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From Grey to Print

Early Archaic Components on the East Don River: Archaeological Investigations of the Edgar and Andridge Sites[1]

Ronald F. Williamson, Deborah A. Steiss, and Andrew M. Stewart

The Edgar and Andridge sites, situated on headwater streams of the east Don River, were salvage excavated by Archaeological Services Inc. between 2003 and 2006. This article summarizes the subsequent analyses of their settlement data and material culture. An environmental reconstruction was undertaken that included examinations of the geomorphological origin of the area, climate, regional soil characteristics, inferred vegetational cover, and availability of floral and faunal resources. These and the site data were then compared with current archaeological understandings of Late Paleo and Archaic lifeways in the general region to interpret the structure and functions of the sites. Even though the Andridge and Edgar sites date to the Early Archaic period and seemingly have two different but complementary functions, they were situated approximately 800 m apart across two small watercourses, suggesting that they are unlikely to have been used concurrently. The occurrence of multiple generalized and specialized areas at earlier sites raises the question whether one or more generalized areas existed near Andridge and Edgar—areas that would have yielded diverse toolkits reflecting a wide range of domestic tasks. The study of the two sites has, nevertheless, yielded additional data concerning the use of landscapes by hunter-gatherer populations who inhabited the north shore of Lake Ontario area during the Early Archaic period.

Introduction

In 2003 and 2006, Archaeological Services Inc. carried out salvage excavations of the Early Archaic Edgar (AlGu-299) and Andridge (AlGu-347) sites, both located on high, level terrain in Block 12, Official Plan Amendment 400, in the City of Vaughan, Regional Municipality of York. Block 12 was bounded by Major MacKenzie Drive on the south, Teston Road on the north, Bathurst Street on the east, and Dufferin Street on the west (Figure 1). The following is a summary of the subsequent analyses of the settlement and material culture recovered during the excavation of the two sites and is drawn from the full licence reports on that work (ASI 2007, 2008). Catalogues with detailed provenience data are available in those

[1] The intent of the From Grey to Print section of *Ontario Archaeology* is to publish significant studies/papers that that, for whatever reason, were not previously published. They are being presented here largely in their original form, without peer review. They have, however, been edited to conform to the journal's house style. In this example, the contribution has been augmented with some selected, more recent references for clarity. The manuscripts on which it is based were originally written in 2007.

Figure 1. *Location of the Edgar and Andridge sites.*

reports. The activities carried out at the two sites at the time(s) of their occupation were assessed by examining the recovered lithic assemblages and by reconstructing their environment. The environmental reconstruction included examinations of the geomorphological origin of the area, climate, regional soil characteristics, inferred vegetational cover, and availability of floral and faunal resources.

Site data were then compared with current archaeological reconstructions of Archaic lifeways in the general region and are evaluated for their importance in understanding Early Archaic cultural development in other parts of southern Ontario. This study has yielded additional data concerning the use of landscapes by hunter-gatherer populations who inhabited the north shore of Lake Ontario area between 9,000 and 10,000 years ago.

Environmental Setting

The sites were situated in a headwaters area for a number of southeastward-flowing tributary channels of the East Don River (Figure 2) near the

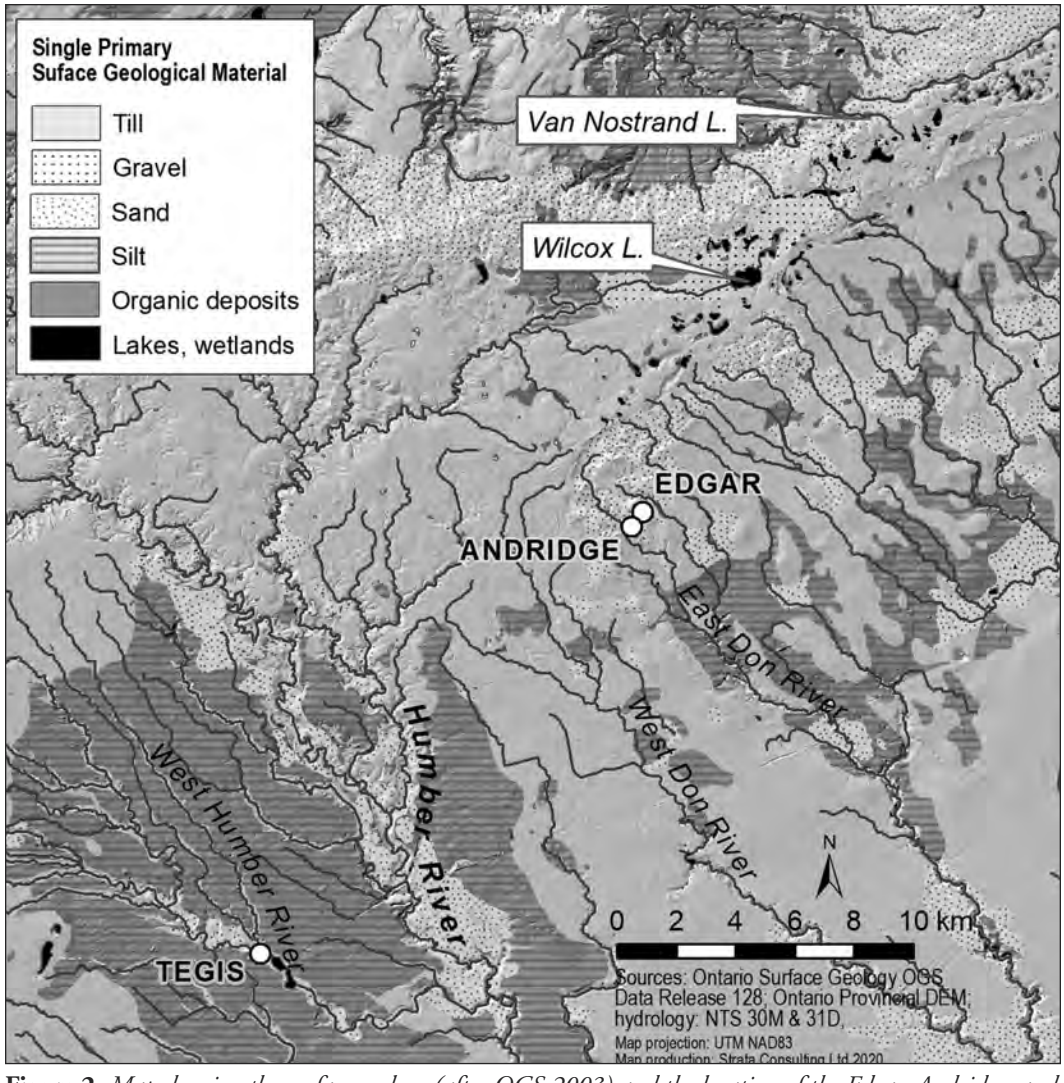

Figure 2. *Map showing the surface geology (after OGS 2003) and the location of the Edgar, Andridge, and Tegis archaeological sites and the Wilcox Lake pollen diagram site. Van Nostrand Lake is located several kilometres northeast of Wilcox Lake.*

base of the south slope of the Oak Ridges Moraine. They are both about 100 m from one of the streams. The soil in the immediate area of the sites is silty Halton Till surrounded by glaciofluvial fine sand and gravel (OGS 2003; Sharpe 1980; Sharpe and Barnett 1997). Downstream, 3 km to the southeast and visible from the sites, are less well-drained glacial lake deposits of silt and clay that extend southeast along the Don and Rouge River systems (Karrow 1970), a legacy of Late Glacial Peel Pondings (Karrow 2005; Sharpe 1980). They may represent former Holocene wetlands. To the north of the site, land rises along the south slope of the Oak Ridges Moraine. At the time of occupation, the water level in the Lake Ontario basin was 80–60 m below present and rising (Anderson and Lewis 1985).

Climate

Pollen evidence used to reconstruct the advance (and retreat) of the pine–spruce ecotone in the Great Lakes area between 13,000–7,500 RCYBP suggests the return of spruce (and a colder climate) to the eastern Georgian Bay area between 9,700–9,400 RCYBP (Anderson and Lewis 2002), near the beginning of the Early Archaic Corner-Notched horizon period. This may be related to lake effect cooling that affected the region downwind of newly formed Lake Superior, or it may relate to the North Atlantic Pre-boreal Oscillation that affected northeastern North America more generally (Yu 2000). Lake effect cooling probably affected the Simcoe lowlands, but it is not clear that the downwind effects would have reached as far southeast as the Oak Ridges Moraine (Anderson and Lewis 2002:Figure 8.7). Mean annual precipitation, calculated from transfer functions, is estimated to have been relatively low but increasing, from about 700 mm to 730 mm between about 10,000 and 9,000 B.P. (Haas and McAndrews 2000:84). The mean annual precipitation for the Richmond Hill area today is 892 mm (Environment Canada 2007). The relative dryness recorded for the early Holocene is consistent with estimates of precipitation from pollen values from the south side of Lake Ontario (Webb et al. 2003).

Vegetation and Lakes

Pollen diagrams from several sites in central southern Ontario indicate that the Early Archaic Corner-Notched horizon period, dating to 9,700–8,900 RCYBP (Ellis et al. 2009:796–801), falls in pollen Zone 2 (McAndrews 1994), at first dominated by jack/red pine (*Pinus banksiana/resinosa*) and later by white pine (*Pinus strobus*).

Tree biomass diagrams (Figure 2) derived from pollen diagrams (McAndrews 1994) for Hams Lake (about 100 km southwest of the sites) and Wilcox Lake (located 8 km northeast of the sites) indicate a mixed forest in southern Ontario for this period (Zone 2b). Table 1 shows ranges for important taxa percentages during the approximate period 10,000–9,500 RCYBP Values for Hams Lake suggest that balsam fir, ash, and elm dominate in this part of southwestern Ontario, with pine, birch, poplar, and oak each constituting at least 10 percent of tree biomass. Ironwood is present, with maple making an appearance at about 9,000 B.P. (McAndrews 1994). Values for Wilcox Lake, in the uplands of the Oak Ridges Moraine just to the north of the sites, suggest greater representation by pine, oak, sugar maple, and possibly ash, with less representation by species that favour wetter substrates, such as fir and elm.

Table 1. *Tree Biomass Percentages for the Early Archaic Corner-Notched Horizon Period.*

Taxon	Hams Lake	Wilcox Lake
Balsam fir (Abies)	10–25	0–10
Pine (Pinus)	5–10	20–35
Birch (Betula)	5–10	0–5
Poplar (Populus)	10	-
Ash (Fraxinus)	15–20	0–25
Oak (Quercus)	10	20
Elm (Ulmus)	10–20	15
Sugar maple (Acer saccharum)	0	20

Note: Calculated from pollen diagrams published by McAndrews (1994), for relatively abundant taxa only (≥ 10%).

Van Nostrand Lake (St Jacques et al. 2000) and Wilcox Lake (Haas and McAndrews 2000; Westgate et al. 1999) are the closest sites to the Edgar and Andridge sites with proxy data for vegetation. A pollen diagram from a 10 m core at van Nostrand Lake supports the interpretation of this period as one dominated by pine with an admixture of birch, oak, and elm, with possibly maple, hemlock, and beech being present (St Jacques et al. 2000:388). Hemlock (Tsuga) had migrated to the Oak Ridges Moraine by 9,000 B.P. (Haas and McAndrews 2000) but did not become dominant until about 7,700 B.P. (St Jacques et al. 2000).

Use-wear analysis of stone tools at the Tegis

site (Figures 1 and 2) suggests, indirectly, the presence and cultural use of several hardwood and softwood taxa, including bitternut hickory (*Carya cordiformis*); white elm (*Ulmus americanus*); and jack pine (*Pinus banksiana*), black spruce (*Picea mariana*), or tamarack (*Larix laricina*) (Burger 1997:19). It should be noted that the serrated projectile points from Tegis may be Late Archaic serrated small points rather than Early Archaic (Ellis et al. 2009:Table 22.3) and that Ellis (2018) and colleagues (Ellis et al. 1991) warn that not all serrated points are necessarily Early Archaic. The presence of other artifacts in the Tegis assemblage like those found on Late Paleo and Early Archaic sites warranted inclusion of the site in a comparative analysis below (Burger 1997:18).

In general, pollen studies from different sites across southern Ontario suggest that well-drained upland areas, including the area around and especially to the north of the sites, were likely covered by a pine forest, with poplar, birch, and oak. Lowland and poorly drained regions, possibly including the glaciolacustrine Peel Ponding deposits, south of the sites, were likely dominated by spruce and fir (McAndrews 2003) and, especially toward the end of the period, black ash (*Fraxinus nigra*) and elm (Bennett 1986; Karrow and Warner 1990).

The terrestrial environment of this period in southern Ontario, in both upland and lowland settings, may have been homogenous, or uniform, relative to that of later periods. In the following millennium (9,000–8,000 B.P.), moisture increased and a greater range of shade-tolerant species emerged, possibly resulting in a patchier or non-uniform forest (Bennett 1986).

Small lakes in the area (such as van Nostrand Lake; Figure 2), as well as in southern Ontario generally at this time, were oligotrophic (nutrient-deprived), possibly because cooler, drier conditions inhibited nutrient cycling and algal growth and because immature forests caused nutrients to be sequestered in the accumulating biomass of the forest rather than to be carried by run-off into lakes (St Jacques et al. 2000:391). This suggests that the quantity or diversity of fish species available for exploitation was limited compared with the later Holocene. On the other hand, it is likely that most of the modern complement of Great Lakes species of economically significant fish had migrated into the Huron basin from Atlantic and Mississippi basin refugia as early as 11,800 (Tomenchuk 1997:122).

Fauna and Subsistence

A review of proboscidean reports from 88 sites in southern Ontario and fossil pollen evidence from the sites suggests that mammoths and mastodons do not post-date Zone 1 (spruce woodland; roughly 10,000 B.P.; McAndrews and Jackson 1988). The largest mammal resources available to Early Archaic hunters in this and other areas of northeastern North America were probably, therefore, some combination, or all, of elk, moose, caribou, and deer (Robarts 1985). In general, the fauna was essentially modern (Ellis et al. 1998). This period is, however, poorly documented. The report of fossil elephants in the Hudson Bay lowlands, which became ice-free only after 8,000 B.P., suggests the very remote possibility of survival of megafauna into the early Holocene (Bell 1898; see also Laub 2006).

If wetlands developed on glacial lake deposits that extend on either side of the Don and Rouge Rivers south of the two sites, this region south of the Oak Ridges Moraine would have been a productive environment for human settlement, supporting a variety of plants and animals during the Early Archaic, similar to the "glacial lake basin mosaic wetlands" (Nicholas 1988) that are believed to support intensive Early Archaic settlement in New England at sites like Sandy Hill, Connecticut (Jones and Forrest 2003). The archaeological manifestation of productivity may be seen in the concentration (frequency) rather than size of individual sites (such as Edgar or Andridge) or even findspots of Nettling points around former wetlands. A more detailed and accurate reconstruction of biological communities during the early Holocene requires plant and animal macrofossil data and a consideration of soil classes (e.g., Frink and Hathaway 2003; MacDonald 2002).

Edgar Site

The site was first encountered by ASI in December of 1997 during a Stage 2 assessment of a subdivision, at which time only two lithic artifacts were recovered, a primary thinning flake and a core fragment. The location of these finds overlapped with a Euro-Canadian occupation, and it was during subsequent investigations of that site, conducted in July of 2003, that 57 additional lithic artifacts were discovered on the surface of the site, covering an area of approximately 400 m^2. Included in this material were an Early Archaic Nettling projectile point and a biface. Nettling points date to circa 9,700–8,900 RCYBP (Ellis et al. 1990, 1991).

Block excavation within the main surface concentration was subsequently undertaken. One-metre square units were placed on all sides of units containing 10 or more artifacts, and this pattern was expanded outwards until yields diminished below 10 artifacts per square metre, indicating that the site margins had been reached. All units were excavated to sterile subsoil and soil contents were screened through 6.4 mm steel mesh to aid in the recovery of artifacts. A total of 230 one-metre square units was excavated during the investigations (Figure 3), revealing a ploughzone concentration of lithic artifacts measuring approximately 30 × 16 m.

The topsoil–subsoil interface was trowelled to expose any subsurface concentrations of artifacts possibly designating feature remnants. The only pieces encountered by trowelling were located on high points between ploughscars, suggesting that any clusters that had existed had been dispersed by ploughing. There were no

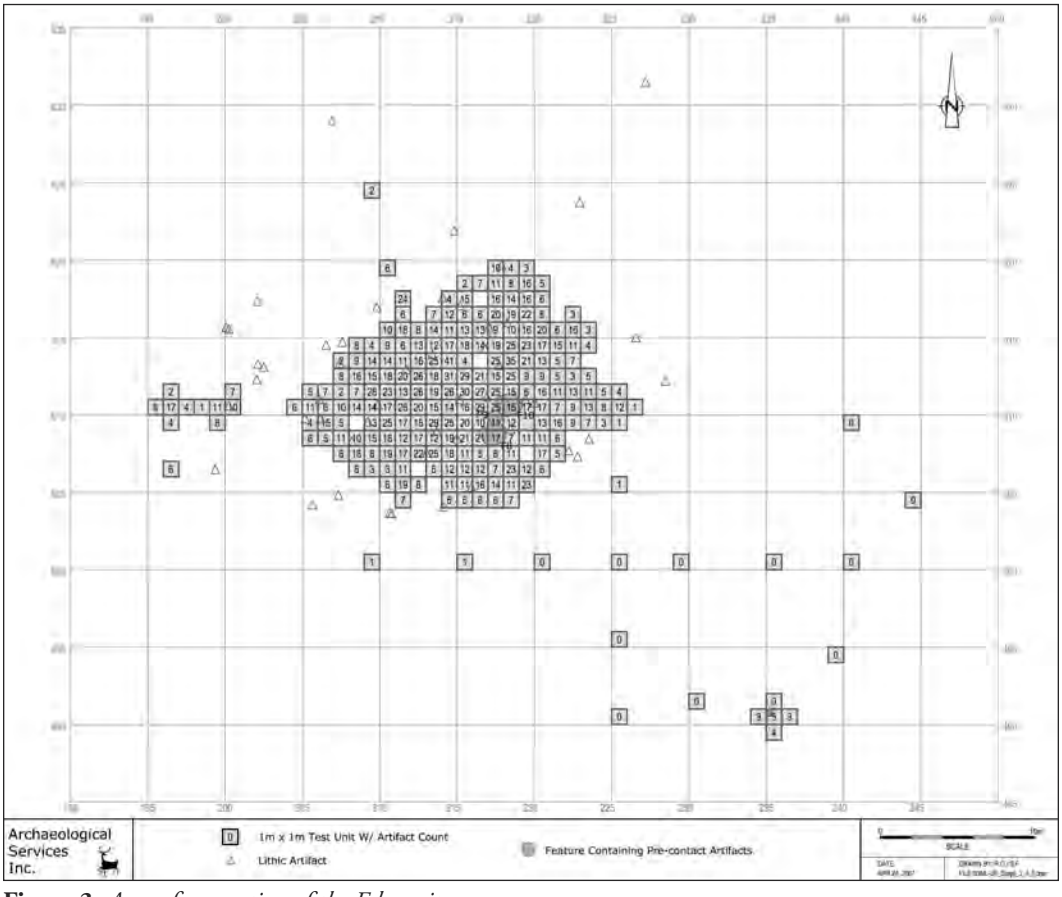

Figure 3. *Area of excavation of the Edgar site.*

indications otherwise of features dating to the Early Archaic occupation of the site.

Three small pit features (Features 8, 9, and 10) dating to the overlapping Euro-Canadian historic occupation were encountered (Figure 3), and although they were filled primarily with historic materials, 48 lithic artifacts were also recovered from Features 8 and 10.

Artifact Analysis

The assemblage consists of 2,974 lithic pieces, including 226 primary thinning flakes (7.6%), 1,092 secondary knapping flakes (36.7%), 259 secondary retouch flakes (8.7%), and 1,345 pieces of shatter (45.2%). Also present were three core trimming flakes and four core fragments, including one bipolar core. Included in the above totals are 40 unifacially worked flakes or "expedient" tools exhibiting at least one area of retouch along a working edge. These tools were made on 14 primary thinning flakes, 14 pieces of shatter, and 12 secondary knapping flakes.

The remainder of the assemblage consists of 45 tools, including 10 projectile points or projectile point fragments, 1 complete biface and 25 biface fragments, 2 drills, 3 gravers, 4 scrapers including an end scraper, and 1 spokeshave (Table 2).

Most lithic artifacts (2,927, or 98.4%) were manufactured from Onondaga chert, with the remaining pieces comprising 34 from Lockport (Ancaster) chert, 6 from Bois Blanc chert, 3 from Balsam Lake chert, 2 from Trent Valley chert, and 2 from quartzite (Table 2).

Thermal alteration, predominantly in the form of "pot lidding," sometimes with accompanying distinctive texture changes, is visible on 149 artifacts (5%; Table 2).

Projectile Points. Two complete projectile points and eight fragments were recovered from the site (Table 3; Figure 4). One complete point (catalogue number L842) resembles an Early Archaic Bifurcate Base point, dating to 8,900–8,000 RCYBP (Ellis et al. 1990, 1991). It has a slightly notched base and is stemmed or side-notched rather than corner-notched (Figure 4e). It is possible that the notch is a use break from impact where the base was pushed against the shaft—if this was the case, it could also be a use-damaged side-to-corner-notched serrated point similar to the other specimens from the site. The

Table 2. *Flaked Lithic Assemblage at Edgar.*

	Total		Thermally Altered		Retouched/ Utilized		Onondaga Chert		Lockport Chert	
Artifact type	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Primary thinning flakes	226	7.60	3	2.01	14	34.15	220	7.52	5	14.71
Secondary knapping flakes	1092	36.72	24	16.11	12	29.27	1085	37.07	7	20.59
Secondary retouch flakes	259	8.71	8	5.37	-	-	256	8.75	3	8.82
Shatter	1345	45.23	111	74.50	14	34.15	1319	45.06	14	41.18
Core trimming flakes	3	0.10	-	0.00	-	-	3	0.10	-	-
Bipolar cores/flakes	1	0.03	1	0.67	-	-	-	-	1	2.94
Cores	3	0.10	-	-	-	-	2	0.07	1	2.94
Bifaces/fragments	26	0.87	2	1.34	-	-	26	0.89	2	5.88
Drills/fragments	2	0.07	-	-	-	-	1	0.03	-	-
Gravers	3	0.10	-	-	-	-	3	0.10	-	-
Scrapers	4	0.13	-	-	-	-	3	0.10	-	-
Projectile points/fragments	10	0.34	-	-	-	-	9	0.31	1	2.94
Total	**2974**	**100.00**	**149**	**100.00**	**40**	**100.00**	**2927**	**100.00**	**34**	**100.00**

Table 3. *Projectile Points/Fragments from Edgar.*

		Dimensions (mm)			
Cat. #	**Material**	**Length**	**Width**	**Thickness**	**Comments**
L842	Onondaga	22	18	5	Bifurcate base pt., side-notched, broken tip; base w = 13, notch w = 5, d = 3mm
L843	Lockport	31	23	6	Complete, serration on 1 side only—perhaps pt. was unfinished; base w = 15; notch w = 4, d = 4mm
L22	Onondaga	28	23	5	Broken base, stem W = 12mm; damaged tip and flake removal resulting from impact fracture
L347	Onondaga	16	15	5	Base + partial shoulder of small notched pt. with slightly serrated edge, convex base; base W = 12, H = 8mm
L366	Onondaga	11	14	4	Tip frags., slight serration evident
L377	Onondaga	8	12	4	Small tip fragment
L398	Onondaga	7	16	4	Base of stemmed or notched projectile point or possible expanding base of drill
L838	Onondaga	20	22	5	Serrated corner-notched pt. made on a flake, re-touched base; broken at midsection; base w = 14; notch w = 4; d = 4mm
L839	Onondaga	27	17	5	Finely serrated corner-notched pt., missing tip; base w = 13, notch w = 3, d = 3mm
L844	Onondaga	30	21	5	Pronounced serration on both sides, broken base and tip; stem w = 11mm

other complete specimen is an Early Archaic Nettling-like point manufactured from Lockport (Ancaster) chert (L843). It may represent an unfinished point, as only one side shows pronounced serration and an elongated tang (Figure 4f).

There are five other serrated corner-notched point fragments, two of which are fragments missing their tips only (Figure 4c, d). Two others have broken tips and bases (Figure 4a, g), and there is one base and partially serrated blade fragment (L347; Figure 4b). Otherwise, these specimens appear to be finished points in that they are well thinned, notched, and serrated, with well-defined shoulders. This evidence suggests that the damage to these points occurred because of use rather than manufacture. One specimen (L844; Figure 4g) exhibits very pronounced, regular serration along both sides.

The remainder consists of two projectile point tip fragments as well as another base fragment that may not belong to a projectile point but rather to an expanding base of a drill.

Bifaces. One complete and 25 biface fragments were recovered (Table 4; Figures 5 and 6). Most bifaces are small, averaging 26 mm long, 20 mm wide, and 7 mm wide. They are all well made, exhibiting thin, bi-convex transverse sections. In general, the bifaces are well flaked, with straight, non-sinuous edges, indicative of a more advanced, later stage of biface production. The flaking also

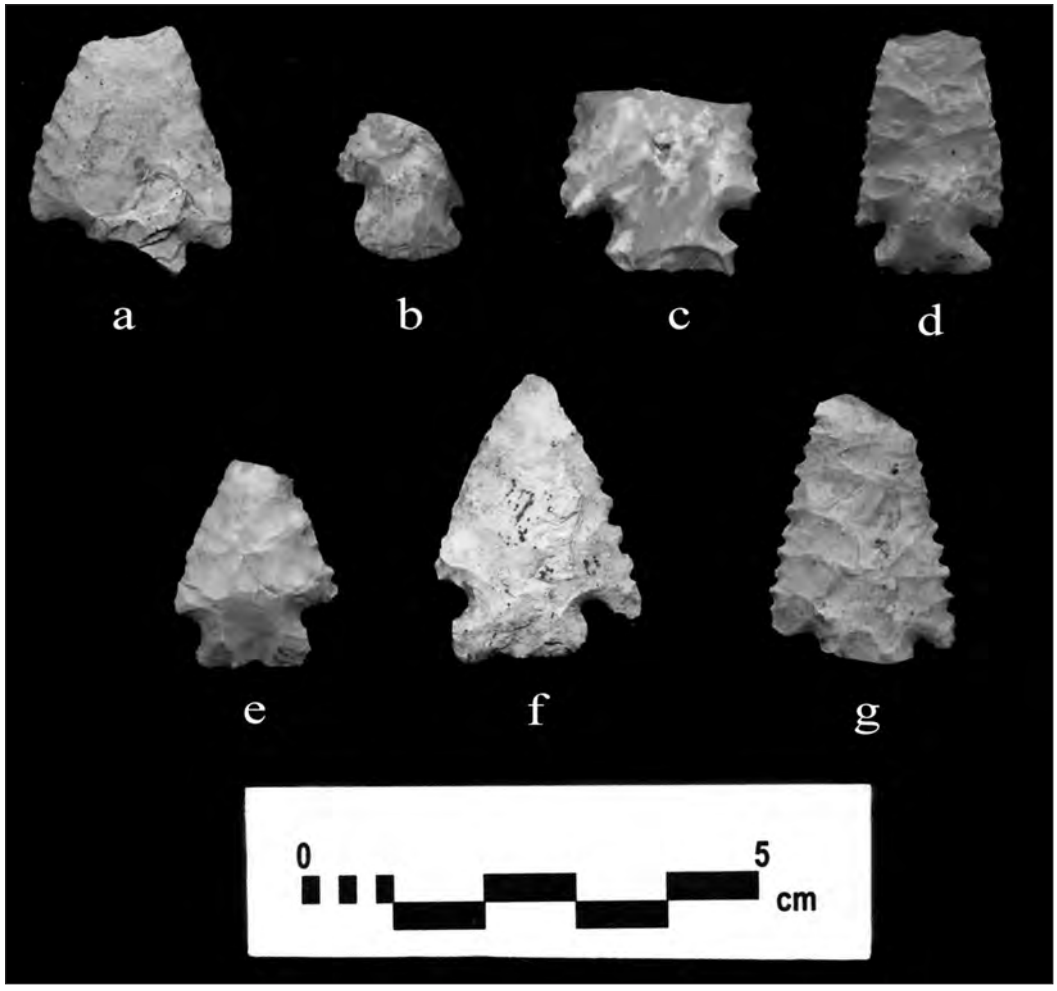

Figure 4. *Selected projectile points from Edgar. (a) L22, (b) L347, (c) L838, (d) L839, (e) L842, (f) L843, and (g) L844.*

seems to have been initiated from all directions (e.g., L371), suggesting that some were used as bifacial cores. The one complete biface (L449) has lateral edge retouch but is crude in workmanship, with sinuous edges and incomplete bifacial flaking (Figure 5d).

Many of the biface fragments seem to have been broken by snap fracturing through the middle. There are 10 tip fragments, 6 of which exhibit thinning, indicating their potential function as preforms that had been shaped and thinned but then broken before they could be refined further (L216, L217, L205, L117, L462, L675; Figure 6 a–d, i, j). They are advanced-stage bifaces or performs that are evenly flaked, bi-convex in cross-section, and serrated in some cases (L217). One biface tip (L462) is quite wide, providing lots of scope for further shaping.

There were six biface base fragments, of which three were square bases, which appear to have been well-thinned and -shaped, with regular cross sections, before snapping at the midsection (L244, L248, L846; Figure 6e, f, l). They may represent the bases of point performs that were going to be notched but prematurely broke. One base (L846) also has serrated lateral edges. One other specimen (L702) is a medial flake fragment exhibiting some lateral denticulation or serration.

Table 4. *Bifaces from Edgar.*

					Dimensions (mm)			
Cat. #	**Material**	**Thermal Alteration**	**Thermally Altered (n)**	**Retouched/ Utilized**	**Length**	**Width**	**Thickness**	
L449	Onondaga	-	-	-	54	41	13	
L9	Lockport	-	-	-	43	37	11	
L96	Onondaga	-	-	-	51	43	12	
L117	Onondaga	-	-	Yes	27	21	5	
L205	Onondaga	-	-		27	17	5	
L216	Onondaga	Yes	1	Yes	23	22	6	
L217	Onondaga	-	-	-	21	20	6	
L244	Onondaga	-	-	Yes	21	20	4	
L248	Onondaga	-	-	-	19	24	5	
L252	Onondaga	-	-	-	27	40	9	
L253	Onondaga	-	-	-	23	20	9	
L346	Onondaga	-	-	-	29	17	7	
L371	Onondaga	-	-	-	33	27	7	
L448	Onondaga	Yes	1		23	11	5	
L462	Onondaga	-	-	-	27	30	5	
L493	Onondaga	-	-	-	25	12	4	
L523	Onondaga	-	-	-	15	9	5	
L537	Onondaga	-	-	-	14	14	6	
L554	Onondaga	-	-	-	15	6	4	
L637	Onondaga	-	-	-	21	29	9	
L643	Lockport	-	-	-	25	14	9	
L658	Onondaga	-	-	-	24	14	6	
L663	Onondaga	-	-	-	42	24	13	
L675	Onondaga	-	-	-	14	20	4	
L696	Onondaga	-	-	-	27	18	7	
L846	Onondaga	-	-	-	35	27	6	

	Comments
	Lateral edge retouch; crude biface, sinuous edges, incomplete flaking
	Preliminary stage, incomplete bifacial flaking
	Missing tip and one lateral portion; middle stage biface, sinuous edges, incomplete bifacial flaking
	Biface or projectile point tip
	Preform, tip + midsection frag., thin
	Preform or possible projectile point tip, thin, slight serration on one edge
	Tip fragments of preform, thin
	Preform with square base, thinned, regular bi-convex cross-section
	Base portion of thin, refined biface
	Tip portion of middle stage biface, sinuous edges, incomplete bifacial flaking
	Tip portion of crude biface
	Prob. tip fragment of middle stage biface
	Poss. bifacial core, multi-directional flaking, retouched and/or battered lateral margin,
	Edge fragment
	Preform tip fragment, thin with smooth, evenly flaked surfaces, bi-convex cross-section
	Biface edge fragment, made on a flake
	Probable biface edge fragment
	Biface tip fragment
	Small biface fragment
	Base fragment, incomplete bifacial flaking
	Midsection fragment
	Probable base fragment of middle stage biface
	Crude biface or bifacial core frag.
	Tip fragment, lateral edge is retouched
	Tip or base fragment of middle stage biface
	Preform fragment with square, thinned base, broken halfway up

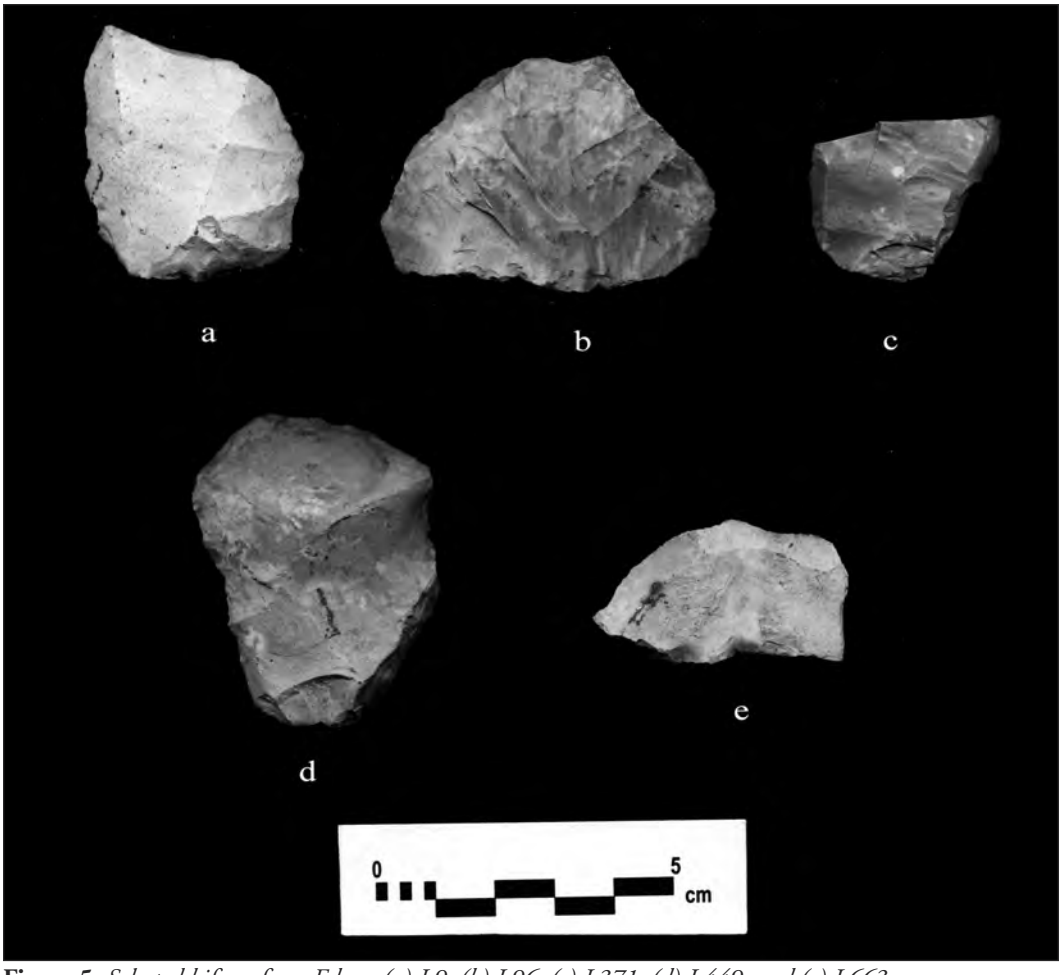

Figure 5. *Selected bifaces from Edgar. (a) L9, (b) L96, (c) L371, (d) L449, and (e) L663*

Bifaces displaying cruder workmanship are also present, including one manufactured of Lockport (Ancaster) chert. These bifaces are larger and thicker in size, with incomplete flaking on both sides and more sinuous, rather than straight edges (L9, L96, L371, L663; Figure 5a–c, e).

The remaining five fragments are small biface edge or miscellaneous fragments.

Drills. One drill has an expanding base and a narrow fore-section broken near the tip (L840; Figure 7g). Another specimen (L398; Table 3) may represent the base of a stemmed or notched projectile point or another example of an expanding base of a drill. Expanding base drills have been documented as the most common of the four drill base types noted at the Nettling site (Ellis et al. 1991:9). There is also a midsection fragment of a probable drill (L393; Table 5).

Gravers. One of the gravers in the collection is a fragment with a damaged tip, possibly from use (L816; Figure 7f). Another is a bifacial tool fragment with a graver projection (L841; Figure 8e). The third specimen (L414) has a worked tip resembling a graver, but it may also qualify as a "beaked scraper" (e.g., Storck 1997; Figure 7d). This specimen also appears to have been made on a reworked biface fragment (Table 6).

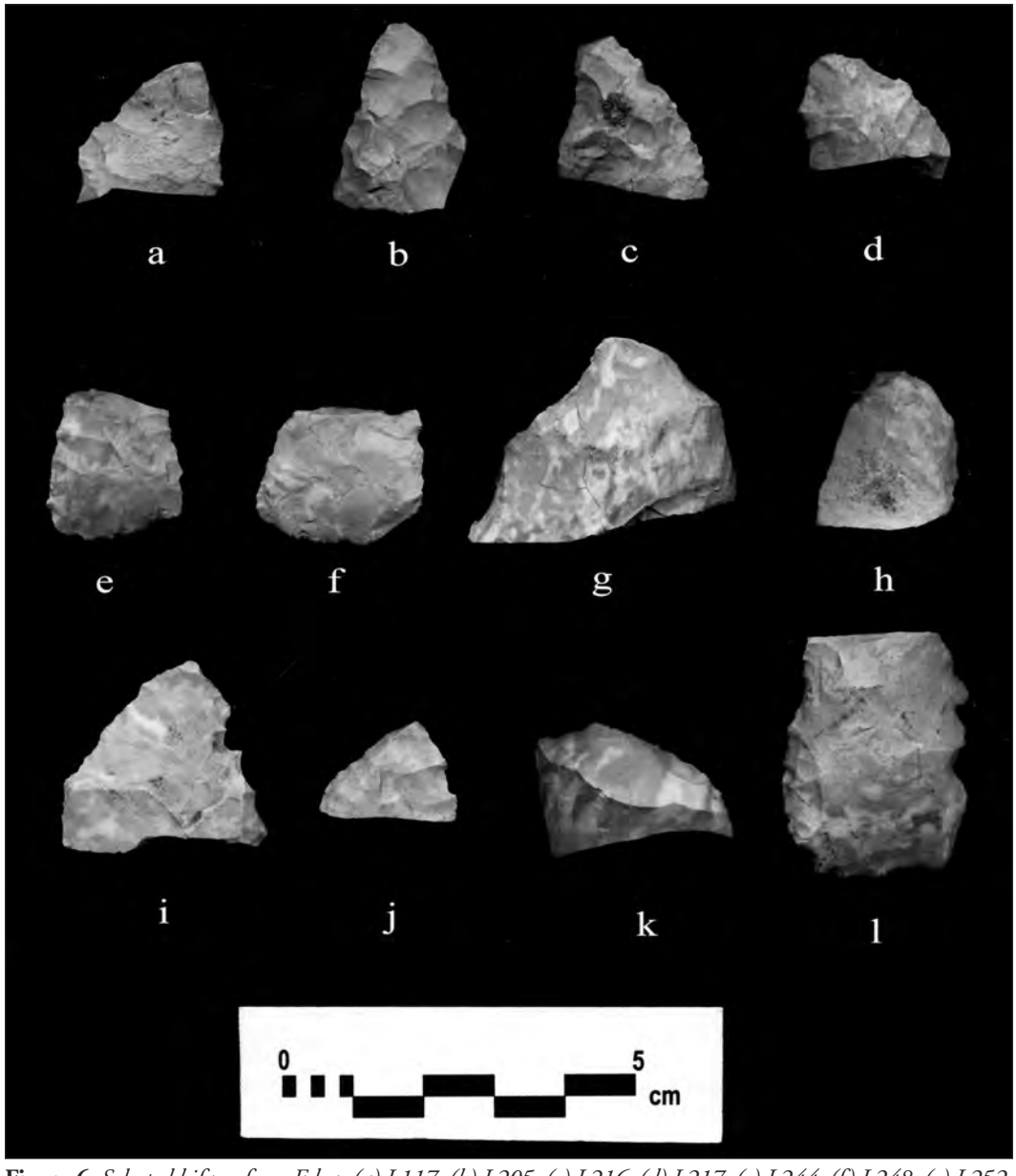

Figure 6. *Selected bifaces from Edgar.(a) L117, (b) L205, (c) L216, (d) L217, (e) L244, (f) L248, (g) L252, (h) L253, (i) L462, (j) L675, (k) L696, and (l) L846*

Scrapers. The distal portion of an end scraper was found (L845; Figure 7b). It is too fragmentary to identify whether it conforms to the "tear-drop" shape, intended for hafting, that Ellis and others describe among the Nettling site end scrapers (Ellis et al. 1991:11). Another biface edge fragment exhibits steep, continuous retouch for use as a scraper (L399; Figure 7a). There is also a spokeshave (L519; Figure 7c) made on the distal edge of a flake, as well as another scraper with a concave scraping surface resembling a spokeshave (L473; Table 7).

Table 5. *Drills from Edgar.*

			Dimensions (mm)			
Cat.	**Material**	**Retouched/ Utilized**	**Length**	**Width**	**Thickness**	**Comments**
L393	Onondaga		8	11	3	midsection fragment of probable drill
L840	Onondaga		20	29	6	expanding base drill, missing tip

Table 6. *Gravers from Edgar.*

			Dimensions (mm)			
Cat.	**Material**	**Retouched/ Utilized**	**Length**	**Width**	**Thickness**	**Comments**
L841	Onondaga	Yes	38	26	5	worked graver tip on a flake
L414	Onondaga	Yes	36	13	10	"beaked" scraper– bifacial tool with worked graver tip
L816	Onondaga	Yes	19	11	5	retouched laterally with poss. use-damaged tip

Table 7. *Scrapers from Edgar.*

			Dimensions (mm)			
Cat.	**Material**	**Retouched/ Utilized**	**Length**	**Width**	**Thickness**	**Comments**
L845	Onondaga	Yes	25	16	6	end scraper with pronounced retouch on distal edge of flake fragment
L399	Onondaga	Yes	35	14	7	pronounced scraping surface on a biface edge frag., w/ polish
L473	Onondaga	Yes	18	8	3	poss. spokeshave, concave retouched scraping surface, broken in use
L519	Onondaga	Yes	25	22	5	spokeshave, concave retouched scraping edge

Artifact Distribution

The distribution of artifacts across the excavated one-metre squares was "smoothed" to resolve any areas of higher artifact concentration. The results indicate an approximately 7 × 10 m area of dense concentration, from grid lines 209 to 219 east–west and 507 to 514 north–south (Figure 8). Artifact yields in this area exceeded 14 pieces per square metre to a maximum of 41 artifacts in unit 513–214 (Figure 9). There are two one-metre-square-sized hotspots within the concentration in the north central portion of the zone. There are also two small, discrete pockets of unit yields exceeding 20 artifacts to the north and one to the south of the main concentration (units 517–211, 516–219, 506–218/505–219; Figure 8). The dimensions of the central artifact concentration fit within size range estimates reported for structures documented in Late Archaic components, such as the Innes (Lennox 1986) and Canada Century sites (Lennox 1993:19). Lennox cites cold-weather occupations as requiring more indoor space for

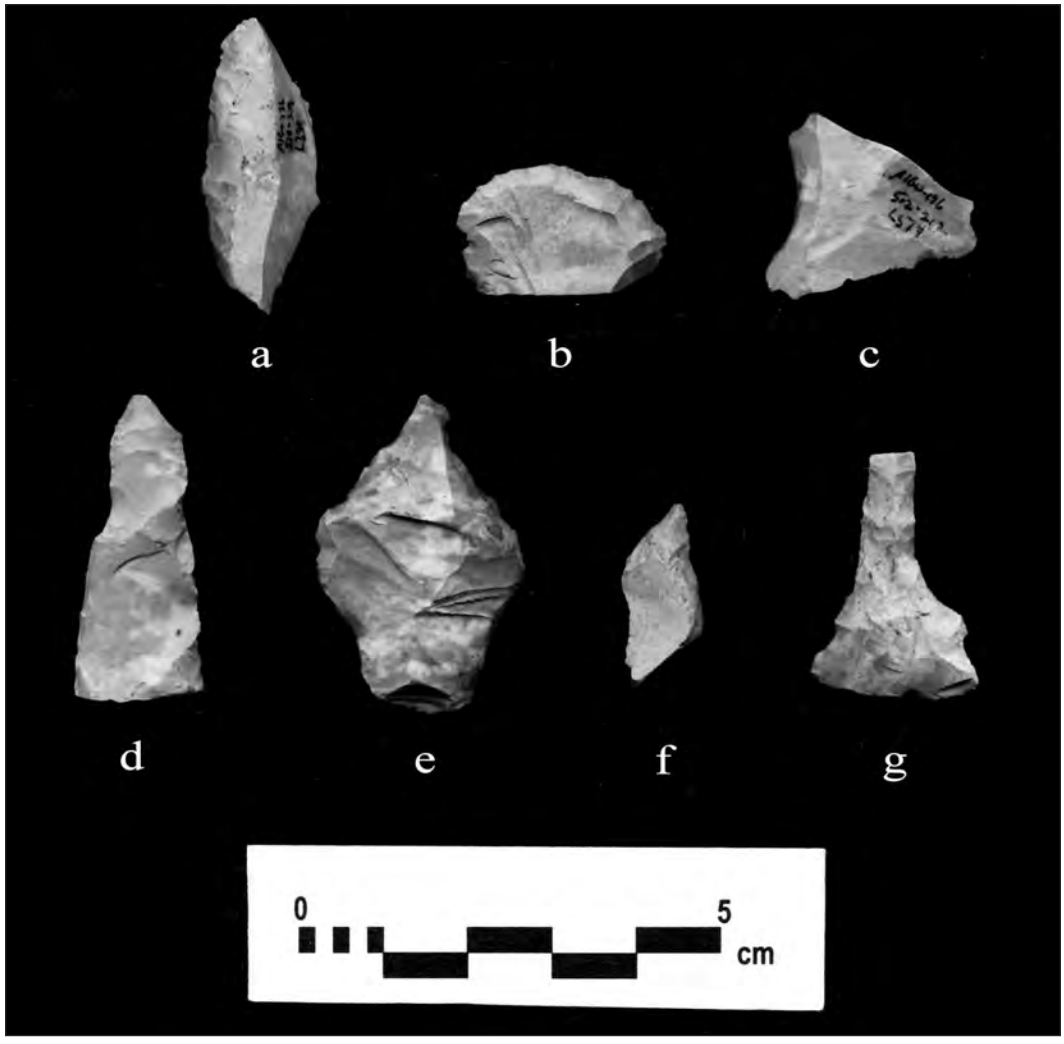

Figure 7. *Selected tools from Edgar. (a) L399, (b) L845, (c) L519, (d) L414, (e) L841, (f) L816, and (g) L840.*

activities and hence larger house structures (Lennox 1993). However, the artifact density distribution at Edgar does not conform to a pattern of "primary" and "secondary" peaks as noted by Lennox at the Innes site to indicate the presence of central activity areas bounded by house walls against which debris would accumulate (Lennox 1986:236–237).

At the Little Shaver site, Timmins proposed a Middle Archaic house structure based on two zones of artifact distribution within the house: an inner drop zone around a hearth and, an outer "displacement zone" with a sharply defined outer edge, representing accumulation of secondary refuse against the house wall through sweeping, etc. This house structure measured 6 × 5 m (Timmins 1996:76), much smaller than the Innes or Canada Century site houses and the artifact concentration at Edgar. Contrary to Lennox, Timmins argues that typical hunter-gatherer houses, including cold-weather structures, were typically of a smaller size, as documented ethnographically by the 5 × 8 m winter cabins used by the Central Algonquians (Timmins 1996:76).

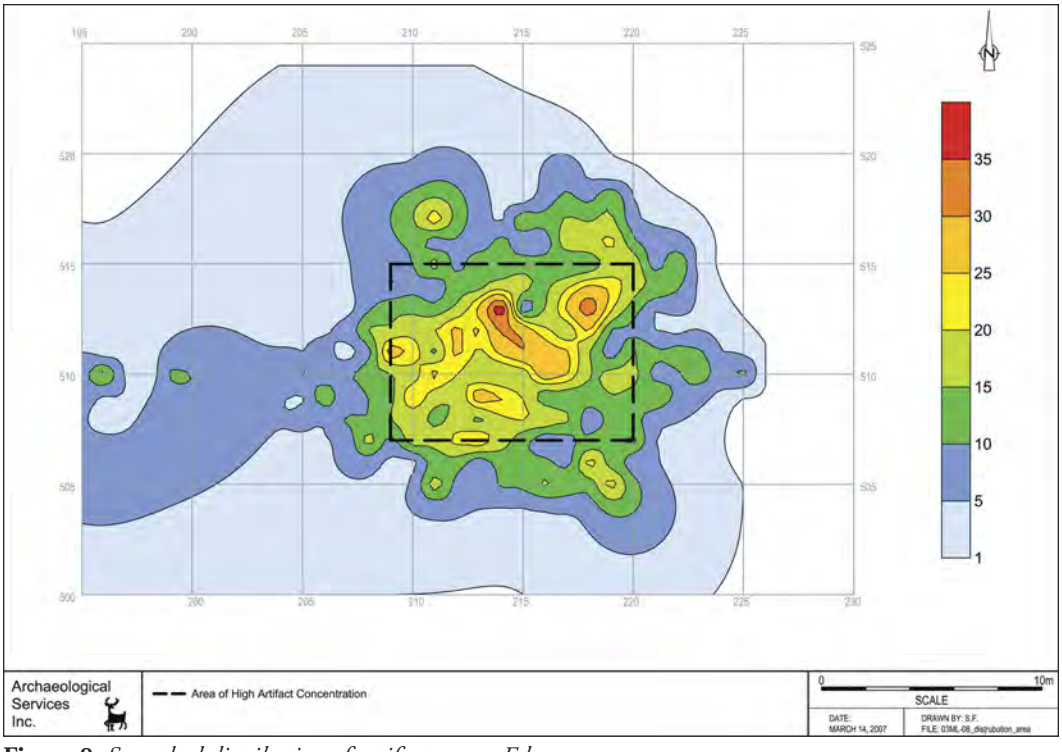

Figure 8. *Smoothed distribution of artifacts across Edgar.*

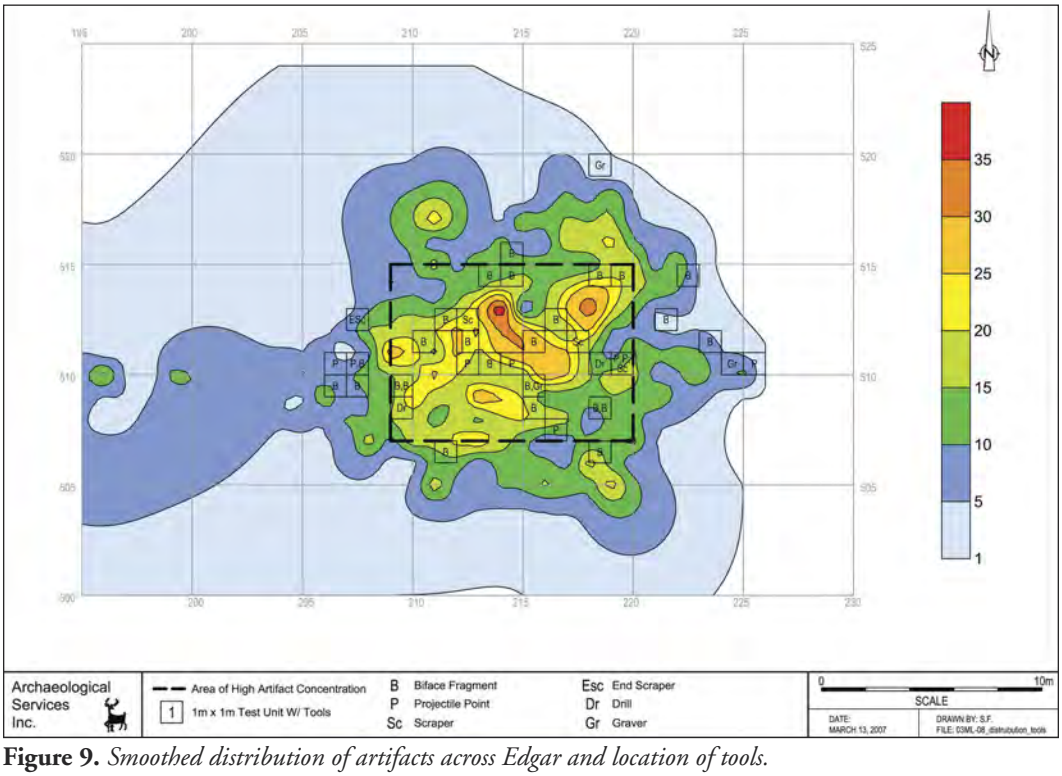

Figure 9. *Smoothed distribution of artifacts across Edgar and location of tools.*

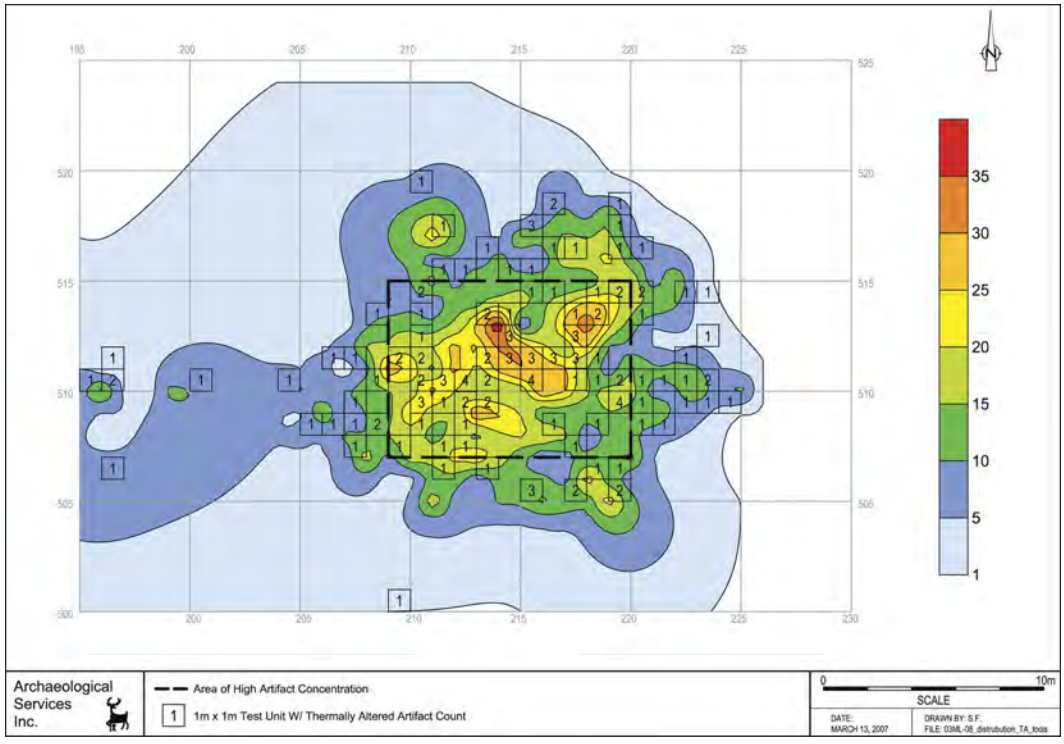

Figure 10. *Smoothed distribution of artifacts across Edgar and location of thermally altered items.*

The centralized activity area at Edgar is more likely to represent an exterior activity locus with smaller, outlying task-specific loci also present. Alternatively, these loci may represent "toss zones" for generally larger debris, as documented by Timmins in the artifact distribution surrounding exterior hearths dating to the Early Woodland component at the Little Shaver site (Timmins 1996:64).

The distribution of formal tools recovered during excavation was even across the site area, arguing against specific activities being conducted at certain locations. The area of high concentration contained 53 percent (23) of the tools excavated at the site (Figure 9). A total of 79 artifacts displaying evidence of thermal alteration were present in the high concentration area of the site (Figure 10). This fact plus the notion of an exterior activity area supports a hypothesis of a warm-weather occupation.

Andridge Site

The Andridge site (AlGu-347) was first encountered in 2005 during a Stage 1 and 2 archaeological assessment in a former pine plantation operated by the Ministry of Natural Resources. A test pit survey resulted in the recovery of three pieces of Onondaga chert shatter from a shovel test pit. As additional test pitting did not result in the recovery of more artifacts, the original test pit was expanded into a one-metre square unit (500–200) yielding nine additional pieces of shatter. Two units placed directly north and south of the first (501–200, 499–200) yielded 15 pieces of debitage each. During Stage 3 investigations, 13 additional ploughzone test units were hand excavated resulting in the recovery of 80 additional pieces of debitage and two crude bifaces in two discrete artifact concentrations about 10 m apart (Figure 11).

The Stage 4 assessment entailed the

excavation of an additional 76 one-metre units located within each of the areas of highest artifact density: 44 in the north locus and 32 in the south (Figure 11). The excavations were terminated when ploughzone artifact yields dropped to below 10 items per square metre. The 44 m² in the

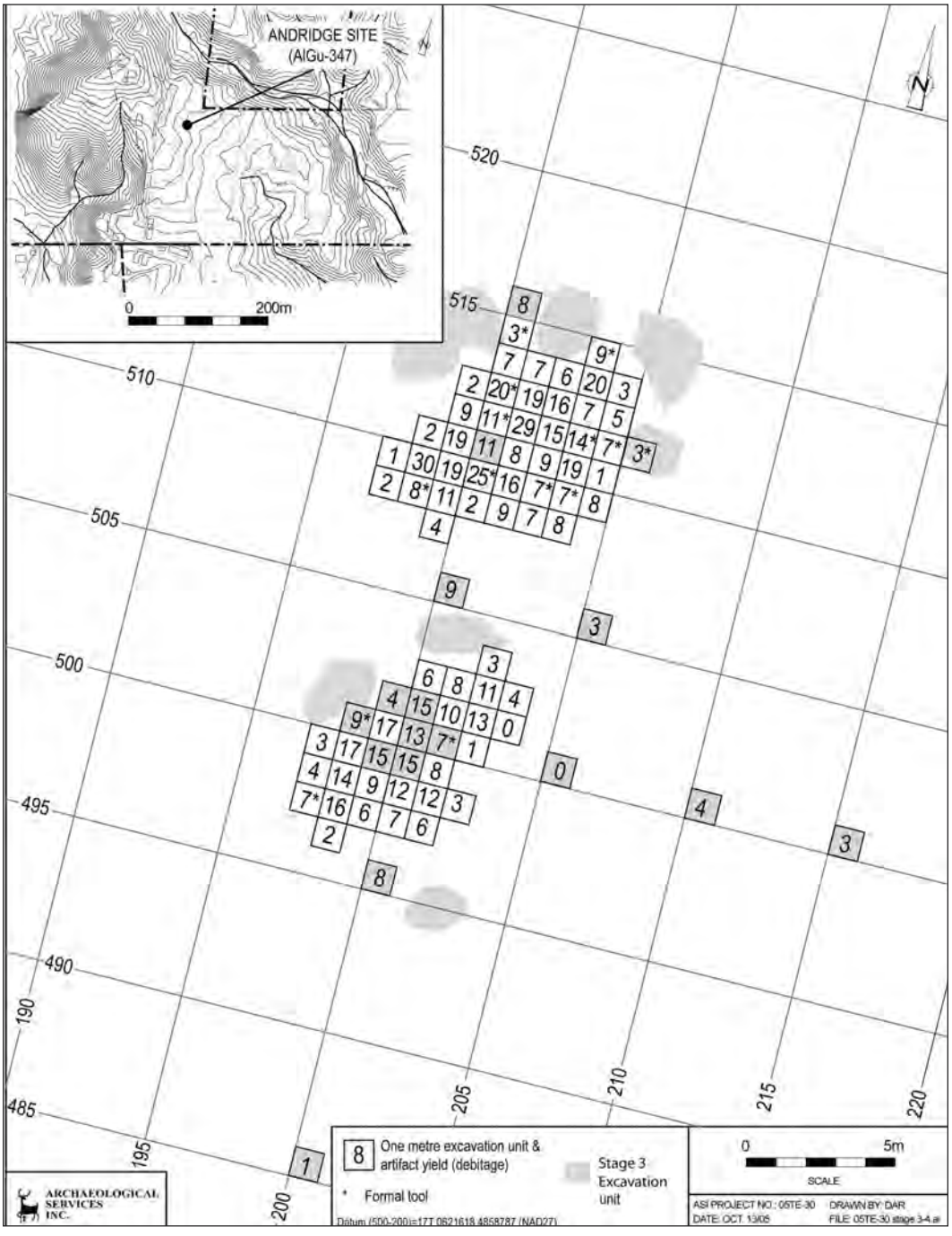

Figure 11. *Stages 3 and 4 lithic artifact counts at Andridge. Irregular shaded areas are disturbances.*

northern locus yielded 453 artifacts, including five fragmentary bifaces and seven end scrapers, while the south locus yielded 277 artifacts, including three bifaces. The vast majority of the debitage is shatter. Combined, the Stages 3 and 4 assessments resulted in the recovery of 758 lithic artifacts from 83 m^2 units excavated across a 200 m^2 area.

Artifact Analysis

Artifact types recovered from the Stages 3 and 4 investigations are listed in Table 8. Within the overall assemblage, the chert types represented include Onondaga (n = 753), Lockport (Ancaster) (n = 4), and Trent Valley (n = 1). Thirty-one lithic artifacts, or 4.1 percent of the assemblage, exhibit evidence of thermal alteration. Retouch and/or utilization are present on two artifacts, or 0.3 percent of the assemblage.

Table 8. *Stages 1–4 Lithic Artifact Frequencies and Percentages from Andridge.*

Artifact Type	n	%
Core fragment	1	0.1
Core trimming flake	1	0.1
Primary reduction flake	4	0.5
Primary thinning flake	19	2.5
Secondary knapping flake	180	23.8
Secondary retouch flake	49	6.5
Shatter/flake fragment	489	64.5
Formal end scraper	7	0.9
Biface/biface fragment	8	1.1
Total	**758**	**100.0**

Bifaces. All eight biface and biface fragments are manufactured from Onondaga chert (Table 9). Two complete, crude bifaces were recovered (L30; Figure 12a) and (L12; Figure 12b).

Six biface fragments were recovered and include a lateral edge fragment of a semi-refined biface (L14; Figure 12c) and a base of a biface (L97; Figure 12d). A crude biface fragment (L127; Figure 12e), a small biface edge fragment (L169; Figure12f), and another fragment (L174; Figure 12g) were also recovered.

A midsection/basal portion of a refined biface (L209; Figure 12h) has full facial oblique dorsal flaking and irregular ventral flaking. It also exhibits narrowing toward the base. It was recovered in the northeastern most perimeter of the site.

The complete bifaces and one biface fragment (L30, L12, L14) were recovered from the southern concentration of artifacts, while the remaining five biface fragments were recovered from the northern artifact concentration of the site.

Table 9. *Bifaces from Andridge.*

			Dimensions (mm)			
Cat.	**Material**	**Thermally Altered (n)**	**Length**	**Width**	**Thickness**	**Comments**
L12	Onondaga	-	46	30	14.1	crude, early stage biface
L127	Onondaga	-		21.2	8	crude, edge fragment
L14	Onondaga	-	39.2	19.9	11.1	lateral edge fragment of early stage biface
L169	Onondaga	-			7	small edge fragment
L174	Onondaga	-	38.3	23.5	6.9	biface fragment
L209	Onondaga	-		32.6	5.5	midsection/base of refined preform, oblique dorsal flaking and blade narrowing
L30	Onondaga	-	33.5	36.9	12	crude, early stage biface
L97	Onondaga	1	34.2	30.3	6.8	base of thin, semi-refined biface

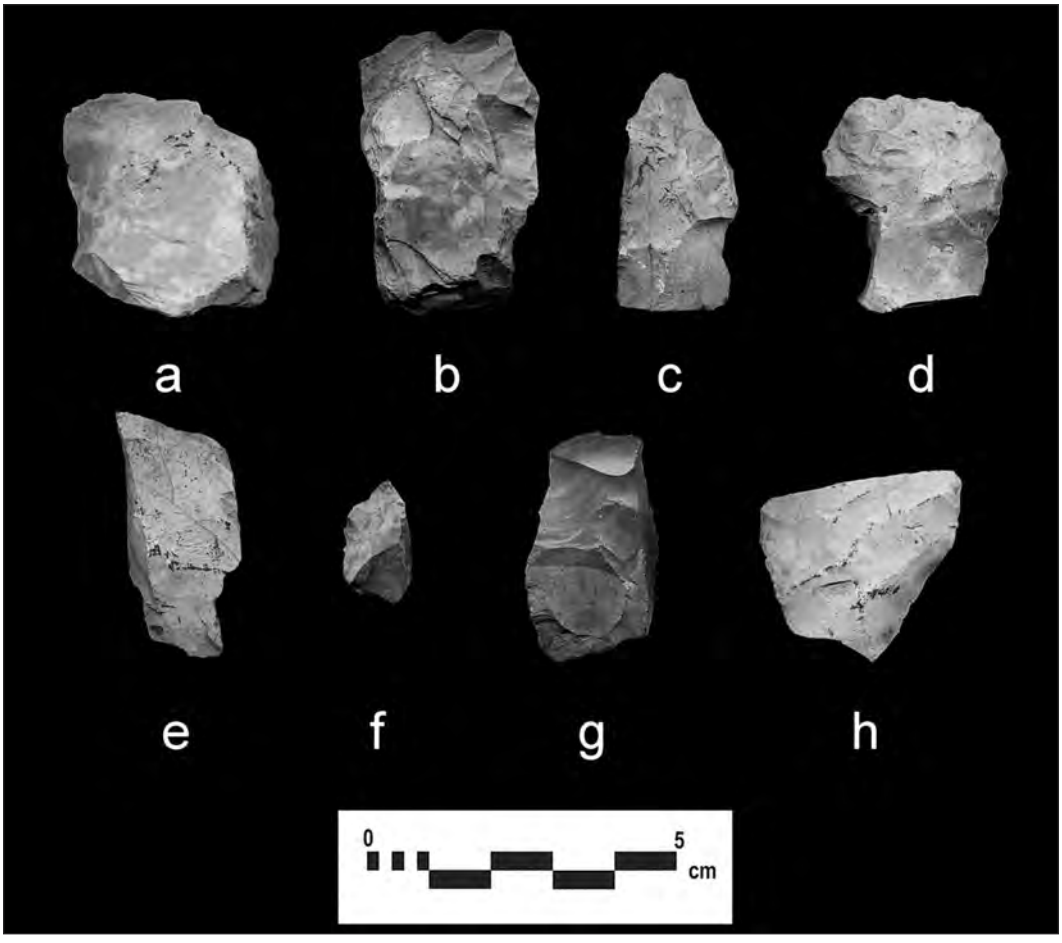

Figure 12. *Selected chert bifaces and biface fragments from Andridge: (a) complete (L30), (b) complete (L12), (c) lateral edge fragment of a semi-refined biface (L14), (d) base (L97), (e) fragment (L127), (f) fragment (L169), (g) fragment (L174), and (h) midsection/base of a refined biface (L209).*

Scrapers. All seven end scrapers were manufactured from Onondaga chert; one shows evidence of thermal alteration (Table 10). All are unifacial and are made on primary thinning flakes that have pronounced retouch on their distal margins creating end scraping surfaces. Most specimens also have slightly tapered lateral edges and three exhibit retouch on one or both lateral margins, perhaps functioning as end/side scrapers (L180, L183, L207). L0180 (Figure13f) has retouch present along both lateral margins. L183 (Figure 13g) has an elongated form and pronounced retouch along all margins. L207 (Figure 13b) exhibits retouch extending along one lateral margin. Two specimens appear to be solely end scrapers: L218 (Figure 13a) and L175 (which is thermally altered; Figure13e).

Three specimens have spurs (L131, L160, L183; Figure 13c, d, e, respectively). L131 exhibits a single corner spur and slightly expanding sides as well as the presence of moderate dorsal flaking. A single corner spur was also present on L160 and L183, a combination end/side scraper described above, displays multiple spurs on its lateral margins along with full dorsal flaking.

The scrapers are uniform in size, averaging 32

Table 10. *End Scrapers from Andridge.*

			Dimensions (mm)			
Cat.	**Material**	**Thermally Altered (n)**	**Length**	**Width**	**Thickness**	**Comments**
L131	Onondaga	-	32.6	22.1	8.7	spurred end scraper, slightly expanding lateral edges, dorsal flaking
L160	Onondaga	-	31	21.9	6.5	spurred end scraper on primary thinning flake
L175	Onondaga	1	28.4	21	6	end scraper on a primary thinning flake fragment
L180	Onondaga	-	32.8	24.3	7	end/side scraper; distal retouch extends along one lateral margin
L183	Onondaga	-	39.1	23.5	7	elongate, multiple spurred end/side scraper w full dorsal flaking; corner and lateral spurs
L207	Onondaga	-	37.8	21.3	6.6	end/side scraper; primary thinning flake w distal and lateral retouch
L218	Onondaga	-	25	23	7	end scraper on a primary thinning flake

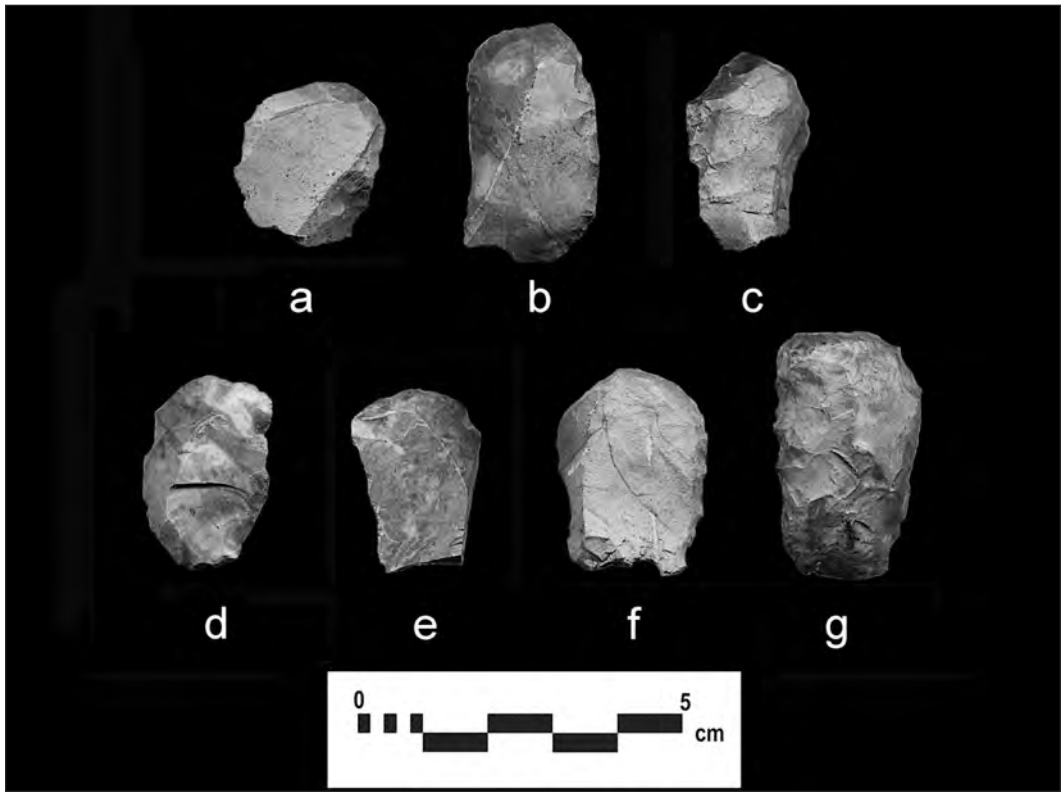

Figure 13. *Selected chert scrapers from Andridge: (a) end scraper (L218), (b) end scraper (L207), (c) end scraper (L131), (d) end scraper (L160), (e) end scraper (L175), (f) end scraper (L180), and (g) end scraper (L183).*

mm in length, 22mm in width and 7 mm in thickness, which is within the size ranges of end scrapers reported from other Early Archaic sites like Nettling (McMillan 2003). It is noteworthy that all seven end scrapers were recovered from the northern artifact concentration.

Artifact Distribution

Two artifact concentrations were documented that were approximately 4–5 m apart. The southern concentration covered an approximately 7 × 9 m area from grid lines 197 to 203 east–west and 495 to 503 north–south. The second, northmost concentration of artifacts covers a 9 × 9 m area from grid lines 197 to 205 east–west and 507 to 515 north–south.

The dimensions of both artifact concentrations (7 × 9 m and 9 × 9 m) fit within size range estimates reported for structures documented in Late Archaic components, such as the Innes (Lennox 1986) and Canada Century sites (Lennox 1993:19). As noted for the Edgar concentration, Lennox (1993) cites cold-weather occupations as requiring larger houses with more indoor space. However, like at the Edgar site, the artifact density distribution at Andridge does not conform to the pattern of "primary" and "secondary" peaks as noted by Lennox (1986:236–237).

The Middle Archaic house structure at the multi-component Little Shaver site, documented by Timmins (1996) and discussed above, had two zones of artifact distribution within the house: one around a hearth and the other an outer zone representing accumulation of secondary refuse against the house wall. That house structure measured 6 × 5 m, much smaller than the Innes or Canada Century site houses or the artifact concentrations at Andridge or Edgar.

It is possible, given the two restricted artifact concentrations at Andridge, that cultural material had been deposited within the confines of two small shelters/structures, similar to what has been suggested for the McKean site (Lennox 2002), or perhaps one structure (northern concentration) and one smaller activity area (southern concentration). If that is the case, one of the activities carried out in the northern concentration was the scraping of hides, in that all the scrapers were recovered from that area (Figure 14).

Alternatively, these loci may represent "toss zones" for generally larger debris, as documented by Timmins in the artifact distribution surrounding exterior hearths dating to the Early Woodland component at the Little Shaver site (Timmins 1996:64). A total of 32 artifacts displaying evidence of thermal alteration were present, 68 percent of them in the northern concentration of the site, suggesting the former presence of a hearth in that area (Figure 15).

Discussion and Comparison with Other Paleo and Early Archaic sites

The Edgar and Andridge sites date to the Early Archaic period, Edgar largely on account of the presence of Nettling-style projectile points, and Andridge because of the presence of unifacially flaked scrapers, some of which have one or more spurs as well as multiple lateral and end scraping surfaces. They are characterized by moderate to full dorsal flaking. Extensive dorsal flaking is characteristic of more than 50 percent of the end scraper assemblage at the Early Archaic Nettling site, probably as an aid for hafting, and serves to distinguish these items from earlier and later forms (Ellis et al. 1991:13; McMillan 2003).

The Edgar site encompasses an area of approximately 480 m^2 (30 × 16 m) and extends in an east–west orientation. Andridge is half the size, encompassing 200 m^2 (10 × 20 m) extending in a north–south orientation. A total of 230 units was excavated at Edgar, yielding an assemblage of 2974 artifacts, while at Andridge, a total of 758 artifacts was recovered from 83 units.

There are several ways of classifying the lithic assemblage data, for example, based on, widely recognized tool types (e.g., projectile points, end scrapers, gravers), inferred tool functions (e.g., weapons, piercing, scraping, cutting, incising), and knapping technique (e.g., bifacial, unifacial) and end-product (tool type, debitage). Percentage frequency data for eight Paleo and Early Archaic sites, or assemblage areas, for unifacial tools, bifacial tools, and debitage are provided in Table 11. These sites and assemblage areas include the Kassel (Lennox 1993), Tegis (Burger 1997), Fisher

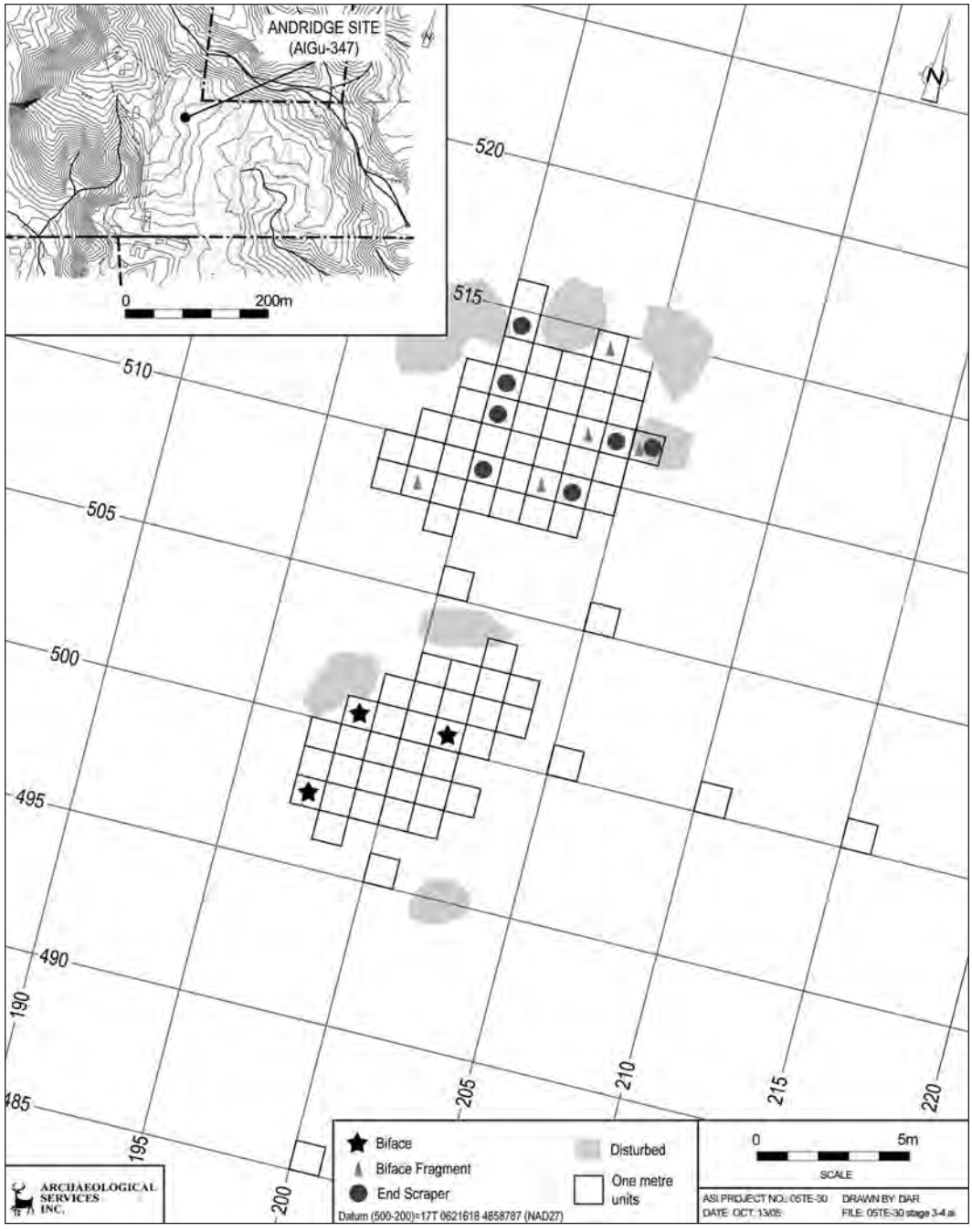

Figure 14. *Tool distribution at Andridge.*

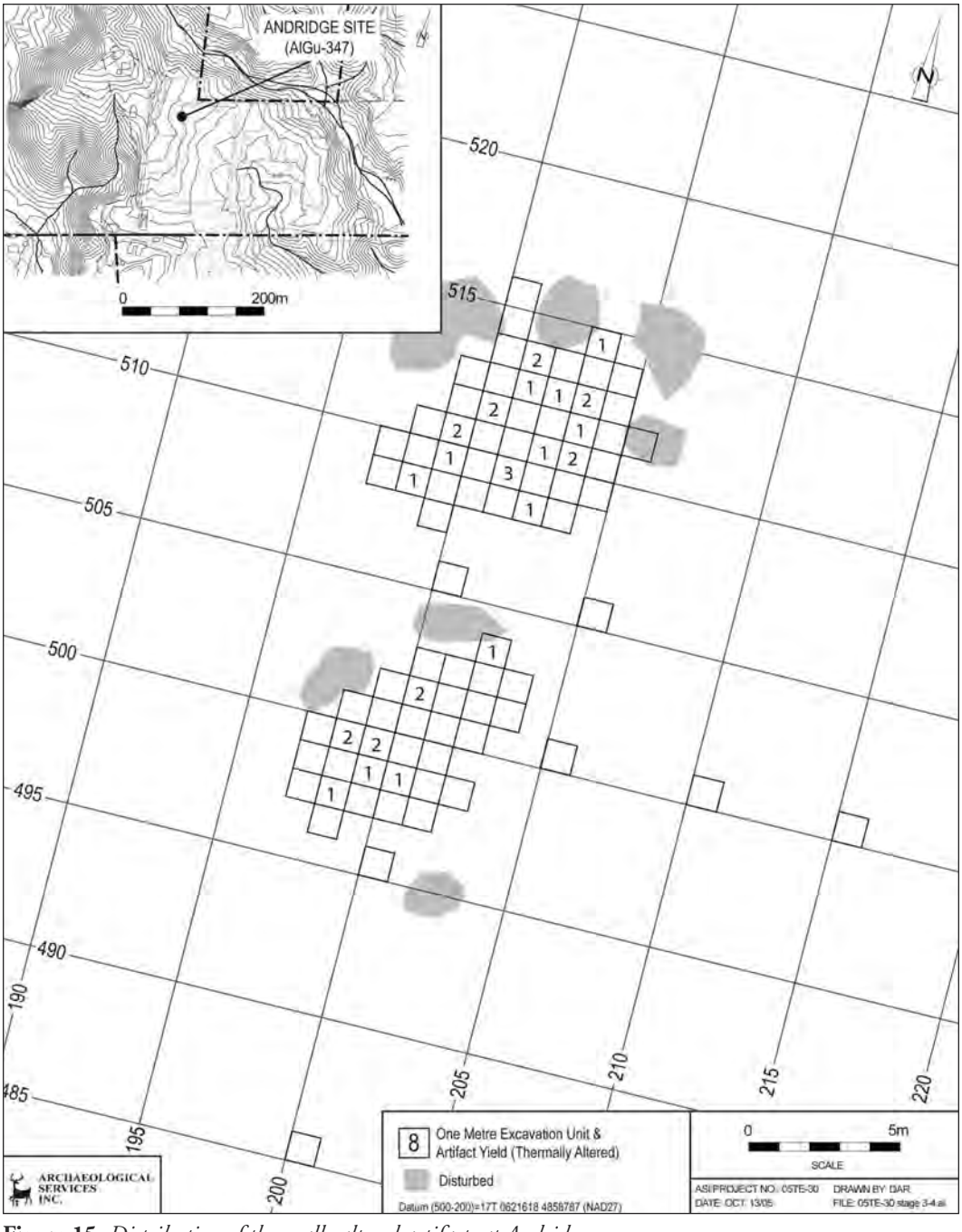

Figure 15. *Distribution of thermally altered artifacts at Andridge.*

Table 11. *Percentage and Total Number of Unifacial and Bifacial Artifacts and Debitage by Site, for Extensively Excavated and Published Paleo-Indian and Early Archaic Sites and Discrete Areas (identified by letter suffix) Within Sites in Southern Ontario, Ordered by Assemblage Size.*

Artifact Class	Andridge	Tegis	Kassel	Parkhill-D	Edgar	Parkhill-B	Fisher-D	Fisher-C
Bifacial	1.1	4.4	2.1	1.7	1.4	2.5	1.1	0.3
Unifacial	0.9	6.2	2.3	6.0	0.1	0.6	0.9	1.2
Debitage	98.0	89.4	95.5	92.3	98.5	96.8	98.1	98.5
Total (n)	**758**	**870**	**1163**	**1573**	**2974**	**3233**	**5981**	**7685**

Note: The class debitage includes flakes that are reported as "utilized" in some of the publications.

Table 12. *Percentage and Total Number of Tools by Type, by Site, for Extensively Excavated and Published Paleo-Indian and Early Archaic Sites and Discrete Areas (identified by letter suffix) Within Sites in Southern Ontario, Ordered by Assemblage Size.*

Artifact Class	Andridge	Tegis	Kassel	Parkhill-D	Edgar	Parkhill-B	Fisher-D	Fisher-C
Fluted point and preform	0	0	0	19.0	0	74.8	42.6	1.7
Serrated projectile point	0	20.2	0	0	22.2	0	0	0
Bifurcate projectile point and preform	0	0.0	15.4	0	0	0	0	0
Trianguloid knife	0	1.1	1.9	0	0	0	0	0
Bifacial drill or rod-like tool	0	2.1	3.8	0.0	4.4	0	0	0
Bifacial artifact/fragment (unspecified)	53.3	16.0	26.9	3.3	57.8	4.9	13.0	16.5
Unifacial perforator or graver	0	5.3	1.9	6.6	6.7	1.9	9.6	6.1
Beaked scraper	0	1.1	0.00	1.7	0	1.0	7.8	4.3
Concave scraper/spokeshave	0	2.1	1.9	0	4.4	0	4.3	8.7
End scraper	46.7	12.8	3.8	32.2	2.2	1.0	4.3	2.6
Unifacial artifact/fragment (unspecified)	0	37.2	44.2	37.2	2.2	16.5	18.3	60.0
Total (n)	**15**	**94**	**52**	**121**	**45**	**103**	**115**	**115**

(Storck 1997), and Parkhill (Ellis and Deller 2000) sites.

Parkhill-B and Fisher-D in Tables 11 and 12 are "specialized" assemblages within those Paleo sites, compared with other more "generalized" areas within the same sites. The nature or cause of specialization, for both sites, was attributed to discard, re-hafting, and manufacturing of fluted bifaces (Ellis and Deller 2000; Stewart 1997). Parkhill-D and Fisher-C are areas within those sites yielding "generalized" assemblages attributed to a wider range of domestic activities that possibly indicate base camps.

Like at Kassel and Fisher-D, the proportion of bifacial to unifacial tools is close to 1:1 at Andridge (Table 11). Edgar and Parkhill-B have a high proportion of bifacial tools relative to unifacial tools and appear quite specialized, while this proportion is reversed at Tegis, Parkhill-D, and Fisher-C, which have more unifacial tools and are more generalized activity areas.

Table 12 provides percentages for some of the tool types defined for Paleo and Early Archaic sites. The percentage of projectile points as a whole at the Early Archaic Kassel (15.4%) and Edgar (22.2%) sites, while substantial, is much lower than at either of the specialized areas at Fisher (43%) or Parkhill (75%), which were interpreted as projectile point retooling areas. Kassel is interpreted as a base camp, while Edgar appears to be more specialized than either the Kassel or Tegis sites, particularly because of the rarity of end scrapers and unifacial tool fragments at Edgar. Edgar has a large proportion of bifacial tools, relative to unifacial tools, compared with all other sites/areas, except for Parkhill-B, and at both Edgar and Parkhill the bifaces are almost exclusively points or preforms for the same. At Andridge, on the other hand, no projectile points were recovered, but eight (46.7%) of the formal tools were end scrapers. This contrast suggests that Andridge is a specialized site, perhaps where end scrapers were manufactured and used. The lack of cores and limited primary flaking debris (3%) also points to a relatively limited occupation, during which the full range of lithic reduction activities was not undertaken.

The Nettling site itself is a large site, with at least two clusters of material, possibly representing a pattern of mobility and settlement organization comparable in some ways to patterns inferred for the Paleo period (Ellis et al. 2009). The broad range of tools from that site suggest a more generalized occupation than at Edgar or Andridge. The frequency of Corner-Notched horizon sites in southern Ontario, however, suggests a higher population compared with the earlier Paleo period (Ellis et al. 2009:800).

Summary

The Edgar site is an Early Archaic, Corner-Notched horizon site, which yielded serrated, corner-notched projectile points similar to those from the Nettling site, thinned biface base fragments and drills—all consistent with early sites that date to circa 9,700–8,900 RCYBP (Ellis et al. 2009:796–801). Out of a total of five serrated projectile points, four are missing their tips. This suggests that the site may relate to "retooling" after a hunt, due to damage and breakage that had occurred. The Andridge site is also thought to date to the Early Archaic period due to the presence of unifacial spurred end scrapers with moderate to full dorsal flaking on two specimens that are of a size and shape consistent with those examples seen at other sites, such as Nettling.

The presence of a high proportion of secondary knapping and retouch flakes (Table 11), compared with other sites considered in this study, suggests that later-stage biface reduction and/or formal tool resharpening were important activities at both sites. There was limited evidence of primary reduction. Both sites appear to have been occupied on a short-term, seasonal basis and are not considered to have been base camps. Knappers at both sites relied almost exclusively on Onondaga chert, at considerable distance from potential primary sources, suggesting some continuing conservatism, like in the previous Paleo period, relying, that is, on favoured primary sources (for discussion, see Ellis et al. 2009:798–800). The non-Onondaga raw materials are local Ontario cherts rather than more exotic, for example, Ohio, cherts.

Despite the fact that the Andridge and Edgar sites date to the Early Archaic period and have two different (i.e., possibly complementary) functions, they were situated approximately 800 m apart,

which suggests that they were unlikely to have been used concurrently. The occurrence of multiple generalized and specialized areas at Paleo sites (Deller and Ellis 1992; Ellis and Deller 2000; Stewart 1997) raises the question whether one or more generalized areas had existed near Andridge and Edgar—areas that would have yielded diverse toolkits reflecting a wide range of domestic tasks. The potential for a productive environment in the vicinity of both sites suggests opportunities for seasonal population aggregation that may have necessitated both home bases and specialized task areas. Approximately 70 percent of Block 12 in OPA 400 is now developed, and to our knowledge, such sites have not yet been identified. The remaining conserved lands are wooded ravine systems, some with bordering setbacks at the edges of the tablelands.

A large number of Early Archaic findspots in Durham Region, east of the Edgar and Andridge sites, suggests extensive occupation of southern Ontario north of Lake Ontario during this period, with most of the occupation occurring on relatively well-drained substrate nearer the shore of the lake (Roberts 1985). More generally, there are about 525 Early Archaic sites (camps, scatters) and 367 findspots,[2] compared with 49 Paleo sites and 94 findspots (Hanson and Ellis 2012), in southern Ontario. These data suggest that despite environmental change from the previous period, there was population expansion in southern Ontario (see also Ellis et al. 2009:800).

While these sites are small, the investigation of these apparent task-specific locales can be seen to have contributed to an enhanced understanding of settlement types for the period.

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[2] Site statistics provided by Robert von Bitter, Archaeological Data Coordinator, Ministry of Heritage, Sport, Tourism and Culture Industries, March, 2020.

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Les sites Edgar et Andridge, situés sur des cours d'eau d'amont du bras est de la rivière Don, ont été fouillés entre 2003 et 2006 dans le cadre de fouilles de récupération par Archaeological Services Inc. Cet article résume les analyses découlant des données recueillies sur le peuplement et la culture matérielle. Une reconstruction environnementale a été entreprise, laquelle a compris des examens de l'origine géomorphologique de la région,le climat, les caractéristiques du sol, la couverture végétale présumée ainsi que la disponibilité des ressources fauniques et botaniques. Ces éléments, assortis des données recueillies sur le site ont ensuite été comparés aux connaissances archéologiques du mode de vie à la fin de la période paléoindienne et du début de la période archaïque dans l'ensemble de la région afin d'interpréter la structure et les fonctions des deux sites. Bien que les sites Andridge et Edgar datent du début de la période archaïque et semblent avoir servi à des fonctions à la fois différentes et complémentaires, elles sont situées environ 800 mètres de l'une et de l'autre aux rives opposées du cours d'eau, ce qui semble suggérer qu'il est peu probable que les deux sites furent utilisés en même temps. La présence de multiples aires générales et spécialisées à des sites plus anciens soulève la question quant à savoir si une ou plusieurs aires générales auraient pu avoir servi près des sites Andridge et Edgar—endroits qui auraient permis de récupérer des trousses d'outils divers, reflétant un large éventail de tâches ménagères. L'étude des deux sites a néanmoins permis d'obtenir des données supplémentaires concernant l'utilisation du paysage par les chasseurs-cueilleurs qui habitaient dans la région de la rive nord du lac Ontario au début de la période archaïque.

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