

UREN NODED (41

COLLAR In)	LIP (n)	INTERIOR (n)	NECK (n)	RIM FORM (n)
horizontals (15) push-pull horizontals/boss (5) obliques/obliques(3) push-pull horizontals (3) obliques/boss 13) obliques/push-pull horizontals (2) obliq./punctate segregated boss (2) obliques/horizontals (2) obliques/obliques/boss () push-pull horizontals/ punctate segregated boss 1) dentate stamped obliques () complex 13)	plain (13) complex (8) push-pull horizontal (6) obliques (5) horizontal (3) punctated horizontal (2) interior lip notched () cord impressed horizontal () obliques () dentate stamped obliques ()	plain (30) obliques (8) dentate stamped obliques (1) dentate stamped obliq./push-pull horiz. () criss-cross () '*excludes interior punctates associated with exterior bosses	punctate segregated boss (14) plain 8) boss (4) obliques (4) boss/obliques (2) obliques/boss (3) horizontals/punctate segregated boss (2) punctate segregated boss/obliques (2) complex 12)	incipient collared (20) collared III) collarless (10)

Table 5. Barrie Site Rim Sherd Attributes (continued).

UREN PUNCTATE (10)

COLLAR (n)	LIP (n)	INTERIOR (n)	NECK (n)	RIM FORM (n)
punctated horizontals (9) punctated obliques ()	plain (3) punctated horizontals (3) dentate stamped obliques () obliques (2) horizontal ()	plain (7) obliques (2) dentate stamped obliques ()	plain (5) punctated horizontals (3) obliques (2)	collared (7) incipient collared (3)

NIAGARA COLLARED (7)

COLLAR (n)		LIP In)	NECK In)	RIM FORM (n)
plain (7)	plain (6) obliques ()	plain (7)	plain (6)	collared (5) incipient collared (2)

RIPLEY PLAIN (6)

COLLAR (n)	LIP (n)	INTERIOR (n)	NECK (n)	RIM FORM (n)
plain (6)	plain (4) obliques (2)	plain (6)	plain (6)	collarless (6)

UREN DENTATE (5)

		COLLAR In)	NECK (n)	RIM FORM In)
dentate stamped obliques () dentate stamped horizontal/ dentate stamped obliques (2) dentate stamped obliques/ push-pull horizontal/dentate stamped obliques () complex ()	dentate stamped obliques (3) plain (2) interior lip notched ()	dentate stamped obliques (2) plain (2) dentate stamped obliques/horizontal punctates ()	dentate stamped horizontals () interior lip notched () dentate stamped obliques/ dentate stamped obliques (1) dentate stamped horizontals/ dentate stamped obliques (1) complex ()	collared (3) collarless (2)

UREN CORDED (4)

COLLAR (n)	LIP (n)		INTERIOR (n)	RIM FORM (n)
cord impressed obliques (2) cord impressed horizontals () cord impressed horizontals/horizontals (1)	cord impressed horizontal (3) plain ()	cord impressed obliques () horizontal punctates () plain (2)	plain (2) horizontals/ punctates(1) obliques ()	incipient collared (21 collared () collarless (1)

MIDDLEPORT CRISS-CROSS (2)

COLLAR (n)		LIP (n)	INTERIOR (n)	RIM FORM (n)
stamped criss-cross/horizontal/obliques (1) criss-cross/horizontal (1)7	interior lip notched (2)	plain (2)	plain () obliques ()	incipient collared (2)

(Dodd et al. 1990:332). At the Barrie site, these three types account for 71.8 percent of the rim sherd assemblage. This clearly places the Barrie site within the Uren substage of the Middle Iroquoian period. This period dates from ca. A.D. 1280-1330, based upon the calibration of radiocarbon dates from several Uren substage sites (Dodd et al. 1990:325). Other aspects of the ceramic assemblage from the Barrie site which clearly place it within the Uren substage include the dominance of horizontal exterior collar motifs (49.5 percent), the extensive use of the push-pull decorative technique on exterior collars (27.6 percent), and the use of bossing as a form of secondary decoration (13.6 percent).

A total of 58 analyzable ceramic castellations was also recovered. This number represents 50 castellations associated with analyzable rim sherds and eight isolated castellations. The castellations were identified to type by utilizing the castellation typology established by Emerson (1954) for examining castellation shapes and motifs. The most common castellation shapes are Low Rounded (37.9 percent) and Low Pointed (37.9 percent), followed by High Pointed (13.8 percent), and High Rounded (10.3 percent). The most common motif type is broken or interrupted (37.9 percent), followed by continuous (24.1 percent), oblique (17.2 percent), punctated (1.7 percent) and plain (1.7 percent).

One hundred and twenty four shoulder sherds representing one hundred and sixteen vessels were recovered. Round shoulder forms (n=71, or 58.2 percent) are more common than carinated forms (n=51, or 41.8 percent). The dominant shoulder surface treatment is ribbed paddle (53.4 percent), followed by plain (28.4 percent), decorated (6.0 percent), check stamped (4.3 percent) and corded (4.3 percent). A total of 1,798 analyzable body sherds make up the balance of the assemblage. The dominant body sherd surface treatment is ribbed paddle (50.7 percent), followed by plain (28.2 percent), and small frequencies of a number of other types of surface treatment (Table 3).

Ceramic Pipes

A total of 18 ceramic pipe fragments was recovered from the site, consisting of 14 pipe bowls, three mouthpiece fragments and one stem fragment. Of the 14 pipe bowl fragments, only seven were analyzable. The seven analyzable pipe bowls include three cylindrical shaped bowls, two conical, one barrel, and one which appears to be a fragment of an effigy pipe. Of the three cylindrical pipe bowls, one is plain (Figure 10:e) and two are decorated (Figure 10:a, b). One of the decorated cylindrical bowls exhibits small oblique linear stamps which encircled the exterior of the bowl just below the lip. The other decorated cylindrical pipe bowl has a single row of small punctates on the lip, and incised horizontals above widely spaced obliques on the exterior of the bowl. One of the conical pipe bowls is plain (Figure 10:f) and one is decorated (Figure 10:c). The decorated conical pipe bowl is the only complete pipe bowl recovered, and has a diameter of 23 mm. The lip of the pipe bowl is incised with a single horizontal line. The bowl exterior is decorated with two parallel incised horizontals which encircled the bowl. The single barrel-shaped pipe bowl which was recovered is plain (Figure 10:g). The effigy pipe bowl fragment contains an eye in relief surrounded by a small smooth area (Figure 10:d). This is possibly a small portion of a human or mammal effigy pipe.

All of the pipe stem fragments and pipe mouthpieces are plain, and round in cross section. The one stem fragment which was recovered has a diameter of 10 mm and a smooth bore hole. Of the three mouthpieces, two are tapered and the third has been ground. All three have smooth bore holes and an exterior diameter of 8 to 17 mm.

Lithic Analysis

The lithic assemblage recovered from the 1991-1993 excavations consists of 1,193 artifacts. The assemblage is dominated by 1,167 chipped stone items (97.8 percent), followed by a small variety of ground and rough stone items (Table 2). The chipped stone artifacts include: 90 utilized flakes (7.7 percent), 50 cores (4.3 percent), 31 scrapers (2.7 percent), 17 gravers (1.5 percent), 13 projectile points (1.1 percent), 13 wedges (1.1 percent), five bifaces, three drills and 945 pieces of debitage (81.0 percent). The small size of the Barrie site chipped lithic assemblage (6.4 percent) relative to the entire artifact assemblage, is typical of

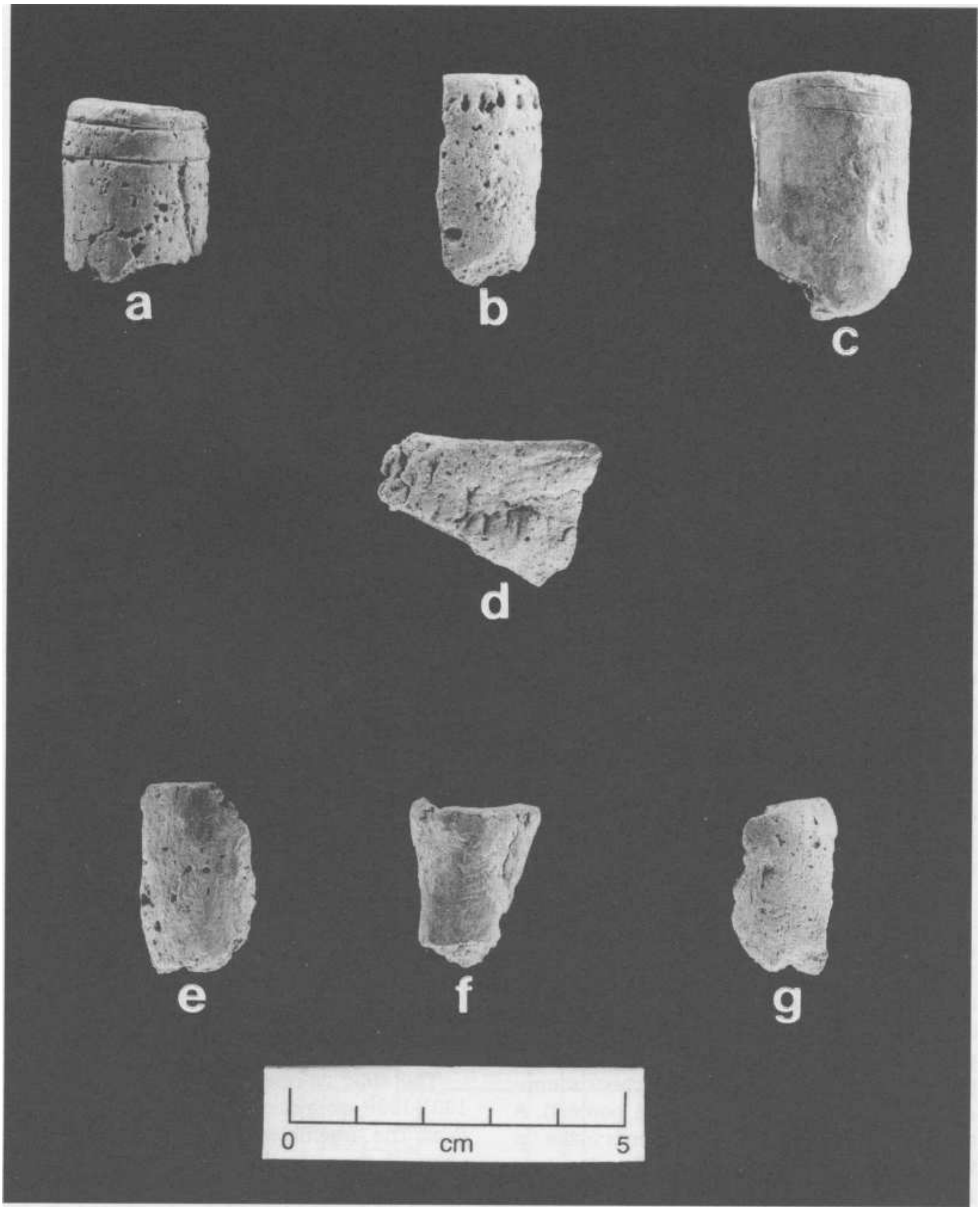

Figure 10. Barrie Site Pipe Bowls: Cylindrical (a, b, e), Conical (c, f), Effigy (d), Barrel (g).

Iroquoian sites in Simcoe County and in south-central Ontario in general. These regions of Ontario lack primary source areas containing high quality cherts. As a result, Middle Iroquoian sites in Simcoe County (Barrie, Wiacek) and in the Toronto area (Elliot, Thompson, New, and Robb), contain very small chipped lithic assemblages in relation to their large ceramic assemblages (Kapches 1981; Lennox et al. 1986). Other Middle Iroquoian sites located closer to high quality chert source areas in the Hamilton area (Gunby, Olmstead), contain much larger chipped lithic assemblages (Rozel 1979; Welsh and Williamson 1994).

The wide variety of chert types found at the Barrie site is also typical of Iroquoian sites in this region (Fox 1979:80; Lennox et aL 1986:76). The majority of the assemblage consists of cherts which were available as small water worn nodules in the local tills, such as Huronian, Balsam Lake and Trent Valley chert, along with quartz, quartzite and chalcedony (Fox 1979:80; Lennox et al. 1986:77). These local cherts account for 63 percent of the Barrie site debitage assemblage. There is also a fairly high incidence of exotic cherts at the site, representing 21.1 percent of the debitage assemblage. Imported cherts such as Onondaga, Kettle Point and Haldimand chert originated from the Niagara Peninsula and southwestern Ontario (Fox 1979). Collingwood chert was obtained from the Bruce Peninsula or the Collingwood area, while Detour chert originated from the north shore of Lake Huron. Locally available cherts, such as Huronian chert, are derived from small nodules which are difficult to work and have a high percentage of inclusions. The preference for higher quality imported cherts can be illustrated by comparing the debitage material types with the utilized and retouched chipped stone tool material types (Tables 6 and 7). In contrast to the debitage assemblage, almost half of the chipped stone tool assemblage consists of imported cherts (48.9 percent).

It is difficult to compare the variety of chert types found at the Barrie site to other Middle Iroquoian sites located elsewhere because of a lack of detailed analyses of the lithic assemblages from most of these sites. As would be expected, Middle Iroquoian sites located close to the source areas for high quality Onondaga chert near Lake Erie contain lithic assemblages which are almost exclusively made from that chert type (Welsh and Williamson 1994:25; Wright 1986:21). Although detailed analyses of the lithic assemblages from Middle Iroquoian sites in the Toronto area are not available, Late Iroquoian lithic assemblages in this region are also heavily dominated by imported Onondaga chert (MacDonald 1998: 83; Poulton 1985:4).

The chipped stone assemblage from the site (Table 6) was analyzed and categorized following the methods and formats outlined by Lennox et. al (1986). The broken flake category is made up of 56.7 percent local cherts and 27.4 percent imported cherts. The primary flakes consist of 58.3 percent local chert specimens,

Table 6. Barrie Site Chipped Lithics: Debitage Material Types.

Material	Primary Decortication	Secondary Decortication	Primary	Broken	Biface Thinning	Secondary	Shatter	n	%
Balsam Lake	3	12	8	19	5	1	38	86	9.1
Chalcedony	-	4	-	5	3	1	6	19	2.0
Collingwood	1	10	4	16	4	1	31	67	7.1
Detour	-	-	-	-	-	-	1	1	.1
Haldimand	-	1	1	-	-	-	2	4	.4
Hudson Bay Lowland	-	-	2	3	1	-	1	7	.7
Huronian	30	27	33	69	30	6	205	400	42.3
Kettle Point	-	-	-	1	1	-	2	4	.4
Onondaga	2	8	22	35	19	6	25	117	12.4
Quartz	-	1	4	4	4	-	10	23	2.4
Quartzite	-	4	4	16	6	-	30	60	6.3
Trent	-	-	-	1	1	-	5	7	.7
Unidentified	1	4	6	32	10	2	95	150	15.9
n	37	71	84	201	84	17	451	945	99.8
%	3.9	1.3	8.9	21.3	8.9	1.8	47.7		

Table 7. Barrie Site Chipped Lithics: Tool Material Types.

Material	Bifaces	Drills	Gravers	Points	Scrapers	Utilized Flakes	Wedges	n	%
Balsam Lake					2	4		7	4.1
Chalcedony					-	3		3	1.7
Collingwood					2	4	1	7	4.1
Detour						1		1	.6
Haldimand					1	-		1	.6
Hudson Bay Lowland		-			1	1	-	2	1.2
Huronian	1	-	2		9	40	7	**59**	34.3
Onondaga	4	2	9	12	13	30	3	73	42.4
Quartz					-	1	-	1	.6
Quartzite			3		1	2	-	6	3.5
Trent					1	1	-	2	1.2
Unidentified			2		1	3	2	10	5.8
n	5	3	17	13	31	90	13	17	100.1

and 34.5 percent imported chert. The biface thinning flake category is made up of 66.2 percent local cherts and 33.8 percent imported cherts. Of the 108 primary and secondary decortication flakes, 81 (75 percent) are made from local cherts. All of the analyzable cortex areas of the flakes manufactured from local cherts were nodular in shape, indicating that they were obtained from secondary till sources. The low frequency of decortication flakes from imported cherts suggests that most of these chert types were traded as rough or finished bifaces.

The 50 chipped lithic cores recovered from the site include 42 bipolar cores (84 percent), six random cores (12 percent) and two unipolar cores (4 percent). The bipolar cores were produced from Huronian chert (45.2 percent), Balsam Lake chert (14.3 percent), Onondaga chert (7.1 percent), Collingwood chert (7.1 percent), chalcedony (4.8 percent), Detour chert (2.4 percent), quartz (2.4 percent) and quartzite (2.4 percent). The high frequency of bipolar cores is typical of sites in Simcoe County (Fox 1979:82; Lennox et. al 1986:82). The bipolar technique was often utilized in areas where lithic resources were scarce in order to maximize flake production (Lennox et. al 1986:82).

Utilized flakes and formal tools (projectile points, drills, scrapers, bifaces, gravers, wedges) account for 18.9 percent of the total chipped stone Barrie site assemblage by count. The tool to debitage ratio of 1:5 indicates extensive utilization of the lithic resources which were available to the site's inhabitants. In fact, this ratio is among the highest reported for a Middle Iroquoian lithic assemblage. At the Wiacek site, the tool to debitage ratio is 1:11 (Lennox et al. 1986:76; Robertson et al. 1995:54), while those reported for the Elliot and New sites in the Markham area are 1:7 and 1:16 respectively (Kapches 1981). Middle Iroquoian sites located closer to high quality chert source areas, such as Gunby (Rozel 1979:64) and Olmstead (Welsh and Williamson 1994:26), have tool to debitage ratios of 1:30 and 1:25.

The projectile point assemblage recovered from the Iroquoian component of the Barrie site includes one complete point, seven basal fragments and one tip. Eight of the nine projectile points are manufactured from Onondaga chert. The complete projectile point is a small triangular shaped point with concave lateral edges and a concave base. It is 28 mm in length, with a maximum width of 20 mm and a maximum thickness of 3 mm. Only two of the seven projectile point basal fragments were considered to be diagnostic. Both of the basal fragments are from small side-notched points with slightly concave bases, and appear to be examples of the Middleport Notched projectile point type (Fox 1980). The five biface fragments recovered from the site include two biface mid-sections, and two biface tips. All five are finished bifaces and four of them are manufactured from Onondaga chert.

The 31 scrapers recovered from the site consist of 15 side scrapers, seven thumbnail scrapers, six flake scrapers, two end scrapers and one bifacial scraper. Most of the scrapers are manufactured from Onondaga (n=13, or 41.9 percent) or Huronian (n=9, or 29.0 percent) chert. Utilized flakes are generally small in size, irregular in form, and have small areas of unifacial retouch along one or more edges. Most of the 90 utilized flakes recovered from the site are manufactured from Huronian (n=38, or 42.2 percent) or Onondaga chert (n=32, or 35.6 percent). The most common flake categories for the utilized flakes are primary flakes (n=30, or 33.3 percent), broken flakes (n=29, or 32.2 per-cent) and secondary decortication flakes (n=18, or 20.0 percent). Gravers are utilized flakes which have one or more pointed, worked edges, and were used to engrave, cut or modify wood, bone and other similar materials. The majority of the 17 gravers are manufactured from Onondaga chert (n=9, or 52.9 percent). The most common flake categories for the gravers were primary flakes (n=9, or 52.9 per-cent). Wedges are characterized as square or rectangular shaped utilized flakes which have one or more crushed edges. The majority of the 13 wedges recovered from the site are manufactured from Huronian chert (n=7, or 53.8 per-cent). Seven (53.8 percent) of the wedges are manufactured from broken flakes, while five (38.4 percent) are made from shatter fragments.

The assemblage of ground and rough stone tools includes two complete ground stone celts, two celt blade fragments, one celt perform, four small miscellaneous fragments of ground chlorite schist, seven hammerstones, five abraders or whetstones, three grinding stone or mortar fragments, one pestle and one netsinker. Of special interest is the netsinker, which is manufactured from a heavily ground cobble of chlorite schist. It is plano-convex in cross section and has a single deep groove across both faces. A length of cord was presumably tied around the groove and attached to a net to act as a weight.

Terminal Archaic/Early Woodland Component

A small assemblage of artifacts recovered from the site dates to the Terminal Archaic/Early Woodland period (ca. 1000-0 B.C.). The assemblage includes four projectile points, two drills, one biface, one end scraper, and one gorget fragment. All of the chipped lithic artifacts are manufactured from Onondaga chert. Three Meadowood projectile points were recovered. Two of the points are missing their tips and are side-notched with convex bases and straight lateral edges (Figure ll:a, d). One of the Meadowood points was recovered from an undisturbed section of Midden A. Another Meadowood point was recovered while shovel shining the interface of the ploughzone and underlying undisturbed deposit in Midden D. The third Meadowood point consists of a large multiple side-notched Meadowood point base which was modified into a graver (Figure 11:b). This artifact was recovered from an undisturbed section of Midden A. A complete Hind projectile point (Figure 11:g) was recovered while shovel shining the interface of the ploughzone and underlying undisturbed deposit in Midden D. The Hind point is a large corner-notched point with a concave base and convex lateral edges. The point is 61 mm in length, with a blade width of 19 mm, a basal width of 25, mm and a thickness of 5 rnm.

The tip and mid-section of a large Meadowood preform or "cache blade" was recovered from an undisturbed section of Midden D. An end scraper (Figure 11:h) manufactured from a small Meadowood preform or "cache blade" was recovered from an undisturbed section of Midden D. An expanded base drill (Figure 11:f) was recovered from Level 2 of Midden D. The expanded base of the drill is side-notched and has extensive steep unifacial retouch. The tip and most of the blade for the drill are missing. The other drill fragment, a T-shaped drill base (Figure 11:c), was recovered from an undisturbed section of Midden A. The last item which is affiliated with this period is a slate gorget fragment (Figure 11:e), which was recovered from Feature 102, the semi-subterranean sweat lodge associated with House 2. The gorget fragment is rectangular in cross section and includes part of one drill hole. Both broad faces of the gorget have multiple striae suggesting that it was reused as an abrader.

These artifacts are clearly affiliated with the Glacial Kame Complex of the Terminal Archaic period (ca. 1000-800 B.C.) (Ellis at al. 1990:115) and the Meadowood Complex of the Early Woodland period (ca. 900-400 B.C.) (Spence et al. 1990:128). The large size of the diagnostic Terminal Archaic/Early Woodland assemblage indicates that the Barrie site is multi-component, and that these artifacts are the result of the presence of a pre-Iroquoian camp site in this location. Seven of the nine pre-Iroquoian diagnostic artifacts were recovered from two undisturbed midden deposits (Middens A and D). The two remaining artifacts were recovered while shovel shining Midden D. Both midden deposits

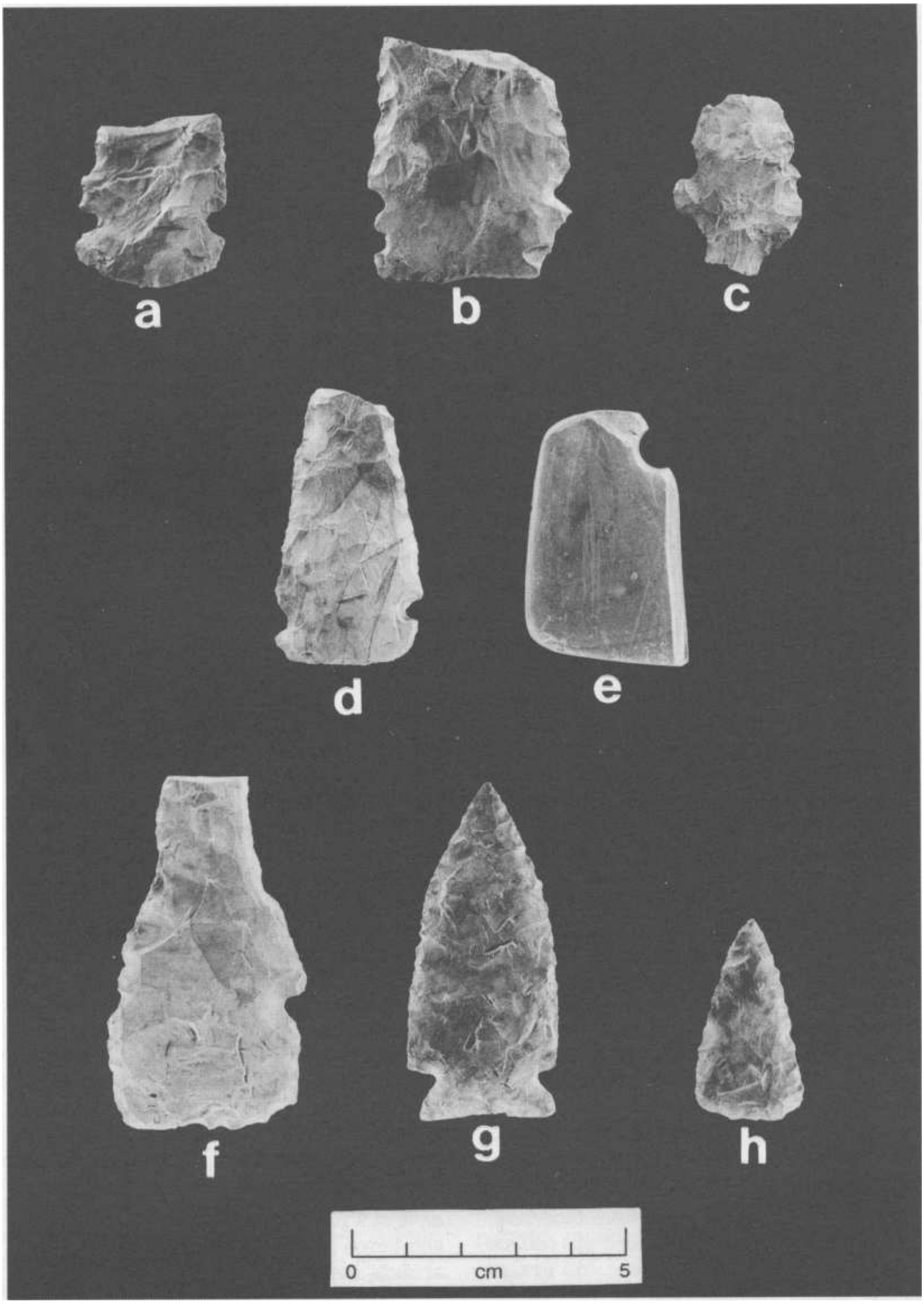

Figure 11. Barrie Site Terminal Archaic/Early Woodland Component: Meadowood Points (a, d). Graver/Spokeshave (g), Drill Bases (c, f). Gorget (e), Hind Point (g), Scraper (h).

were dominated by diagnostic Iroquoian artifacts. This indicates that these items were purposely curated by the Iroquoian inhabitants of the site. The multiple side-notched Meadowood point, end scraper, expanded drill base and gorget may have been modified by the Iroquoian occupants of the site to be reused for another purpose.

Copper

One artifact manufactured from native copper which appears to have been used as a needle or small awl was recovered from an undisturbed section of Midden A (Figure 12). It is rectangular in cross section and narrows to a sharp point at both ends. It is 62 mm in length, 4 mm in width and 3.5 mm thick. It is possible that this artifact is affiliated with the Terminal Archaic/Early Woodland assemblage. Copper awls are sometimes found on Glacial Kame and Meadowood sites (Donaldson and Wortner 1995; Spence et al. 1990:129). However, a small number of copper artifacts have also been found on precontact Iroquoian sites. Consequently, the cultural affiliation of this artifact is difficult to determine.

Worked Bone

The 10 worked bone artifacts include seven awls, one bead or tube, one barbed harpoon and one unidentified piece of carved bone. The harpoon fragment was manufactured from the long bone of a mammal which was split lengthwise. The harpoon fragment is from the midsection of a bilateral harpoon with two barbs, and has a length of 96+ mm, a width of 22 mm and a thickness of 9 mm. The miscellaneous piece of carved bone is highly polished, with a thin rectangular cross section. Both lateral edges have been worked into a series of shallow grooves or notches. It may have served as the handle for a larger tool.

FAUNAL REMAINS

The Barrie site faunal assemblage is derived almost exclusively from undisturbed subsoil features and post moulds, and midden areas, both plough-disturbed and undisturbed. The majority of the total faunal assemblage by count (67.8 percent) was recovered by dry sieving

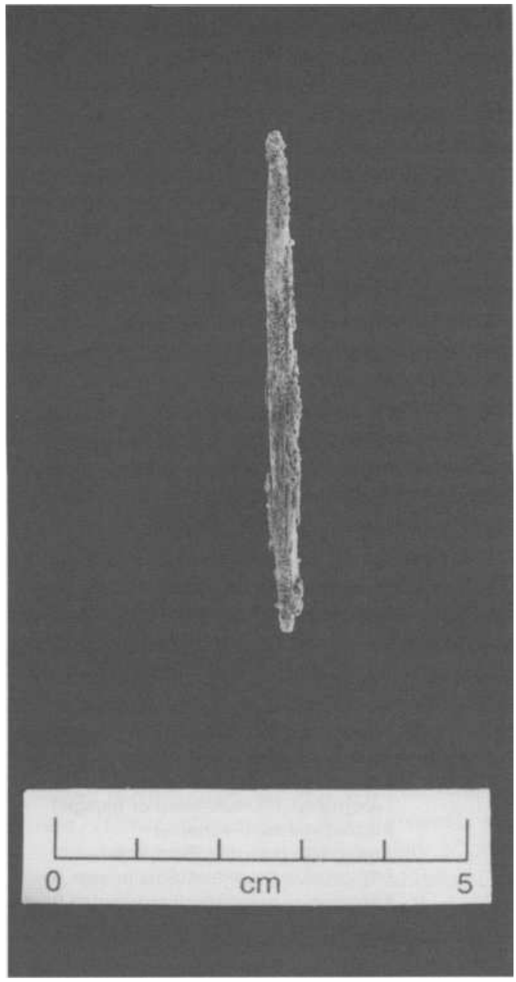

Figure 12. Barrie Site Copper Awl.

through 6 mm mesh. The remaining portion of the assemblage was derived from heavy and light flotation fractions. The faunal analysis was conducted by Dr. Suzanne Needs-Howarth, as a component of her recently completed doctoral dissertation on precontact fishing in the Barrie area (Needs-Howarth (1999). A randomly selected sample, representing approximately 70 percent of the total faunal assemblage from the site, and consisting of material derived from undisturbed features, post moulds and midden areas, was analyzed. A total of 694 elements were identified below the class level. While fish (49.6 percent) represent the majority of the identified sample, they are closely followed by mammals (41.3 percent). The most common identified fish species are yellow perch *(Perca* *flavescens:* 32 percent), followed by lake sturgeon *(Acipenser fulvescens:* 19.5 percent), white sucker *(Catostomus commersoni:* 5.5 per-cent), northern pike *(Esox lucius:* 5.2 percent), pumpkinseed *(Lepomis gibbosus:* 4.7 percent), brown bullhead *(Ameiurus nebulosus:* 4.4 percent), largemouth bass *(Micropterus salmoides:* 3.5 percent), smallmouth bass *(Micropterus dolomieui:* 3.5 percent), and small frequencies of a wide variety of other species (Table 8).

Although there is some overlap between the generally preferred habitats of the fish species utilized at the site, most of them would have been available within Kempenfelt Bay, located three kilometres east of the site, and the Nottawasaga River, located 12.5 km west of the site. Need-Howarth's (1999:50) analysis indicates that the major sources of fish for the occupants of the site were the Nottawasaga River, Nottawasaga Bay (Lake Huron), and Kempenfelt

Table 8. Barrie Site Identified Fish and Mammal Species.

CLASS/SPECIES	n	% class	% total
FISH			
Ameiurus nebulosus (Brown Bullhead)	15	4.4	2.2
Ictalurus/Ameiurus sp. (Brown or Yellow Bullhead)	4	1.2	.6
Ictalurus punctatus (Channel Catfish)	2	.6	.3
Acipenser fulvescens (Lake Sturgeon)	67	**19.5**	9.7
Salvelinus namaycush (Lake Trout)	**5**	1.5	.7
Coregonus clupeaformis (Lake Whitefish)	1	.3	.1
Catostomus catostomus (Longnose Sucker)	6	1.7	.9
Catostomus commersoni (White Sucker)	19	**5.5**	2.7
Catostomus sp. (Longnose or White Sucker)	12	3.5	1.7
Catostomidae (Sucker or Redhorse)	4	1.2	.6
Esox masquinongy (Muskellunge)	4	1.2	.6
Esox lucius (Northern Pike)	18	5.2	2.6
Esox sp. (Northern Pike or Muskellunge)	7	2.0	1.0
Lepomis gibbosus (Pumpkinseed)	16	4.7	2.3
Lepomis sp. (Pumpkinseed or Bluegill)	1	.3	.1
Moxostoma sp. (Redhorse)	3	.9	.4
Amboplites rupestris (Rock Bass)	4	1.2	.6
Micropterus dolomieui (Smallmouth Bass)	12	**3.5**	1.7
Micropterus salmoides (Largemouth Bass)	12	3.5	1.7
Micropterus sp. (Small or Largemouth	4	1.2	.6
Centrarchidae (Sunfish family)	10	2.9	1.4
Stizostedion vitreum (Walleye)	1	.3	.1
Stizostedion sp. (Sauger or Walleye)	**3**	.9	.4
Perca flavescens (Yellow Perch)	112	32.0	16.1
Percidae (Perch, Walleye or Sauger)	2	.6	.3
Fish-Subtotal	**344**	**99.8**	**49.6**
MAMMALS			
Castor canadensis (Beaver)	31	10.8	4.5
Ursus americanus (Black Bear)	27	9.4	3.9
Canis familiaris (Domesticated Dog)	**35**	12.2	5.0
Tamias striatus (Eastern Chipmunk)	16	5.6	2.3
Martes penanti (Fisher)	2	.7	.3
Sciurus carolinensis (Grey Squirrel)	3	1.0	.4
Martes americana (Marten)	2	.7	.3
Mustela vison (Mink)	1	.3	.1
Ondatra zibethicus (Muskrat)	4	1.4	.6
Erethizon dorsatum (Porcupine)	2	.7	.3
Procyon lotor (Raccoon)	20	7.0	2.9
Tamiasciurus hudsonicus (Red Squirrel)	6	2.1	.9
Vulpes vulpes (Red Fox)	2	.7	.3
Lepus americanus (Snowshoe Hare)	22	7.7	3.2
Odocoileus virginianus (Whitetailed Deer)	23	8.0	3.3
Cervidae (Whitetailed Deer or Elk)	4	1.4	.6
Marmota monax (Woodchuck)	87	30.4	12.6
Mammals-Subtotal:	**287**	**100.1**	**41.3**

Bay (Lake Simcoe). The Minesing swamp and local tributary streams served as secondary sources.

Needs-Howarth and Thomas (1998) have identified three distinctive Lake Simcoe fisheries in the late precontact period: an inland and lake shore spring spawning run fishery; a warm weather generalized lake shore, river and stream fishery; and a fall fishery in Kempenfelt Bay and Lake Simcoe. Species such as sturgeon and longnose sucker *(Catostomus catostomus)* would have been available in large numbers in accessible locations only during their spring spawning runs (Scott and Crossman 1973:86, 532), while other species such as lake trout *(Salvelinus namaycush)* and whitefish *(Coregonus clupeaformis)* would have been readily available only in the fall (MacCrimmon and Skobe 1970:54). Although species such as brown bullhead, rock bass *(Amboplites rupestris),* pumpkinseed and northern pike are spring spawners, their spawning behaviour does not involve high density movements which would have significantly increased their avail-ability (Scott and Crossman 1979: 589, 703, 716). It is more likely that these species were a major component of the warm weather generalized lake shore, river and stream fishery (Needs-Howarth and Thomas 1998). Other species such as white sucker, yellow perch and smallmouth bass probably would have been available in large numbers during the spring spawning season, as well as during the rest of the warm weather season (MacCrimmon and Skobe 1970: 67, 101, 118; Needs-Howarth and Thomas 1998).

In order to gain further insights into the scheduling of fishing activities among Middle and Late Iroquoian groups in Simcoe County, Needs-Howarth and Thomas (1998) examined the composition of the fish assemblages collected from individual features at the Barrie and Dunsmore sites. Their analysis of the species which most commonly occur together in several large interior house features from the Barrie site suggest that sturgeon, longnose and white sucker, as well as some yellow perch and smallmouth bass, were likely caught during the spring fishery Brown bullhead, pumpkinseed, rock bass, northern pike, as well some yellow perch and smallmouth bass, were likely caught during the warm season. Overall, the prevalence of spring spawners such as sturgeon, suckers and yellow perch in the Barrie site faunal assemblage suggests that the inland and lake shore spring spawn run was the most important fishery at the site (Needs-Howarth and Thomas 1998). This is not surprising, given the fact that this was the time of year when the largest quantities of fish could be caught over the shortest period of time and with the least amount of effort. Based on habitat preferences and spawning behaviour, as well as the composition of species found together in feature deposits, it appears likely that almost half of the fish in the Barrie site faunal assemblage were likely caught in the spring (sturgeon, white and longnose sucker, some yellow perch and some smallmouth bass). A large component of the assemblage were also likely caught during the warm weather season (brown bullhead, rock bass, pumpkinseed, northern pike, some yellow perch and some smallmouth bass). Only a very small percentage of the assemblage are likely to have been caught during the fall spawning run (lake trout and whitefish).

The most prevalent species of mammal in the assemblage is woodchuck *(Marmota monax* 30.4 percent), followed by domesticated dog *(Canis familiaris:* 12.2 percent), beaver *(Castor canadensis:* 10.8 percent), black bear *(Ursus americanus:* 9.4 percent), and smaller frequencies of a wide variety of other species (Table 8). The preferred habitats of the mammals which are present indicate the exploitation of a variety of different micro-environmental zones including climax forest (porcupine *[Erethizon dorsatum],* snowshoe hare *[Lepus americanus],* martin *[Martes americana],* fisher *[Martes penanti],* grey squirrel *[Sciurus carolinensis]* , red squirrel *[Tamiasciurus hudsonicus],* eastern chipmunk *[Tamias striatus]* and black bear), semi-open or disturbed areas such as cornfields (red fox *[Vulpes vulpes],* woodchuck, and whitetailed deer *[Odocoileus virginianus])* and aquatic habitats (beaver *[Castor canadensis],* mink *[Mustela vison],* muskrat *[Ondatra zibethicus]* and racoon *[Procyon lotor]).* The small sample of birds in the faunal assemblage (Table 9) includes waterfowl (northern shoveler *[Arras clypeata],* Canada goose *[Branta canadensis],* bufflehead *[Bucephala albeola],* and common merganser *[Mergus merganser]),* and forest dwellers (ruffed grouse *[Bonasa umbellus],* passenger pigeon *[Ectopistes migratorius]* and yellow-

Table 9. Barrie Site: Other Identified Faunal Species.

CLASS/SPECIES	n	% class	% total
BIRDS			
Bucephala albeola (Bufflehead)	1	**4.5**	.1
Branta canadensis (Canada Goose)	*2*	9.1	*.3*
Mergus merganser (Common Merganser)	***3***	13.6	.4
Anas clypeata (Northern Shoveler)	1	*4.5*	.1
Ectopistes migratorius (Passenger Pigeon)	***5***	*22.7*	*.7*
Bonasa umbellus (Ruffed Grouse)	*5*	*22.7*	*.7*
Sphyrapicus varius (Yellow-bellied sapsucker)	*3*	13.6	.4
Anatinae (Duck subfamily)	*2*	9.1	*.3*
Birds-Subtotal	**22**	**99.8**	**3.0**
PELECYPODA			
Elliptio complanata (Eastern elliptic))	*2*	9.1	*.3*
Elliptio dilatata (Lady-finger)	1	4.5	.1
Lampsilis sp. (Lamp-mussel)	1	4.5	.1
Unionidae (Freshwater mollusc)	18	81.8	*2.6*
Pelecypoda-Subtotal	**22**	**99.9**	**3.1**
AMPHIBIA			
Anura (Frog/Toad)	*3*	*75.0*	.4
Rana sp. (Frog)	1	*25.0*	.1
Amphibia-Subtotal	**4**	**100.0**	**0.5**
REPTILIA			
Chelydra serpentina (Snapping Turtle)	1	*6.7*	.1
Emydoidea blandingi (Blanding'sTurtle)	1	*6.7*	.1
Chrysemis picta (PaintedTurtle)	***5***	*33.3*	*.7*
Emydidae (Turtle family)	8	***53.3***	1.2
Reptilia-Subtotal	**15**	**100.0**	**2.1**
TOTAL FAUNAL ASSEMBLAGE*	**694**		**99.6**

*including fish and mammals (Table 8)

bellied sapsucker *[Sphyrapicus varius]).* Exploitation of aquatic areas is indicated by the presence of some freshwater mussels, turtles and frogs in the assemblage.

A comparative analysis of Middle Iroquoian village site faunal assemblages was undertaken in an attempt to identify any potentially significant differences between the subsistence strategies of the occupants of the Barrie site and sites located elsewhere in southern Ontario. The site sample utilized in the comparative analysis is limited by the small number of Middle Iroquoian faunal analysis reports which are readily available in the literature. This sample includes a total of eight sites, including the Barrie and Wiacek sites in Simcoe County ([Lennox et al. 1986), the Elliot, Milroy, New, and Robb sites in the Toronto area (Kapches 1981), the Gunby site in the Burlington-Hamilton area (Rozel 1979), and the Bonisteel site in the southeastern Niagara peninsula (Pengelly and Pengelly 1987). Differences among the faunal assemblages included in this sample may reflect a number of factors. Aside from possible variations in the taphonomic processes associated with faunal samples from different sites, there are also significant differences in terms of sample size, recovery techniques, and locally available micro-environmental zones within the comparative site sample. By limiting the comparative analysis to basic aspects of the faunal assemblages, such as relative class frequencies, mammal size range and species diversity, however, certain general differences between Simcoe County Middle Iroquoian sites and those located elsewhere do emerge.

A comparison of the number of individual specimens (NISP) frequencies for faunal elements identified below the class level from the eight Middle Iroquoian sites (Figure 13), clearly indicates the importance of fish in the diet of Middle Iroquoian groups in Simcoe County The high frequencies of fish in the faunal assemblages at the Barrie and Wiacek sites also reflect, in part, the analysis of flotation samples at these sites. Two of the three Middle Iroquoian sites in this analysis with the highest frequencies of fish are also the only sites in the sample which contained faunal material derived in part from floated samples. The use of this recovery technique alone, however, does not account for the prevalence of fish on these sites. While 79

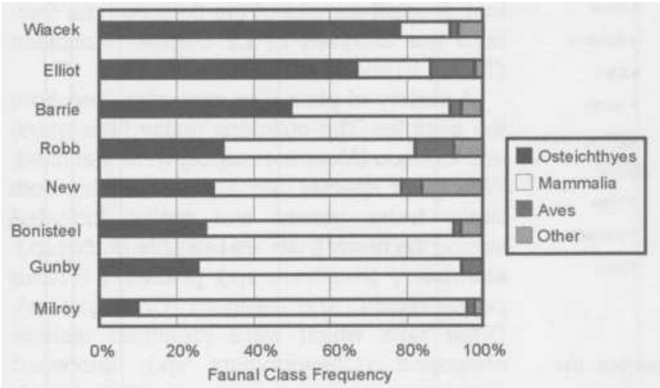

Figure 13. Comparison of Middle Iroquoian **Faunal Class** Frequencies.

percent of the Wiacek site NISP identified below the class level are from floated samples (Lennox et al. 1986:126), only 16 percent of the Barrie site NISP are from floated samples.

Assuming that Iroquoian non-horticultural subsistence practices were based primarily on the exploitation of locally available micro-environmental zones and species, the importance of fish to Middle Iroquoian communities in Simcoe County is not surprising given the rich fishing resources of the region. Paleoenvironmental reconstructions of Simcoe County in the fourteenth century suggest that fish would have been one of the most plentiful food resources in the region. Palynological data from lake and bog cores in Simcoe County indicate that the upland areas which were colonized by Middle Iroquoian groups were dominated by a climax maple-beech forest (Burden et al. 1986:49). Wood charcoal and macro-plant assemblages from Middle and Late Iroquoian archaeological sites in the region also support this interpretation (Lennox et al. 1986:143; Monckton 1992:87). This type of environment would not have supported large populations of large mammals such as white-tailed deer, which prefer more open and disturbed habitats. Unlike most mammals in the climax mixed temperate forest of Simcoe County, fish represented a resource which was very plentiful, easy to catch, and very predictable in terms of their habits and habitat (Heidenreich 1971:212). The inhabitants of the Barrie site relied to a great extent on spring spawners, which could be caught in huge numbers in nets. This indicates that the initial Middle Iroquoian colonists already had a detailed knowledge of fish resource availability in the region at the time of colonization. The people at the Barrie site were able, therefore, to schedule and coordinate their fishing activities in order to maximize their catch.

Another difference between the Simcoe County Middle Iroquoian sites and those located elsewhere in southern Ontario is the predominance of small mammals within the identified mammalian species on the Simcoe County sites. At the Barrie and Wiacek sites, small mammals account for between 77 percent and 92.5 percent of the identified mammal assemblages. Large mammals such as white-tailed deer are present in only very low frequencies at these sites. This stands in contrast to other Middle Iroquoian sites located elsewhere in southern Ontario, where white-tailed deer are usually the most common faunal species present. The lack of large mammals such as white-tailed deer on Middle Iroquoian sites in Simcoe County reflects in part, the mature closed forest upland environment where these sites were located (Lennox et al. 1986:109). In addition, the physical characteristics and climate of Simcoe County prior to European settlement were not conducive to the development of a large deer population (Robertson et al. 1995:79). This is reflected, in the low percentages of deer which are found on Iroquoian sites in the region from the fourteenth though to the seventeenth century (Robertson et al. 1995:78).

One important aspect of the Barrie site faunal assemblage is the diversity of species which are present. Although only 286 mammalian elements were identified below the class level, a total of 16 different mammal species are present. When compared to the mammalian diversity at the other eight Middle Iroquoian sites, the Barrie site stands out as having one of the most diverse assemblages, despite the relatively small size of the sample (Figure 14). The occupants of the site were clearly practising a broadly based, and largely opportunistic, hunting strategy which took advantage of all of the potential mammalian resources in the region.

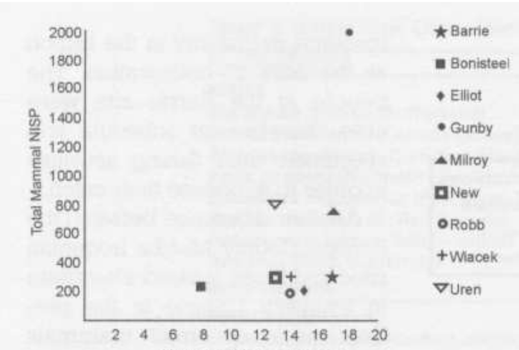

Figure 14. Diversity of Mammal Species on Middle Iroquoian Village Sites.

PALEOBOTANICAL ANALYSIS

A total of 751 litres of soils was collected for flotation from the Barrie site. This total included 317 litres from in-house features, 112 litres from exterior features and 322 litres from three undisturbed midden areas. The soil samples were processed on site using the two bucket method and were passed through a series of screens measuring between 0.425 to 0.750 mm. A small sample of the flotation light fractions was analyzed by Dr. Stephen Monckton (Tables 10 and 11).

A variety of plant taxa were identified from the samples. The cultigens maize *(Zea mays)* and tobacco *(Nicotiana rustica)* were identified. Wild plant species are represented by both fleshy fruits, greens and grains. Included among the fleshy fruits are bramble *(Rubus sp.)*, elderberry *(Sambucus sp.)*, pincherry *(Prunus pennsylvanica)*, and hawthorn *(Crataegus sp.)*. Other taxa which were identified include chenopod *(Chenopodium sp.)*, knotweed *(Polygonum sp.)*, small grass *(Gramineae)*, purslane *(Portulaca oleracea)*, bush honeysuckle *(Diervilla lonicera)* and sumac *(Rh us typhena)*. Maize accounts for 20.2 percent of the total number of seeds identified at the site, while fleshy fruits contributed 47.5 percent of the seeds, and greens/grains and other plant taxa 21.2 percent. The wood charcoal assemblage is dominated by maple and beech, followed by elm, pine, ironwood, ash, tamarack, oak and birch. While the wood charcoal indicates the presence of a mature maple-beech

Table 10. Barrie Site Plant Remains: Cultigens and Fleshy Fruits.

Provenience	Cultigens			Fleshy				
	Maize	Tobacco	Total	Elderberry	Bramble	Pincherry	Hawthorn	Total Fruit
House 1								
F#22	-	-	-	-	-	-	-	-
F#77	6	3	**9**	**-**	4	-	-	4
F#147	3	-	-	-	-	-	-	-
F#173							-	-
n	**9**	3	12	-	4	-	-	4
%	42.86	14.29	57.14	-	19.05	-	-	19.05
House 2								
F#193	1	-	1	-	1	-	-	1
F#203	1	-	1	-	-	-	-	-
F3226	1	-	1	-	1	-	-	1
F#232	-	-	-	-	-	1	-	1
n	**3**	**-**	3	-	2	1	-	**3**
%	30.0	-	30.0	-	20.0	10.0	-	30.0
Exterior Features								
F#12					-	-	-	-
F#52	4	-	**4**	1	**9**	1	-	11
F#62	-	-	-	-	1	1	-	2
F#108	1	-	1	-	1	-	-	1
n	**5**	**-**	**5**	1	11	2	-	14
%	14.71	-	14.71	2.94	32.35	5.88	-	41.18
Midden D								
n	3	-	3	2	23	-	1	26
%	8.82	-	8.82	**5.88**	67.65	-	2.94	76.47
Total								
n	20	3	23	3	40	**3**	1	47
%	20.2	3.03	**23.23**	**3.03**	40.4	3.03	1.01	47.47

Table 11. Barrie Site: Other Identified Plant Remains.

Provenience	Other Taxa								
	Bush Honeysuckle	Chenopod	Knotweed	Grass	Purslane	Sumac	Total Other Taxa	Unknown	Unidentifiable
House 1									
F#22	-	-	1	2	-	-	3	-	-
F#77	-	-	-	-	-	-	-	-	-
F#147	-	-	-	-	-	-	-	-	-
F#173	-	-	-	-	2	-	2	-	-
n	-	-	1	2	2	-	5	-	-
%	-	-	4.76	**9.52**	9.52	-	23.81	-	-
House 2									
F#193	-	-	-	-	-	-	-	-	1
F#203	-	-	-	-	-	-	-	-	-
F#226	-	1	-	-	-	-	1	-	1
F#232	-	-	-	-	-	-	-	-	1
n	-	1	-	-	-	-	1	-	0
%	-	10.0	-	-	-	-	10.0	-	
Exterior Features									
F#12									
F#52	-	-	-	-	-	-	-	-	-
F#62	1	-	-	-	-	1	2	2	1
F#108	8	-	-	-	-	-	8	-	-
n	-	-	-	-	-	1	1	-	1
%	9	-	-	-	-	2	11	2	2
	26.47	-	-	-	-	5.88	32.35	5.88	5.88
Midden D									
n	1	2	-	-	-	1	4	-	1
%	2.94	5.88	-	-	-	2.94	11.76	-	2.94
Total									
n	10	3	1	2	2	3	21	2	6
%	10.10	3.03	1.01	2.02	2.02	3.03	21.21	2.02	6.06

forest in the area, the large number of fleshy fruits suggests that disturbed or forest edge habitats were also present in the area of the site.

THE CHRONOLOGICAL POSITION OF THE BARRIE SITE AND OTHER MIDDLE IROQUOIAN VILLAGE SITES IN SIMCOE COUNTY

The Barrie site diagnostic ceramic assemblage clearly places it within the Uren substage of the Middle Iroquoian period (ca. A.D. 1280-1330). A single radiocarbon date was obtained from a sample of carbonized Zea *mays,* which was recovered from an undisturbed layer of Midden A. An uncalibrated radiocarbon date of 530±40 B.P. was obtained by the IsoTrace Radiocarbon Laboratory (TO-3057), Accelerator Mass Spectrometry Facility, University of Toronto. Following calibration and normalization to non-fractionated values using calibration program C14CAL, the calibrated date is A.D. 1409±40. This date appears to be too late for the occupation of the Barrie site as reflected by the ceramic assemblage, which is discussed below The erroneous date probably reflects the difficulties in radiocarbon dating sites which appear to have been occupied in the late thirteenth or early fourteenth century This period was characterized by large fluctuations in cosmic ray intensity (Dr. R. Beukens, personal communication 1994). This has resulted in a "fattening off" of the calibration curve for this period, and an increase in the probability that the associated radiocarbon dates will be incorrect.

In order to identify the chronological position of the Barrie site relative to other known villages in Simcoe County, it was necessary to compile a list of all of the potential Middle Iroquoian village sites in the region. A master list of potential Middle Iroquoian village sites was initially compiled based on the data avail-able in the Ontario Archaeological Sites Database of the Ministry of Citizenship, Culture and Recreation, supplemented by a variety of published and unpublished articles and reports. Wright's (1966) formulation of the Middle Iroquoian period was largely based upon the typological analysis of ceramic rim sherd assemblages. Uren substage sites were characterized by the dominance (50 percent or more) of three pottery types: Iroquois Linear, Ontario Horizontal, and Ontario Oblique (Wright 1966:54). Middleport substage sites were also characterized by the dominance of three rim sherd types: Middleport Oblique, Lawson Incised and Ontario Horizontal. In a recent re-analysis of the Middle Ontario Iroquois period, Dodd et al. (1990:337) have redefined Middleport sites as those whose assemblages are dominated (50 percent or more) by two types: Middleport Oblique and Ontario Horizontal. The general definition of Middle Iroquoian ceramic assemblages formulated by Wright (1966) and modified by Dodd et al. (1990) was utilized in this study in order to provide a preliminary determination of the cultural affiliation of the sites in question.

Twenty-six potential Middle Iroquoian village sites in Simcoe County were identified as a result of this process. The next step was to analyze the diagnostic rim sherd assemblages from all of these sites in order to confirm their chronological position. Five potential Middle Iroquoian village sites could not be included in the comparative rim sherd analysis, either because the sites have only recently been excavated, or because their collections were inaccessible. These sites include Gratrix (BeGw-6), Gregor (BbGw-16), Holly (BcGw-58), Lee (BbGw-26) and Wellington (BcGw-55). For comparative purposes, three fifteenth century Late Iroquoian village sites located in Simcoe County - Baumann (BdGv-14), Duns-more (BcGw-10) and Hubbert (BbGw-9) - were also included in this analysis.

Traditional rim sherd type frequencies were used as the basis for the temporal placement of the potential Middle Iroquoian village sites identified in this study (Table 12). The rim sherd typological classifications used in this analysis strictly adhered to the descriptions which were first outlined by MacNeish (1952), and subsequently refined by Emerson (1968) and Lennox and Kenyon (1984). In order to avoid problems associated with inter-observer error, 19 of the 24 rim sherd assemblages were analyzed by the author. The exceptions were the Dykstra (BbGw-5), Little 1 (BcGw-15), Little 2 (BcGw-28) and Lougheed (BbGw-13) rim sherd assemblages, which were described by Warrick (1988), the Baumann site (BdGv-14) assemblage (Bursey 1993), and the rim sherd sample from the 1983 Ministry of Transportation

Table 12. Rim Sherd Types on Simcoe County Middle To Early Late Iroquoian Village Sites.

TYPE		Angus Rawn	Barrie	Beswetherick	Cowan	Cranston	Cundles	Davey	Dunsmore	Dyksra	Gervais	Hubbert
Black Necked	n	1	-	-	-	-		-4	29	-	6	17
	%	3.7	-	-	-	-	-	4.7	12.9	-	5.8	15.6
Copeland Incised	n	-	-	-	-	-	-	-	-	1	-	-
	%	-	-	-	-	-	-	-	-	5.0	-	-
Huron Incised	n	1	-	-	-	1	1	4	59	-	20	25
	%	3.7	-	-	-	5.3	11.1	4.7	26.3	-	19.2	22.9
High Collared	n	1	-	-	-	1	-	1	5	-	3	-
	%	3.7	-	-	-	5.3	-	1.2	2.2	-	2.9	-
Iroquois Linear	n	-	110	9	2	-	-	-	-	1	-	-
	%	-	36.5	7.0	16.7	-	-	-	-	5.0	-	-
Lalonde High Collared	n	1	-	-	-	2	-	-	16	-	3	3
	%	3.7	-	-	-	10.5	-	-	7.1	-	2.9	2.6
Lawson Incised	n	4	-	-	-	2	-	-	19	-	4	9
	%	14.8	-	-	-	10.5	-	-	8.5	-	3.8	8.3
Lawson Opposed	n	-	-	-	-	-	-	4	4	-	2	3
	%	-	-	-	-	-	-	4.7	1.8	-	1.9	2.8
Middleport Oblique	n	9	-	40	1	5	2	42	28	9	24	23
	%	33.3	-	31.3	8.3	26.3	22.2	48.8	12.5	45.0	23.0	21.1
Middleport Criss Cross	n	-	2	2	-	-	1	4	2	1	2	-
	%	-	.7	1.6	-	-	11.1	4.7	.9	5.0	1.9	-
Niagara Collared	n	-	7	-	-	-	-	1	2	-	-	3
	%	-	2.3	-	-	-	-	1.2	.9	-	-	2.8
Ontario Oblique	n	-	42	8	-	-	-	2	-	1	-	-
	%	-	14.0	6.3	-	-	-	2.3	-	5.0	-	-
Ontario Horizontal	n	-	64	29	9	-	2	8	11	4	10	2
	%	-	21.3	22.7	75.0	-	22.2	9.1	4.9	20.0	9.6	1.8
Pound Blank	n	-	-	-	-	1	-	-	-	-	-	2
	%	-	-	-	-	5.3	-	-	-	-	-	1.8
Pound Necked	n	4	-	24	-	2	2	13	30	2	13	15
	%	14.8	-	18.8	-	10.5	22.2	15.1	13.4	10.0	12.5	13.8
Ripley Plain	n	-	6	2	-	-	-	-	-	1	-	-
	%	-	2.0	1.6	-	-	-	-	-	5.0	-	-
Sidey Crossed	n	3	-	-	-	-	-	-	2	-	3	-
	%	11.1	-	-	-	-	-	-	.9	-	2.9	-
Sidey Notched	n	3	-	-	-	3	-	1	2	-	5	1
	%	11.1	-	-	-	15.8	-	1.2	.9	-	4.8	.9
Warminster Crossed	n	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-
Warminster Horizontal	n	-	-	1	-	2	-	-	5	-	4	2
	%	-	-	.8	-	10.5	-	-	2.2	-	3.8	1.8
Uren Corded	n	-	4	6	-	-	-	-	-	-	-	-
	%	-	1.3	4.7	-	-	-	-	-	-	-	-
Uren Dentate	n	-	5	-	-	-	-	-	-	-	-	-
	%	-	1.7	-	-	-	-	-	-	-	-	-
Uren Noded	n	-	41	-	-	-	-	-	-	-	-	-
	%	-	13.6	-	-	-	-	-	-	-	-	-
Uren Punctate	n	-	10	2	-	-	-	-	-	-	-	-
	%	-	3.3	1.6	-	-	-	-	-	-	-	-
Unidentified	n	-	10	5	-	-	1	2	10	-	5	4
	%	-	3.3	3.9	-	-	11.1	2.3	4.5	-	4.8	3.7
TOTALS	n	27	301	128	12	19	9	86	224	20	104	109
	%	99.9	100	100.3	99.9	100	99.9	100	99.9	100	99.8	99.9

Table 12 (continued). Rim Sherd Types on Simcoe County MiddleTo Early Late Iroquoian Village Sites.

TYPE		Hunter Flos 9	J.J. Thompson	Kenny	L. Potter	Little 1	Little 2	Lougheed	McRae	Partridge	Sparrow	Webb	Wiacek
Black Necked	n	18	2	1	1	-	-	1	1	-	-	13	22
	%	.3	10.5	4.5	7.7	-	-	10.0	3.0	-	-	18.3	14.0
Copeland Incised	n	-	-	-	-	2	-	-	-	-	-	-	3
	%	-	-	-	-	7.4	-	-	-	-	-	-	1.9
Huron Incised	n	4	2	1	2	-	-	4	3	-	-	9	5
	%	33.3	10.5	4.5	15.4	-	-	40.0	9.1	-	-	12.7	3.2
High Collared	n	1	1	-	-	-	-	-	-	-	-	-	4
	%	8.3	5.3	-	-	-	-	-	-	-	-	-	2.5
Iroquois Linear	n	-	-	-	-	1	1	-	-	2	-	-	2
	%	-	-	-	-	3.7	3.5	-	-	22.2	-	-	1.3
Lalonde High Collared	n	-	1	1	-	-	-	-	1	-	-	3	-
	%	-	5.3	4.5	-	-	-	-	3.0	-	-	4.2	-
Lawson Incised	n	-	-	3	2	-	-	-	2	1	-	-	10
	%	-	-	13.6	15.4	-	-	-	6.1	11.1	-	-	6.4
Lawson Opposed	n	-	-	-	-	-	-	-	-	-	-	-	10
	%	-	-	-	-	-	-	-	-	-	-	-	6.4
Middleport Oblique	n	-	-	-	-	1	-	-	-	-	2	2	4
	%	-	-	-	-	3.7	-	-	-	-	8.7	2.8	2.5
Middleport Criss Cross	n	3	5	4	1	9	10	2	10	2	8	17	32
	%	25.0	26.3	18.2	7.7	33.3	35.7	20.0	30.3	22.2	34.8	23.9	20.4
Niagara Collared	n	-	-	-	-	-	-	-	1	-	-	1	2
	%	-	-	-	-	-	-	-	3.0	-	-	1.4	1.3
Ontario Oblique	n	1	3	5	-	3	12	-	4	2	3	6	11
	%	8.3	15.8	22.7	-	11.1	42.9	-	12.1	22.2	13.0	8.5	7.0
Ontario Horizontal	n	-	-	-	-	1	1	-	-	-	2	2	1
	%	-	-	-	-	3.7	3.5	-	-	-	8.7	2.8	.6
Pound Blank	n	-	-	-	-	-	-	-	-	-	-	-	5
	%	-	-	-	-	-	-	-	-	-	-	-	3.2
Pound Necked	n	2	4	5	6	7	3	2	2	1	3	11	31
	%	16.7	21.1	22.7	46.2	25.9	10.7	20.0	6.1	11.1	13.0	15.5	19.7
Ripley Plain	n	-	-	1	-	3	1	1	1	-	3	-	1
	%	-	-	4.5	-	11.1	3.5	10.0	3.0	-	13.0	-	.6
Sidey Crossed	n	-	-	-	-	-	-	-	5	-	-	-	1
	%	-	-	-	-	-	-	-	15.2	-	-	-	.6
Sidey Notched	n	-	-	-	-	-	-	-	2	-	-	1	-
	%	-	-	-	-	-	-	-	6.1	-	-	1.4	-
Warminster Crossed	n	-	-	-	-	-	-	-	-	-	-	1	2
	%	-	-	-	-	-	-	-	-	-	-	1.4	1.3
Warminster Horizontal	n	-	1	1	1	-	-	-	1	-	-	3	3
	%	-	5.3	4.5	7.7	-	-	-	3.0	-	-	4.2	1.9
Uren Corded	n	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
Uren Dentate	n	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
Uren Noded	n	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
Uren Punctate	n	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	n	-	-	-	-	-	-	-	-	1	2	2	8
	%	-	-	-	-	-	-	-	-	11.1	8.7	2.8	5.1
TOTALS	n	12	19	22	13	27	28	10	33	9	23	71	157
	%	99.9	100.1	99.7	100.1	99.9	99.8	100	100	99.9	99.9	99.9	99.9

excavations at the Wiacek site (BcGw-26) (Lennox et al. 1986). Where possible, the rim sherd type frequencies for each site are based on a minimum number of individual vessels.

Traditional rim sherd type frequencies were then calculated for the 21 suspected Middle Iroquoian village sites and the three Late Iroquoian sites. The different rim sherd type frequencies for each site were compared to one another using the Robinson-Brainerd coefficient of similarity (Brainerd 1951). Following the reduction of differences in rim sherd type frequencies between each site to a single number representing the coefficient of similarity, this measure of association was placed into a dissimilarity matrix. The dissimilarity matrix was entered into the statistical program, SYSTAT 5.1, to produce a dendrogram based on cluster analysis. Cluster analysis is a general term for several different multivariate, agglomerative statistical techniques which classify and structure large groups of data in order to identify groups of similar entities (Aldenderfer and Blashfield 1984:33). The objective in this study was to group together those sites which have a similar chronological position, as opposed to seriating each individual site. Cluster analysis is ideal for establishing this type of chronological analysis and has been used for similar purposes by several other researchers (Engelbrecht 1974; Lennox et al. 1986; Lennox and Kenyon 1984).

A dendrogram was produced using average linkage cluster analysis, a form of cluster analysis which tends to create the clean tight clusters which are useful for chronological analysis. The dendrogram (Figure 15) exhibits four distinct clusters, or groups of roughly contemporaneous sites. Cluster 1 includes the Barrie site and the Cowan site (BcGw-13). This suggests that the Cowan site was also occupied during the Uren substage (ca. A.D. 1280-1330) of the Middle Iroquoian period. The Cowan site is a .4 ha Iroquoian site situated on a low lying terrace overlooking Little Lake near the City of Barrie. The site was briefly investigated by Ridley (1973). Given the small size of the Cowan site rim sherd assemblage, however, its identification as a Uren substage site is considered to be tentative. The small size of the Cowan site also suggests the possibility that it was a special purpose site, not a village.

Cluster 2 includes the Beswetherick (BcGw-13), Cundles (BcGw-11), Davey (BeHa-11), Dykstra (BbGw-5), Kenny (BcGx-15), Little 1 (BcGw-15), Little 2 (BcGw-28), Partridge (BcGw-12) and Sparrow (BcGw-8) sites. Cluster 2 appears to represent sites which date to the early part of the Middleport substage (ca. A.D. 1330-1365) of the Middle Iroquoian period. It should be noted here that the recent excavation of the Dykstra site has indicated that it was not a village site (Ron Williamson, personal communication, 2000). It appears that the Dykstra site was a special purpose site or exterior activity area linked to another village. Consequently, the Dykstra site should be excluded from this analysis.

Cluster 3 includes all of the remaining sites, with the exception of the Laura Potter site (BeGw-8), which appears to form a fourth cluster. Cluster 3 includes sites which date to both the late fourteenth and early to mid-fifteenth century Cluster 3 includes sites such as Wiacek

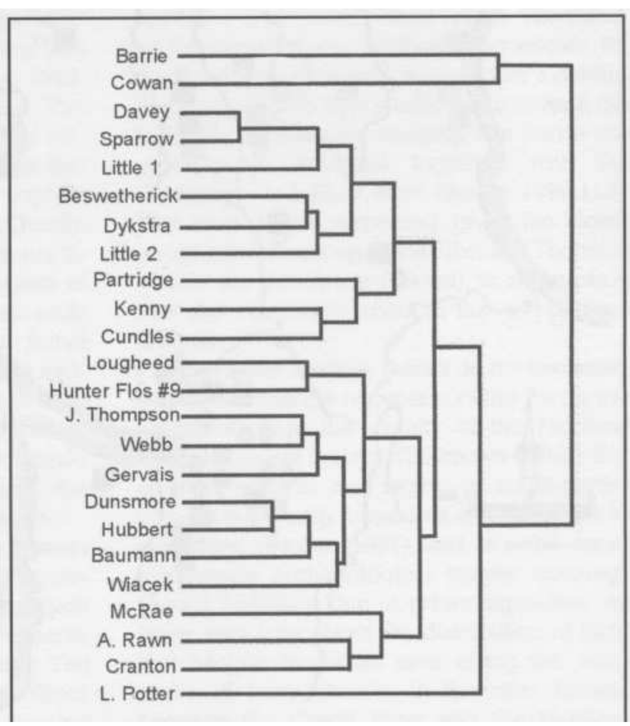

Figure 15. Average Linkage Cluster Analysis Dendrogram.

(BcGw-26) and Webb (BdGx-13), which are generally considered to be Middleport substage sites occupied in the middle to late fourteenth century (Robertson et al 1995:57; Wright 1966:60). Cluster 3 also includes several sites which post-date the Middle Iroquoian period and are believed to have been occupied in the early to mid-fourteenth century. The Late Iroquoian sites include Baumann (BdGv-14) (Stopp 1985), Dunsmore (BcGw-10) (Robertson et at 1995) and Hubbert (BbGw-9) (MacDonald and Williamson [editors] 1996). The absence of a clear division between the diagnostic rim sherd assemblages of sites occupied in the late Middle Iroquoian period and early Late Iroquoian period is the result of several interrelated factors. One factor is the inherent problem of applying traditional broad scale chronological frameworks and taxonomy to specific regions. Another is the difficulty in applying an arbitrary division between sites occupied in the late fourteenth and early fifteenth centuries, based on the very subtle and gradual changes in rim sherd type frequencies which characterize this period.

Figure 16 illustrates the results of the chronological analysis. Information regarding the chronological position of additional Middle and early Late Iroquoian village sites which could not be included in the ceramic analysis were extracted from Poulton and Sutton (1996a), Robertson et al. (1995), Sutton (1996) and (Warrick 1990). Preliminary observations on the chronological position of the Holly (BcGw-58)

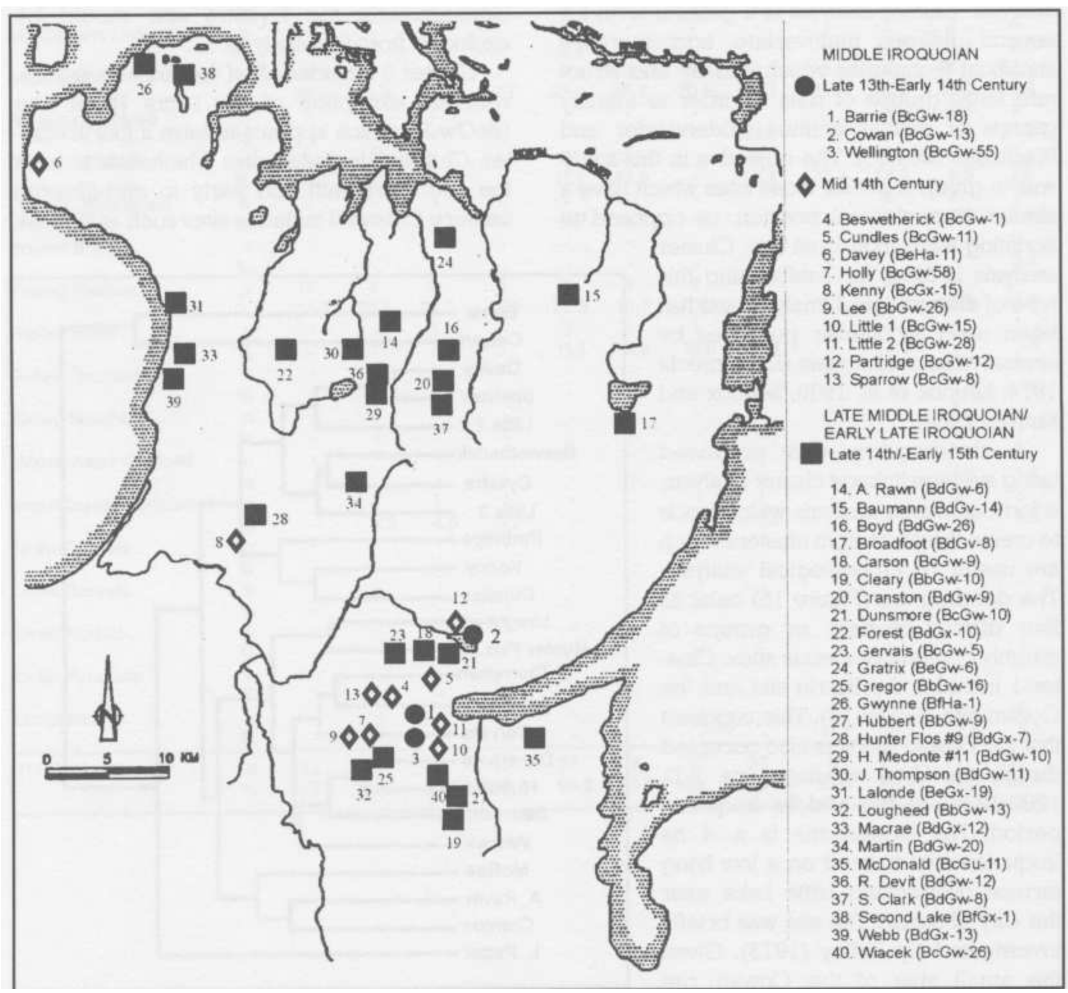

Figure 16. Location of Middle and Early Late Iroquoian **Village Sites in Simcoe County.**

and Wellington (BcGw-55) sites was provided by Ron Williamson (personal communication 2000), while Dean Knight (personal communication 1998) provided information on the dating of the Gregor site (BbGw-16). The results of the cluster analysis, combined with the information provided by the personal communications, confirm that the Barrie site represents one of only three Uren substage village sites in the region. The Cowan site (BcGw-13), and the recently excavated Wellington site (BcGw-55), are the only other village sites in Simcoe County which may also date to this period.

THE BARRIE SITE AND THE COLONIZATION OF SIMCOE COUNTY

Only four sites in the Simcoe County region are known to have Early Iroquoian components: the Dougall site (Wright 1972), the Methodist Point site (Smith 1979), the Severn Bridge site (Timmins 1993) and Sainte-Marie (Tummon and Gray 1991). All four of these sites are multi-component and are located beside major bodies of water. The Early Iroquoian components at these sites have been interpreted as representing seasonally occupied fishing, hunting and trading camps (Smith 1979; Timmins 1993; Tummon and Gray 1991; Wright 1972a). The presence of small Early Iroquoian material culture assemblages on these sites suggests that Early Iroquoian groups were seasonally exploiting the rich fishing resources of Simcoe County, as well as engaging in some trade with northern Algonquian groups. The establishment of the Barrie site in the late thirteenth or early fourteenth century represents the initial Iroquoian colonization of the region. By the mid-fourteenth century, the Iroquoian colonists were already expanding north from the head of Kempenfelt Bay into the Penetang Peninsula region. By the late fourteenth century, the colonists had expanded far into the interior.

The source area for the Iroquoian colonists of Simcoe County was likely located some-where along the major drainage systems which empty into the western section of Lake Ontario, on or below the Oak Ridges Moraine. The recent discovery of the Uren substage Wilcox Lake village site on the Oak Ridges Moraine (Austin 1994), indicates that early Middle Iroquoian groups did take advantage of the small kettle lakes which are thinly scattered across the moraine. Unfortunately, the small size of the Wilcox Lake artifact assemblage prevented its inclusion in the comparative analysis of Uren ceramic assemblages. The ceramic assemblage from the Barrie site has been compared to five other roughly contemporaneous sites located elsewhere in southern Ontario (Sutton 1996). These sites include Bennett (AiGx-1), Elliot (AkGt-1), Gunby (AiGx-5), Thomson (AkGt-29) and Uren (AfHd-3) (Figure 17). At the time of the analysis, these sites represented the only other contemporaneous village sites which contained large diagnostic ceramic assemblages.

A total of 46 individual rim and body sherd attribute frequencies were tabulated for comparative purposes (Sutton 1996: 105-115). This number represents those individual ceramic attributes which have consistently been reported for these sites (Rozel 1979; Wright 1966; Wright and Anderson 1969; Wright 1986). The Elliot and Thomson site diagnostic ceramic assemblages were analyzed by the author. The data for the remaining sites were extracted from Rozel (1979), Wright (1966), Wright and Anderson (1969) and Wright (1986). The differences between the attribute frequencies for each site were tabulated, entered into a dissimilarity matrix and then subjected to several different forms of cluster analysis. The Barrie site consistently clustered together with the Thompson and Elliot sites (Sutton 1996:113). This result is not surprising, given the closer geographical location of the Elliot and Thomson sites to the Barrie site (75 km), in comparison with the other sites used in the comparative analysis.

The cluster analysis results do not necessarily indicate that the occupants of the Barrie site originated from the vicinity of the Highland Creek drainage system. The known distribution of Uren sites in this region of south-central Ontario is severely biased as a result of urban expansion (Poulton 1987), and in some areas, inadequate archaeological survey coverage (Austin 1994:82). Due to urban expansion, we know very little about the distribution of Early and Middle Iroquoian sites along the north shore of Lake Ontario in the area located between the Credit River and the Highland Creek drainage systems. Archival material

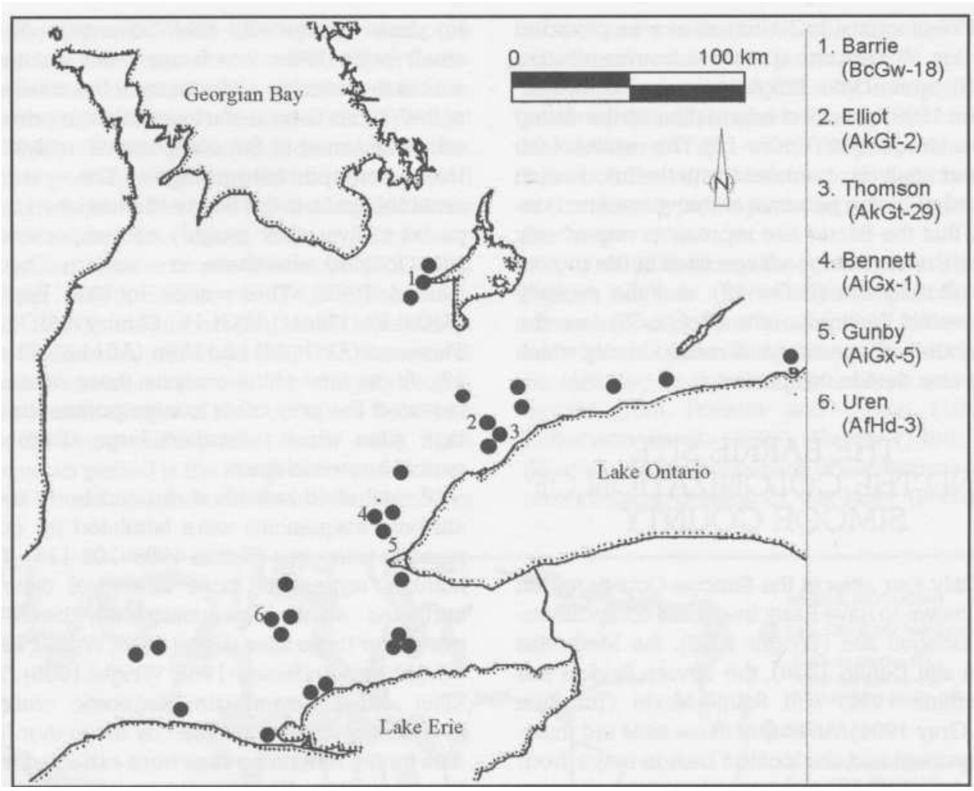

Figure 17. Location of Late 13th and Early 14th Century Iroquoian **village Sites.**

suggests that there were a series of Early and Middle Iroquoian sites located along the Credit River, the Don River, the Humber River and Black Creek drainage systems (Poulton 1987). Unfortunately, most of these sites were destroyed before they could be subjected to detailed archaeological investigation. The recent discovery of the Moatfield site, a probable Uren sub-stage village and associated ossuary located on the Don River in NorthYork (Andreae et al. 1998), confirms the presence of early Middle Iroquoian communities in this region. Given the limited archaeological data base for this region, it is quite possible that we may never know the precise source area for the Middle Iroquoian groups who colonized Simcoe County Nevertheless, the comparative analysis of late thirteenth and early fourteenth century sites undertaken in this study suggests that the source area for the Simcoe County colonists was located somewhere along one of the major watersheds which drain into Lake Ontario in this region.

It is likely that the Middle Iroquoian colonists of Simcoe County utilized the east and west arms of the historically documented Toronto Carrying Place trail system (Kapches 1994). This trail system was heavily used in the fur trade era and has been documented in a number of seventeenth, eighteenth and nineteenth century maps (Robinson 1933). It is reasonable to assume that the major travel routes which were utilized by the Europeans and native groups during the seventeenth and eighteenth centuries predated the historic period. It is generally believed that the historic fur trade was added on to an existing precontact trade net-work (Heidenreich 1971:227; Trigger 1979: 210). It would follow, then, that the trade routes or travel routes utilized in the historic period were also an extension of precontact routes. The western arm of the Toronto Carrying Place followed the path of the Humber and Holland rivers to the Holland Marsh and Lake Simcoe. The eastern arm of the Toronto Carrying Place ran along a footpath which followed the Rouge River northward, eventually leading to the east branch of the Holland River which flows into Lake Simcoe (Robinson 1933:53). Once the

Humber and Rouge trails met the east and west branches of the Holland River, travel was downstream by canoe to Lake Simcoe.

The route followed by travellers in the historic period from Lake Ontario to Simcoe County and Georgian Bay was the most efficient transportation corridor between the two regions. The source area for the Simcoe County Middle Iroquoian colonists was the region lying somewhere between the Credit River and the Duffins Creek drainage systems near Lake Ontario. The distribution of Middle Iroquoian sites in this region was largely confined to the South Slope and Peel Plain physiographic regions. The overland distance between this area and the head of Kempenfelt Bay, where the initial communities were established, is approximately 70 to 75 km. By travelling to the destination area via the Holland River and Lake Simcoe, the distance traveled increases to about 85 km. By travelling over half of this distance by canoe, the route could be covered much more quickly. Canoe travel would also have allowed for the transportation of a considerable number of people and equipment at the same time (Little 1987). Historical accounts suggest that travellers using the overland Humber Trail portage route could cover approximately 30 km per day (Robinson 1933:37). In contrast, historical accounts of the distances covered in birch bark canoes suggest an average rate of 70 km a day going downstream, and at least 20 to 25 km a day going upstream (Little 1987). The probable migration corridor into Simcoe County covered an approximate distance of 30 km overland by foot, and 55 km downstream by canoe. Consequently, it would require approximately two days to travel from the source area for the Middle Iroquoian colonists to the destination area at the head of Kempenfelt Bay The short distance of the migration corridor, and the lack of any significant physical obstacles along that route, suggest that the corridor could be travelled with relative ease. The speed with which the corridor could be travelled would also have reduced the potential consequences of what has been referred to as "locational marginality" (Green 1979:84), by which the low population density and community isolation associated with frontier areas places a strain on the social, economic and demographic networks of the initial colonists. By colonizing a new region which was relatively close to the source area, continued interaction between the two regions would have been ensured.

The rational behind the decision by Middle Iroquoian groups to colonize Simcoe County is difficult to reconstruct. The decision to migrate is the result of a very complex decision-making process and involves both macrofactors and microfactors (Gardner 1981:61). Macrofactors include various aspects of the physical and social environment such as environmental change, resource availability, resource competition, and kinship structure. Microfactors include the level of the decision-making unit, community and individual value systems, goals and motives. Thus, the decision to migrate is based upon a number of interrelated factors and "multiple motives" (DeJong and Fawcett 1981:39). It is because of this complexity that it is very difficult to identify the underlying causes of migration even in the case of modern migrations with living migrants (DeJong and Fawcett 1981:43). Due to this complexity, it is unlikely that the proximate causes of archaeological migrations can be identified (Anthony 1990:898).

Demographers and geographers have attempted to identify the causes of migration by utilizing various forms of a "push-pull" model. Negative "push" factors in the place of origin and positive "pull" factors in the destination area are identified and evaluated in order to reconstruct the various interrelated factors which may have caused the migration (Lee 1966). Due to the difficulty in identifying the proximate causes of archaeological migrations, it would appear to be more productive to limit the examination of causality to reconstructing the general structural conditions which favour migration through the application of a push-pull model. Overall, several basic structural conditions have been identified which may have played a role in the decision of some Middle Iroquoian groups to colonize Simcoe County Population pressure appears to have been the most significant push factor. The colonization occurred at a time when the Iroquoian populations of southcentral Ontario were experiencing a rapid increase in numbers. The significant increase observed in the size and number of Iroquoian villages which were occupied following the adoption of horticulture, has long been interpreted as evidence of population growth among Early and Middle Iroquoian groups

(Latta 1976; Noble 1968; Sykes 1981).Warrick's (1990:353) reconstruction of Iroquoian population numbers in southcentral Ontario indicates that there was a Iroquoian "population explosion" in the fourteenth century, with an estimated average annual growth rate of 1.1 percent. It is likely that the rapid population growth was the result of an increasing reliance on corn horticulture (Warrick 1990:343-346). The rapid increase in population during the fourteenth century in southcentral Ontario may have had several serious consequences for the Middle Iroquoian groups inhabiting this region. The increase in population may have resulted in a real or perceived strain on local resource availability in the geographically and socio-politically restricted source area of the migrants to Simcoe County Expansion within the area between Lake Simcoe and Lake Ontario was restricted by the poor agricultural soils of the Oak Ridges Moraine, the presence of the Holland Marsh, and the poorly drained clay plains situated along the south side of Lake Simcoe. Expansion to the east and west along the north shore of Lake Ontario was restricted by the presence of neighbouring Middle Iroquoian groups in both those areas.

Warrick (1990:349-350) has argued that the scarcity of deer in the migrants' homelands may have been the critical factor which forced Middle Iroquoian groups to colonize Simcoe County. Faunal data from Middle and early Late Iroquoian sites in Simcoe County, on the other hand, strongly suggests that the limited deer populations of Simcoe County, in and of themselves, were unlikely to have been a significant "pull" factor. On most of these sites, deer make up less than 5 percent of those mammals identified to species (Robertson et al. 1995:76). It would appear that the population densities of white-tailed deer in Simcoe County throughout the fourteenth, fifteenth and sixteenth centuries were very low The poor soil moisture and low fertility of the extensive sandy soils in the region did not provide the type of habitat which is required in order to support a large deer population base (Robertson et al. 1990:80). Although more attractive habitat areas may have been created as the mature upland forests were cleared for horticulture, this would not have benefited the initial colonists. It is clear that if there was increased competition for white-tailed deer in the source area for the migrants, the colonization of Simcoe County would not have solved the problem.

Instead of focussing attention on any specific resource, such as deer, it appears to be more reasonable to argue that the rapid increase in population levels within a restricted area of south-central Ontario in the late thirteenth or early fourteenth century may have placed stress on the local resource base. Several studies have shown that population pressure caused by a very successful subsistence adaptation often leads to a real or perceived stress on the local resource base (Milisauskas and Kruk 1989:406; Wood and McAllister 1980:182). Group fission is viewed as the least costly adaptation to ecological constraints (Hammel and Howell 1987:142). In the face of economic stress, human populations have several basic options including geographical expansion, the placement of limitations on fertility and population growth, or the intensification of food production (Hammel and Howell 1987). When unoccupied land is available and the relative costs of settlement movement are low, group fission and migration are considered to be a least effort strategy (Green 1980). Migration acts as a "safety valve" whereby daughter communities bud-off from the parent communities and colonize a new area which has not yet been intensively exploited (Hammel and Howell 1987:142; Hess 1979:128).

Significant pull factors appear to have been prior knowledge of the Simcoe County region, easy access from the source area, and the lack of an indigenous population of horticulturalists. While not an ideal location for horticulture, Simcoe County did possess adequate natural resources for marginal horticulturalists employing a broad based subsistence economy. In the face of rapid population growth in the source area, the colonization of Simcoe County appears to have represented an acceptable solution for some Iroquoian groups.

DISCUSSION AND CONCLUSIONS

The 1991-1993 excavations confirmed that the Barrie site is a .8-.9 ha Uren substage village site occupied in the late thirteenth or early fourteenth century The excavations resulted in the documentation of two longhouses and five midden areas. The village appears to have been unpalisaded. An analysis of the local and regional context of the site indicates that the Barrie site represents one of only two or three probable Uren substage village sites located in the region. The excavation of the Barrie site has provided an opportunity to examine the socio-economic patterns of expanding slash and burn horticulturalists.

Models which were developed in the 1960s and 1970s for the examination of expanding agricultural groups were based on optimization models initially formulated for the study of hunting and gathering groups (Jochim 1976; Pianka 1978). These early ecological models examined subsistence strategies, settlement patterns and social organization within a cost-benefit framework which measured costs in terms of energy expenditure (Keene 1983:140). In applying this approach to expanding agricultural groups, it was assumed that agricultural groups attempted to obtain their resources with the least possible effort and risk (Green 1979:74). The entire colonization process was assumed to follow the law of least effort, and subsequent adaptations were assumed to be attempts to minimize the risk of resource shortages (Green 1979, 1980; Hamond 1981; Hess 1979). On the basis of these assumptions, several predictions were made concerning the colonization process. It was suggested that the initial colonizing groups would follow the path of least effort into the new region (Green 1979:74) and that the initial colonists would settle in groups large enough to ensure that there was an adequate labour supply to clear the forest, establish villages and plant crops (Hamond 1981:22; Harris 1972:246). It was further suggested that the colonists would settle in areas with the highest resource potential and would employ a generalized subsistence strategy until they could produce adequate agricultural yields (Green 1980:221; Hamond 1981:224). It was also suggested that the colonists would maintain some level of social interaction with their parent communities to ensure that the exchange of resources could take place in times of crisis (Hamond 1981:224). Finally, it was expected that the population of the colonists would grow rapidly to meet the carrying capacity of the frontier area, and to reduce the isolation and economic risks involved in settling in a new region (Green 1980:220).

In the 1980s, many archaeologists became dissatisfied with narrowly defined ecological approaches which assumed that all forms of human behaviour were based upon the efficient pursuit of subsistence practices (Jochim 1983: 166; Keene 1983:148). Ecological approaches were expanded in order to encompass social and political factors (Bronitsky 1983; Butzer 1982; Ellen 1982). These new approaches to hunter-gatherer and agricultural settlement-subsistence patterns examined the interaction of both environmental and socio-cultural factors, including social and technological organization, resource management and the physical environment (Butzer 1982: 243; Green and Sassaman 1983:263). Bogucki (1988) applied a similar social ecological model to the analysis of the expansion of early farming communities in northcentral Europe. This approach asserted that cultural groups interrelate with their natural and social environment through a number of behavioural subsystems including subsistence, settlement patterns, demography and socio-political organization (Bogucki 1988:6). This approach still assumes that when faced with environmental uncertainties or resource stresses, people will adapt to them in a way which reduces the risks involved and ensures an adequate food supply This model does, however, recognize the fact that humans do not always follow the ideal of optimization models, because their decision making process involves a number of different cultural and environmental factors (Bogucki 1988:9).

Several studies have adopted an evolutionary interpretive framework in examining how agricultural colonists adapted to new regions. In central Europe, the initial Neolithic colonists established small temporary settlements in different environmental locations. This has been interpreted as representing a tactical response to an environment with which the colonists were unfamiliar (Bogucki 1979:240). Over the course of several hundred years, as their familiarity with the region grew, larger and more permanent settlements were strategically placed in areas which were highly favourable for agriculture (Bogucki 1979:243). A similar process has been observed among prehistoric agriculturalists in Missouri (Clay 1976) and in the Grand Canyon area of Arizona (Schwartz 1970). In the Balsam Lake area of Southern Ontario, which was colonized by Iroquoian groups in the Late

Iroquoian period, Ramsden and Murray (1995) have suggested that the initial colonists followed a seasonally mobile settlement-subsistence pattern because they were unfamiliar with the resources of the area. In other cases, the expansion of agricultural groups was very rapid, with the establishment of village sites within a very short period of time (DeAtley 1984:14).

The Middle Iroquoian colonization of Simcoe County appears to have been very rapid. While there are some seasonally occupied Early Iroquoian fishing camps in the region, the area was not heavily exploited prior to the late thirteenth or early fourteenth century From the beginning, the Middle Iroquoian colonization involved the establishment of permanent village sites. There is no evidence for the experimental placement of temporary sites in different environmental zones, or the utilization of a seasonally mobile settlement-subsistence pattern within the region, prior to this time. Instead, the Middle Iroquoian pattern of settlement appears to have been introduced in its final form, and the adaptive strategies of the colonists were formulated prior to their arrival in the region. This suggests that the colonists were familiar with the resources of the region prior to the colonization.

The location of the Barrie site is typical of most Iroquoian village site locations in the region. It was located on an upland terrace where the site's inhabitants would have had easy access to the three major micro-environmental zones of the region: sandy well drained uplands, poorly drained lowlands, and extensive areas of open water. The strategic placement of the site also suggests that the colonists were familiar with the region prior to the colonization. Reconstructions of Uren settlement-subsistence patterns elsewhere in the province suggest that they involved the winter occupation of villages and the spring-fall occupation of fishing camps (Wright 1986:54). This pattern undoubtedly varied on a regional basis, de-pending upon local resource availability. At the Wiacek site in Simcoe County, most of the fish present at the village site were likely processed at fishing camps on Lake Simcoe (Lennox et al. 1986:107). The presence of Uren components at multi-component fishing sites in Simcoe County such as Methodist Point (Smith 1979), Dougall (Wright 1972) and Ladywood (Poulton and Sutton 1996b), suggests that a similar pattern of village and fishing sites was present in this region. However, the strategic placement of most of the Simcoe County Middle Iroquoian village sites in close proximity to a variety of different micro-environmental zones may have made it unnecessary to establish a wide network of seasonally occupied special purpose camps. Instead, the village may have served as the staging area for most of the subsistence related activities, with the exception of small, seasonally occupied fishing camps.

By moving northward into Simcoe County from the north shore of Lake Ontario, Middle Iroquoian groups colonized a region which was near the northern limits for sustainable corn horticulture. The shorter growing season in this region would have increased the likelihood of crop failure. In the face of potential food shortages, the colonists relied heavily on wild foodstuffs. At the Barrie site, the inhabitants heavily exploited local fish resources, as well as a wide variety of small mammals and fleshy fruits. The location of the site close to several different micro-environmental zones also suggests that the initial colonists practised a broad-based subsistence strategy. Fish were an important part of the subsistence economy because they were plentiful in the region and could be harvested in large numbers during the spawning season. The colonists adapted to the scarcity of large mammals in the region by intensively exploiting a wide variety of smaller mammals. By adopting a broadly based subsistence strategy, the colonists were able to reduce considerably the risks involved in practising horticulture in a region with a relatively short growing season.

The adaptations made by the initial Middle Iroquoian colonists of the region do concur with certain aspects of the optimization models developed for expanding horticulturalists (Green 1979, 1980; Hamond 1981). The colonists did establish settlements in areas with a high resource potential, the initial population size was large enough to provide an adequate supply of labour, the colonists employed a generalized subsistence strategy, they maintained some contact with their parent communities, and the population grew quite rapidly However, these colonization patterns and adaptations are also closely interrelated to socio-political factors and the dynamics of the migration process itself. The rapid establishment of village sites in strategic locations reflects, in part, the knowledge of the region which the migrants possessed prior to the colonization. This is a typical migration pattern. Migrants generally do not colonize regions with which they are unfamiliar (Greenwood 1970; Brown et al. 1977). The settlement patterns at pioneering Middle Iroquoian communities, such as the Barrie site, indicate that the primary migrating unit involved multiple extended family groups. In the Middle Iroquoian period, villages were composed of several large segmented multi-lineage groupings (Timmins 1997). The village is believed to have been the largest socio-political unit, and was probably self governing and autonomous (Williamson and Robertson 1994:32). The village itself was the primary decision making unit at this time, and this explains why the colonizing groups consisted of entire communities. The presence of significant amounts of imported chert at the Barrie site indicates that there was continued interaction with other Iroquoian groups located south of Simcoe County While resource exchange was one of the functions of this interaction, other processes were also involved. The migration process itself often involved the maintenance of a migration stream and a continual flow of information between the source and destination areas (Simkins and Wernstedt 1971). Return migration also played a role in maintaining communication and interaction between the two regions (Lee 1966). The rapid growth in population among the colonists may not have been the result of a greater carrying capacity in the frontier area, or the desire to reduce the economic and social costs of isolation. The successful colonization of a region has a snowball effect which encourages more and more groups to migrate. The flow of additional migrants tends to continue even when the original conditions which caused the migration in the first place have changed (Simkins and Wernstedt 1977). This leads to rapid population growth in the destination area. Thus, the adaptive decisions made by the Middle Iroquoian colonists were the result of several interrelated factors, including the resource potential of the local environment, socio-political organization, and the dynamics of the migration process.

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