PARSON SITE CHIPPED STONE ARTIFACTS

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INTRODUCTION

The excavation of the Parsons site resulted in the recovery of nearly 3,000 chipped lithic artifacts. While over 100 of these artifacts were recovered from test pits excavated during preliminary investigation of the site, the vast majority of the assemblage was derived from subsurface contexts. Figure 25 illustrates the distribution of artifact classes within the assemblage, while Table 41 provides a summary of the frequency of the recovered chipped lithic artifacts by provenience.

METHOD OF ANALYSIS

Following cleaning and sorting, all lithic artifacts were subjected to a preliminary analysis that included the identification of formal tools, utilized flakes, debitage, an evaluation of thermal alteration, and the recording of metrics. Low power magnification (10x) was used to examine retouch and use wear on formal and expedient tools, morphology of debitage, and thermal alteration. The objectives of this analysis were to provide a basic description of the overall attributes of the formal and expedient tools, as well as to explore the lithic technology of the site occupants through debitage analysis.

Tools include all lithic artifacts that exhibit modification caused by either retouch or utilization. The analysis of these implements is based upon examination of stylistic attributes, diagnostic morphology, and manufacturing patterns. Measurements of artifact length, width, and thickness are provided only for diagnostic tools and tool fragments (minimum dimensions of fragmentary items are indicated by a "+" symbol).

FORMAL TOOLS

Projectile Points

Ten complete projectile points, and fragments of nine others, were recovered. A complete isosceles triangular point (Figure 26:a), measuring 43 x 19 x 4 mm was recovered from Feature 49 in House 3. The curvature of the original flake is very evident, and the flaking was mainly concentrated on its dorsal surface.

Three complete, well-made isosceles triangular points exhibiting concave bases and basal spurs were also recovered. The first (Figure 26:b), measuring 29 x 17 x 7 mm, was recovered from Feature 128 in House 7, the

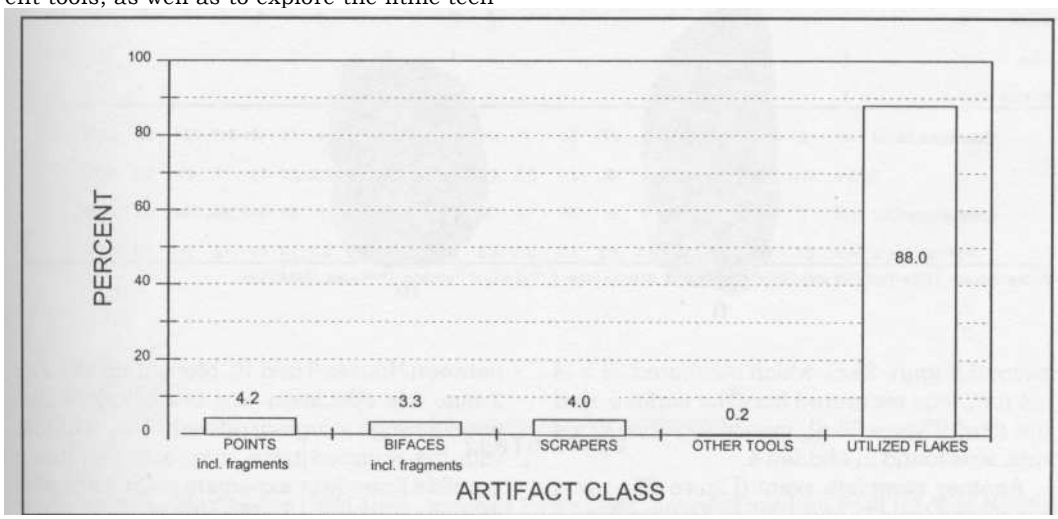

Figure 25. Chipped Stone Tool Frequencies.

Table 41. Frequency of Chipped Stone Artifacts by Provenience.

	TP&	EA1	EA11	EA3	EA7	EA8	EA9	E. Pal	H10	H3	H4	H5	H7	H8	H9	M1	M2	M3	M4	Surf.	n	%
TOOLS																						
utilized flake	23			1	1	1	16	14	4	22	45	3	20	31	2	8	116	41	45	1	394	88
biface fragment	2						1	1		3							5	1	1		14	3.1
projectile point fragment	4						1	1		2				1			1				10	2.2
amorphous flake scraper	2							1		3				1			1		1		9	2
complete projectile point	2						1			1			1	2					1	1	9	2
scraper			1															1	1		3	0.7
end/side scraper										1									1	1	3	0.7
biface													1								1	0.2
graver																	1				1	0.2
end scraper														1							1	0.2
side scraper	1																				1	0.2
spokeshave							1														1	0.2
Tool subtotal	34	0	1	1	1	1	20	17	4	32	45	3	22	36	2	8	124	43	50	3	447	100
%	7.6	0	0.2	0.2	0.2	0.2	4.5	3.8	0.9	7.2	10	0.7	4.9	8.1	0.4	1.8	28	9.6	11	0.7	100	
DEBITAGE																						
shatter	41	1			2		31	15	4	39	54	5	30	62	2	35	505	129	114	32	1101	43
secondary thinning flake	20			1	1		6	2		19	14	4	9	16	1	12	310	61	49	1	526	21
secondary knapping flake	8	1		1	1	1	11	6	1	19	29	3	8	35		11	186	68	47		436	17
primary thinning flake	9			1		1	18	8	1	11	7	3	9	15		11	54	15	25	1	189	7.4
compression flake	8						5	4	1	**5**	12		6	11		3	41	26	19		141	**5.5**
bipolar nucleus	8	1		1			5	1		9	11	2	7	9			16	13	24		107	4.2
primary reduction flake	2		1				1			2	3		4			2	5	3	2		25	1
chunk			1							2	2				1		4	2	1	1	14	0.6
core	1										1		1								3	0.1
bifacial nucleus	1																				1	0
Debitagesubtotal	98	3	2	4	4	2	77	36	7	106	133	17	74	148	4	74	1121	317	281	35	2543	100
%	3.9	0.1	0	0.2	0.2	0	3	1.4	0.3	4.2	5.2	0.7	2.9	5.8	0.2	2.9	44	12	11	1.4	100	
AssemblageTotal	132	3	3	5	5	3	97	53	11	138	178	20	96	184	6	82	1245	360	331	38	2990	
			0.1	0.2	0.2	0.1	3.2	1.8	0.4	4.6	6	0.7	3.2	6.2	0.2	2.7	42	12	11	1.3	100	

Abbreviations: TP&= Test Pits and Other, EA=Exterior Activity Area, E. Pal =East Palisade, H=House, M=Midden

second (Figure 26:c), which measured 33 x 14 x 4 mm, was recovered from the surface, and the third (Figure 26:d), measuring 35 x 12 x 4 mm, was found in Midden 4.

Another complete point (Figure 26:e) was recovered from Feature 209 in Exterior Area 9 between Houses 8 and 10. Measuring 23 x 15 x 3 mm, this specimen was crudely manufactured through marginal retouch. This, together with the rounded base, suggests that it is a possible juvenile or expedient point. The basal portions of three additional triangular points

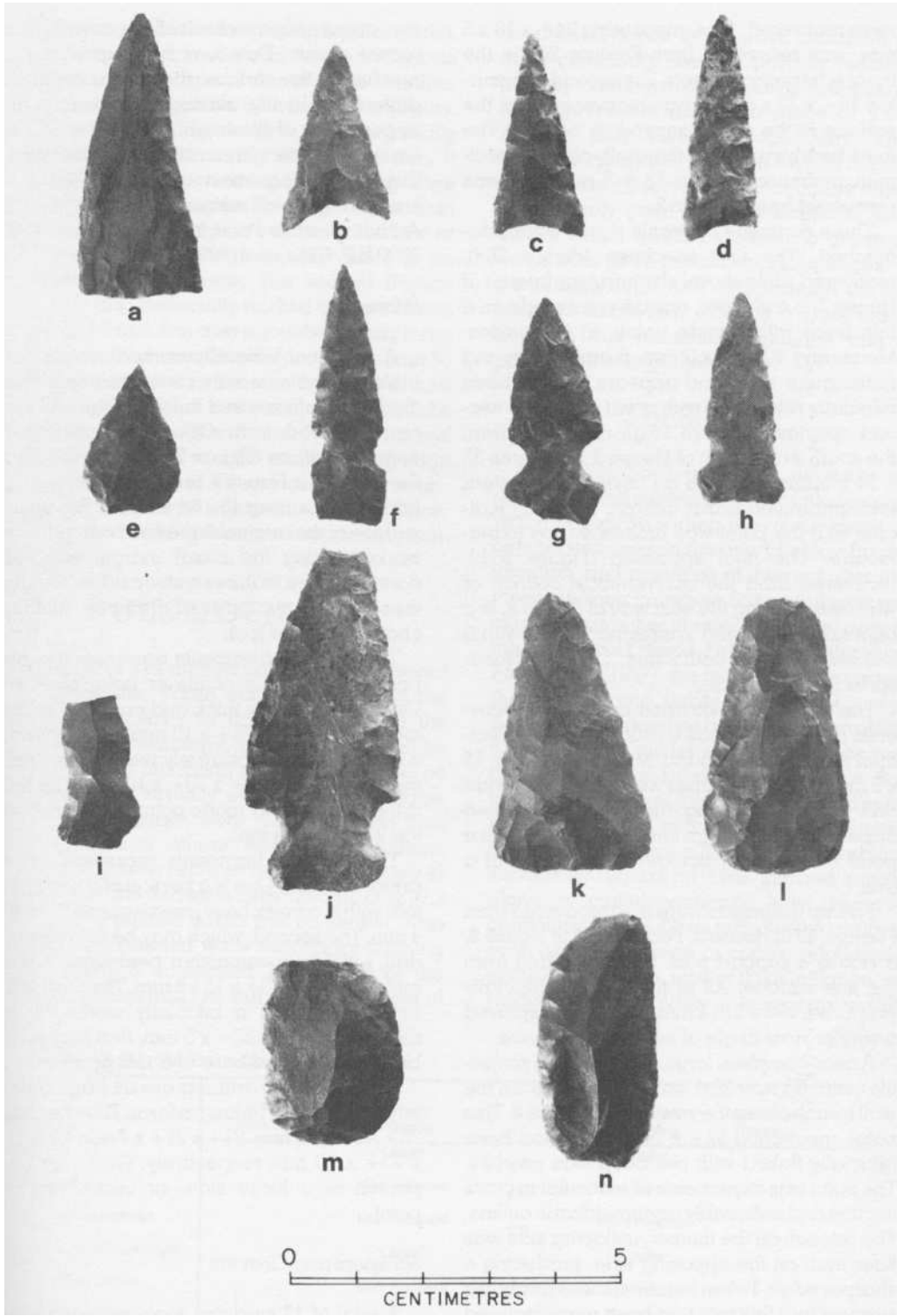

Figure 26. Selected Chipped Lithic Tools: Isosceles Points (a-d); Juvenile/Expedient Point (e); Side-Notched Points (f-h); Side-Notched Point/Drill (i); Late Archaic Point (j); Biface (k); Scrapers (I-n).

were recovered. One, measuring 24+ x 18 x 5 mm, was recovered from Feature 240 in the inner east palisade area. The second, measuring 19+ x 13 x 5 mm, was recovered from the surface of the site in secondary context. The third, nearly complete, thermally altered specimen measured 16+ x 13 x 3 mm and was recovered from Midden 2.

Three complete projectile points were side-notched. The first specimen (Figure 26:f), recovered while shovel-shining in the interior of House 7, is a slender, narrow point made on a thin flake with a wide notch on both sides. Measuring 40 x 12 x 3 mm, it has a long and rectangular stem and appears to have been bifacially retouched with great care. The second specimen (Figure 26:g), recovered from the south wall trench of House 3, measures 35 x 14 x 5 mm and has an asymmetrical stem and untrimmed basal margin. This may indicate that the point was broken during manufacture. The final specimen (Figure 26:h), recovered from the northernmost section of wall trench along the east wall of House 8, is a bifacially flaked and symmetrical point with a shallow notch on both sides. This point measures 33 x 13 x 4 mm.

The single, side-notched point base recovered (Figure 26:i) was a crudely made specimen that had been burnt. Measuring 24+ x 13 x 5 mm, the side notches were over 6 mm wide and indistinct, giving the piece a waisted appearance. Although tentatively classed as a point base, it may actually be the base of a drill.

Five tip fragments were also recovered from Feature 49 in House 3, Feature 156 in House 8, a House 8 support post, Midden 2, and from the site surface. All of these were bifacially prepared, were 3 to 4 mm thick, and displayed a very narrow angle of edge convergence.

A near-complete, large, side-notched projectile point (Figure 26:j) was recovered from the wall trench along the west wall of House 8. This point, measuring 52+ x 24 x 7 mm, had been bifacially flaked with two deep side notches. The point was asymmetrical, lenticular in cross section and noticeably asymmetrical in outline. The retouch on the thinner, insloping side was finer than on the opposing side, producing a sharper edge. Taken together, these attributes suggest that this tool had been manufactured or reworked to serve as a knife. The tip was missing and the blade had been snapped in two, apparently the result of one or more fairly recent events. Due to a build-up of carbon residue on the surface, the raw material was difficult to identify, although the lustrous grey appearance of the fresh surfaces suggested Onondaga chert. In sum, the characteristics of this point seem most akin to those of the Lamoka type or related points of the Late Archaic Narrow Point tradition of circa 4500 - 3800 B.P. (Ellis et al. 1990:97).

Bifaces

A variety of bifacially worked artifacts and artifact fragments were recovered, representing both preforms and finished tools. All were manufactured from Onondaga chert. One complete biface (Figure 26:k), recovered from Feature 141 in House 7, is an isosceles triangular tool measuring 43 x 24 x 9 mm. The ventral surface of the original flake has been primarily worked along the basal margin while the dorsal surface features a steep ridge; together these attributes give a distinctly unifacial character to the tool.

Three biface fragments represent tool tips, possibly projectile points or point preforms. One is a relatively thick and crude specimen measuring 28+ x 25+ x 10 mm. The second is a burnt, thick, but relatively well-flaked specimen measuring 32+ x 20+ x 10 mm. The third is the tip of a finely made point or drill measuring 21+ x 11 x 4 mm.

Three biface fragments represent tool or preform bases. One is a portion of a triangular tool with a convex base, measuring 27+ x 18 x 4 mm. The second, which may be the base of a drill, exhibits a somewhat pentangular base and measures 23+ x 15 x 5 mm. The third is the proximal end of a bifacially worked flake, measuring 18+ x 22+ x 5 mm, that may possibly have been the base of a tool preform.

The remaining artifacts are all fragments of larger bifaces of unknown form. They measure 25+ x 16+x9 mm, 21+x21+x7mm, and 41+ x 23+ x 10 mm respectively. One may be a portion of a large side- or corner-notched point.

Scrapers and Gravers

A total of 17 scraping tools was recovered during the 1989-1990 excavations, the majority being expediently produced artifacts made by

retouching flakes or, frequently, bipolar nuclei. Only three specimens can be described as formal end scrapers, having the familiar thumb-shaped outline and finished margins. One of these (Figure 26:1) is a unifacially worked piece measuring 42 x 22 x 8 mm. It exhibits fine retouch along the working edge and the lateral margins. The angle of the main (distal) working edge is relatively shallow at approximately 30 degrees, and there is no evidence of use wear. The second (Figure 26:m) is also unifacially worked and measures 29 x 22 x 7 mm. It is also retouched along three sides, and the main working edge is about 55 degrees with no visible use wear. The third (Figure 26:n) is a unifacially worked flake measuring 39 x 19 x 7 mm. It is retouched along three sides, and the main working edge is about 70 degrees with no visible use wear.

In addition to the scrapers, a single Onondaga chert flake graver was recovered from Midden 2.

UTILIZED FLAKES

A total of 334 utilized flakes was recovered from the site. When compared against the overall frequency of flake types within the debitage assemblage, certain trends can be noted. While utilization retouch was noted on examples of virtually every sort of debitage, certain categories were more common than expected and others were less common. Whereas shatter represented approximately 43 percent of the debitage assemblage, only 27.2 percent of utilized flakes was on shatter. Also under represented were secondary thinning flakes, which comprised 21 percent of the debitage assemblage, but only 5.9 percent of the utilized flakes. In contrast, utilization was more commonly seen on primary reduction, primary thinning, and compression flakes, with debitage versus utilization ratios of 1.0:2.4, 7.4:19.5, and 4.2:14.7, respectively. These higher frequencies, between 2.4 and 3.5 times higher than observed in the debitage assemblage, likely point to the selection of larger pieces which would be easier to grasp and would offer more useable working edges. The particularly high rate of utilization on compression flakes may indicate a close linkage between this reduction technique and the production of expedient tools.

DEBITAGE

A total of 2,543 pieces of debitage was recovered and subjected to a detailed analysis which began by sorting the assemblage into categories based on size, morphology, fracture initiation, and presence of thermal alteration. Pieces lacking complete flake attributes were classified as either shatter or chunks, depending on size and shape. Following Cotterell and Kamminga (1987), the remaining pieces were then sorted into flakes and nuclei (cores), based on the presence and distribution of flake scars. Bifacial nuclei exhibited one or more flake scars with bending or hertzian flake initiation, while bipolar nuclei exhibited one or more flake scars with compression initiation. Bifacial flakes were subdivided into arbitrary subclasses based on their inferred position along a multidimensional lithic reduction continuum (Table 42) as reflected by attributes such as the presence of cortex, relative size, dorsal scar counts, type of flake initiation, and platform angles. While it is recognized that

Table 42. Bifacial Flake Classification Matrix.

	Primary **Reduction**	Primary Thinning		**Secondary Knapping**	**Secondary** Thinning
Size		Larger	↔	Smaller	
Cortex		More Frequent	↔	Less Frequent	
Dorsal Flake Scars		Less Frequent	↔	More Frequent	
Striking Platform Angle		Larger	↔	Smaller	
Hertzian initiation		More Frequent	↔	Less Frequent	
Bending Initiation		Less Frequent	↔	More Frequent	

such a classification process involves a significant element of subjectivity, it is argued that this traditional approach to debitage analysis does permit the identification of general trends in the lithic assemblage and the underlying lithic technology. Compression flakes were not subdivided into subclasses, since bipolar flaking involves a single technique, a single mode of flake initiation, and a relatively narrow range of flake attributes. Finally, all pieces were classified on the basis of raw material and presence/absence of thermal alteration.

As illustrated in Figure 27, certain trends are evident in the distribution of debitage classes. Shatter is by far the most common class, at 43 percent of the total. Over 70 percent of this is from middens, 46 percent from Midden 2 alone.

The frequency of secondary knapping and thinning flakes, together accounting for 38 percent of the assemblage, suggests that the manufacture and refurbishment of bifacial tools were the major flintknapping activities undertaken at Parsons. In contrast, flakes classified as falling toward the primary reduction/thinning end of the continuum account for less than 9 percent of the total. Interestingly, bipolar nuclei and compression flakes comprised 4.2 and 5.5 percent, respectively, whereas bifacial nuclei make up only 0.2 percent of the assemblage. Also indicative of the emphasis on bifacial tool manufacturing is the predominance of bending initiations among flakes. Bending initiation of flakes tends to be more characteristic of soft-hammer and pressure flaking, *which* are the preferred techniques for biface thinning (Cotterell and Kamminga 1987). Out of 1,548 flake initiations identified, among debitage as well as other artifact categories, 69.6 percent were identified as bending initiations, 16.9 percent as hertzian initiations, and 13.4 percent as compression initiations. Approximately 18 percent of pieces exhibited evidence of thermal alteration (burning), and over 99.7 percent were Onondaga chert.

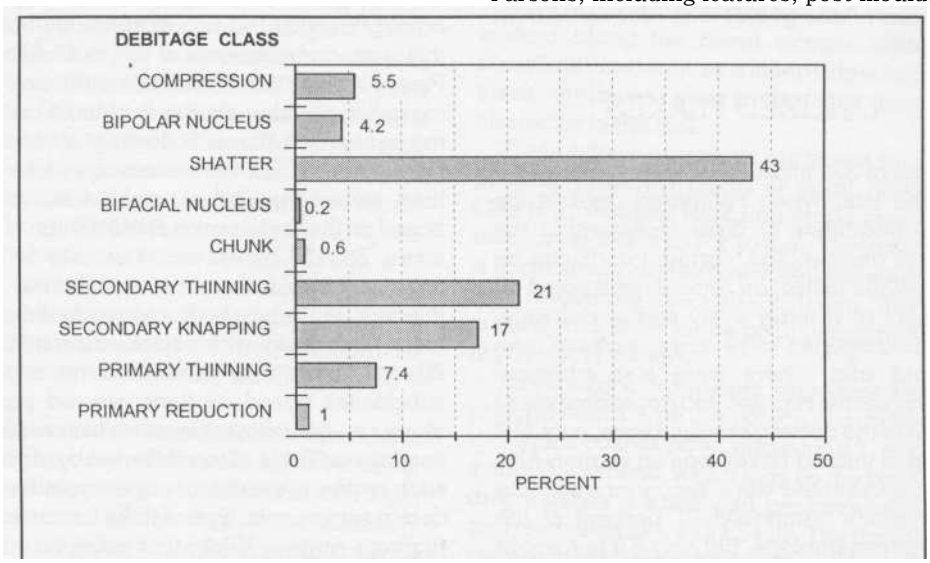

Figure 27. Frequency of Debitage Classes.

DISTRIBUTIONAL PATTERNS

Lithic artifacts were recovered from approximately 100 discrete contexts at Parsons, including features, post moulds, middens, wall trenches, and various disturbed (surface) localities. The most notable concentration of lithics, comprising 28 percent of tools, 44 percent of debitage, and 42 percent of the entire assemblage, was recovered from Midden 2. In total, the middens produced roughly two thirds of all lithics. This may, in part, indicate a refuse disposal practice of removing a potential hazard to pedestrian traffic to a safe location. Unlike decomposing organic waste, however, debitage could have easily been discarded within the house in low-traffic areas such as against the wall or in the

hearths. The latter, in particular, could account for both the observed frequency of thermal alteration and the concentration of lithics in middens which would result from periodic hearth clean-outs. To a large degree, however, the quantity of lithics in middens likely reflects the relative size of these refuse deposits, as the overall distribution of lithics at Parsons seems to be fairly uniform and correlated with the size of individual features. For example, the highest frequencies of lithics from longhouses occur in semi-subterranean sweat lodges, which are also the largest features by volume. While the number of lithics recovered from individual features ranged from 0 to 86, 75 percent of contexts produced single artifacts and 97 percent produced less than 10. The mean number recovered was 8.39 with a standard deviation of 16.4.

Other notable concentrations of lithics are elevated counts of utilized flakes in Exterior Area 9 between Houses 8 and 10, as well as inside Houses 4'and 8. Closer examination of the data reveals that in Exterior Area 9, Feature 184 produced nine utilized flakes, one spokeshave, and a biface fragment, as well as a variety of debitage. Feature 185 accounts for five more utilized flakes and a projectile point fragment, as well as debitage.

In House 4, 20 and 21 utilized flakes were recovered from Features 24 and 38, respectively, both of which were semi-subterranean sweat lodges. This may be a reflection of the sheer volume of fill associated with these features, rather than an indicator of a specific disposal pattern. The 31 utilized flakes recovered from House 8 were fairly evenly distributed among the various interior features, although the wall trench produced a total of 11 specimens.

Finally, it should be noted that Feature 49 in House 3 yielded an incomplete projectile point, two bifaces, one uniface and 19 flakes as well as a copper-stained bone bipoint (Thomas [Worked Bone and Antler], this volume).

SUMMARY

The trends seen in the tool and debitage assemblage suggest a site which had reasonably secure access to high quality Onondaga chert sources, either directly or through trade. This is reflected in the overwhelming predominance of Onondaga chert in the assemblage (over 99.7 percent of the sample) and by the relative importance of bifacial tool manufacturing. At the same time, however, it is clear that this access carried with it a fairly high price, since considerable conservation of raw material is also indicated by the rarity of primary reduction, the predominance of expedient tools, the low frequency of bifacial nuclei, and the use of the bipolar technique to extend the production of useable flakes.

Overall, these trends seem consistent with the location of the Parsons site relative to chert sources in southern Ontario. While an earlier inference made by Ramsden (1977:281-282), that "the rather anomalous Parsons assemblage has distinct similarities to Neutral sites" in comparison with certain other, especially northern, Late Woodland assemblages, may be based on a valid observation, it now seems more likely that this is a function of distance decay in the purveyance of raw material among contemporaneous Late Woodland polities rather than evidence of culturally distinct ethnic populations.

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